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Cheng

(10) **Patent No.: US 11,377,874 B2**
(45) **Date of Patent: Jul. 5, 2022**

(54) **AUTO-LATCHING/LOCKING MORTISE LOCK FOR SLIDING DOOR**

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(72) Inventor: **Qianyan Cheng**, Sacramento, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 256 days.

(21) Appl. No.: **16/925,149**

(22) Filed: **Jul. 9, 2020**

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US 2021/0054663 A1 Feb. 25, 2021

Related U.S. Application Data

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(51) **Int. Cl.**

E05B 17/20	(2006.01)
E05B 65/08	(2006.01)
E05B 63/12	(2006.01)
E05B 63/08	(2006.01)
E05B 9/00	(2006.01)
E05B 9/02	(2006.01)
E05B 47/00	(2006.01)

(Continued)

(52) **U.S. Cl.**

CPC ***E05B 17/2026*** (2013.01); ***E05B 9/002*** (2013.01); ***E05B 9/02*** (2013.01); ***E05B 17/2003*** (2013.01); ***E05B 17/2007*** (2013.01); ***E05B 17/2088*** (2013.01); ***E05B 63/08*** (2013.01); ***E05B 63/12*** (2013.01); ***E05B 63/127*** (2013.01); ***E05B 65/087*** (2013.01); *E05B 15/04* (2013.01); *E05B 47/0002* (2013.01); *E05B 47/0012* (2013.01); *E05B 47/0607* (2013.01); *E05B 2047/0069* (2013.01); *E05Y 2900/132* (2013.01)

(58) **Field of Classification Search**

CPC ... E05B 9/00; E05B 9/002; E05B 9/02; E05B 15/04; E05B 17/20; E05B 17/2003; E05B 17/2026; E05B 17/2084; E05B 17/2088; E05B 47/0002; E05B 47/0012; E05B 47/0607; E05B 55/12; E05B 63/08; E05B 63/12; E05B 63/126; E05B 63/127; E05B 63/20; E05B 2063/207; E05B 65/08; E05B 65/0858; E05B 65/087

See application file for complete search history.

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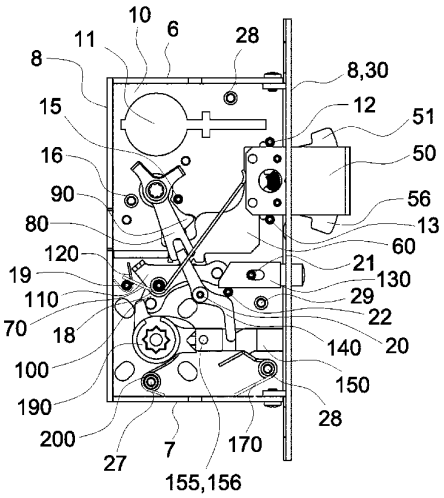
(57) **ABSTRACT**

Auto latching mortise lock for sliding door is a mortise lock for a sliding door. Auto latching mortise lock for sliding door is a system with interchangeable components to yield multiple types of door locks including sliding door locks that meet the ANSI and BHMA standards for a passage, office, communicating/patio, storeroom, privacy, entry, and classroom lock for a sliding door. Auto latching mortise lock for sliding door mounts within a mortise pocket of a sliding door. Auto latching mortise lock for sliding door can automatically latch when the sliding door in closed and automatically unlatch when the sliding door is opened. Auto latching mortise lock for sliding door can also automatically lock when the sliding door in closed and automatically unlock when the sliding door is opened.

25 Claims, 29 Drawing Sheets



(51) **Int. Cl.**
E05B 47/06 (2006.01)
E05B 15/04 (2006.01)

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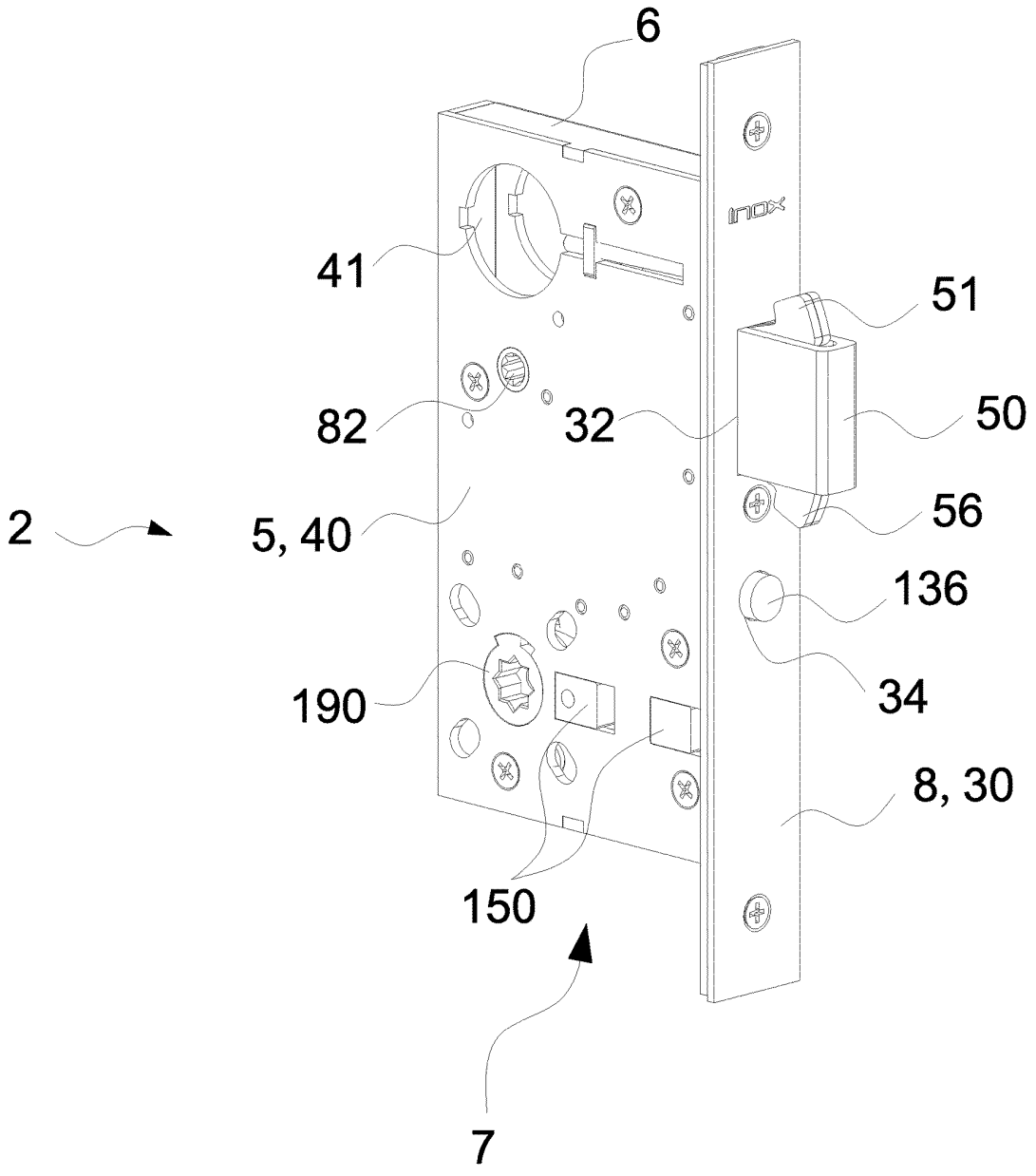

Fig.1

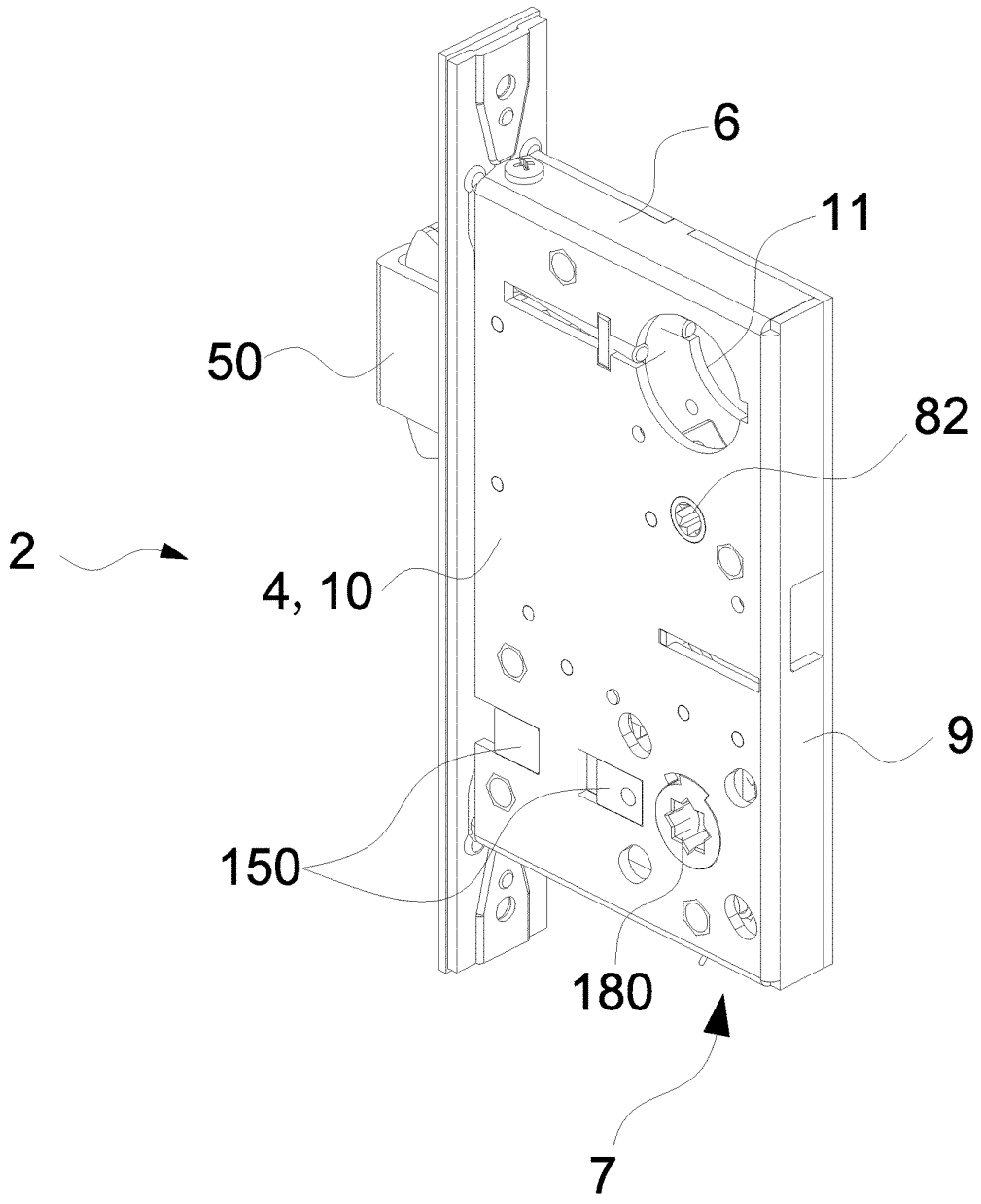

Fig.2

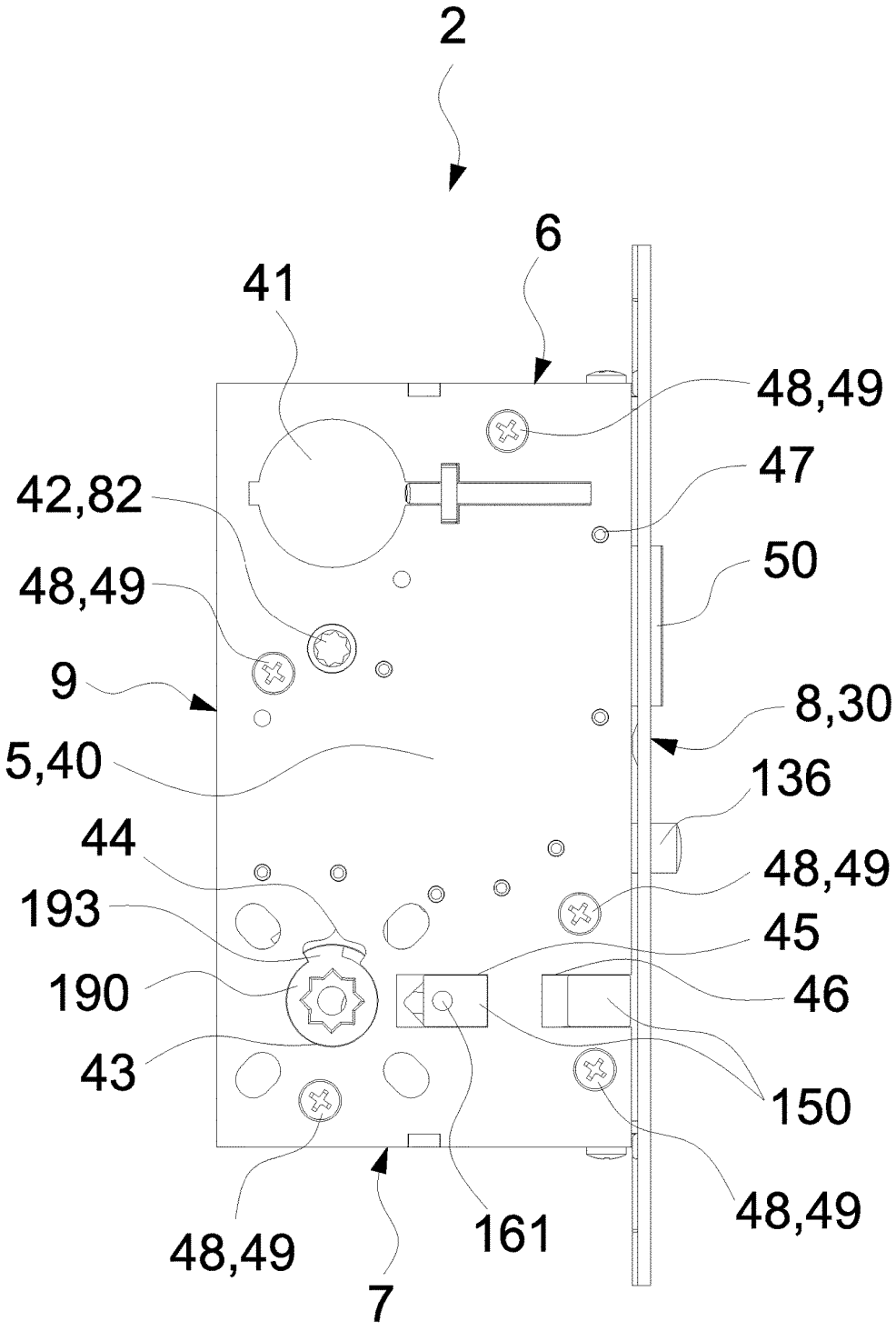
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Fig.3

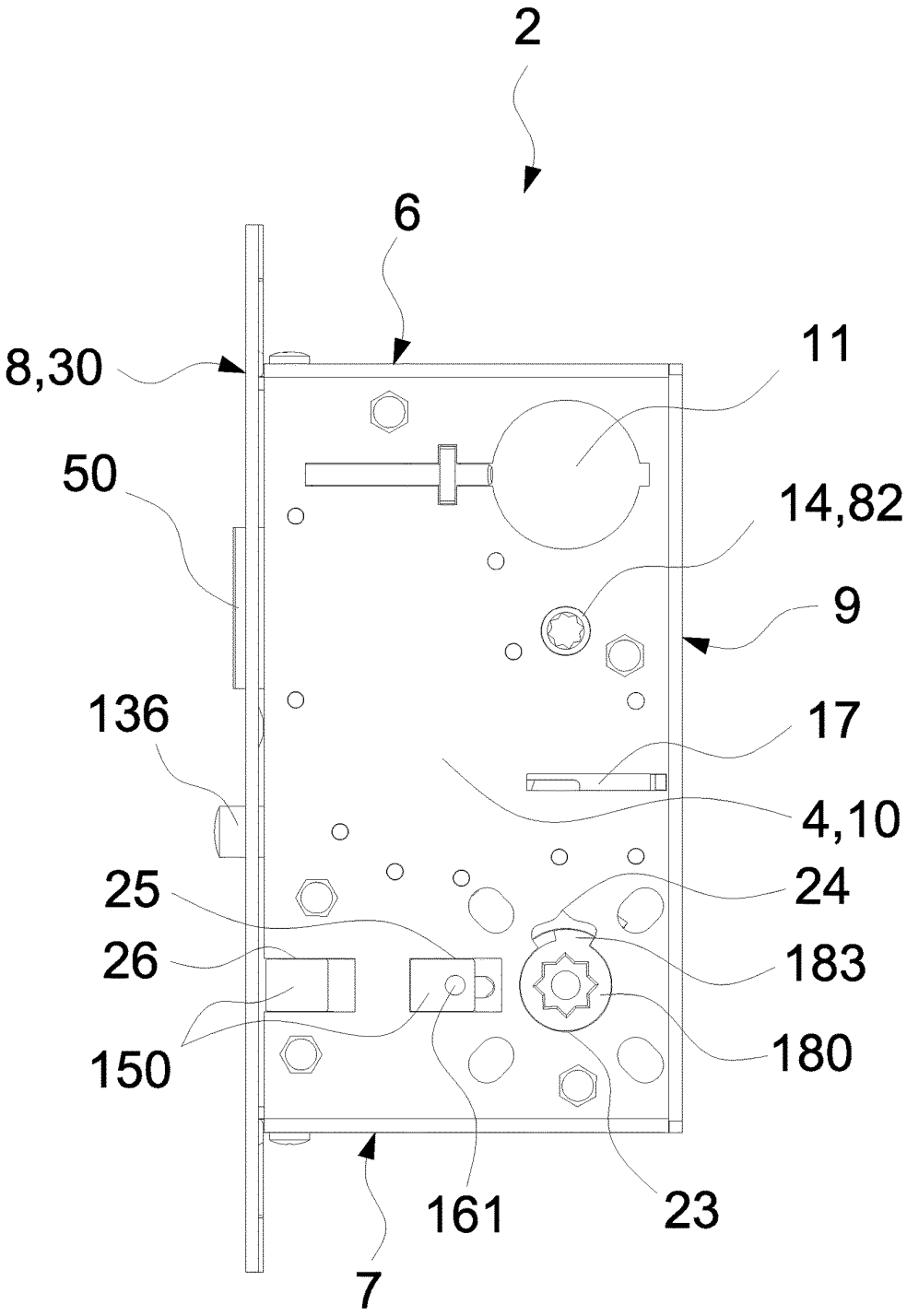

Fig.4

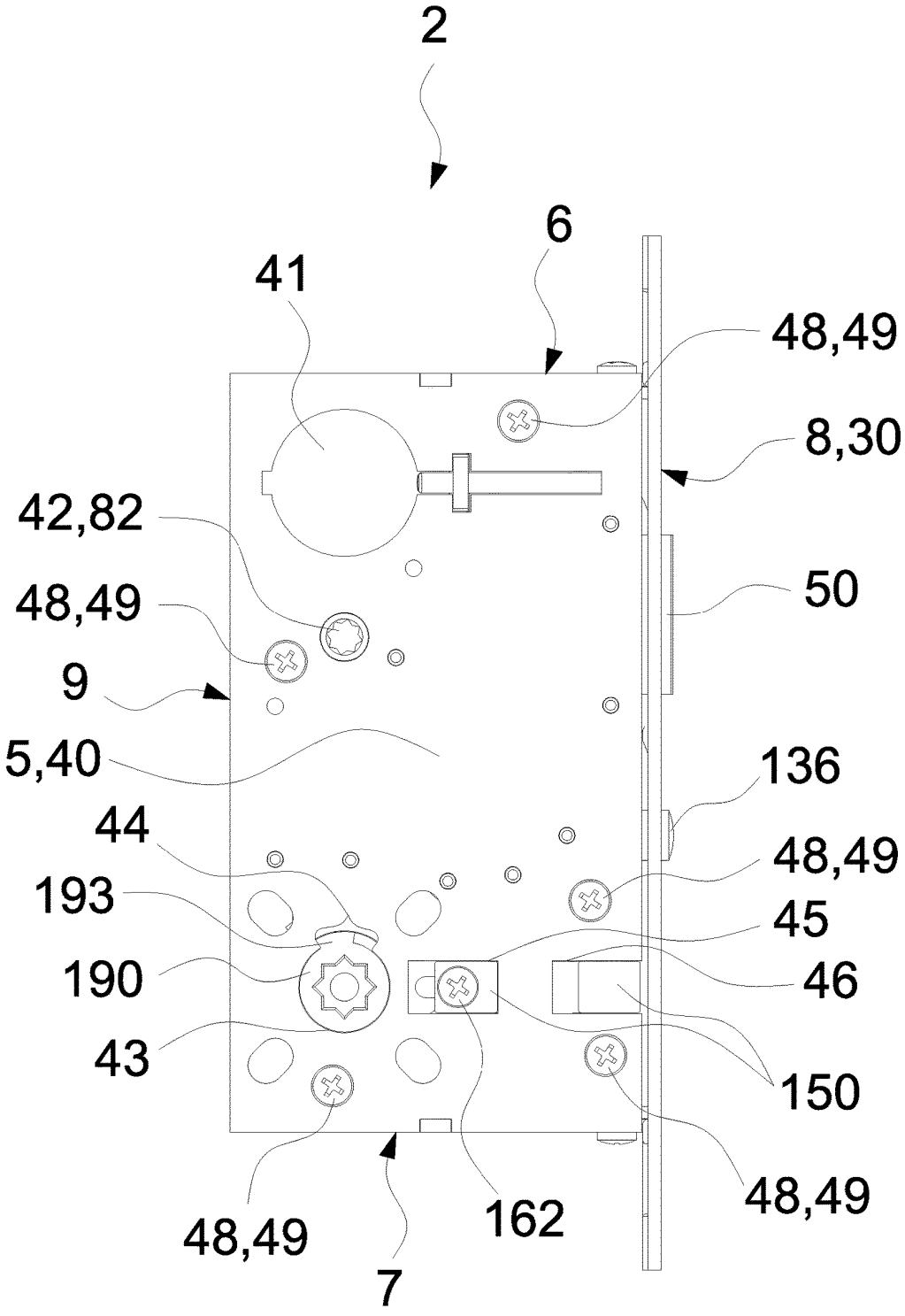
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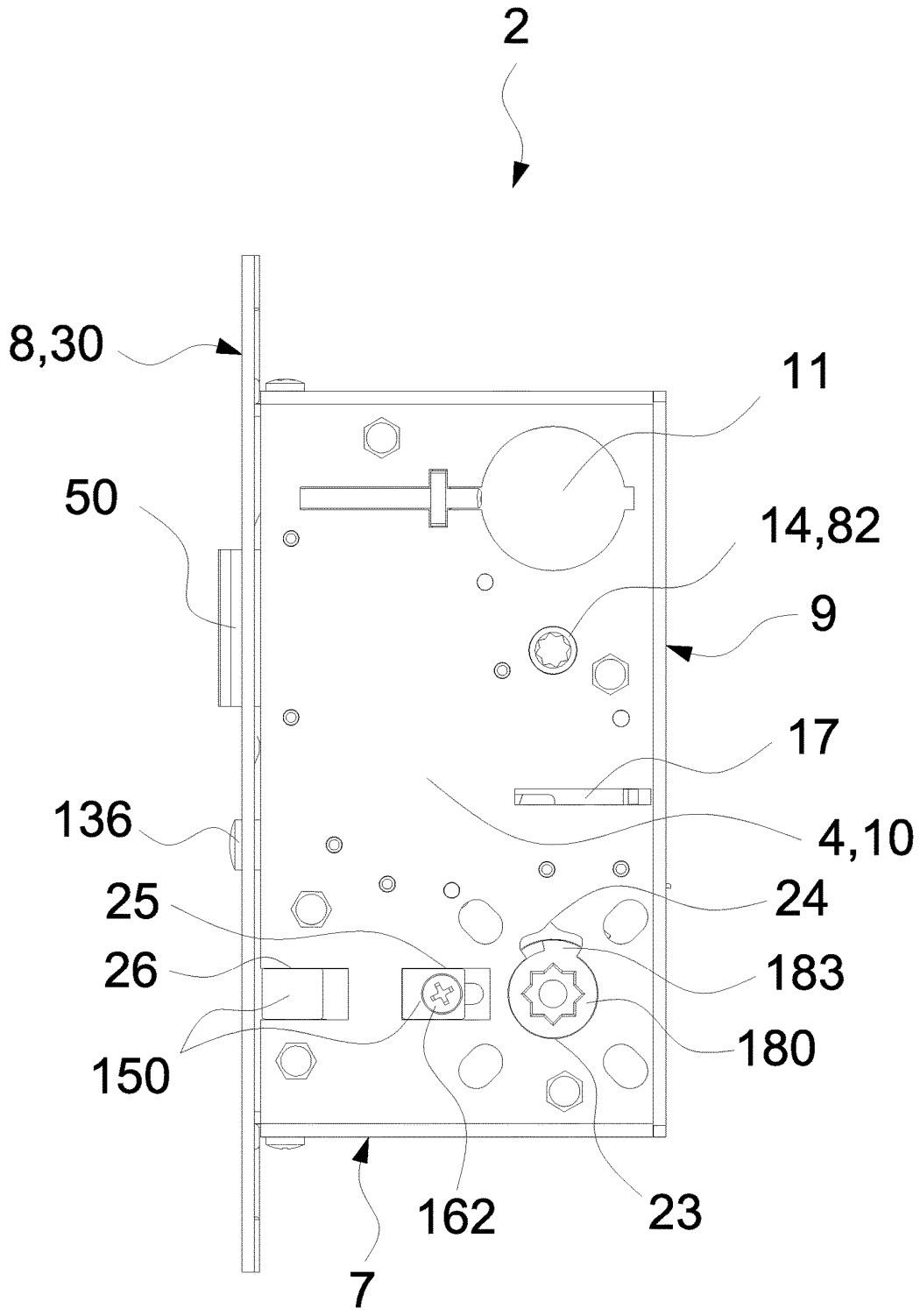
Fig.5



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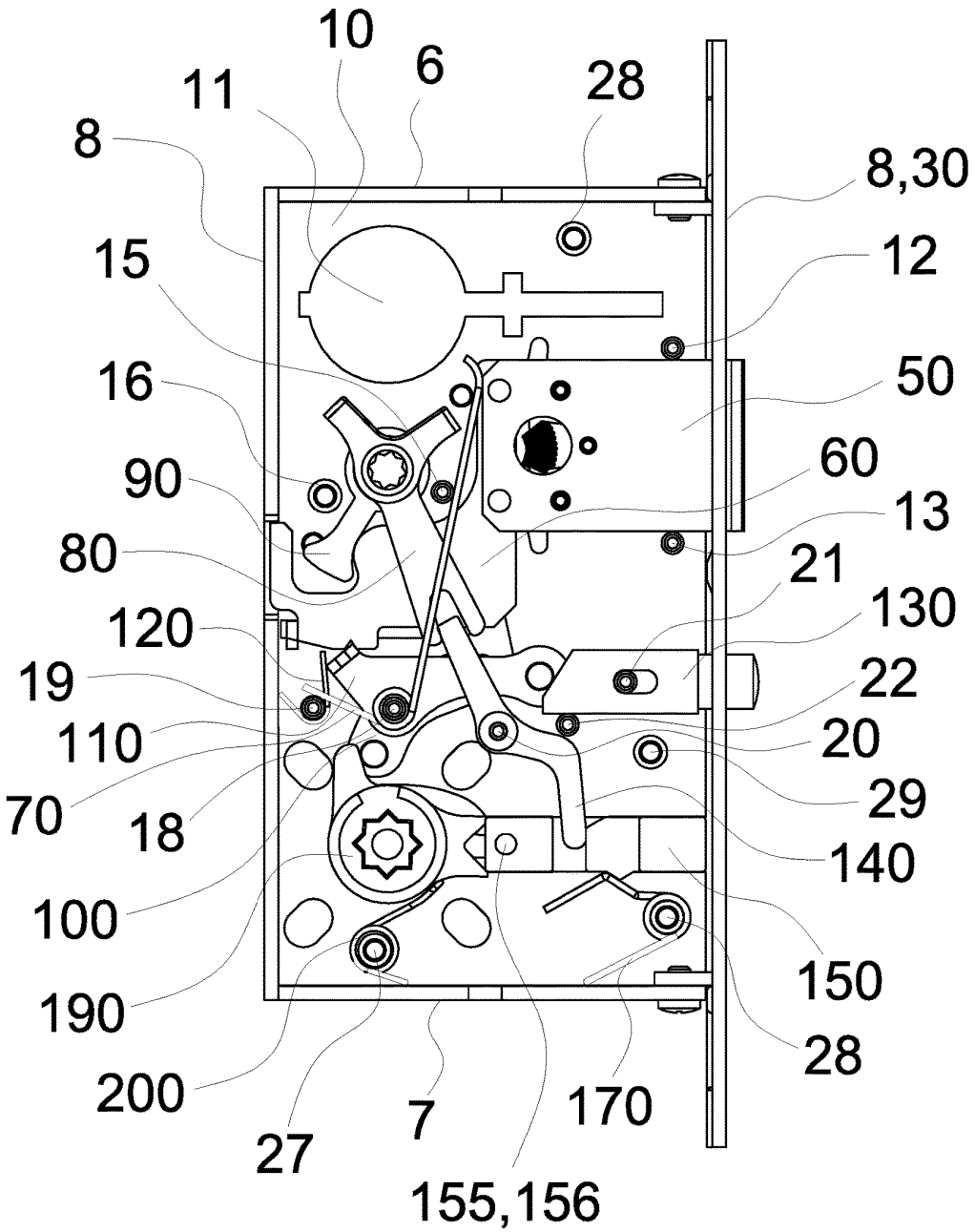
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Fig.7

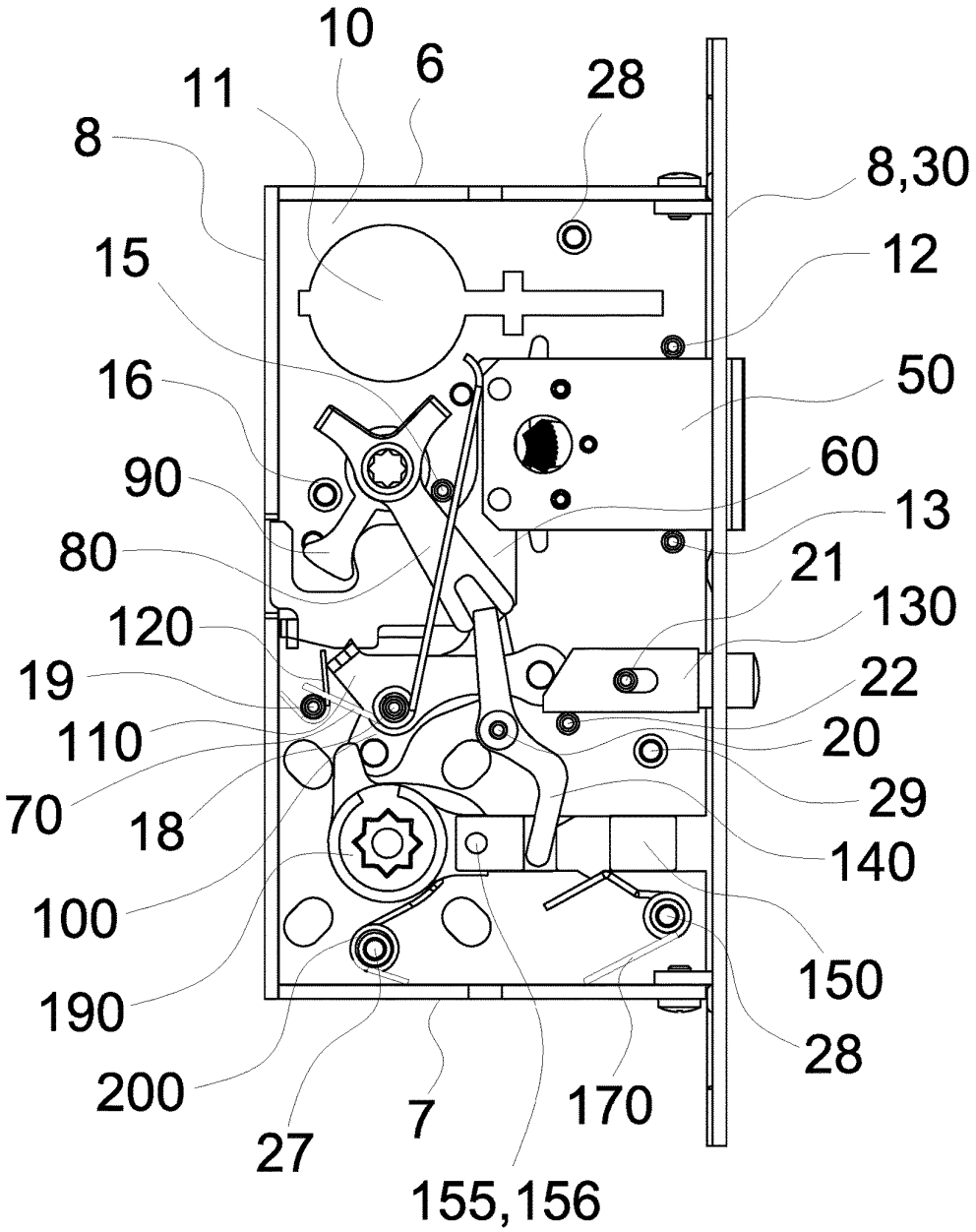
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Fig.7A

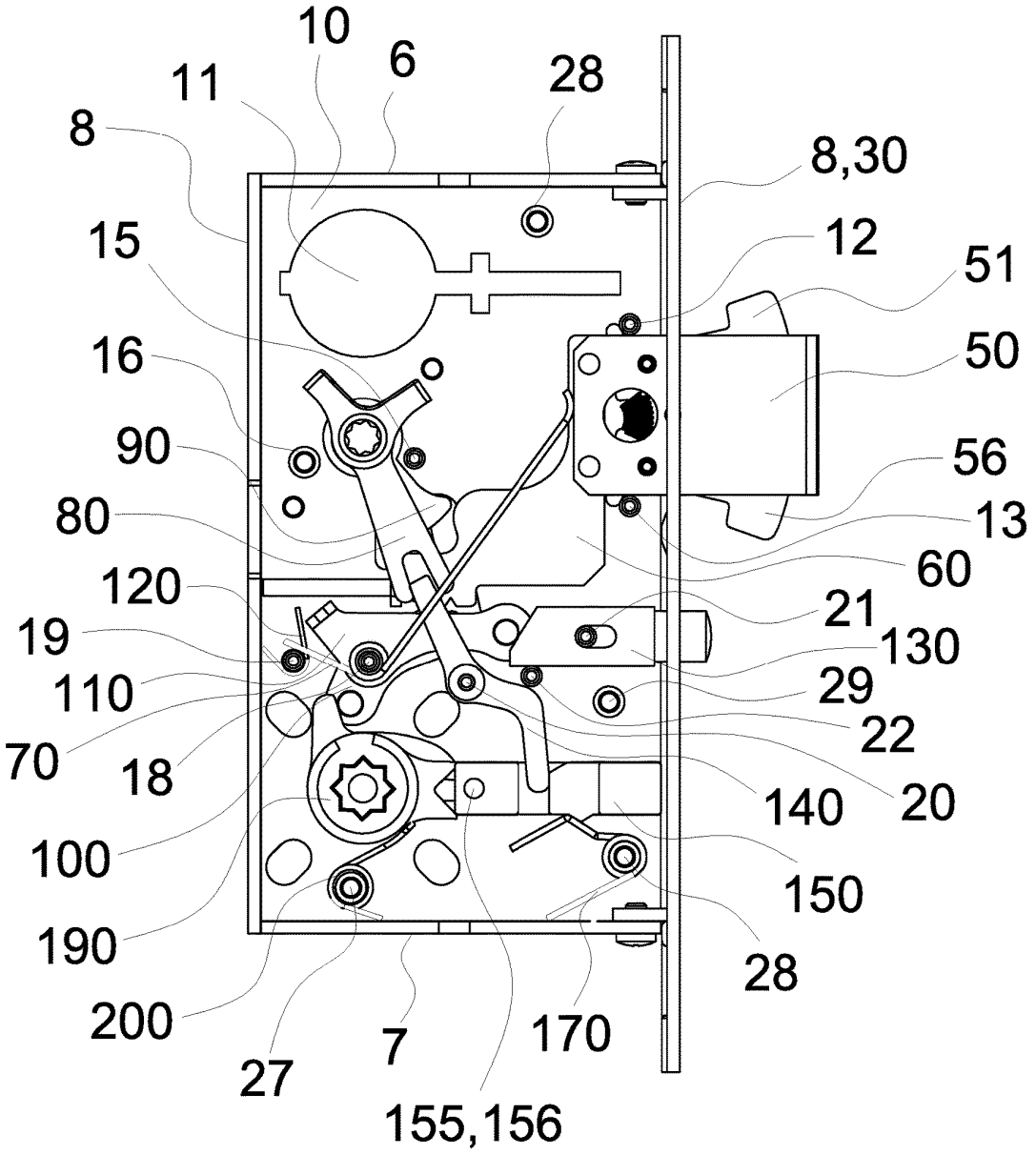
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Fig.8

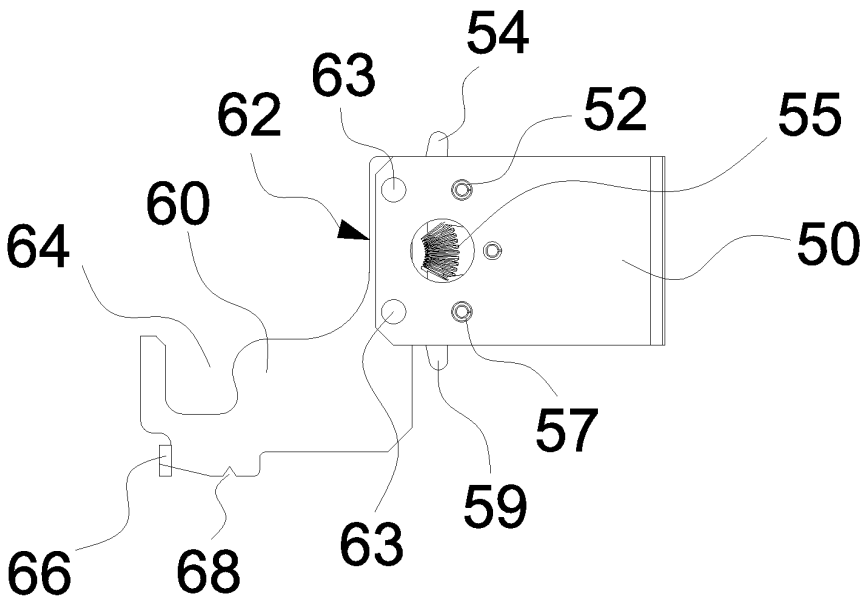
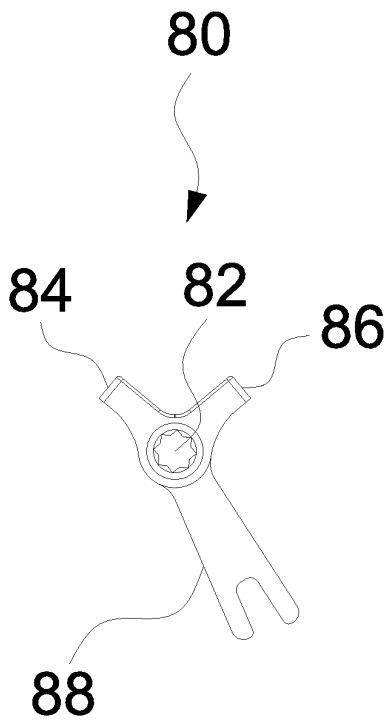


Fig.9



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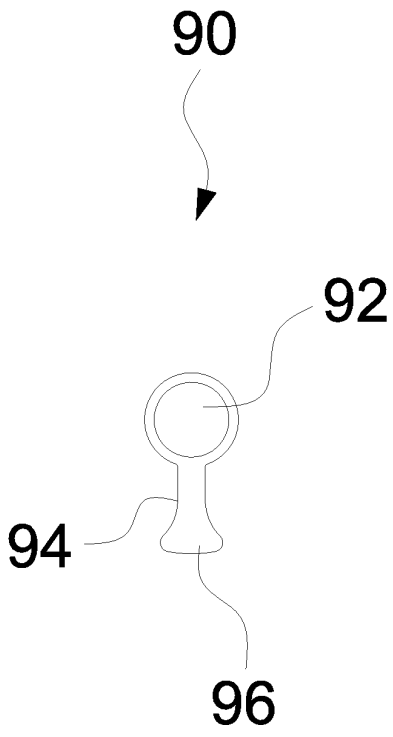

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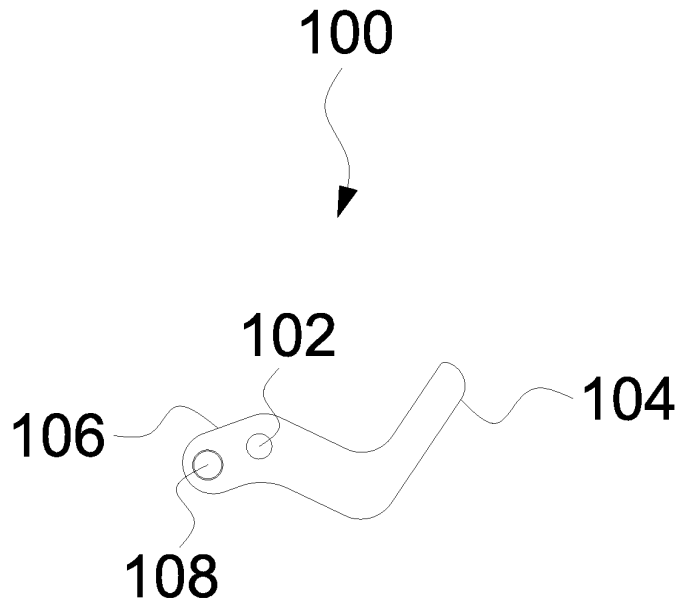

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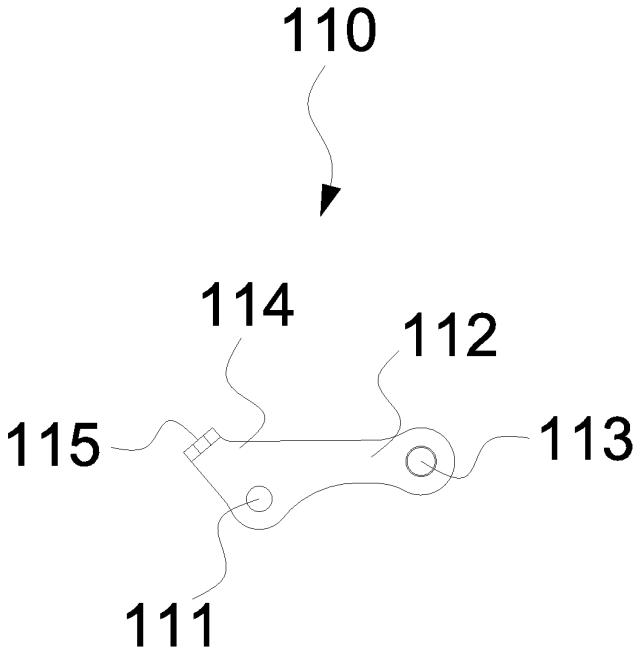

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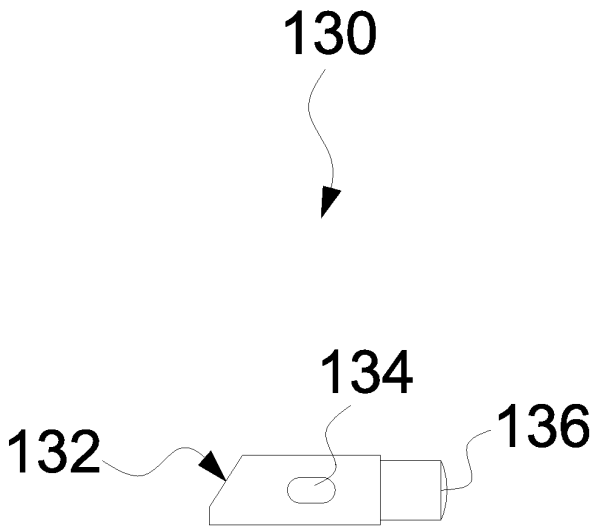

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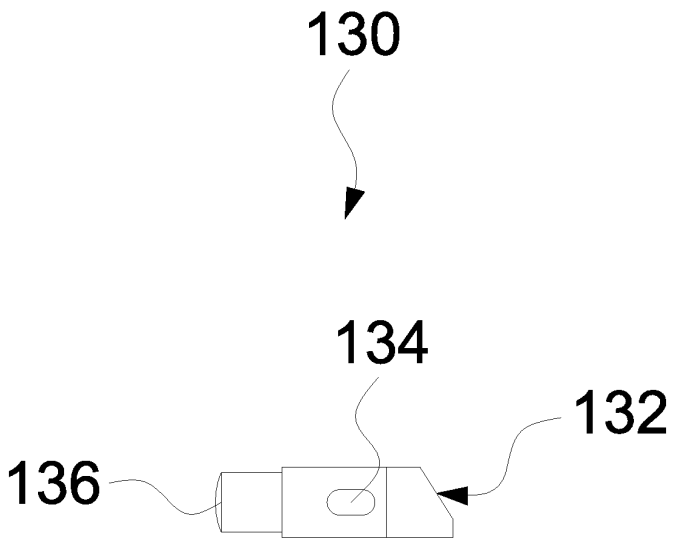

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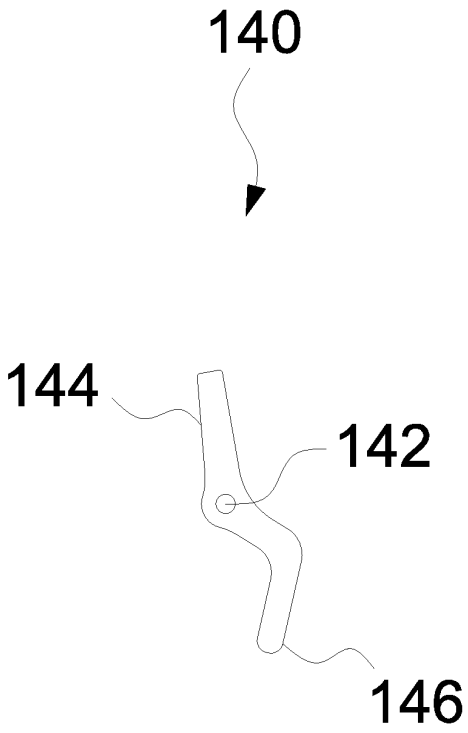

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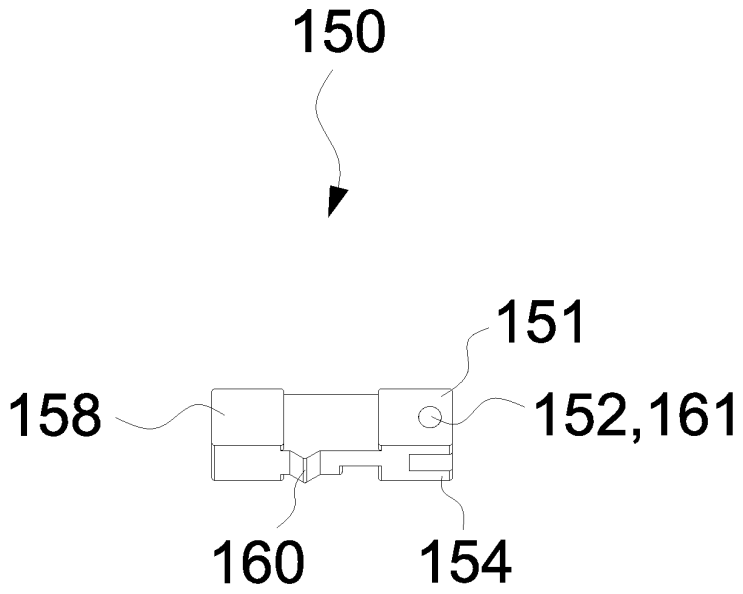
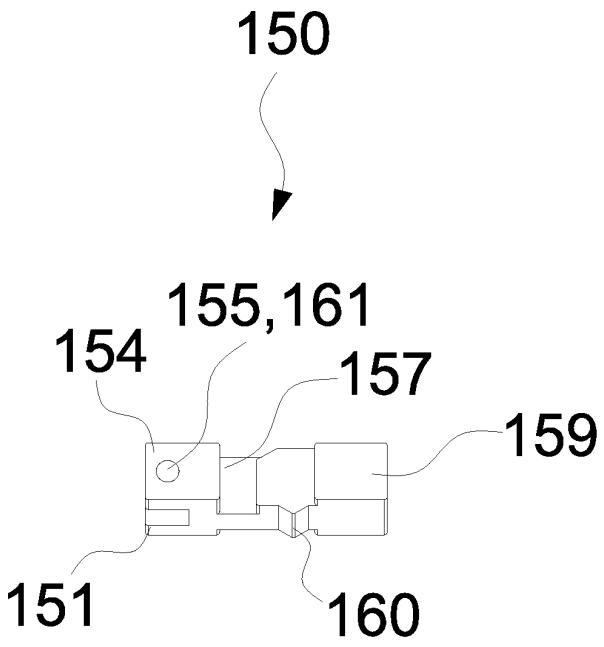


Fig.17



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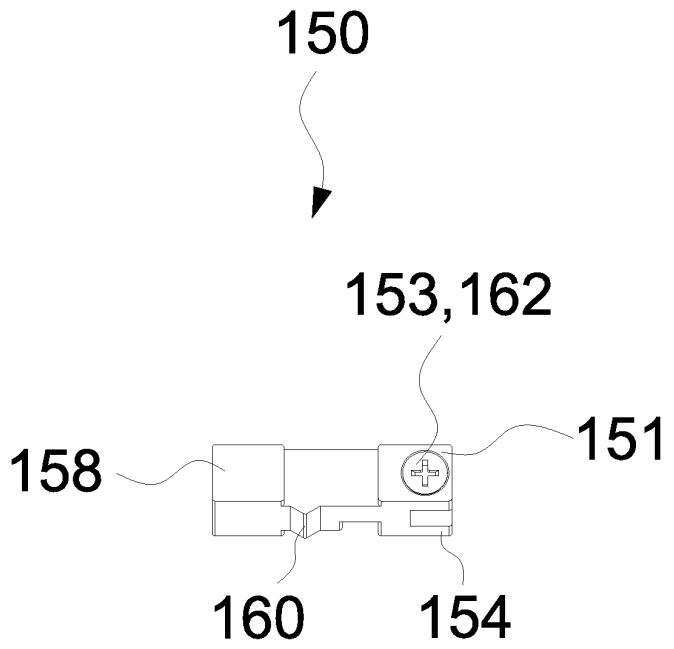

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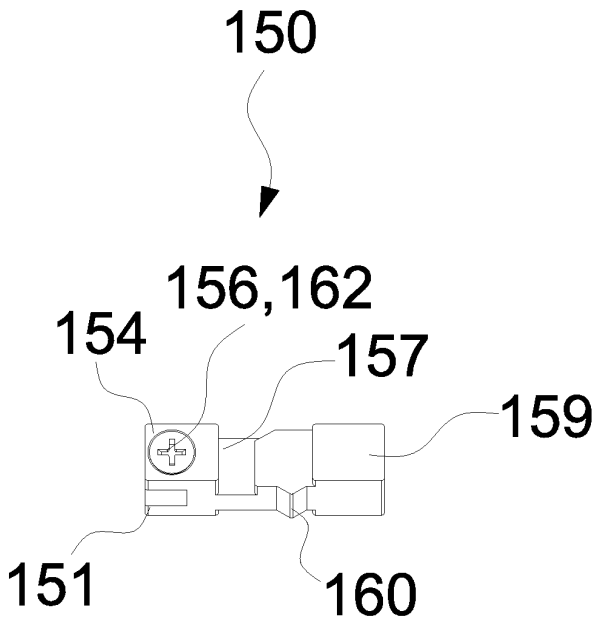


Fig.20

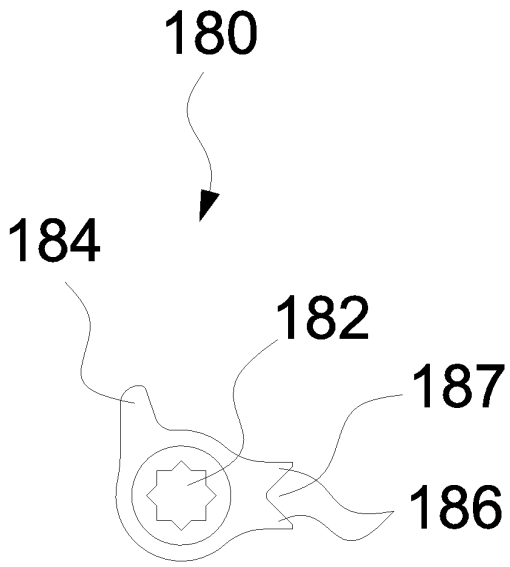
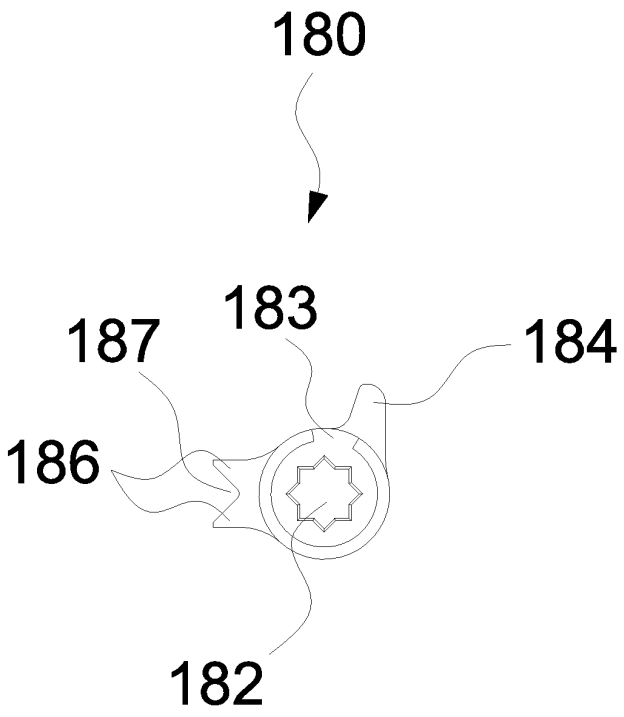


Fig.21



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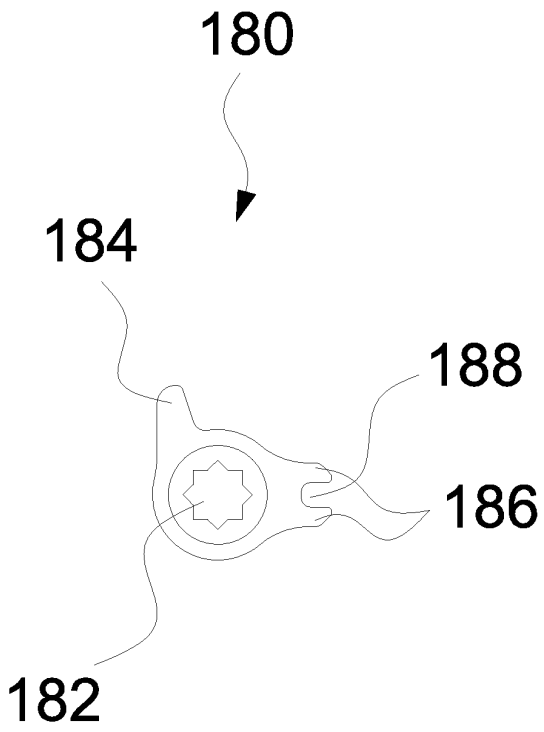
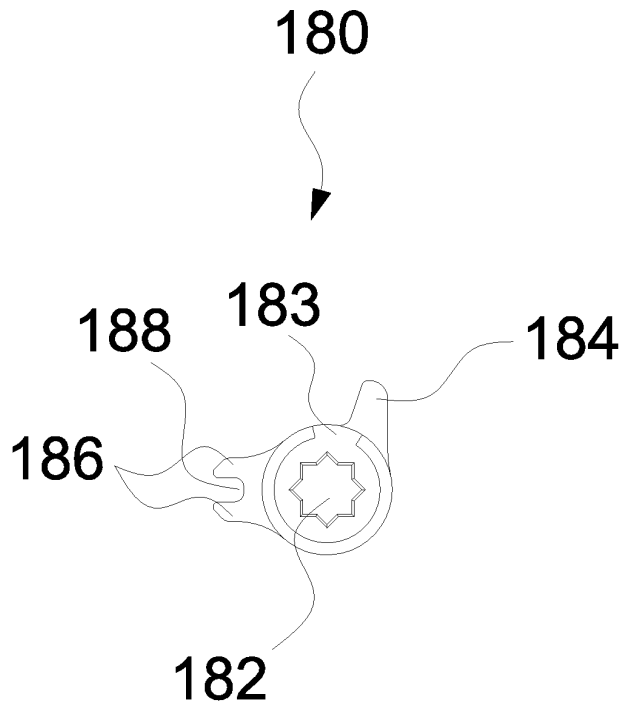


Fig.23



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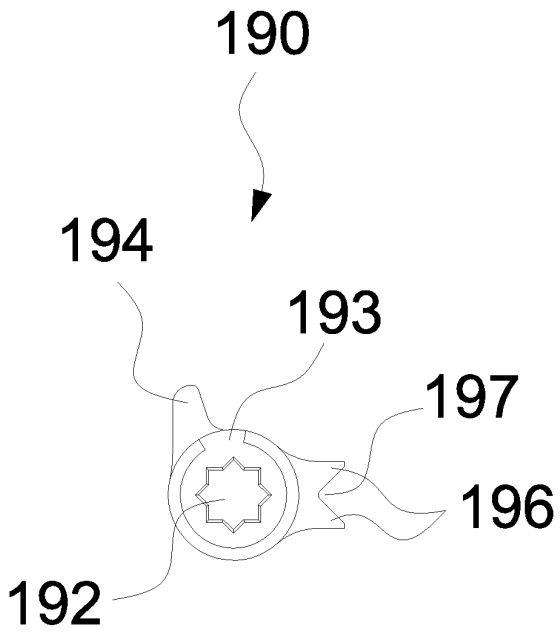

Fig.25

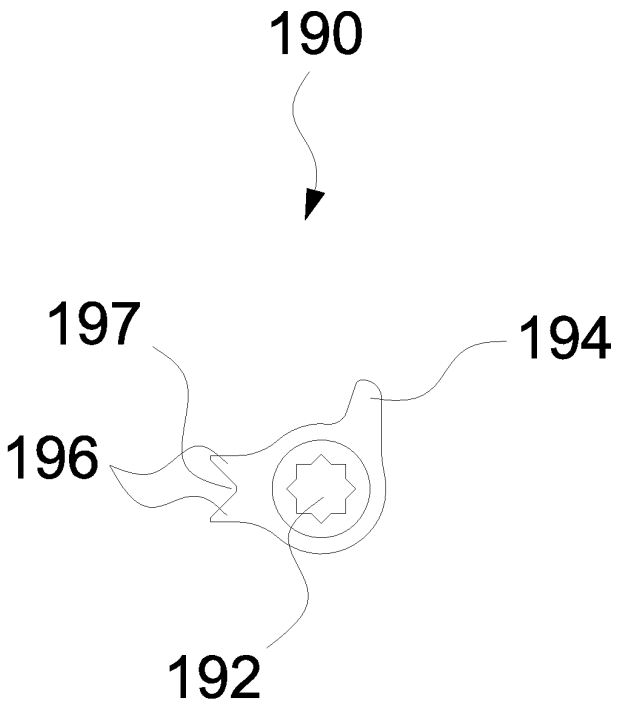

Fig.26

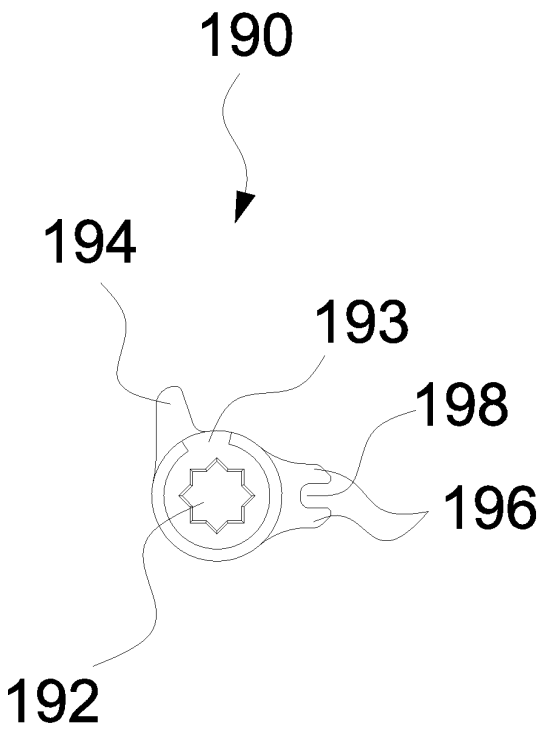

Fig.27

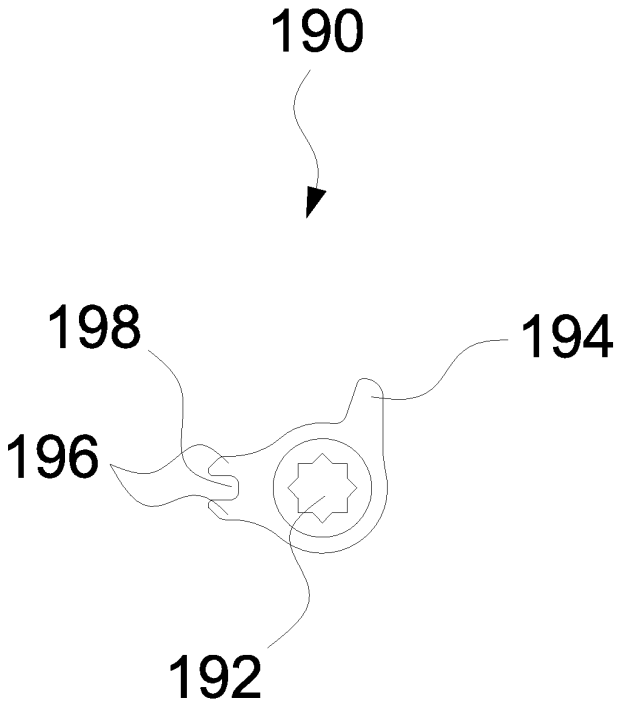

Fig.28

AUTO-LATCHING/LOCKING MORTISE LOCK FOR SLIDING DOOR

CROSS-REFERENCE TO RELATED APPLICATIONS

The instant application claims the benefit of Provisional Application Ser. No. 62/889,710 entitled "SLIDING/POCKET DOOR LOCK WITH ADVANCED FEATURES" filed on Aug. 21, 2019, which is hereby incorporated by reference herein.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a mortise lock or a mortise lockset for a sliding door. A mortise lockset is a lockset for a door that requires a pocket or a mortise to be cut into the edge of the door wherein a mortise lock is installed. A mortise lock set may be installed into a hinged door or a sliding door. Specifically, this invention relates to a mortise lock that is installed into a sliding door. The mortise lock of this invention is special because it has an automatic latching and unlatching mechanism along with an automatic locking and unlocking mechanism.

2. Description of Related Art

There are many mortise locksets in the prior art however there are none for a sliding door with the automatic latching, automatic unlatching, automatic locking, and automatic unlocking mechanisms as shown and described below.

Auto-latching/locking mortise lock for sliding door is a system with interchangeable components to yield multiple types of door locks. Auto-latching/locking mortise lock for sliding door is the first mortise lock system for a sliding door that meets the ANSI and BHMA standards for a passage, office, communicating/patio, storeroom, privacy, entry, and classroom door lock.

BRIEF SUMMARY OF THE INVENTION

Auto-latching/locking mortise lock for sliding door is a sliding door lock mechanism that is fully contained within a rectangular cuboid shaped casing or housing.

Auto-latching/locking mortise lock for sliding door is a system with interchangeable components to yield multiple types of door locks.

Auto-latching/locking mortise lock for sliding door can be configured to meet the ANSI and BHMA standards for a passage, office, communicating/patio, storeroom, privacy, entry, and classroom lock for a sliding door.

Auto-latching/locking mortise lock for sliding door mounts within a mortise pocket of a sliding door and engages with an inside door knob or lever on the inside of a room and engages with an outside door knob or lever on the outside of a room.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that automatically latches the sliding door when the sliding door is closed.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that automatically unlatches the sliding door when the inside door knob or door lever is turned.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that automatically unlatches the sliding door when the outside door knob or door lever is turned, with certain embodiments.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that keeps the sliding door latched when the outside door knob or door lever is turned, with certain embodiments.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that automatically locks the sliding door when the sliding door is closed.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that automatically unlocks the sliding door when the inside door knob or door lever is turned.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that automatically unlocks the sliding door when the outside door knob or door lever is turned, with certain embodiments.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a mechanism that keeps the sliding door locked when the outside door knob or door lever is turned, with certain embodiments.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a deadbolt that extends to latch and/or lock the sliding door and retracts to unlatch and/or unlock the sliding door.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a deadbolt with an upper deadbolt wing and a lower deadbolt wing wherein both extend or protrude from deadbolt to latch and/or lock the sliding door and both retract into deadbolt to unlatch and/or unlock the sliding door.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a bolt release actuator with a button that triggers the deadbolt from auto-latching/locking mortise lock for sliding door to extend to latch and/or lock the sliding door.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a bolt release actuator with a button that triggers the upper and lower deadbolt wings to extend from deadbolt to latch and/or lock the sliding door.

It is an aspect of auto-latching/locking mortise lock for sliding door to retract the deadbolt to unlatch and/or unlock the sliding door when the door knob or door lever is rotated, under certain conditions.

It is an aspect of auto-latching/locking mortise lock for sliding door to retract the upper and lower deadbolt wings to unlatch and/or unlock the sliding door when the door knob or door lever is rotated, under certain conditions.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a lock block that engages with inside and/or outside lever hub or knob hub to automatically lock and unlock the sliding door, with certain embodiments.

It is an aspect of auto-latching/locking mortise lock for sliding door to have a lock block that does not engages with inside and/or outside lever hub or knob hub to keep the sliding door locked, with certain embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front perspective view of auto-latching/locking mortise lock for sliding door.

FIG. **2** is a rear perspective view of auto-latching/locking mortise lock for sliding door.

FIG. **3** is a side elevation view of the second side of an embodiment of auto-latching/locking mortise lock for sliding door with lock block pins.

FIG. **4** is a side elevation view of the first side of an embodiment of auto-latching/locking mortise lock for sliding door with lock block pins.

FIG. **5** is a side elevation view of the second side of an embodiment of auto-latching/locking mortise lock for sliding door with lock block screws.

FIG. **6** is a side elevation view of the first side of an embodiment of auto-latching/locking mortise lock for sliding door with lock block screws.

FIG. **7** is a side elevation view of the second side of auto-latching/locking mortise lock for sliding door with the mortise housing cover plate removed, the deadbolt in the retracted position, and the lock block in the unlocked position.

FIG. **7**A is a side elevation view of the second side of auto-latching/locking mortise lock for sliding door with the mortise housing cover plate removed, the deadbolt in the retracted position, and the lock block in the locked position.

FIG. **8** is a side elevation view of the second side of auto-latching/locking mortise lock for sliding door with the mortise housing cover plate removed, the deadbolt in the extended position, and the lock block in the unlocked position.

FIG. **9** is an enlarged view of deadbolt and deadbolt shaft.

FIG. **10** is an enlarged view of T-turn hub.

FIG. **11** is an enlarged view of bolt retraction hub.

FIG. **12** is an enlarged view of bolt retraction lever.

FIG. **13** is an enlarged view of trigger lever.

FIG. **14** is an enlarged view of the second side of bolt release actuator.

FIG. **15** is an enlarged view of the first side of bolt release actuator.

FIG. **16** is an enlarged view of lock block lever.

FIG. **17** is an enlarged view of an embodiment of lock block with lock block pins.

FIG. **18** is an enlarged view of an embodiment of lock block with lock block pins.

FIG. **19** is an enlarged view of an embodiment of lock block with lock block screws.

FIG. **20** is an enlarged view of an embodiment of lock block with lock block screws.

FIG. **21** is an enlarged view of the second side of an embodiment of first lever hub with V-shaped notch.

FIG. **22** is an enlarged view of the first side of an embodiment of first lever hub with V-shaped notch.

FIG. **23** is an enlarged view of the second side of an embodiment of first lever hub with U-shaped notch.

FIG. **24** is an enlarged view of the first side of an embodiment of first lever hub with U-shaped notch.

FIG. **25** is an enlarged view of the second side of an embodiment of second lever hub with V-shaped notch.

FIG. **26** is an enlarged view of the first side of an embodiment of second lever hub with V-shaped notch.

FIG. **27** is an enlarged view of the second side of an embodiment of second lever hub with U-shaped notch.

FIG. **28** is an enlarged view of the first side of an embodiment of second lever hub with U-shaped notch.

DEFINITION LIST

Term	Definition
2	Auto-Latching/Locking Mortise Lock for Sliding Door
4	First Side of Mortise Lock
5	Second Side of Mortise Lock
6	Upper Side of Mortise Lock
7	Lower Side of Mortise Lock
8	Opening Side of Mortise Lock
9	Retracting Side of Mortise Lock
10	Mortise Housing Base
11	Lock Cylinder Mounting Hole
12	Upper Deadbolt Mounting Pin
13	Lower Deadbolt Mounting Pin
14	T-Turn Hub Mounting Hole on Mortise Housing Base
15	T-Turn Hub Stop Pin
16	T-Turn Hub Support Pillar
17	Deadbolt Shaft Slot Track
18	Trigger Lever and Bolt Retraction Lever Pivot Pin
19	Trigger Lever Spring Pivot Pin
20	Lock Block Lever Pivot Pin
21	Bolt Release Actuator Slot Track Pin
22	Bolt Release Actuator Mounting Pin
23	Lever Hub Mounting Hole on Mortise Housing Base
24	Key Notch on Lever Hub Mounting Hole
25	Retracting Side Lock Block Slot Track on Mortise Housing Base
26	Opening Side Lock Block Slot Track on Mortise Housing Base
27	Lever Hub Spring Pivot Support Pillar
28	Lock Block Spring Pivot Support Pillar
29	Other Support Pillar
30	Mortise Housing Face Plate
32	Deadbolt Clearance Hole in Mortise Housing Face Plate
34	Button Clearance Hole in Mortise Housing Face Plate
36	Upper Tab Flange
38	Lower Tab Flange
39	Female Threaded or Tapped Hole
40	Mortise Housing Cover Plate
41	Lock Cylinder Mounting Hole in Mortise Housing Cover Plate
42	T-Turn Hub Mounting Hole in Mortise Housing Cover Plate
43	Lever Hub Mounting Hole in Mortise Housing Cover Plate
44	Key Notch on Lever Hub Mounting Hole
45	Retracting Side Lock Block Slot Track in Mortise Housing Cover Plate
46	Opening Side Lock Block Slot Track in Mortise Housing Cover Plate
47	Pin Mounting Hole in Mortise Housing Cover Plate
48	Screw Hole in Mortise Housing Cover Plate
49	Mortise Housing Screw
50	Deadbolt
51	Upper Deadbolt Wing
52	Upper Deadbolt Wing Pivot Pin
53	Upper Deadbolt Wing Latch Protrusion
54	Upper Deadbolt Wing Heel Protrusion
55	Deadbolt Wing Spring
56	Lower Deadbolt Wing
57	Lower Deadbolt Wing Pivot Pin
58	Lower Deadbolt Wing Latch Protrusion
59	Lower Deadbolt Wing Heel Protrusion
60	Deadbolt Shaft
62	Deadbolt Attachment Arm on Deadbolt Shaft
63	Deadbolt Attachment Pin on Deadbolt Shaft
64	Pendulum Arm Pocket in Deadbolt Shaft
66	Tab on Deadbolt Shaft
68	Trigger Lever Notch on Deadbolt Shaft
70	Deadbolt Spring
80	T-Turn Hub
82	Socket on T-Turn Hub
84	First Lock Cylinder Catch Arm
86	Second Lock Cylinder Catch Arm
88	Fork Arm on T-Turn Hub
90	Bolt Retraction Hub
92	Socket on Bolt Retraction Hub
94	Pendulum Arm
96	Head on Pendulum Arm
100	Bolt Retraction Lever
102	Pivot Hole on Bolt Retraction Lever
104	Upper Arm on Bolt Retraction Lever
106	Lower Arm on Bolt Retraction Lever
108	Pin on Lower Arm of Bolt Retraction Lever
110	Trigger Lever
111	Pivot Hole on Trigger Lever
112	First Arm on Trigger Lever
113	Pin on First Arm of Trigger Lever

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Term	Definition
114	Second Arm on Trigger Lever
115	Catch Tab on Second Arm of Trigger Lever
120	Trigger Lever Spring
130	Bolt Release Actuator
132	Cam Surface on Bolt Release Actuator
134	Slot Track on Bolt Release Actuator
136	Button on Bolt Release Actuator
140	Lock Block Lever
142	Pivot Hole on Lock Block Lever
144	Upper Arm on Lock Block Lever
146	Lower Arm on Lock Block Lever
150	Lock Block
151	First Tab on Lock Block
152	Pin Hole on First Tab
153	Screw Hole on First Tab
154	Second Tab on Lock Block
155	Pin Hole on Second Tab
156	Screw Hole on Second Tab
157	Lock Block Lever Pocket
158	First Heel on Lock Block
159	Second Heel on Lock Block
160	Spring Ridge
161	Lock Block Pin
162	Lock Block Screw
170	Lock Block Spring
180	First Lever Hub
182	Socket on First Lever Hub
183	Key Tab on First Lever Hub
184	Bolt Retraction Arm on First Lever Hub
186	Lock Block Arm on First Lever Hub
187	V-shaped notch on First Lever Hub
188	U-shaped notch on First Lever Hub
190	Second Lever Hub
192	Socket on Second Lever Hub
193	Key Tab on Second Lever Hub
194	Bolt Retraction Arm on Second Lever Hub
196	Lock Block Arm on Second Lever Hub
197	V-shaped notch on Second Lever Hub
198	U-shaped notch on Second Lever Hub
200	Lever Hub Spring

DETAILED DESCRIPTION OF THE INVENTION

Auto-latching/locking mortise lock for sliding door **2** is a component of or a portion of a mortise lockset. A mortise lockset is a lockset for a door that requires a pocket or mortise to be cut into the edge of the door wherein a mortise lock is installed. A mortise lock set may be installed in a hinged door or a sliding door. A mortise lockset comprises: a mortise lock; a face plate (not depicted); a spindle (not depicted); two knobs (not depicted) or two levers (not depicted); and a strike plate (not depicted). All components of a mortise lockset are usually sold together as a set or kit. The mortise lock, spindle, two knobs or two levers, and face plate are installed into the door (not depicted). The strike plate is installed in the door jamb (not depicted) or wall (not depicted).

Auto-latching/locking mortise lock for sliding door **2** is a mortise lock that is installed into a sliding door (not depicted). Auto-latching/locking mortise lock for sliding door **2** is a complicated series of mechanical actions encased within a rigid rectangular cuboid shaped case or housing that is installed within the pocket or mortise of a sliding door. A sliding door is any type of door that slides left or right to open and close rather than pivot or rotate to open or close. A sliding door could be a barn door, patio door, French door, pocket door, or any other type of sliding door.

Auto-latching/locking mortise lock for sliding door **2** is special because it allows the sliding door to automatically latch with a deadbolt **50** when the sliding door is closed and automatically unlatch or retract deadbolt **50**, when a door knob or door lever is turned, under certain conditions, as described below. Additionally, auto-latching/locking mortise lock for sliding door **2** is special because it allows the sliding door to automatically lock the deadbolt **50** when the sliding door is closed, under certain conditions, as described below, and automatically unlock the deadbolt **50**, when a door knob or door lever is turned, under certain conditions, as described below. Hence, auto-latching/locking mortise lock for sliding door **2** has automatic latching and automatic unlatching mechanisms along with automatic locking and automatic unlocking mechanisms.

A sliding door has a width, a length, and a thickness. A sliding door has a vertical axis running parallel to its length dimension and a horizontal axis running parallel to its width dimension. A sliding door has an inward side, an outward side, an upper side, a lower side, an opening side, and a retracting side. The inward side of the sliding door is the large vertical side or panel side of the sliding door that is adjacent to the interior of the room. The outward side of the sliding door is the large vertical side or panel side of the sliding door that is adjacent to the exterior of the room. The upper side of the sliding door is the horizontal side or edge of the door that is most proximate to the ceiling of the room. The lower side of the sliding door is the horizontal side or edge of the door that is most proximate to the floor of the building. The opening side of the sliding door is the vertical side or edge of the door that parts or slides open to allow passage through the doorway and slides closed to disallow passage through the doorway. The retracting side of the sliding door is the vertical side or edge of the door that is opposite from the opening side of the sliding door. A sliding door may be installed so that it slides open in the left direction or slides open to in right direction.

Mortise housing base **10**, mortise housing face plate **30**, and mortise housing cover plate **40** are attached together, as discussed below, to form a rigid hollow box shaped member or a rectangular cuboid shaped case or housing that encases and holds all other components of auto-latching/locking mortise lock for sliding door **2**, as depicted in FIGS. **1** and **2**. The rigid hollow box shaped member or rectangular cuboid shaped case or housing has a width, a length, and a thickness. The rigid hollow box shaped member or rectangular cuboid shaped case or housing has a vertical axis running parallel to its length dimension and a horizontal axis running parallel to its width dimension. The rigid hollow box shaped member or rectangular cuboid shaped case or housing is installed within a pocket or mortise cut into opening side of the sliding door. The rigid hollow box shaped member or rectangular cuboid shaped case or housing is installed with its vertical axis running vertically and parallel with the vertical axis of the sliding door and its horizontal axis running horizontally and parallel with the horizontal axis of the sliding door. The rigid hollow box shaped member or rectangular cuboid shaped case or housing contains a complicated assembly of various mechanical actions that control the mortise lockset and allow the mortise lockset to function. The complicated assembly of mechanical actions causes the deadbolt **50** and button **136** to protrude and retract from mortise housing base **10** at various times during operation of the mortise lockset.

The rigid hollow box shaped member or rectangular cuboid shaped case or housing has a first side **4**, a second side **5**, an upper side **6**, a lower side **7**, an opening side **8**, and a retracting side **9**. First side **4** and second side **5** are the two large vertical sides of auto-latching/locking mortise lock for

sliding door **2** that are parallel with the inward side and the outward side of the sliding door. Auto-latching/locking mortise lock for sliding door **2** may be installed with its first side **4** adjacent to the inward side or the outward side of the sliding door. As discussed below, this allows for a single embodiment of auto-latching/locking mortise lock for sliding door **2** to be installed in either a "left opening" sliding door or a "right opening" sliding door. The upper side **6** is the horizontal side of auto-latching/locking mortise lock for sliding door **2** that is most proximate to the ceiling of the room with auto-latching/locking mortise lock for sliding door **2** installed in the sliding door. The lower side **7** is the horizontal side of auto-latching/locking mortise lock for sliding door **2** that is most proximate to the floor of the room with auto-latching/locking mortise lock for sliding door **2** installed in the sliding door. The opening side **8** is the vertical side of auto-latching/locking mortise lock for sliding door **2** that aligns with or is flush with the opening side of the sliding door with auto-latching/locking mortise lock for sliding door **2** installed in the sliding door. As discussed below, opening side **8** of auto-latching/locking mortise lock for sliding door **2** butts up against or contacts the door jamb or wall when the sliding door is closed and deadbolt **50** and button **136** protrude and retract from opening side **8**. The retracting side **9** is the vertical side of auto-latching/locking mortise lock for sliding door **2** that is opposite from the opening side **8** and deepest in the a pocket or mortise of the sliding door into which the auto-latching/locking mortise lock for sliding door **2** is installed. This convention or system of naming sides and edges is carried on throughout this application.

Auto-latching/locking mortise lock for sliding door **2** comprises: a mortise housing base **10**; a mortise housing face plate **30**; a mortise housing cover plate **40**; a plurality of mortise housing screws **49**; a deadbolt **50**; a deadbolt shaft **60**; a deadbolt spring **70**; a T-turn hub **80**; a bolt retraction hub **90**; a bolt retraction lever **100**; a trigger lever **110**; a trigger lever spring **120**; a bolt release actuator **130**; a lock block lever **140**; a lock block **150**; a lock block spring **170**; a first lever hub **180**; a second lever hub **190**; and a lever hub spring **200**.

Mortise housing base **10** comprises: a first side, an upper side, a lower side, and a retracting side. Mortise housing base **10** is rigid hollow four-sided rectangular cuboid or box-shaped member with two missing sides. First side of mortise housing base **10** is the first side **4** of auto-latching/locking mortise lock for sliding door **2**. First side of mortise housing base **10** is a rigid rectangular planar member with a length, a width, an inside surface, an outside surface, an upper edge, a lower edge, an opening edge, and a retracting edge. The width of first side of mortise housing base **10** is about 2-6 inches. The length of first side of mortise housing base **10** is about 4-8 inches. Upper side of mortise housing base **10** is the upper side **6** of auto-latching/locking mortise lock for sliding door **2**. Upper side of mortise housing base **10** is a rigid rectangular planar member with a length, a width, an inside surface, an outside surface, a first edge, a second edge, an opening edge, and a retracting edge. The width of upper side of mortise housing base **10** is about 0.25 to 2.5 inches. The length of upper side is equal to the width of first side. Lower side of mortise housing base **10** is the lower side **7** of auto-latching/locking mortise lock for sliding door **2**. Lower side of mortise housing base **10** is a rigid rectangular planar member with a length, a width, an inside surface, an outside surface, a first edge, a second edge, an opening edge, and a retracting edge. The width of lower side of mortise housing base **10** is about 0.25 to 2.5 inches and equal to that of the upper side. The length of lower side is equal to the width of first side. Retracting side of mortise housing base **10** is the retracting side **9** of auto-latching/locking mortise lock for sliding door **2**. Retracting side of mortise housing base **10** is a rigid rectangular planar member with a length, a width, an inside surface, an outside surface, a first edge, a second edge, an upper edge, and a lower edge. The width of retracting side of mortise housing base **10** is about 0.25 to 2.5 inches and equal to that of the upper side. The length of retracting side is equal to the length of first side. Mortise housing base **10** may be made of any known material such as: metal, steel, aluminum, plastic, composite, wood, fiberglass, ceramic, or any other known material.

The upper edge of the first side is rigidly attached to the first edge of upper side so that these members are perpendicular to each other and the opening edge of the first side aligns with the opening edge of the upper side and the retracting edge of the first side aligns with the retracting edge of the upper side. Rigid attachment may be accomplished by any known means such as: brake bending, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, the first side and the upper side of mortise housing base **10** are made from the same sheet of rigid material that is brake bent at ninety degrees to form the first side. The lower edge of the first side is rigidly attached to the first edge of lower side so that these members are perpendicular to each other and the opening edge of the first side aligns with the opening edge of the lower side and the retracting edge of the first side aligns with the retracting edge of the lower side. Rigid attachment may be accomplished by any known means such as: brake bending, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, the lower side and the first side of mortise housing base **10** are made from the same sheet of rigid material that is brake bent at ninety degrees to form the lower side. The retracting edge of the first side is rigidly attached to the first side of retracting side so that these members are perpendicular to each other and the upper edge of the first side aligns with the upper edge of the retracting side and the lower edge of the first side aligns with the lower edge of the retracting side. Rigid attachment may be accomplished by any known means such as: brake bending, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, the retracting side and the first side of mortise housing base **10** are made from the same sheet of rigid material that is brake bent at ninety degrees to form the retracting side.

The first side of mortise housing base **10** contains a plurality structures that are used to mount and retain the various components of auto-latching/locking mortise lock for sliding door **2** as discussed below. The first side of mortise housing base **10** comprises: a lock cylinder mounting hole **11**; an upper deadbolt mounting pin **12**; a lower deadbolt mounting pin **13**; a T-turn hub mounting hole **14**; a T-turn hub stop pin **15**; a T-turn hub support pillar **16**; a deadbolt shaft slot track **17**; a trigger lever and bolt retraction lever pivot pin **18**; a trigger lever spring pivot pin **19**; a lock block lever pivot pin **20**; a bolt release actuator slot track pin **21**; a bolt release actuator mounting pin **22**; a lever hub mounting hole **23**; a retracting side lock block slot track **25**; a opening side lock block slot track **26**; a lever hub spring pivot support pillar **27**; and a lock block spring pivot support pillar **28**.

Lock cylinder mounting hole **11** is a circular hole in the first side of mortise housing base **10**. Lock cylinder mount-

ing hole **11** has a diameter of about 0.5 to 2 inches. Lock cylinder mounting hole **11** is located in the corner of the first side of mortise housing base **10** adjacent to the upper edge and the retracting edge of the first side of mortise housing base **10**. Lock cylinder mounting hole **11** in mortise housing base **10** and lock cylinder mounting hole **41** in mortise housing cover plate **40** function to receive, hold, and mount a lock cylinder (not depicted) into auto-latching/locking mortise lock for sliding door **2**. A lock cylinder is not an element of this invention but is included for certain versions of auto-latching/locking mortise lock for sliding door **2**. A lock cylinder is included with versions of the auto-latching/locking mortise lock for sliding door **2** that require the sliding door to lock on the outside such as with privacy, entry, office, communicating, patio, classroom, or storeroom lock sets. A lock cylinder may be installed or mounted within lock cylinder mounting holes **11**, **41**. A lock cylinder is a horizontal cylindrical member with an inside end, an outside end, and a swing arm. The inside end is oriented towards the inside or interior of the room. The outside end is oriented toward the outside or exterior of the room. The inside end may have a keyhole that is accessible from the inside of the room. The outside end has a keyhole that is accessible from the outside of the room. A key (not depicted) mates or engages with keyhole to rotate the swing arm on lock cylinder as the key is rotated. The swing arm is located within the interior of auto-latching/locking mortise lock for sliding door **2**. The swing arm engages with the first and second lock cylinder catch arms **84**,**85** on T-turn hub **80** as discussed below. The inside end or the outside end of lock cylinder may be installed within lock cylinder mounting hole **11**.

Upper deadbolt mounting pin **12** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. Upper deadbolt mounting pin **12** has a diameter of about 0.0625 to 0.5 inches. The length of upper deadbolt mounting pin **12** is equal to the width of upper side of mortise housing base **10**. The first end of upper deadbolt mounting pin **12** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of upper deadbolt mounting pin **12** into a hole in the first side of mortise housing base **10**. The second end of upper deadbolt mounting pin **12** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. Upper deadbolt mounting pin **12** is located just above deadbolt **50**, as depicted. Upper deadbolt mounting pin **12** contacts deadbolt **50** and helps slideably attach deadbolt **50** to mortise housing base **10** and mortise housing cover plate **40** as discussed below. Upper deadbolt mounting pin **12** also contacts upper deadbolt wing **51** and actuates the rotation of upper deadbolt wing **51** as discussed below.

Lower deadbolt mounting pin **13** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. Lower deadbolt mounting pin **13** has a diameter of about 0.0625 to 0.5 inches. The length of lower deadbolt mounting pin **13** is equal to the width of upper side of mortise housing base **10**. The first end of lower deadbolt mounting pin **13** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of upper deadbolt mounting pin **12** into a hole in the first side of mortise housing base **10**. The second end of lower deadbolt mounting pin **13** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. Lower deadbolt mounting pin **13** is located just below deadbolt **50**, as depicted. Lower deadbolt mounting pin **13** contacts deadbolt **50** and helps slideably attach deadbolt **50** to mortise housing base **10** and mortise housing cover plate **40** as discussed below. Lower deadbolt mounting pin **13** also contacts lower deadbolt wing **56** and actuates the rotation of lower deadbolt wing **56** as discussed below.

T-turn hub mounting hole **14** is a circular hole in the first side of mortise housing base **10**. T-turn hub mounting hole **14** has a diameter of about 0.125 to 1.0 inches. T-turn hub mounting hole **14** is located just below lock cylinder mounting hole **11**, as depicted. T-turn hub mounting hole **14** in the first side of mortise housing base **10** and T-turn hub mounting hole **42** in mortise housing cover plate **40** function to receive, hold, and mount T-turn hub **80**. T-turn hub **80** is pivotally attached to T-turn hub mounting hole **14** in the first side of mortise housing base **10** and T-turn hub mounting hole **42** in mortise housing cover plate **40**.

T-turn hub stop pin **15** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. T-turn hub stop pin **15** has a diameter of about 0.0625 to 0.5 inches. The length of T-turn hub stop pin **15** is equal to the width of upper side of mortise housing base **10**. The first end of T-turn hub stop pin **15** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of T-turn hub stop pin **15** into a hole in the first side of mortise housing base **10**. The second end of T-turn hub stop pin **15** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. T-turn hub stop pin **15** is located adjacent to T-turn hub mounting hole **14** as depicted. T-turn hub stop pin **15** functions to stop the rotation of T-turn hub **80** as the T-turn hub **80** is rotated to slide lock block **150** into the unlocked position as discussed below.

T-turn hub support pillar **16** is a hollow rigid horizontal cylindrical member with an inner diameter, an outer diameter, a length, a first end, a second end, an inside surface, an outside surface, and a longitudinal axis. T-turn hub support pillar **16** has an outer diameter of about 0.125 to 0.75 inches. The length of T-turn hub support pillar **16** is equal to the width of upper side of mortise housing base **10**. The first end of T-turn hub support pillar **16** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of T-turn hub support pillar **16** into a hole in the first side of mortise housing base **10**. The second end of T-turn hub support pillar **16** is a female threaded fitting connection. The inner diameter on the second end of T-turn

hub support pillar **16** is lined with female thread that engages with male thread on a mortise housing screw **49**. T-turn hub support pillar **16** and mortise housing screw **49** function to help attach and support mortise housing cover plate **40** to mortise housing base **10** as discussed below. T-turn hub support pillar **16** is located between the retracting edge of the first side of mortise housing base **10** and T-turn hub mounting hole **14**, as depicted.

Deadbolt shaft slot track **17** is an oblong hole or slot in the first side of mortise housing base **10**. Deadbolt shaft slot track **17** has a width, a length, and a longitudinal axis. The width of deadbolt shaft slot track **17** is about 0.0625 to 0.5 inches. The length of deadbolt shaft slot track **17** is about 0.5 to 2 inches. Deadbolt shaft slot track **17** is located adjacent to the retracting side of mortise housing base **10** with its longitudinal axis perpendicular to the retracting side of mortise housing base **10**, as depicted. Deadbolt shaft slot track **17** functions as a slot or a track for a tab **67** on deadbolt shaft **60** to slide within. As discussed below, deadbolt shaft **60** is slideably attached to the first side of mortise housing base **10** by placing tab **67** within deadbolt shaft slot track **17**.

Trigger lever and bolt retraction lever pivot pin **18** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. Trigger lever and bolt retraction lever pivot pin **18** has a diameter of about 0.0625 to 0.5 inches. The length of trigger lever and bolt retraction lever pivot pin **18** is equal to the width of upper side of mortise housing base **10**. The first end of trigger lever and bolt retraction lever pivot pin **18** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of trigger lever and bolt retraction lever pivot pin **18** into a hole in the first side of mortise housing base **10**. The second end of trigger lever and bolt retraction lever pivot pin **18** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. Trigger lever and bolt retraction lever pivot pin **18** is located just below deadbolt shaft slot track **17**, as depicted. Trigger lever and bolt retraction lever pivot pin **18** functions to pivotally attach bolt retraction lever **100** and trigger lever **110** to the first side of mortise housing base **10**.

Trigger lever spring pivot pin **19** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. Trigger lever spring pivot pin **19** has a diameter of about 0.0625 to 0.5 inches. The length of trigger lever spring pivot pin **19** is equal to the width of upper side of mortise housing base **10**. The first end of trigger lever spring pivot pin **19** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of trigger lever and bolt retraction lever pivot pin **18** into a hole in the first side of mortise housing base **10**. The second end of trigger lever spring pivot pin **19** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. Trigger lever spring pivot pin **19** is located in between the retraction edge of the first side of mortise housing base **10** and trigger lever and bolt retraction lever pivot pin **18**, as depicted. Trigger lever spring pivot pin **19** functions to pivotally attach trigger lever spring **120** to the first side of mortise housing base **10**.

Lock block lever pivot pin **20** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. The length of lock block lever pivot pin **20** is equal to the width of upper side of mortise housing base **10**. Lock block lever pivot pin **20** has a diameter of about 0.0625 to 0.5 inches. The first end of lock block lever pivot pin **20** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of lock block lever pivot pin **20** into a hole in the first side of mortise housing base **10**. The second end of lock block lever pivot pin **20** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. Lock block lever pivot pin **20** is located in between trigger lever and bolt retraction lever pivot pin **18** and bolt release actuator mounting pin **22**, as depicted. Lock block lever pivot pin **20** functions to pivotally attach lock block lever **140** to the first side of mortise housing base **10**.

Bolt release actuator slot track pin **21** is a solid rigid horizontal cylindrical member with a length, a first end, a second end, and a longitudinal axis. Bolt release actuator slot track pin **21** has a diameter of about 0.0625 to 0.5 inches. The length of bolt release actuator slot track pin **21** is equal to the width of upper side of mortise housing base **10**. The first end of bolt release actuator slot track pin **21** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of bolt release actuator slot track pin **21** into a hole in the first side of mortise housing base **10**. The second end of bolt release actuator slot track pin **21** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. Bolt release actuator slot track pin **21** is located adjacent to the opening edge of the first side of mortise housing and the button clearance hole **34** on mortise housing face plate **30**, as depicted. Bolt release actuator slot track pin **21** functions to help slideably attach or slideably mount bolt release actuator **130** to the first side of mortise housing base **10** and mortise housing face plate **30** as discussed below.

Bolt release actuator mounting pin **22** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. Bolt release actuator mounting pin **22** has a diameter of about 0.0625 to 0.5 inches. The length of bolt release actuator mounting pin **22** is equal to the width of upper side of mortise housing base **10**. The first end of bolt release actuator mounting pin **22** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of bolt release actuator

mounting pin **22** into a hole in the first side of mortise housing base **10**. The second end of bolt release actuator mounting pin **22** has a shoulder that steps down to a smaller diameter than that of the rest of the pin. Bolt release actuator mounting pin **22** is located just under bolt release actuator **130**, as depicted. Bolt release actuator mounting pin **22** contacts deadbolt **50**. Bolt release actuator mounting pin **22** functions to help slideably attach or slideably mount bolt release actuator **130** to the first side of mortise housing base **10** and mortise housing face plate **30** as discussed below.

Lever hub mounting hole **23** is a circular hole in the first side of mortise housing base **10**. Lever hub mounting hole **23** has a diameter of about 0.5 to 2.0 inches. Lever hub mounting hole **23** is located just below trigger lever and bolt retraction lever pivot pin **18**, as depicted. Lever hub mounting hole **23** functions to receive, hold, and mount first lever hub **180**. First lever hub **180** is pivotally attached to lever hub mounting hole **23** in mortise housing base **10** as discussed below.

Lever hub mounting hole **23** has a key notch **24** on its circumference. Key notch **24** is notch, void, or crenellation in the first side of mortise housing base **10** along the circumference or perimeter of lever hub mounting hole **23**. Key notch **24** has a width. Key notch **24** has an opening end and a retracting end. A key tab **183** on first lever hub **180** engages with key notch **24** and nests within key notch **24** to function as a rotation stop or limiter for first lever hub **180** where key tab **183** strikes or contacts the opening end of key notch **24** thereby limiting the rotation of first lever hub **180** in that direction and strikes or contacts the retracting end of key notch **24** thereby limiting the rotation of first lever hub **180** in the other direction.

Retracting side lock block slot track **25** is a rectangular hole in the first side of mortise housing base **10**. Retracting side lock block slot track **25** has a width, length, and a longitudinal axis. Retracting side lock block slot track **25** has a width of about 0.25 to 1.0 inches a length of about 0.5 to 1.5 inches. Retracting side lock block slot track **25** is located adjacent to lever hub mounting hole **23** with its longitudinal axis parallel with the planes of the upper and lower sides of mortise housing base **10** and perpendicular to the plane of the retracting side of mortise housing base **10** as depicted. Retracting side and opening side lock block slot tracks **25**,**26** in mortise housing base **10**, along with retracting and opening side lock block slot tracks **45**,**46** in mortise housing cover plate **40**, function to slideably attach or slideably mount lock block **150** to mortise housing base **10** and mortise housing cover plate **40** as discussed below.

Opening side lock block slot track **26** is a rectangular hole in the first side of mortise housing base **10**. Opening side lock block slot track **26** has a width, length, and a longitudinal axis. Opening side lock block slot track **26** has a width of about 0.25 to 1.0 inches a length of about 0.5 to 1.5 inches. Opening side lock block slot track **26** is located adjacent to retracting side lock block slot track **25** with its longitudinal axis parallel and concentric with that of retracting side lock block slot track **25** as depicted. Retracting side and opening side lock block slot tracks **25**,**26** in mortise housing base **10**, along with retracting and opening side lock block slot tracks **45**,**46** in mortise housing base **10**, function to slideably attach or slideably mount lock block **150** to mortise housing base **10** and mortise housing cover plate **40** as discussed below.

Lever hub spring pivot support pillar **27** is a hollow rigid horizontal cylindrical member with an inner diameter, an outer diameter, a length, a first end, a second end, an inside surface, an outside surface, and a longitudinal axis. Lever hub spring pivot support pillar **27** has an outer diameter of about 0.125 to 0.75 inches. The length of lever hub spring pivot support pillar **27** is equal to the width of upper side of mortise housing base **10**. The first end of lever hub spring pivot support pillar **27** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of lever hub spring pivot support pillar **27** into a hole in the first side of mortise housing base **10**. The second end of lever hub spring pivot support pillar **27** is a female threaded fitting connection. The inner diameter on the second end of lever hub spring pivot support pillar **27** is lined with female thread that engages with male thread on a mortise housing screw **49**. Lever hub spring pivot support pillar **27** and mortise housing screw **49** function to help attach and support mortise housing cover plate **40** to mortise housing base **10** as discussed below. Lever hub spring pivot support pillar **27** is located between the lever hub mounting hole **23** and the lower side of mortise housing base **10** as depicted.

Lock block spring pivot support pillar **28** is a hollow rigid horizontal cylindrical member with an inner diameter, an outer diameter, a length, a first end, a second end, an inside surface, an outside surface, and a longitudinal axis. Lock block spring pivot support pillar **28** has an outer diameter of about 0.125 to 0.75 inches. The length of lock block spring pivot support pillar **28** is equal to the width of upper side of mortise housing base **10**. The first end of lock block spring pivot support pillar **28** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of lever hub spring pivot support pillar **27** into a hole in the first side of mortise housing base **10**. The second end of lock block spring pivot support pillar **28** is a female threaded fitting connection. The inner diameter on the second end of lock block spring pivot support pillar **28** is lined with female thread that engages with male thread on a mortise housing screw **49**. Lock block spring pivot support pillar **28** and mortise housing screw **49** function to help attach and support mortise housing cover plate **40** to mortise housing base **10** as discussed below. Lock block spring pivot support pillar **28** is located between the opening side lock block slot track **26** and the lower side of mortise housing base **10** as depicted.

The first side of mortise housing base **10** may further comprise one or more other support pillars **29**. One or more other support pillars **29** are each a hollow rigid horizontal cylindrical member with an inner diameter, an outer diameter, a length, a first end, a second end, an inside surface, an outside surface, and a longitudinal axis. One or more other support pillars **29** each have an outer diameter of about 0.125 to 0.75 inches. The length of one or more other support pillars **29** is equal to the width of upper side of mortise housing base **10**. The first end of each one or more other support pillars **29** is rigidly attached to the inside surface of the first side of mortise housing base **10** with its longitudinal axis perpendicular to the plane of the first side

of mortise housing base **10**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is accomplished by press fitting or friction fitting the first end of each of one or more other support pillars **29** into a hole in the first side of mortise housing base **10**. The second end of each of one or more other support pillars **29** is a female threaded fitting connection. The inner diameter on the second end of each of one or more other support pillars **29** is lined with female thread that engages with male thread on a mortise housing screw **49**. Each of the one or more other support pillars **29** function to help attach and support mortise housing cover plate **40** to mortise housing base **10** as discussed below.

Mortise housing face plate **30** is a rigid rectangular planar member with a length, a width, an inside surface, an outside surface, a first edge, a second edge, an upper edge, and a lower edge. The width of mortise housing face plate **30** is about 0.5 to 2.5 inches and is about 0.5 inches wider than the upper side of mortise housing base **10**. The length of mortise housing face plate **30** is about 6-10 inches and is about 2.0 inches longer than the first side of mortise housing base **10**.

Mortise housing face plate **30** is reversibly attachable to mortise housing base **10**. Mortise housing face plate **30** is attached to mortise housing base **10** with its plane perpendicular to that of the first side of mortise housing base **10**, and its first edge aligned with and adjacent to the opening edge of the first side of mortise housing base **10** and its second edge aligned with and adjacent to the opening edge of mortise housing cover plate **40**. Reversible attachment may be accomplished by any known means such as: bolts, screws, clips, snaps, pins, fasteners, or any other means. When attached, mortise housing face plate **30** is the opening side **8** of auto-latching/locking mortise lock for sliding door **2**. Mortise housing face plate **30** comprises: a deadbolt clearance hole **32** and a button clearance hole **34**.

Deadbolt clearance hole **32** is a rectangular or square hole in mortise housing face plate **30**. Deadbolt clearance hole **32** has a width of about 0.25 to 1.5 inches and length of about 0.5 to 2.5 inches. Deadbolt clearance hole **32** could also be a circular hole in mortise housing face plate **30**. Deadbolt clearance hole **32** has diameter of about 0.5 to 2.5 inches. Deadbolt clearance hole **32** is located in between upper tab flange **36** and a lower tab flange **38**. Deadbolt clearance hole **32** functions to provide a clearance hole through face plate **30**, through which deadbolt **50** protrudes out of and retracts into in order to latch, unlatch, lock, and/or unlock auto-latching/locking mortise lock for sliding door **2** as discussed below.

Button clearance hole **34** is a circular hole in mortise housing face plate **30**. Button clearance hole **34** has diameter of about 0.125 to 2 inches. Button clearance hole **34** could also be a rectangular or square hole in mortise housing face plate **30**. Button clearance hole **34** has a width of about 0.25 to 1.5 inches and length of about 0.5 to 2.5 inches. Button clearance hole **34** is located in between upper tab flange **36** and a lower tab flange **38**. Button clearance hole **34** functions to provide a clearance hole through face plate **30**, through which button **136** on bolt release actuator **130** protrudes out of and retracts into in order to latch, unlatch, lock, and/or unlock auto-latching/locking mortise lock for sliding door **2** as discussed below.

Mortise housing face plate **30** may further comprise: an upper tab flange **36** and a lower tab flange **38**. Upper tab flange **36** and lower tab flange **38** function to reversibly attach mortise housing face plate **30** to mortise housing base **10**.

Upper tab flange **36** is a tab or flange protruding from the inner surface of mortise housing face plate **30**, near the upper edge of mortise housing face plate **30**. Upper tab flange **36** is a rigid planar protrusion extending perpendicularly from the inner surface of mortise housing face plate **30**. The plane of upper tab flange **36** is parallel to that of the upper side of mortise housing base **10** and perpendicular to plane of mortise housing face plate **30**. Upper tab flange **36** has a female threaded or tapped hole **39** running there though. Female threaded or tapped hole **39** engages with male thread on a mortise housing screw **49** to reversibly attach the upper tab flange **36** to the upper side of mortise housing base **10**.

Lower tab flange **38** is a tab or flange protruding from the inner surface of mortise housing face plate **30**, near the lower edge of mortise housing face plate **30**. Lower tab flange **38** is a rigid planar protrusion extending perpendicularly from the inner surface of mortise housing face plate **30**. The plane of lower tab flange **38** is parallel to that of the lower side of mortise housing base **10** and perpendicular to plane of mortise housing face plate **30**. Lower tab flange **38** has a female threaded or tapped hole **39** running there though. Female threaded or tapped hole **39** engages with male thread on a mortise housing screw **49** to reversibly attach the lower tab flange **38** to the lower side of mortise housing base **10**.

Mortise housing cover plate **40** is a rigid rectangular planar member with a length, a width, an inside surface, an outside surface, an upper edge, a lower edge, an opening edge, and a retracting edge. The width of mortise housing cover plate **40** is about 2-6 inches. The length of mortise housing cover plate **40** is about 4-8 inches. Mortise housing cover plate **40** is reversibly attachable to mortise housing base **10**. Mortise housing cover plate **40** is attached to mortise housing base **10** with its plane perpendicular to that of the upper and lower sides of mortise housing base **10** and parallel with the first side of mortise housing base **10**. Mortise housing cover plate **40** is attached to mortise housing base **10** with its upper edge aligned with and adjacent to the second edge of the upper side of mortise housing base **10**, its lower edge aligned with and adjacent to the second edge of the lower side of mortise housing base **10**, its retracting edge aligned with and adjacent to the second edge of the retracting side of mortise housing base **10**, and its opening edge aligned with and adjacent to the second edge of mortise housing face plate **30**. Reversible attachment may be accomplished by any known means such as: bolts, screws, clips, snaps, pins, fasteners, or any other means. When attached, mortise housing cover plate **40** is the second side **5** of auto-latching/locking mortise lock for sliding door **2**. Mortise housing cover plate **40** comprises: a lock cylinder mounting hole **41**; a T-turn hub mounting hole **42**; a lever hub mounting hole **43**; a retracting side lock block slot track **45**; a opening side lock block slot track **46**; a plurality of pin mounting holes **47**; and a plurality of screw holes **48**.

Lock cylinder mounting hole **41** is a circular hole in mortise housing cover plate **40**. Lock cylinder mounting hole **41** has a diameter of about 0.5 to 2 inches. Lock cylinder mounting hole **41** is located in the corner of mortise housing cover plate **40** adjacent to the upper side and the retracting side. Lock cylinder mounting hole **11** in mortise housing base **10** and lock cylinder mounting hole **41** in mortise housing cover plate **40** function to receive, hold, and

mount a lock cylinder (not depicted) into auto-latching/locking mortise lock for sliding door **2**. A lock cylinder is not an element of this invention but is included for certain versions of auto-latching/locking mortise lock for sliding door **2**. A lock cylinder is included with versions of the auto-latching/locking mortise lock for sliding door **2** that require the sliding door to lock on the outside such as with privacy, entry, office, communicating, patio, classroom, or storeroom lock sets. A lock cylinder may be installed or mounted within lock cylinder mounting holes **11**, **41**. A lock cylinder is a horizontal cylindrical member with an inside end, an outside end, and a swing arm. The inside end is oriented towards the inside or interior of the room. The outside end is oriented toward the outside or exterior of the room. The inside end may have a keyhole that is accessible from the inside of the room. The outside end has a keyhole that is accessible from the outside of the room. A key (not depicted) mates or engages with the keyholes to rotate the swing arm on lock cylinder as the key is rotated. The swing arm is located within the interior of auto-latching/locking mortise lock for sliding door **2**. The swing arm engages with the first and second lock cylinder catch arms **84**,**85** on T-turn hub **80** as discussed below. The inside end or the outside end of lock cylinder may be installed within lock cylinder mounting hole **41**.

T-turn hub mounting hole **42** is a circular hole in mortise housing cover plate **40**. T-turn hub mounting hole **42** has a diameter of about 0.125 to 1.0 inches. T-turn hub mounting hole **42** is located just below lock cylinder mounting hole **41**, as depicted. T-turn hub mounting hole **14** in the first side of mortise housing base **10** and T-turn hub mounting hole **42** in mortise housing cover plate **40** function to receive, hold, and mount T-turn hub **80**. T-turn hub **80** is pivotally attached to T-turn hub mounting hole **14** in the first side of mortise housing base **10** and T-turn hub mounting hole **42** in mortise housing cover plate **40**.

Lever hub mounting hole **43** is a circular hole in mortise housing cover plate **40**. Lever hub mounting hole **43** has a diameter of about 0.5 to 2.0 inches. Lever hub mounting hole **43** is located in the corner of mortise housing cover plate **40** adjacent to the lower side and the retracting side. Lever hub mounting hole **43** in mortise housing cover plate **40** functions to receive, hold, and mount second lever hub **190**. Second lever hub **190** is pivotally attached to lever hub mounting hole **43** in mortise housing cover plate **40** as discussed below. Lever hub mounting hole **43** has a key notch **44** on its circumference.

Key notch **44** is notch, void, or crenellation in mortise housing cover plate **40** along the circumference or perimeter of lever hub mounting hole **43**. Key notch **44** has a width. Key notch **44** has an opening end and a retracting end. A key tab **193** on second lever hub **190** engages with key notch **44** and nests within key notch **44** to function as a rotation stop for second lever hub **190** where key tab **193** strikes or contacts the one side of key notch **44** thereby limiting the rotation of second lever hub **190** in that direction and strikes or contacts the other side of key notch **44** thereby limiting the rotation of second lever hub **190** in the other direction.

Retracting side lock block slot track **45** is a rectangular hole in mortise housing cover plate **40**. Retracting side lock block slot track **45** has a width, length, and a longitudinal axis. Retracting side lock block slot track **45** has a width of about 0.25 to 1.0 inches and a length of about 0.5 to 1.5 inches. Retracting side lock block slot track **45** is located adjacent to lever hub mounting hole **43** with its longitudinal axis parallel with the upper and lower edges of mortise housing cover plate **40** and perpendicular to the retracting edge of mortise housing cover plate **40** as depicted. First and opening side lock block slot tracks **25**,**26** in mortise housing base **10**, along with first and opening side lock block slot tracks **45**,**46** in mortise housing cover plate **40**, function to slideably attach or slideably mount lock block **150** to mortise housing base **10** and mortise housing cover plate **40** as discussed below.

Opening side lock block slot track **46** is a rectangular hole in the first side of mortise housing cover plate **40**. Opening side lock block slot track **46** has a width, length, and a longitudinal axis. Opening side lock block slot track **46** has a width of about 0.25 to 1.0 inches and a length of about 0.5 to 1.5 inches. Opening side lock block slot track **46** is located adjacent to retracting side lock block slot track **45** with its longitudinal axis parallel and concentric with that of retracting side lock block slot track **45** as depicted. First and opening side lock block slot tracks **25**,**26** in mortise housing base **10**, along with first and opening side lock block slot tracks **45**,**46** in mortise housing cover plate **40**, function to slideably attach or slideably mount lock block **150** to mortise housing base **10** and mortise housing face plate **30** as discussed below.

Each of the plurality of pin mounting holes **47** is a circular hole in mortise housing cover plate **40**. Each of the plurality of pin mounting holes **47** has a diameter of about 0.0625 to 0.5 inches. Each of the plurality of pin mounting holes **47** functions to receive, hold, and mount the second end of a pin, such as: upper deadbolt mounting pin **12**, lower deadbolt mounting pin **13**, T-turn hub stop pin **15**, trigger lever and bolt retraction lever pivot pin **18**, trigger lever spring pivot pin **19**, lock block lever pivot pin, **20**, bolt release actuator slot track pin **21**, and bolt release actuator mounting pin **22**. The second end of each of these pins forms a slip fit or clearance fit within each of the plurality of pin mounting holes **47** when the mortise housing cover plate **40** is installed onto mortise housing base **10**. As stated, the second end of each of these pins has a shoulder that steps down to a smaller diameter that slides or fits into each of the plurality of pin mounting holes **47**. When the mortise housing cover plate **40** is installed onto mortise housing base **10**, the second ends of upper deadbolt mounting pin **12**, lower deadbolt mounting pin **13**, T-turn hub stop pin **15**, trigger lever and bolt retraction lever pivot pin **18**, trigger lever spring pivot pin **19**, lock block lever pivot pin, **20**, bolt release actuator slot track pin **21**, and bolt release actuator mounting pin **22** are flush with the outside surface of mortise housing cover plate **40**. This construction adds strength and stability to the pins as they are attached at both their first and second ends.

Each of the plurality of screw holes **48** is a circular hole in mortise housing cover plate **40** with a beveled edge. Each of the plurality of screw holes **48** functions to provide a clearance hole for the first end of a mortise housing screw **49** to pass through and engage with the female thread on a support pillar, such as: T-turn hub support pillar **16**, lever hub spring pivot support pillar **27**, lock block spring pivot support pillar **28**, and one or more other support pillars **29**. Each of the plurality of screw holes **48** has an inner diameter of about 0.0625 to 0.5 inches. Each of the plurality of screw holes **48** is located to exactly align with the second end of a support pillar **16**,**27**,**28**,**29**. The beveled edge or each screw hole **48** allows the head of each mortise housing screw **49** to be counter sunk into the mortise housing cover plate **40** and flush with the outside surface of mortise housing cover plate **40** when installed.

Each of the plurality of mortise housing screws **49** is a screw, bolt, fastener, clip, or similar. Each of the plurality of mortise housing screws **49** has a first end, a second end, and

a longitudinal axis. The first end of each mortise housing screw **49** has male thread that is sized to engage with the female thread on the second end of each support pillar **16**,**27**,**28**,**29**. The second end of each mortise housing screw **49** has a head that engages with a tool such as a driver, wrench, socket, bit, or similar. To install mortise housing cover plate **40** to mortise housing base **10**, mortise housing cover plate **40** is aligned with mortise housing base **10** and placed onto mortise housing base **10** so that the second ends of a support pillar **16**,**27**,**28**,**29** align with a pin mounting hole **47** and are inserted therein, and the second ends of each support pillar **16**,**27**,**28**,**29** align with a screw hole **48**, wherein mortise housing screws **49** are installed and tighten down onto support pillars **16**,**27**,**28**,**29**. Installing the mortise housing cover plate **40** is the last step to assembling the auto-latching/locking mortise lock for sliding door **2**. Before installing the mortise housing cover plate **40**, all internal mechanisms and components of auto-latching/locking mortise lock for sliding door **2** must first be installed and the mortise housing face plate **30** must first be installed as discussed below.

Deadbolt **50** is a rigid rectangular cuboid shaped member. Deadbolt **50** has a width of about 0.5-2 inches, a length of about 1-4 inches, and a thickness of about 0.25 to 1 inches. Deadbolt **50** has a first side, a second side, an upper side, a lower side, an opening side, a retracting side, a longitudinal axis, and a longitudinal bisect. The longitudinal axis of deadbolt **50** runs through its opening side and retracting side. Deadbolt **50** is slideably attached to mortise housing base **10** and mortise housing cover plate **40** with its longitudinal axis running horizontally wherein the deadbolt **50** slides back and forth horizontally along its longitudinal axis. Deadbolt **50** has a retracted position and an extended position. In the retracted position, sliding door is unlatched. In the extended position, sliding door is latched. In the retracted and extended positions, the retracting side of deadbolt **50** remains inside of auto-latching/locking mortise lock for sliding door **2**. In the retracted and extended positions, the opening side of deadbolt **50** remains outside of auto-latching/locking mortise lock for sliding door **2**. In the extended position, deadbolt **50** extends or protrudes through deadbolt clearance hole **32** on mortise housing face plate **30** so that its longitudinal bisect extends beyond deadbolt clearance hole **32** and is outside of auto-latching/locking mortise lock for sliding door **2**. In the retracted position, deadbolt **50** retracts through deadbolt clearance hole **32** on mortise housing face plate **30** so that its longitudinal bisect retracts within deadbolt clearance hole **32** and is inside of auto-latching/locking mortise lock for sliding door **2**. Deadbolt **50** functions to latch and unlatch sliding door as described below.

Deadbolt **50** is partially hollow with a rectangular cuboid shaped hollow cavity extending from its lower edge to its upper edge. The hollow cavity breaks through the upper side and the lower side of deadbolt **50**. The hollow cavity does not break through the first side, second side, or opening side. The hollow cavity may optional break through retracting side to receive the deadbolt attachment arm **62** to provide a grove for a tongue and groove connection with deadbolt shaft **60** as discussed below. The hollow cavity is a smaller rectangular cuboid that is concentric with that of deadbolt **50** with access at the upper and lower sides. This hollow cavity contains a complicated action mechanism or assembly of parts comprising: an upper deadbolt wing **51**; an upper deadbolt wing pivot pin **52**; an upper deadbolt wing latch protrusion **53**; an upper deadbolt wing heel protrusion **54**; a deadbolt wing spring **55**; an lower deadbolt wing **56**; an lower deadbolt wing pivot pin **57**; a lower deadbolt wing latch protrusion **58**; and a lower deadbolt wing heel protrusion **59**. This complicated action mechanism or assembly of parts must first be installed within deadbolt **50** prior to installing deadbolt **50** into mortise housing base **10** and mortise housing cover plate **40**. This complicated action mechanism or assembly of parts functions to help extend and retract upper and lower deadbolt wings **51**,**56** as described below.

Upper deadbolt wing **51** is a rigid oblong member with a first side, a second side, an upper side, a lower side, an opening side, a retracting side, a pivot pin hole, a latch protrusion **53**, a heel protrusion **54**, and a longitudinal axis. Upper deadbolt wing **51** has a length of about 1 to 3 inches. The longitudinal axis of upper deadbolt wing **51** runs essentially horizontally and parallel with that of deadbolt **50**. Latch protrusion **53** is a rigid tab, protrusion, or catch that extends or protrudes upwards from the upper side of upper deadbolt wing **51** adjacent to the opening side of upper deadbolt wing **51**. Heel protrusion **54** is a rigid tab, protrusion, or catch that extends or protrudes upwards from the lower side of upper deadbolt wing **51** adjacent to the retracting side of upper deadbolt wing **51**. Pivot pin hole is located in the center of upper deadbolt wing **51** in between the latch protrusion **53** and the heel protrusion **54** of upper deadbolt wing **51**. Upper deadbolt wing **51** is pivotally attached within the hollow cavity of deadbolt **50** with upper deadbolt wing pivot pin **52** inserted through pivot pin hole in upper deadbolt wing **51**. Upper deadbolt wing **51** is a fulcrum member that pivots about upper deadbolt wing pivot pin **52** like a teeter totter. Latch protrusion **53** pivots upwards to catch within a strike plate (not depicted) in a door jamb (not depicted) in order to latch sliding door with deadbolt **50** in the extended position. Latch protrusion **53** pivots downwards to clear the strike plate in a door jamb in order to unlatch the sliding door.

Lower deadbolt wing **56** is a rigid oblong member with a first side, a second side, an upper side, a lower side, an opening side, a retracting side, a pivot pin hole, a latch protrusion **58**, a heel protrusion **59**, and a longitudinal axis. Lower deadbolt wing **56** has a length of about 1 to 3 inches. The longitudinal axis of lower deadbolt wing **56** runs essentially horizontally and parallel with that of deadbolt **50**. Latch protrusion **58** is a rigid tab, protrusion, or catch that extends or protrudes downwards from the lower side of lower deadbolt wing **56** adjacent to the opening side of lower deadbolt wing **56**. Heel protrusion **59** is a rigid tab, protrusion, or catch that extends or protrudes downwards from the lower side of lower deadbolt wing **56** adjacent to the retracting side of lower deadbolt wing **56**. Pivot pin hole is located in the center of lower deadbolt wing **56** in between the latch protrusion **58** and the heel protrusion **59** of lower deadbolt wing **56**. Lower deadbolt wing **56** is pivotally attached within the hollow cavity of deadbolt **50** with lower deadbolt wing pivot pin **57** inserted through pivot pin hole in lower deadbolt wing **56**. Lower deadbolt wing **56** is a fulcrum member that pivots about lower deadbolt wing pivot pin **57** like a teeter totter. Latch protrusion **58** pivots downwards to catch within a strike plate (not depicted) in a door jamb (not depicted) in order to latch sliding door with deadbolt **50** in the extended position. Latch protrusion **58** pivots upwards to clear the strike plate in a door jamb in order to unlatch the sliding door.

Deadbolt wing spring **55** is a compression spring with an upper end, a lower end, and a longitudinal axis. Deadbolt wing spring **55** is installed between upper and lower deadbolt wings **51**,**56**. Upper deadbolt wing **51** is installed in the hollow cavity of deadbolt **50** through the hole in the upper

side of deadbolt **50** and pivotally attached to deadbolt **50** with upper deadbolt wing pivot pin **52**. Lower deadbolt wing **56** is installed in the hollow cavity of deadbolt **50** through the hole in the lower side of deadbolt **50** and pivotally attached to deadbolt **50** with lower deadbolt wing pivot pin **57**. Deadbolt wing spring **55** is installed in the hollow cavity of deadbolt **50** with its longitudinal axis running vertically with its upper end in contact with the lower side of upper deadbolt wing **51** and its lower end in contact with the upper side of lower deadbolt wing **56**. There may be a window into the hollow cavity on the first and second sides of deadbolt **50**, as depicted, to help with the installation deadbolt wing spring **55** in between upper and lower deadbolt wings **51**,**56**. Deadbolt wing spring **55** is installed on the retracting side of upper and lower deadbolt wing pivot pins **52**,**57** and thus creates bias spring pressure that rotates or extends upper deadbolt heel protrusion **54** upwards and lower deadbolt heel protrusion **59** downwards.

Upper deadbolt wing latch protrusion **53** is actuated to rotate upwards by heel protrusion **54** contacting upper deadbolt mounting pin **12** as deadbolt **50** extends out of deadbolt clearance hole **32**. When deadbolt **50** is in the retracted position, heel protrusion **54** is not in contact with upper deadbolt mounting pin **12** and deadbolt wing spring **55** forces the retracting side of upper deadbolt wing **51** upwards to retract upper deadbolt wing latch protrusion **53** within the hollow cavity of deadbolt **50**. When deadbolt **50** is in the extended position, heel protrusion **54** is in contact with upper deadbolt mounting pin **12**, which pushes the retracting side of upper deadbolt wing downwards to extend upper deadbolt wing latch protrusion **53** out of the hollow cavity of deadbolt **50**.

Lower deadbolt wing latch protrusion **58** is actuated to rotate downwards by heel protrusion **59** contacting lower deadbolt mounting pin **13** as deadbolt **50** extends out of deadbolt clearance hole **32**. When deadbolt **50** is in the retracted position, heel protrusion **59** is not in contact with lower deadbolt mounting pin **13** and deadbolt wing spring **55** forces the retracting side of lower deadbolt wing **56** downwards to retract lower deadbolt wing latch protrusion **58** within the hollow cavity of deadbolt **50**. When deadbolt **50** is in the extended position, heel protrusion **59** is in contact with lower deadbolt mounting pin **13**, which pushes the retracting side of lower deadbolt wing upwards to extend lower deadbolt wing latch protrusion **58** out of the hollow cavity of deadbolt **50**.

Deadbolt shaft **60** is a rigid oblong planar member with a first side, a second side, an upper edge, a lower edge, an opening edge, a retracting edge, and a longitudinal axis. Deadbolt shaft **60** has a width of about 0.5 to 2 inches. Deadbolt shaft **60** has a length of about 1 to 3 inches. Deadbolt shaft **60** functions to rigidly attach to deadbolt **50** and slideably attach to the first side of mortise housing base **10**. Deadbolt shaft comprises: a deadbolt attachment arm **62**; a pendulum arm pocket **64**; a tab **66**; and a trigger lever notch **68**.

Deadbolt attachment arm **62** is a long planar protrusion or arm member protruding from the upper edge of deadbolt shaft **60** adjacent to the opening edge of deadbolt shaft **60**. Deadbolt attachment arm **62** has a length equal to the width of deadbolt **50**. Deadbolt attachment arm **62** is in the same plane as that of deadbolt shaft **60**. Deadbolt attachment arm **62** is rigidly attached to the retracting side of deadbolt **50**. Rigid attachment may be accomplished by any known means such as: pressed fit, pressed seam, weld, glue, epoxy, adhesive, bolts, screws, rivets, clips, snaps, pins, or fasteners. In best mode, rigid attachment is done with pins. In best mode, deadbolt **50** has two pin holes adjacent to the retracted edge of deadbolt **50**. In best mode, deadbolt attachment arm **62** has two pin holes that align with the pin holes on deadbolt **50**. Each pin hole is a circular hole that functions to receive a deadbolt attachment pin **63** to rigidly attach deadbolt attachment arm **62** to deadbolt **50**. Each deadbolt attachment pin **63** is a rigid cylindrical member sized to make slip fit or press fit within the pin holes on deadbolt attachment arm **62** and deadbolt **50**. In best mode, deadbolt attachment arm is inserted slightly into the hollow cavity at the retracting side of deadbolt **50** and then pinned, as depicted. This is a pinned tongue and groove joint or rigid connection where deadbolt attachment arm **62** is the tongue and the hollow cavity in deadbolt **50** is the groove.

Pendulum arm pocket **64** is a void or hole in deadbolt shaft **60**. Pendulum arm pocket **64** is rectangular or square shaped notch or void taken out of the upper edge of deadbolt shaft **60**, adjacent to the retracted edge of deadbolt shaft **60**. Pendulum arm pocket **64** does not break through the retracted edge of deadbolt shaft **60**. Pendulum arm pocket **64** functions to receive and hold within it, the lower end of pendulum arm **94** of bolt retraction hub **90** as discussed below. The lower end of pendulum arm **94** of bolt retraction hub **90** rides within pendulum arm pocket **64** to cause the bolt retraction hub **90** to rotate as deadbolt shaft **60** slides back and forth horizontally and vice versa.

Tab **66** on deadbolt shaft **60** is a rigid tab, protrusion, or catch that extends or protrudes perpendicularly outwards from the first side of deadbolt shaft **60**, which is the side of deadbolt shaft **60** facing the first side of mortise housing base **10**. The plane of tab **66** is parallel with that of the retracting side of mortise housing base **10**. Tab **66** functions to help slideably attach deadbolt shaft **60** to the first side of mortise housing base **10**. Tab **66** nests within and rides within deadbolt shaft slot track **17** as deadbolt shaft **60** slides back and forth horizontally. The width of tab **66** is sized to make a slip fit with the width of deadbolt shaft slot track **17**.

Trigger lever notch **68** is a V-shaped notch or void in the lower edge of deadbolt shaft **60**. Trigger lever notch **68** functions to receive and hold a catch tab **115** on trigger lever **110**. As discussed below, trigger lever **110** is spring biased to push or rotate the second arm **114** upwards toward the upper side of mortise housing base **10**. This spring bias pushes pin **113** downwards to push bolt release actuator **130** toward the mortise housing face plate **30** or in the extended position. Deadbolt **50** and deadbolt shaft **60** are also spring biased to push or slide deadbolt **50** and deadbolt shaft **60** toward the mortise housing cover plate **40**. This spring bias pushes deadbolt **50** and deadbolt shaft **60** toward the mortise housing cover plate **40** or in the extended position. When deadbolt **50** is retracted, the lower edge of deadbolt shaft **60** slides along the catch tab **115** but catches within trigger lever notch **68** when trigger lever notch **68** slides over catch tab **115**. The trigger lever notch **68** captures and holds catch tab **115** to prevent the spring bias from extending deadbolt **50** by latching or locking the deadbolt **50** in the retracted position.

Deadbolt spring **70** is a torsion spring. Deadbolt spring **70** has a center, a first side arm, and a second arm. The center of deadbolt spring **70** is mounted on trigger lever and bolt release lever pivot pin **18**. The first arm of deadbolt spring **70** extends all the way up to contact the retracting side of deadbolt **50**. The second arm of deadbolt spring **70** extends to contact trigger lever spring pivot pin **19**. Deadbolt spring **70** functions to apply constant spring bias or spring pressure to push bolt release actuator **130** toward the mortise housing cover plate **40** or in the extended position and push the second arm **114** on trigger lever **110** upwards.

T-turn hub **80** is a hub or center of a wheel or rotating member. T-turn hub **80** is a rigid member. T-turn hub **80** comprises: a socket **82**; a first lock cylinder catch arm **84**; a second lock cylinder catch arm **86**; and a fork arm **88**. Socket **82** is a hole through the center of T-turn hub **80**. First lock cylinder catch arm **84**, second lock cylinder catch arm **86**, and fork arm **88** are each rigid protrusions or arms that extends radially outward from socket **82**. T-turn hub **80** functions to transfer rotational motion from a swing arm on a lock cylinder to rotational motion on lock block lever **140**.

Socket **82** is a rigid cylindrical hole through T-turn hub **80**. Socket **82** has open ends. Socket **82** runs thorough the center of T-turn hub **80**. Socket **82** has a first end, a second end, an inner diameter, an inner surface, an outer diameter, an outer surface, and a longitudinal axis. T-turn hub **80** is pivotally attached to the first side of mortise housing base **10** at the first end of socket **82** and pivotally attached to mortise housing cover plate **40** at the second end of socket **82** so that the longitudinal axis of socket **82** is perpendicular to the planes of first side of mortise housing base **10** and mortise housing cover plate **40**. The outer diameter of socket **82** is sized to make a slip fit with the diameter of T-turn hub mounting hole **14** and T-turn hub mounting hole **42**. The outer surface of socket **82** is smooth. The inner surface of socket **82** has a plurality of points or ridges that function to engage with a square spindle or shaft from a thumb turn (not depicted) or coin turn (not depicted). A spindle or shaft from a thumb turn or coin turn may be inserted and installed through socket **82** to form a connection therewith so that T-turn hub **80** rotates along with the spindle or shaft from a thumb turn or coin turn. A thumb turn or coin turn is not an element of auto-latching/locking mortise lock for sliding door **2** but is included with a mortise lock set.

First lock cylinder catch arm **84** is a rigid oblong member or arm protruding radially outward from the exterior surface of socket **82**. When T-turn hub **80** is pivotally attached properly, first lock cylinder catch arm **84** extends in the direction pointing towards the opening edge of the upper side of mortise housing base **10**. First lock cylinder catch arm **84** has an overall length of about 0.25 to 1.5 inches.

Second lock cylinder catch arm **86** is a rigid oblong member or arm protruding radially outward from the exterior surface of socket **82**. When T-turn hub **80** is pivotally attached properly, second lock cylinder catch arm **86** extends in the direction pointing towards the retracting edge of the upper side of mortise housing base **10**. Second lock cylinder catch arm **86** has an overall length of about 0.25 to 1.5 inches.

First and second cylinder catch arms **84**,**86** engage with a swing arm (not depicted) on a lock cylinder (not depicted) to rotate T-turn hub **80** as the swing arm on lock cylinder is rotated. When a key or thumb turn rotates lock cylinder, the swing arm on lock cylinder is also rotated, which contacts or collides with first lock cylinder catch arm **84** when rotated in one direction and contacts or collides with second lock cylinder catch arm **86** when rotated in the other direction. Thus, when installed into auto-latching/locking mortise lock for sliding door **2**, lock cylinder functions to rotate T-turn hub **80**.

Fork arm **88** is a rigid oblong member or arm protruding radially outward from the exterior surface of socket **82**. When T-turn hub **80** is pivotally attached properly, fork arm **88** extends in the direction pointing towards the opening edge of the lower side of mortise housing base **10**. Fork arm **88** has an overall length of about 0.5 to 2.5 inches. There is a two-tine fork or two-tine fork shaped member on the radial end of fork arm **88**. The two tines function to receive and hold the upper arm **104** of bolt retraction lever **100** there between. The upper arm **104** of bolt retraction lever **100** nests within and rides within the two-tine fork so that bolt retraction lever **100** rotates with T-turn hub **80** as T-turn hub **80** is rotated. Fork arm **88** functions to rotate bolt retraction lever **100** as T-turn hub **80** is rotated.

Bolt retraction hub **90** is a hub or center of a wheel or rotating member. Bolt retraction hub **90** is a rigid member. Bolt retraction hub **90** comprises: a socket **92** and a pendulum arm **94**. Socket **92** is a hole through the center of bolt retraction hub **90**. Pendulum arm **94** is a rigid protrusion or arm that extends radially outward from socket **92**. Bolt retraction hub **90** functions to transfer rotational motion from bolt retraction lever **100** to translational motion of deadbolt shaft **60**.

Socket **92** is a rigid cylindrical hole through bolt retraction hub **90**. Socket **92** has open ends. Socket **92** runs thorough the center of bolt retraction hub **90**. Socket **92** has a first end, a second end, an inner diameter, an inner surface, an outer diameter, an outer surface, and a longitudinal axis. Bolt retraction hub **90** is pivotally attached to outer surface of socket **82** on T-turn hub **80** so that the longitudinal axis of socket **92** is concentric with that of socket **82**. The inner diameter of socket **92** is sized to make a slip fit with the outer diameter of socket **82**. The second end of socket **92** is slid over the first end of socket **82** to attach these members.

Pendulum arm **94** is a rigid oblong member or arm protruding radially outward from the exterior surface of socket **92**. When bolt retraction hub **90** is pivotally attached properly, pendulum arm **94** extends in the direction pointing towards the opening edge of the lower side of mortise housing base **10**. Pendulum arm **94** has an overall length of about 0.15 to 1.5 inches. There is a head **96** or wide portion on the radial end of pendulum arm **94**. Head **96** functions to nest within and ride within pendulum arm pocket **64** in deadbolt shaft **60**. With this arrangement, deadbolt shaft **60** slides back and forth within deadbolt shaft slot track **17** as pendulum arm **94** rotates back and forth. Pendulum arm **94** functions to slide deadbolt shaft **60** as pendulum arm **94** is rotated.

Bolt retraction lever **100** is a rigid oblong planar member with a first side, a second side, and a longitudinal axis. Bolt retraction lever **100** is pivotally attached to trigger lever and bolt retraction lever pivot pin **18**. Bolt retraction lever **100** comprises: a pivot hole **102**; an upper arm **104**; a lower arm **106**; and a pin **108**. Bolt retraction lever **100** functions to transfer rotational motion from first lever hub **180** or second lever hub **190** to rotational motion of bolt retraction hub **90**. Bolt retraction lever **100** functions to retract deadbolt **150** to unlatch sliding door.

Pivot hole **102** is a circular hole through bolt retraction lever **100**. Pivot hole **102** is located in between upper arm **104** and lower arm **106**. Pivot hole **102** is pivotally attached to trigger lever and bolt retraction lever pivot pin **18**. Pivot hole **102** has a diameter that is sized to make a slip fit with the diameter of trigger lever and bolt retraction lever pivot pin **18**.

Upper arm **104** is a rigid oblong member or arm protruding radially outward from pivot hole **102**. When bolt retraction lever **100** is pivotally attached properly, upper arm **104** extends in the direction essentially pointing towards the upper side of mortise housing base **10**. Upper arm **104** has a length of about 1 to 2 inches. Upper arm **104** "dog legs" or bends toward the retracting side of mortise housing base **10** as depicted. Upper arm **104** has a radial end that engages with pendulum arm **94** on bolt retraction hub **90**. As bolt retraction lever **100** is rotated by first or second lever hubs

180,190, upper arm 104 contacts pendulum arm 94 and rotates it towards the retracting side of mortise housing base 10. Pendulum arm 94 contacts deadbolt shaft 60 and causes deadbolt shaft 60 to slide towards the retracting side of mortise housing base 10, which causes deadbolt 50 to retract.

Lower arm 106 is a rigid oblong member or arm protruding radially outward from pivot hole 102. Lower arm 106 has a length of about 0.25 to 1 inches. When bolt retraction lever 100 is pivotally attached properly, lower arm 106 extends in the direction essentially pointing towards the lower side of mortise housing base 10.

Pin 108 is a rigid solid cylindrical member extending from lower arm 106. Pin 108 extends or protrudes perpendicularly outwards from the second side of bolt retraction lever 100, which is the side of bolt retraction lever 100 facing mortise housing cover plate 40. Thus, the longitudinal axis of pin 108 is perpendicular to the plane of bolt retraction lever 100. Pin 108 makes contact with: bolt retraction arm 184 on first lever hub 180 when first lever hub 180 is rotated and bolt retraction arm 194 on second lever hub 190 when second lever hub 190 is rotated. This contact causes bolt retraction lever 100 to rotate as first or second lever hubs 180,190 is rotated.

Trigger lever 110 is a rigid oblong planar member with a first side, a second side, and a longitudinal axis. Trigger lever 110 is pivotally attached to trigger lever and bolt retraction lever pivot pin 18. Trigger lever 110 comprises: a pivot hole 111; a first arm 112; a pin 113; a second arm 114; and a catch tab 115. Trigger lever 110 functions to rotate from contact with bolt release actuator 130 which causes catch tab 115 to catch and release from trigger lever notch 68 on deadbolt shaft 60.

Pivot hole 111 is a circular hole through trigger lever 110. Pivot hole 111 is located in between first arm 112 and second arm 114. Pivot hole 111 is pivotally attached to trigger lever and bolt retraction lever pivot pin 18. Pivot hole 111 has a diameter that is sized to make a slip fit with the diameter of trigger lever and bolt retraction lever pivot pin 18.

First arm 112 is a rigid oblong member or arm protruding radially outward from pivot hole 111. First arm 112 has a length of about 1 to 2 inches. When trigger lever 110 is pivotally attached properly, first arm 112 extends in the direction pointing towards the mortise housing face plate 30.

Pin 113 is a rigid solid cylindrical member extending from first arm 112. Pin 113 extends or protrudes perpendicularly outwards from the second side of trigger lever 110, which is the side of trigger lever 110 facing mortise housing cover plate 40. Thus, the longitudinal axis of pin 113 is perpendicular to the plane of trigger lever 110. Pin 113 has continuous contact with the cam surface 132 of bolt release actuator 130. As bolt release actuator 130 slides or moves, the pin's contact with the cam surface 132 causes trigger lever 110 to rotate.

Second arm 114 is a rigid oblong member or arm protruding radially outward from pivot hole 111. Second arm 114 has a length of about 0.25 to 1 inches. When trigger lever 110 is pivotally attached properly, second arm 114 extends in the direction pointing towards the retracting side of mortise housing base 10.

Catch tab 115 is a rigid tab, protrusion, or catch that extends or protrudes perpendicularly outwards from the second side of trigger lever 110, which is the side of trigger facing the mortise housing cover plate 40. Catch tab 115 functions to catch within trigger lever notch 68 on deadbolt shaft 60 to hold or retain deadbolt shaft 60 in the retracted position.

Trigger lever spring 120 is a torsion spring. Trigger lever spring 120 has a center, a first side arm, and a second arm. The center of trigger lever spring 120 is mounted on trigger lever spring pivot pin 19. The first arm of trigger lever spring 120 extends to contact catch tab 115 on trigger lever 110. The second arm of trigger lever spring 120 extends to contact the inside surface of the retracting side of mortise housing base 10. Trigger lever spring 120 functions to apply constant spring bias or spring pressure to push the second arm 114 or trigger lever 110 upwards.

Bolt release actuator 130 is a rigid solid rectangular cuboid member. Bolt release actuator 130 has a first side, a second side, an upper side, a lower side, an opening side, a retracting side, a longitudinal axis, and a longitudinal bisect. Bolt release actuator 130 has a width slightly less than that of the upper and lower side of mortise housing base 10. Bolt release actuator 130 has a height of about 0.25-1.5 inches. Bolt release actuator 130 has a length of about 1-3 inches. Bolt release actuator 130 is slideably attached to bolt release actuator slot track pin 21 and bolt release actuator mounting pin 22. Bolt release actuator 130 comprises: a cam surface 132; a slot track 134; and a button 136. With bolt release actuator 130 attached properly, the longitudinal axis of bolt release actuator 130 is parallel to the plane of upper and lower side of mortise housing base 10, wherein bolt release actuator 130 slides or moves back and forth along its longitudinal axis.

Cam surface 132 is an angled or slanted surface on the opening side of bolt release actuator 130. Rather than being a perpendicular surface, the opening side of bolt release actuator 130 is a 45 degree angled surface that is angled upwards or faces upwards. Thus, bolt release actuator 130 is not a true rectangular cuboid. Cam surface makes continuous contact with pin 113 on trigger lever 110 as a result of trigger lever spring 120 forcing pin 113 downward to contact the cam surface 132 that is on a 45 degree angle facing upwards.

Slot track 134 is an oblong void, slot, or channel in bolt release actuator 130. Slot track 134 runs completely through bolt release actuator 130 from the first side of bolt release actuator 130 to the second side of bolt release actuator 130. Slot track 134 has a longitudinal axis that runs parallel with that of bolt release actuator 130. Slot track 134 has a width slightly larger than the diameter of bolt release actuator slot track pin 21 that is sized to make a slip fit with bolt release actuator slot track pin 21. Slot track 134 has a length of about 1.5-3 times the diameter of bolt release actuator slot track pin 21. Slot track 134 functions to help slideably attach bolt release actuator 130 to mortise housing base 10. In order to properly attach bolt release actuator 130, the second end of bolt release actuator slot track pin 21 is inserted through the opening of slot track 134 on the first side of bolt release actuator 130 to extend out of the opening of slot track 134 on the second side of bolt release actuator 130.

Button 136 is a rigid solid cylindrical member or square cuboid member. Button 136 has opening end, a retracting end, and a longitudinal axis. Button 136 is located on the opening side of bolt release actuator 130 with its longitudinal axis parallel with that of bolt release actuator 130. The retracting end of button 136 is rigidly attached to the opening end of bolt release actuator 130. The opening end of button 136 protrudes through or extends through button clearance hole 34 on mortise housing face plate 30. Button 136 functions to cause the deadbolt 50 to extend from the retracted position. When deadbolt 50 is in the retracted position, catch tab 115 on trigger lever 110 rests within trigger lever notch 68, which withstands the bias pressure

from deadbolt spring **70** to keep deadbolt **50** in the retracted position. When the sliding door is closed, button **136** makes contact with the door jamb (not depicted), which causes bolt release actuator **130** to move or slide towards the retracting side of mortise housing base **10**, causing the catch tab **115** to be pushed out of the trigger lever notch **68**, and the deadbolt **50** to extend. In order for this to happen, the force or pressure from the closing sliding door must overcome the pressure from the trigger lever spring **120** pushing the second arm **114** upwards. The deadbolt **50** extends when this happens because of the pressure applied by deadbolt spring **70**.

Lock block lever **140** is a rigid oblong planar member with a first side, a second side, and a longitudinal axis. Lock block lever **140** is pivotally attached to lock block lever pivot pin **20**. Lock block lever **140** comprises: a pivot hole **142**; an upper arm **144**; and a lower arm **146**. Lock block lever **140** rotates from contact with fork arm **88** on T-turn hub **80**. Lock block lever **140** functions to transfer rotational motion from T-turn hub **80** to translational motion of lock block **150**.

Pivot hole **142** is a circular hole through lock block lever **140**. Pivot hole **142** is located in between upper arm **144** and lower arm **146**. Pivot hole **142** is pivotally attached to lock block lever pivot pin **20**. Pivot hole **142** has a diameter that is sized to make a slip fit with the diameter of lock block lever pivot pin **20**.

Upper arm **144** is a rigid oblong member or arm protruding radially outward from pivot hole **142**. Upper arm **144** has a length of about 0.5 to 2 inches. Upper arm **144** has a radial end that engages with fork arm **88** on T-turn hub **80**. When lock block lever **140** is pivotally attached properly, the radial end of upper arm **144** nests within and rides between the two tines of fork arm **88** as depicted. As T-turn hub **80** is rotated, lock block lever **140** is rotated.

Lower arm **146** is a rigid oblong member or arm protruding radially outward from pivot hole **142**. Lower arm **146** has a length of about 0.5 to 2 inches. Lower arm **146** "dog legs" or bends toward the lower side of mortise housing base **10** as depicted. Lower arm **146** has a radial end that nests within and rides within lock block lever pocket **157** on lock block **150**. When lock block lever **140** is pivotally attached properly, the radial end of lower arm **146** extends in the direction pointing towards the lower side of mortise housing base **10**.

Lock block **150** is a rigid solid rectangular cuboid member. Lock block **150** has a first side, a second side, an upper side, a lower side, an opening side, a retracting side, a longitudinal axis, and a longitudinal bisect. Lock block **150** has a width slightly less than that of the upper and lower side of mortise housing base **10**. Lock block **150** has a height of about 0.25-1.5 inches. Lock block **150** has a length of about 1-3 inches. Lock block **150** is slideably attached to the first side of mortise housing base **10** and the mortise housing cover plate **40**. Lock block **150** comprises: a first tab **151**; a second tab **154**; a lock block lever pocket **157**; a first heel **158**; a second heel **159**; and a spring ridge **160**. With lock block **150** attached properly, the longitudinal axis of Lock block **150** is parallel to the plane of upper and lower side of mortise housing base **10**, wherein bolt release actuator **130** slides or moves back and forth along its longitudinal axis. Lock block **150** functions to lock and unlock auto-latching/locking mortise lock for sliding door **2**. Lock block **150** can slide into a "locked" position, which locks auto-latching/locking mortise lock for sliding door **2**, and slide into an "unlocked" position, which unlocks auto-latching/locking mortise lock for sliding door **2**. In best mode, lock block **150**, first tab **151**, second tab **154**, lock block lever pocket **157**, first heel **158**, second heel **159**; and spring ridge **160** are molded, carved, or machined from one solid piece of material.

First tab **151** is a rigid solid rectangular cuboid shaped or square cuboid shaped member on the first side of lock block **150** that protrudes from the corner or intersection of the first side and the retracting side of lock block **150** as depicted. First tab **151** is a rigid tab that slides within or rides within retracting side lock block slot track **25**. First tab **151** has a first side, a second side, an upper side, a lower side, an opening side, a retracting side, and a longitudinal axis. The corner or intersection of the upper side and the opening side of first tab **151** is rigidly attached to, connected to, or integral to the corner or intersection of the first side and the retracting side of lock block **150**. The upper and lower sides of first tab **151** are parallel and flush with those of the lock block **150**. The first and second sides of first tab **151** are parallel with those of lock block **150**. The longitudinal axis of first tab **151** is parallel with that of lock block **150** and retracting side lock block slot track **25**. The width of first tab **151** is slightly smaller than that of retracting side lock block slot track **25** so that first tab **151** may freely slide within retracting side lock block slot track **25**. The length of first tab **151** must be less than that of retracting side lock block slot track **25** so that lock block **150** may slide back and forth therein. With lock block **150** properly installed within auto-latching/locking mortise lock for sliding door **2**, the first side of first tab **151** is flush with the outside surface of the first side of mortise housing base **10**.

First tab **151** may optionally have a pin hole **152** or a screw hole **153**. Pin hole **152** is a cylindrical hole running through first tab **151** from the upper side to the lower side. Pin hole **152** has an inner diameter and a longitudinal axis. The longitudinal axis of pin hole **152** is parallel with the first and second sides of lock block **150**. Pin hole **152** functions to optionally receive a lock block pin **161** as described below. Screw hole **153** is a cylindrical tapped hole running through first tab **151** from the upper side to the lower side. Screw hole **153** has an inner diameter and a longitudinal axis. Screw hole **153** has female thread along its inner diameter. The longitudinal axis of screw hole **153** is parallel with the first and second sides of lock block **150**. Screw hole **153** functions to optionally receive a lock block screw **162** as described below. The interchangeable system of auto-latching/locking mortise lock for sliding door **2** is partially provided by the options of whether to include: pin hole **152**, lock block pin **161**, screw hole **153**, or lock block screw **162**.

Second tab **154** is a rigid solid rectangular cuboid shaped or square cuboid shaped member on the first side of lock block **150** that protrudes from the corner or intersection of the second side and the retracting side of lock block **150** as depicted. Second tab **154** is a rigid tab that slides within or rides within retracting side lock block slot track **45**. Second tab **154** has a first side, a second side, an upper side, a lower side, an opening side, a retracting side, and a longitudinal axis. The corner or intersection of the lower side and the opening side of second tab **154** is rigidly attached to, connected to or integral to the corner or intersection of the second side and the retracting side of lock block **150**. The upper and lower sides of second tab **154** are parallel and flush with those of lock block **150**. The first and second sides of second tab **154** are parallel with those of the lock block **150**. The longitudinal axis of second tab **154** is parallel with that of lock block **150** and retracting side lock block slot track **45**. The width of second tab **154** is slightly smaller than that of retracting side lock block slot track **45** so that second

tab **154** may freely slide within retracting side lock block slot track **45**. The length of second tab **154** must be less than that of retracting side lock block slot track **45** so that lock block **150** may slide back and forth therein. With lock block **150** properly installed within auto-latching/locking mortise lock for sliding door **2**, the second side of second tab **154** is flush with the outside side of the mortise housing cover plate **40**.

Second tab **154** may optionally have a pin hole **155** or a screw hole **156**. Pin hole **155** is a cylindrical hole running through second tab **154** from the upper side to the lower side. Pin hole **155** has an inner diameter and a longitudinal axis. The longitudinal axis of pin hole **155** is parallel with the first and second sides of lock block **150**. Pin hole **155** functions to optionally receive a lock block pin **161** as described below. Screw hole **156** is a cylindrical tapped hole running through second tab **154** from the upper side to the lower side. Screw hole **156** has an inner diameter and a longitudinal axis. Screw hole **156** has female thread along its inner diameter. The longitudinal axis of screw hole **156** is parallel with the first and second sides of lock block **150**. Screw hole **156** functions to optionally receive a lock block screw **162** as described below. The interchangeable system of auto-latching/locking mortise lock for sliding door **2** is partially provided by the options of whether to include: pin hole **155**, lock block pin **161**, screw hole **156**, or lock block screw **162**.

Lock block lever pocket **157** is a void or hole in lock block **150**. Lock block lever pocket **157** is rectangular cuboid or square cuboid shaped notch or void taken out of the upper side of lock block **150**, in between the second tab **154** and the second heel **159**. Lock block lever pocket **157** does not break through the first side of lock block **150**. Lock block lever pocket **157** functions to receive and hold within it, the radial end of the lower arm **106** of bolt retraction lever **100**, as depicted. The radial end of the lower arm **106** of bolt retraction lever **100** rides within lock block lever pocket **157** to cause the lock block **150** to slide or move back and forth horizontally as the bolt retraction lever **100** is rotated. When T-turn hub **80** is rotated one way, this causes the fork arm **88** to rotate away from the retracting side of mortise housing base **10**, which causes the lower arm **106** of bolt retraction lever **100** to rotate towards the retracting side of mortise housing base **10**, which causes the lock block **150** to slide towards the retracting side of mortise housing base **10**. As discussed below, this locks auto-latching/locking mortise lock for sliding door **2**. When T-turn hub **80** is rotated the other, this causes the fork arm **88** to rotate away from the mortise housing face plate **30**, which causes the lower arm **106** of bolt retraction lever **100** to rotate towards the mortise housing face plate **30**, which causes the lock block **150** to slide towards the mortise housing face plate **30**. As discussed below, this unlocks auto-latching/locking mortise lock for sliding door **2**.

First heel **158** is a rigid solid rectangular cuboid shaped or square cuboid shaped member on the first side of lock block **150** that protrudes from the first side of lock block **150** as depicted. First heel **158** is a rigid tab that slides within or rides within opening side lock block slot track **26**. First heel **158** has a first side, a second side, an upper side, a lower side, an opening side, a retracting side, and a longitudinal axis. The second side of first heel **158** is rigidly attached to, connected to, or integral to the first side of lock block **150**, adjacent to the opening side of lock block **150**. The upper and lower sides of first heel **158** are parallel and flush with those of the lock block **150**. The first side of first heel **158** is parallel with that of lock block **150**. The opening side of first heel **158** is parallel and flush with that of lock block **150**. The longitudinal axis of first heel **158** is parallel with that of lock block **150** and opening side lock block slot track **26**. The width of first heel **158** is slightly smaller than that of opening side lock block slot track **26** so that first heel **158** may freely slide within opening side lock block slot track **26**. The length of first heel **158** must be less than that of opening side lock block slot track **26** so that lock block **150** may slide back and forth therein. With lock block **150** properly installed within auto-latching/locking mortise lock for sliding door **2**, the first side of first heel **158** is flush with the outside surface of the first side of mortise housing base **10**.

Second heel **159** is a rigid solid rectangular cuboid shaped or square cuboid shaped member on the second side of lock block **150** that protrudes from the second side of lock block **150** as depicted. Second heel **159** is a rigid tab that slides within or rides within opening side lock block slot track **46**. Second heel **159** has a first side, a second side, an upper side, a lower side, an opening side, a retracting side, and a longitudinal axis. The first side of second heel **159** is rigidly attached to, connected to, or integral to the second side of lock block **150**, adjacent to the opening side of lock block **150**. The upper and lower sides of second heel **159** are parallel and flush with those of the lock block **150**. The second side of second heel **159** is parallel with that of lock block **150**. The opening side of second heel **159** is parallel and flush with that of lock block **150**. The longitudinal axis of second heel **159** is parallel with that of lock block **150** and opening side lock block slot track **46**. The width of second heel **159** is slightly smaller than that of opening side lock block slot track **46** so that second heel **159** may freely slide within opening side lock block slot track **46**. The length of second heel **159** must be less than that of opening side lock block slot track **46** so that lock block **150** may slide back and forth therein. With lock block **150** properly installed within auto-latching/locking mortise lock for sliding door **2**, the second side of second heel **159** is flush with the outside surface of mortise housing face plate **30**.

Spring ridge **160** is a rigid oblong protrusion or rib extending outward from the first side of lock block **150**. Spring ridge **160** has a width, a length, a height, and a longitudinal axis. The height of spring ridge **160** is about 0.0625 to 0.25 inches. The longitudinal axis of spring ridge **160** is parallel with the opening and retracting sides of lock block **150** and perpendicular to the first and second sides of lock block **150**. Spring ridge **160** is located in between tabs **151**,**154** and heels **158**,**159**. Spring ridge **160** engages with the second arm of lock block spring **170**. This engagement functions to force or push lock block **150** in either the locked position or the unlocked position.

Lock block pin **161** is a solid rigid horizontal cylindrical member with a diameter, a length, a first end, a second end, and a longitudinal axis. The diameter of lock block pin **161** is sized to make a press fit with pin holes **152**,**155**. Lock block **150** may optionally include a lock block pin **161** pressed in pin hole **152**. Lock block **150** may optionally include a lock block pin **161** pressed in pin hole **155**.

Lock block screw **162** is a screw, bolt, fastener, clip, or similar. Lock block screw **162** has a first end, a second end, and a longitudinal axis. The first end of Lock block screw **162** has male thread that is sized to engage with the female thread on screw holes **153**,**156**. The second end of lock block screw **162** has a head that engages with a tool such as a driver, wrench, socket, bit, or similar. Lock block **150** may optionally include a lock block screw **162** threaded into screw hole **153**. Lock block **150** may optionally include a lock block screw **162** threaded into screw hole **156**.

Lock block spring **170** is a torsion spring. Lock block spring **170** has a center, a first side arm, and a second arm. The center of lock block spring **170** is mounted on lock block spring pivot support pillar **28**. The first arm of lock block spring **170** extends to contact the first side of lock block **150**. The second arm of lock block spring **170** extends to contact the inside surface of the lower side of mortise housing base **10**. The first arm of lock block spring **170** engages with spring ridge **160**, which pushes the lock block **150** towards the retracting side/locked position or the opening side/unlocked position. As the lock block **150** passes between these positions, the first arm of lock block spring **170** passes over the peak of spring ridge **160** and down the side of spring ridge **160** to hold lock block into a position on either side of spring ridge **160**. Lock block **150** will not hold with the first arm of lock block spring **170** contacting the peak of spring ridge **160** and slides down the peak of spring ridge **160** to push and hold lock block **150** to one side or the other of spring ridge **160**.

First lever hub **180** is a hub or center of a wheel or rotating member. First lever hub **180** is a rigid member. First lever hub **180** has a first side and a second side. First lever hub **180** comprises: a socket **182**; a key tab **183**; a bolt retraction arm **184**; and a lock block arm **186**. Lock block arm **186** may further comprise: a V-shaped notch **187** or a U-shaped notch **188**. There are three versions or modes of first lever hub **180**: one without any notch, one with V-shaped notch **187**, and one with a U-shaped notch **188**. Socket **182** is a hole through the center of first lever hub **180**. Key tab **183** is a rigid protrusion or tab that extends radially outward from socket **182**. Lock block arm **186** is a rigid oblong member or arm protruding outward from socket **182**. Lock block arm **186** may have a V-shaped notch **187** or a U-shaped notch **188** on its radial end. The first side of first lever hub **180** is pivotally attached to lever hub mounting hole **23** on the first side of mortise housing base **10**. The second side of first lever hub **180** is pivotally attached to the first side of second lever hub **190**. First lever hub **180** functions to transfer rotational motion from the door knob (not depicted) or door lever (not depicted) to rotational motion on bolt retraction lever **100**.

Socket **182** is a rigid cylindrical hole through first lever hub **180**. Socket **182** has open ends. Socket **182** runs thorough the center of first lever hub **180**. Socket **182** has a first end, a second end, an inner diameter, an inner surface, an outer diameter, an outer surface, and a longitudinal axis. First lever hub **180** is pivotally attached to the first side of mortise housing base **10** at the lever hub mounting hole **23** so that the longitudinal axis of socket **182** is perpendicular to the planes of first side of mortise housing base **10** and mortise housing cover plate **40**. The outer diameter of socket **182** is sized to make a slip fit with the diameter of lever hub mounting hole **23**. The outer surface of socket **182** is smooth. The inner surface of socket **182** has a plurality of points or ridges that function to engage with a square spindle or shaft from a door knob (not depicted) or door lever (not depicted). A spindle or shaft from a door knob or door lever is inserted and installed through socket **182** to form a connection therewith so that first lever hub **180** rotates along with the spindle or shaft from the a door knob or door lever. A door knob or door lever is not an element of auto-latching/locking mortise lock for sliding door **2** but is included with a mortise lock set.

Key tab **183** on first lever hub **180** is a rigid tab, protrusion, or catch that extends or protrudes radially outward from the outer diameter of socket **182**. Key tab **183** nests within key notch **24** on the first side of mortise housing base **10** to pivotally attach or slideably attach therein. Key tab **183** has a width. Key tab **183** has an opening side and a retracting side. The width of key notch **24** must be larger than that of key tab **183** so that key tab **183** may slide back and forth or rotate back and forth within key notch **24**. Key tab **183** functions to contact or catch on key notch **24** and thereby limit the rotation of first lever hub **180** within lever hub mounting hole **23**. When first lever hub **180** is rotated one way, the opening side of key tab **183** contacts the opening end of key notch **24** to prevent any more rotation of first lever hub **180** beyond this contact. When first lever hub **180** rotates the other way, the retracting side of key tab **183** contacts the retracting end of key notch **24** to prevent any more rotation of first lever hub **180** beyond this contact.

Bolt retraction arm **184** is a rigid oblong member or arm protruding radially outward from the exterior surface of socket **182**. When first lever hub **180** is pivotally attached properly, bolt retraction arm **184** extends in the direction pointing upwards towards the upper side of mortise housing base **10**. Bolt retraction arm **184** has an overall length of about 0.125 to 1 inches. Bolt retraction arm **184** functions to contact pin **113** on trigger lever **110** in order to retract deadbolt **50** to open the sliding door. Bolt retraction arm **184** is rotated toward mortise housing face plate **30** to contact pin **113** on first arm **112** of trigger lever **110** to rotate it towards the mortise housing face plate **30** so the second arm **114** of trigger lever **110** rotates towards the retracting side of mortise housing base **10** to contact the head **96** on pendulum arm **94** of bolt retraction hub **90** and rotate head **96** towards the retracting side of mortise housing base **10** to contact the pendulum arm pocket **64** in deadbolt shaft **60** to slide deadbolt shaft **60** towards the retracting side of mortise housing base **10** to overcome the deadbolt spring **70** pressure and retract deadbolt **50** so that the catch tab **115** on trigger lever **110** falls within trigger lever notch **68** on deadbolt shaft **60** to hold deadbolt **50** in the retracted position.

Lock block arm **186** is a rigid oblong member or arm protruding outward from the exterior surface of socket **182**. When first lever hub **180** is pivotally attached properly, lock block arm **186** extends in the direction pointing towards the mortise housing face plate **30**. Lock block arm **186** has an overall length of about 0.125 to 1 inches. Lock block arm **186** functions to contact lock block **150** in order to unlock auto-latching/locking mortise lock for sliding door **2**. Lock block arm **186** is rotated downwards toward the lower side of mortise housing base **10** to contact lock block **150**. With a V-shaped notch **187**, lock block arm **186** slides lock block **150** towards the mortise housing face plate **30** to overcome the lock block spring **170** pressure and unlock auto-latching/locking mortise lock for sliding door **2**. With a U-shaped notch **188**, lock block arm **186** will not slide the lock block **150** and auto-latching/locking mortise lock for sliding door **2** remains locked. If auto-latching/locking mortise lock for sliding door **2** is already unblocked, lock block arm **186** does not contact lock block **150** when rotated.

V-shaped notch **187** is a V-shaped notch or void in the radial end of lock block arm **186**. When first lever hub **180** is pivotally attached properly, V-shaped notch **187** extends in the direction pointing towards mortise housing face plate **30**. V-shaped notch **187** has an overall length of about 0.125 to 1 inches. The open part of the V-shape faces the mortise housing face plate **30**. The V-shaped notch **187** functions to contact an optional lock block pin **161** or an optional lock block screw **162** when first lever hub **180** is rotated to cause the lock block **150** to overcome pressure from the lock block spring **170** and slide towards the mortise housing face plate **30** to unlock auto-latching/locking mortise lock for sliding door **2**. The optional lock block pin **161** or optional lock

block screw **162** nests within and rides within the V-shaped notch **187** when lock block **150** is in the locked position. The V-shaped notch **187** allows the optional lock block pin **161** or optional lock block screw **162** to slide along the angle of the V and to slide or move the lock block **150** out of the locked position. The V-shaped notch **187** allows the optional lock block pin **161** or optional lock block screw **162** to slide therein while the U-shaped notch does not allow the optional lock block pin **161** or optional lock block screw **162** to slide. The V-shaped notch **187** is the automatic unlocking mechanism. This mechanism is an automatic unlocking mechanism that automatically unlocks auto-latching/locking mortise lock for sliding door **2** when first lever hub **180** is rotated by the door knob or door handle. If the optional lock block pin **161** or optional lock block screw **162** is not included, then the automatic unlocking mechanism does not function. V-shaped notch **187** is an optional part of the automatic unlocking system. The interchangeable system of auto-latching/locking mortise lock for sliding door **2** is partially provided by the options of whether to include: V-shaped notch **187** or U-shaped notch **188**.

U-shaped notch **188** is a U-shaped notch or void in the radial end of lock block arm **186**. When first lever hub **180** is pivotally attached properly, U-shaped notch **188** extends in the direction pointing towards mortise housing face plate **30**. U-shaped notch **188** has an overall length of about 0.125 to 1 inches. The open part of the U-shape faces the mortise housing face plate **30**. The U-shaped notch **188** functions to contact an optional lock block pin **161** or an optional lock block screw **162** when first lever hub **180** is rotated, which stops the rotation of first lever hub **180** and prevents the retraction of deadbolt **50** and thereby keeps auto-latching/locking mortise lock for sliding door **2** locked. The optional lock block pin **161** or optional lock block screw **162** nests within and rides within the U-shaped notch **188** when lock block **150** is in the locked position. The U-shaped notch does not allow the optional lock block pin **161** or optional lock block screw **162** to slide along the straight portion of the U to keep lock block **150** in the locked position. This U-shaped notch does not allow automatic unlocking. If the optional lock block pin **161** or optional lock block screw **162** is not included, then the automatic unlocking mechanism still does not function. U-shaped notch **188** is an optional part of the automatic unlocking system. The interchangeable system of auto-latching/locking mortise lock for sliding door **2** is partially provided by the options of whether to include: V-shaped notch **187** or U-shaped notch **188**.

Second lever hub **190** is a hub or center of a wheel or rotating member. Second lever hub **190** is a rigid member. Second lever hub **190** has a first side and a second side. Second lever hub **190** comprises: a socket **192**; a key tab **193**; a bolt retraction arm **194**; and a lock block arm **196**. Lock block arm **196** may further comprise: a V-shaped notch **197** or a U-shaped notch **198**. There are three versions or modes of second lever hub **190**: one without any notch, one with V-shaped notch **197**, and one with a U-shaped notch **198**. Socket **192** is a hole through the center of second lever hub **190**. Key tab **193** is rigid protrusion or tab that extends radially outward from socket **192**. Bolt retraction arm **194**, V-shaped notch **197**, and lock block arm with a U-shaped Notch **198** are each rigid protrusions or arms that extends radially outward from socket **192**. The second side of second lever hub **190** is pivotally attached to lever hub mounting hole **43** on mortise housing cover plate **40**. The second side of first lever hub **180** is pivotally attached to the first side of second lever hub **190**. Second lever hub **190** functions to transfer rotational motion from the door knob (not depicted) or door lever (not depicted) to rotational motion on bolt retraction lever **100**.

Socket **192** is a rigid cylindrical hole through second lever hub **190**. Socket **192** has open ends. Socket **192** runs thorough the center of second lever hub **190**. Socket **192** has a first end, a second end, an inner diameter, an inner surface, an outer diameter, an outer surface, and a longitudinal axis. Second lever hub **190** is pivotally attached to the mortise housing cover plate **40** at the lever hub mounting hole **43** so that the longitudinal axis of socket **192** is perpendicular to the planes of first side of mortise housing base **10** and mortise housing cover plate **40**. The longitudinal axes of first and second lever hubs **180**,**190** are concentric. The outer diameter of socket **192** is sized to make a slip fit with the diameter of lever hub mounting hole **43**. The outer surface of socket **192** is smooth. The inner surface of socket **192** has a plurality of points or ridges that function to engage with a square spindle or shaft from a door knob (not depicted) or door lever (not depicted). A spindle or shaft from a door knob or door lever is inserted and installed through socket **192** to form a connection therewith so that second lever hub **190** rotates along with the spindle or shaft from the a door knob or door lever. A door knob or door lever is not an element of auto-latching/locking mortise lock for sliding door **2** but is included with a mortise lock set. The spindle inserted into second lever hub **190** is not connected to and separate from the spindle inserted in the second lever hub **190**, so that the first and second lever hubs **180**,**190** may rotate independently from one another.

Key tab **193** on second lever hub **190** is a rigid tab, protrusion, or catch that extends or protrudes radially outward from the outer diameter of socket **192**. Key tab **193** nests within key notch **44** on mortise housing cover plate **40** to pivotally attach or slideably attach therein. Key tab **193** has a width. Key tab **193** has an opening side and a retracting side. The width of key notch **44** must be larger than that of key tab **193** so that key tab **193** may slide back and forth or rotate back and forth within key notch **44**. Key tab **193** functions to contact or catch on key notch **44** and thereby limit the rotation of second lever hub **190** within lever hub mounting hole **43**. When second lever hub **190** is rotated one way, the opening side of key tab **193** contacts the opening end of key notch **44** to prevent any more rotation of second lever hub **190** beyond this contact. When second lever hub **190** rotates the other way, the retracting side of key tab **193** contacts the retracting end of key notch **44** to prevent any more rotation of second lever hub **190** beyond this contact.

Bolt retraction arm **194** is a rigid oblong member or arm protruding radially outward from the exterior surface of socket **192**. When second lever hub **190** is pivotally attached properly, bolt retraction arm **194** extends in the direction pointing upwards towards the upper side of mortise housing base **10**. Bolt retraction arm **194** has an overall length of about 0.125 to 1 inches. Bolt retraction arm **194** functions to contact pin **113** on trigger lever **110** in order to retract deadbolt **50** to open the sliding door. Bolt retraction arm **194** is rotated toward mortise housing face plate **30** to contact pin **113** on first arm **112** of trigger lever **110** to rotate it towards the mortise housing face plate **30** so the second arm **114** of trigger lever **110** rotates towards the retracting side of mortise housing base **10** to contact the head **96** on pendulum arm **94** of bolt retraction hub **90** and rotate head **96** towards the retracting side of mortise housing base **10** to contact the pendulum arm pocket **64** in deadbolt shaft **60** to slide deadbolt shaft **60** towards the retracting side of mortise housing base **10** to overcome the deadbolt spring **70** pressure

and retract deadbolt **50** so that the catch tab **115** on trigger lever **110** falls within trigger lever notch **68** on deadbolt shaft **60** to hold deadbolt **50** in the retracted position.

Lock block arm **196** is a rigid oblong member or arm protruding outward from the exterior surface of socket **192**. When second lever hub **190** is pivotally attached properly, lock block arm **196** extends in the direction pointing towards the mortise housing face plate **30**. Lock block arm **196** has an overall length of about 0.125 to 1 inches. Lock block arm **196** functions to contact lock block **150** in order to unlock auto-latching/locking mortise lock for sliding door **2**. Lock block arm **196** is rotated downwards toward the lower side of mortise housing base **10** to contact lock block **150**. With a V-shaped notch **197**, lock block arm **196** slides lock block **150** towards the mortise housing face plate **30** to overcome the lock block spring **170** pressure and unlock auto-latching/locking mortise lock for sliding door **2**. With a U-shaped notch **198**, lock block arm **196** will not slide the lock block **150** and auto-latching/locking mortise lock for sliding door **2** remains locked. If auto-latching/locking mortise lock for sliding door **2** is already unblocked, lock block arm **196** does not contact lock block **150** when rotated.

V-shaped notch **197** is a V-shaped notch or void in the radial end of lock block arm **196**. When second lever hub **190** is pivotally attached properly, V-shaped notch **197** extends in the direction pointing towards mortise housing face plate **30**. V-shaped notch **197** has an overall length of about 0.125 to 1 inches. The open part of the V-shape faces the mortise housing face plate **30**. The V-shaped notch **197** functions to contact an optional lock block pin **161** or an optional lock block screw **162** when second lever hub **190** is rotated to cause the lock block **150** to overcome pressure from the lock block spring **170** and slide towards the mortise housing face plate **30** to unlock auto-latching/locking mortise lock for sliding door **2**. The optional lock block pin **161** or optional lock block screw **162** nests within and rides within the V-shaped notch **197** when lock block **150** is in the locked position. The V-shaped notch **197** allows the optional lock block pin **161** or optional lock block screw **162** to slide along the angle of the V to slide or move the lock block **150** out of the locked position. This mechanism is an automatic unlocking mechanism that automatically unlocks auto-latching/locking mortise lock for sliding door **2** when second lever hub **190** is rotated by the door knob or door handle. If the optional lock block pin **161** or optional lock block screw **162** is not included, then the automatic unlocking mechanism does not function. V-shaped notch **197** is an optional part of the automatic unlocking system. The interchangeable system of auto-latching/locking mortise lock for sliding door **2** is partially provided by the options of whether to include: V-shaped notch **197** or U-shaped notch **198**.

U-shaped notch **198** is a U-shaped notch or void in the radial end of lock block arm **186**. When second lever hub **190** is pivotally attached properly, U-shaped notch **198** extends in the direction pointing towards mortise housing face plate **30**. U-shaped notch **198** has an overall length of about 0.125 to 1 inches. There is a U-shaped notch or void on the radial end of U-shaped notch **198**. The open part of the U-shape faces the mortise housing face plate **30**. The U-shaped notch or void functions to contact an optional lock block pin **161** or an optional lock block screw **162** when second lever hub **190** is rotated, which stops the rotation of second lever hub **190** and prevents the retraction of deadbolt **50** and thereby keeps auto-latching/locking mortise lock for sliding door **2** locked. The optional lock block pin **161** or optional lock block screw **162** nests within and rides within the U-shaped notch when lock block **150** is in the locked position. The U-shaped notch does not allow the optional lock block pin **161** or optional lock block screw **162** to slide along the straight portion of the U to keep lock block **150** in of the locked position. This U-shaped notch does not allow automatic unlocking. If the optional lock block pin **161** or optional lock block screw **162** is not included, then the automatic unlocking mechanism still does not function. U-shaped notch **198** is an optional part of the automatic unlocking system. The interchangeable system of auto-latching/locking mortise lock for sliding door **2** is partially provided by the options of whether to include: V-shaped notch **197** or U-shaped notch **198**. Lever hub spring **200** is a torsion spring. Lever hub spring **200** has a center, a first side arm, and a second arm. The center of lever hub spring **200** is mounted on lever hub spring pivot support pillar **27**. The first arm of lever hub spring **200** extends to contact lock block arms **186**,**196**. The second arm of lever hub spring **200** extends to contact the inside surface of the lower side of mortise housing base **10**. Lever hub spring **200** functions to apply constant spring bias or spring pressure to push lock block arms **186**,**196** upwards. Lever hub spring **200** contacts and applies pressure to rotate both lock block arms **186**,**196** upwards. This spring pressure forces key tabs **183**,**193** against the retracting sides of key notches **24**,**44** respectively to keep the first and second lever hubs **180**,**190** and their connect door knobs or levers in this home position. Thus, after a door knob or lever is turned, it springs back to this biased home position with key tabs **183**,**193** resting against the retracting sides of key notches **24**,**44** respectively.

When the sliding door is closed, deadbolt **50** is in the extended position to latch the sliding door shut. In order to open the sliding door, the deadbolt **50** must be retracted. To retract deadbolt **50**, a door knob or lever is turned to rotate first or second lever hub **180**,**190**, which rotates bolt retraction lever **100**, which rotates bolt retraction hub **90**, which slides deadbolt shaft **60**, which retracts deadbolt **50**. With the deadbolt **50** retracted, sliding door may be opened. Deadbolt automatically extends when sliding door is closed. When the sliding door is closed, button **136** makes contact with the door jamb, which causes bolt release actuator **130** to move or slide towards the retracting side of mortise housing base **10**, causing the catch tab **115** to be pushed out of the trigger lever notch **68**, and the deadbolt **50** to extend from bias pressure applied by the deadbolt spring **70**.

For an ANSI or BHMA passage door lock: lock block **150** does not have any lock block pins **161** or any lock block screws **162** installed; first lever hub **180** has a V-shaped notch **187**; and second lever hub **190** has a V-shaped notch **197**.

For an ANSI or BHMA privacy door lock: lock block **150** has a lock block pin **161** installed in pin holes **152**,**155**; first lever hub **180** has a V-shaped notch **187** if oriented toward the inside of the room or a U-shaped notch **188** if oriented toward the outside of the room; and second lever hub **190** has a V-shaped notch **197** if oriented toward the inside of the room or a U-shaped notch **198** if oriented toward the outside of the room.

For an ANSI or BHMA office door lock: lock block **150** has a lock block pin **161** installed in pin holes **152**,**155**; first lever hub **180** has a V-shaped notch **187** if oriented toward the inside of the room or a U-shaped notch **188** if oriented toward the outside of the room; and second lever hub **190** has a V-shaped notch **197** if oriented toward the inside of the room or a U-shaped notch **198** if oriented toward the outside of the room.

For an ANSI or BHMA entry door lock: screw hole **153** does not have a lock block screw **162** installed if oriented

toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; screw hole **156** does not have a lock block screw **162** installed if oriented toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; first lever hub **180** has a U-shaped notch **188**; and second lever hub **190** has a U-shaped notch **198**.

For an ANSI or BHMA communication/patio door lock: screw hole **153** does not have a lock block screw **162** installed if oriented toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; screw hole **156** does not have a lock block screw **162** installed if oriented toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; first lever hub **180** has a U-shaped notch **188**; and second lever hub **190** has a U-shaped notch **198**.

For an ANSI or BHMA classroom door lock: screw hole **153** does not have a lock block screw **162** installed if oriented toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; screw hole **156** does not have a lock block screw **162** installed if oriented toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; first lever hub **180** has a U-shaped notch **188**; and second lever hub **190** has a U-shaped notch **198**.

For an ANSI or BHMA storeroom door lock: screw hole **153** does not have a lock block screw **162** installed if oriented toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; screw hole **156** does not have a lock block screw **162** installed if oriented toward the inside of the room and does have lock block screw **162** installed if oriented toward the outside of the room; first lever hub **180** has a U-shaped notch **188**; and second lever hub **190** has a U-shaped notch **198**.

What is claimed is:

1. A mortise lock comprising: a mortise housing base [**10**]; a mortise housing face plate [**30**]; a mortise housing cover plate [**40**]; a deadbolt [**50**]; a deadbolt shaft [**60**]; a deadbolt spring [**70**]; a T-turn hub [**80**]; a bolt retraction hub [**90**]; a bolt retraction lever [**100**]; a trigger lever [**110**]; a trigger lever spring [**120**]; a bolt release actuator [**130**]; a lock block lever [**140**]; a lock block [**150**]; a lock block spring [**170**]; a first lever hub [**180**]; a second lever hub [**190**]; and a lever hub spring [**200**], wherein,

said mortise housing base [**10**] comprises a first side, an upper side, a lower side, and a retracting side,

said mortise housing face plate [**30**] comprises an inside surface, an outside surface, a first edge, a second edge, an upper edge, and a lower edge,

said mortise housing cover plate [**40**] comprises an outside surface, an upper edge, a lower edge, an opening edge, and a retracting edge,

said deadbolt [**50**] is a rigid rectangular cuboid shaped member that comprises

an upper deadbolt wing [**51**], an upper deadbolt wing pivot pin [**52**], an upper deadbolt wing latch protrusion [**53**], an upper deadbolt wing heel protrusion [**54**],

a deadbolt wing spring [**55**],

a lower deadbolt wing [**56**], a lower deadbolt wing pivot pin [**57**], a lower deadbolt wing latch protrusion [**58**], and a lower deadbolt wing heel protrusion [**59**],

said deadbolt shaft [**60**] is a rigid oblong planar member with a first side, a second side, an upper edge, a lower edge, an opening edge, a retracting edge, and a longitudinal axis that comprises a deadbolt attachment arm [**62**], a pendulum arm pocket [**64**], a tab [**66**], and a trigger lever notch [**68**],

said deadbolt spring [**70**] is a torsion spring with a center, a first side arm, and a second arm,

said T-turn hub [**80**] is a hub or center of a wheel or rotating member that comprises a socket [**82**], a first lock cylinder catch arm [**84**], a second lock cylinder catch arm [**86**], and a fork arm [**88**],

said bolt retraction hub [**90**] is a hub or center of a wheel or rotating member that comprises a socket [**92**] and a pendulum arm [**94**],

said bolt retraction lever [**100**] is a rigid oblong planar member with a first side, a second side, and a longitudinal axis that comprises a pivot hole [**102**], an upper arm [**104**], a lower arm [**106**], and a pin [**108**],

said trigger lever [**110**] is a rigid oblong planar member with a first side, a second side, and a longitudinal axis that comprises a pivot hole [**111**], a first arm [**112**], a pin [**113**], a second arm [**114**], and a catch tab [**115**],

said trigger lever spring [**120**] is a torsion spring with a center, a first side arm, and a second arm,

said bolt release actuator [**130**] is a rigid solid rectangular cuboid member that comprises a cam surface [**132**], a slot track [**134**], and a button [**136**],

said lock block lever [**140**] is a rigid oblong planar member with a first side, a second side, and a longitudinal axis that comprises a pivot hole [**142**], an upper arm [**144**], and a lower arm [**146**],

said lock block [**150**] is a rigid solid rectangular cuboid member that comprises a first tab [**151**], a second tab [**154**], a lock block lever pocket [**157**], a first heel [**158**], a second heel [**159**], and a spring ridge [**160**],

said lock block spring [**170**] is a torsion spring a center, a first side arm, and a second arm,

said first lever hub [**180**] is a hub or center of a wheel or rotating member comprising a socket [**182**], a key tab [**183**], a bolt retraction arm [**184**], and a lock block arm [**186**],

said second lever hub [**190**] is a hub or center of a wheel or rotating member comprising a socket [**192**], a key tab [**193**], a bolt retraction arm [**194**], and a lock block arm [**196**],

said lever hub spring [**200**] is a torsion spring with a center, a first side arm, and a second arm,

said mortise housing face plate [**30**] is reversibly attachable to said mortise housing base [**10**],

said mortise housing cover plate [**40**] is reversibly attachable to said mortise housing base [**10**],

said deadbolt [**50**] is rigidly attached to said deadbolt attachment arm [**62**],

said deadbolt [**50**] and said deadbolt shaft [**60**] are slideably attached to said mortise housing base [**10**] and said mortise housing face plate [**30**],

said upper deadbolt wing [**51**] is pivotally attached to said deadbolt [**50**] with said upper deadbolt wing pivot pin [**52**],

said lower deadbolt wing [**56**] is pivotally attached to said deadbolt [**50**] with said lower deadbolt wing pivot pin [**57**],

said deadbolt wing spring [**55**] is a compression spring with an upper end attached to said upper deadbolt wing heel protrusion [**54**] and a lower end attached to said lower deadbolt wing heel protrusion [**59**],

said deadbolt spring [**70**] is pivotally attached to said mortise housing base [**10**],

said T-turn hub [80] is pivotally attached to said mortise housing base [10] and said mortise housing cover plate [40],

said bolt retraction hub [90] is pivotally attached to said mortise housing base [10],

said bolt retraction lever [100] is pivotally attached to said mortise housing base [10],

said trigger lever [110] is pivotally attached to said mortise housing base [10],

said trigger lever spring [120] is pivotally attached to said mortise housing base [10],

said bolt release actuator [130] is slideably attached to said mortise housing base [10] and said mortise housing face plate [30],

said lock block lever [140] is pivotally attached to said mortise housing base [10],

said lock block [150] is to said mortise housing base [10] and said mortise housing cover plate [40],

said lock block spring [170] is pivotally attached to said mortise housing base [10],

said first lever hub [180] is pivotally attached to said mortise housing base [10],

said second lever hub [190] is pivotally attached to said mortise housing cover plate [40], and

said lever hub spring [200] is pivotally attached to said mortise housing base [10].

2. A mortise lock as recited in claim 1 wherein said first tab [151] on said lock block [150] further comprises a pin hole [152].

3. A mortise lock as recited in claim 2 wherein said bolt retraction arm on said first lever hub [180] further comprises a V-shaped notch [187].

4. A mortise lock as recited in claim 2 wherein said bolt retraction arm on said first lever hub [180] further comprises a U-shaped notch [188].

5. A mortise lock as recited in claim 2 wherein said bolt retraction arm on said second lever hub [190] further comprises a V-shaped notch [197].

6. A mortise lock as recited in claim 2 wherein said bolt retraction arm on said second lever hub [190] further comprises a U-shaped notch [198].

7. A mortise lock as recited in claim 3, 4, 5, or 6 further comprising a lock block pin [161] located in said pin hole [152].

8. A mortise lock as recited in claim 1 wherein said first tab [151] on said lock block [150] further comprises a screw hole [153].

9. A mortise lock as recited in claim 8 wherein said bolt retraction arm on said first lever hub [180] further comprises: a V-shaped notch [187].

10. A mortise lock as recited in claim 8 wherein said bolt retraction arm on said first lever hub [180] further comprises: a U-shaped notch [188].

11. A mortise lock as recited in claim 8 wherein said bolt retraction arm on said second lever hub [190] further comprises: a V-shaped notch [197].

12. A mortise lock as recited in claim 8 wherein said bolt retraction arm on said second lever hub [190] further comprises: a U-shaped notch [198].

13. A mortise lock as recited in claim 9, 10, 11, or 12 further comprising a lock block screw [162] located in said screw hole [153].

14. A mortise lock as recited in claim 1 wherein said second tab [154] on said lock block [150] further comprises a pin hole [155].

15. A mortise lock as recited in claim 14 wherein said bolt retraction arm [184] on said first lever hub [180] further comprises a V-shaped notch [187].

16. A mortise lock as recited in claim 14 wherein said bolt retraction arm [184] on said first lever hub [180] further comprises a U-shaped notch [188].

17. A mortise lock as recited in claim 14 wherein said bolt retraction arm [194] on said second lever hub [190] further comprises a V-shaped notch [197].

18. A mortise lock as recited in claim 14 wherein said bolt retraction arm [194] on said second lever hub [190] further comprises a U-shaped notch [198].

19. A mortise lock as recited in claim 15, 16, 17, or 18 further comprising a lock block pin [161] located in said pin hole [155].

20. A mortise lock as recited in claim 1 wherein said second tab [154] on said lock block [150] further comprises: a screw hole [156].

21. A mortise lock as recited in claim 20 wherein said bolt retraction arm [184] on said first lever hub [180] further comprises a V-shaped notch [187].

22. A mortise lock as recited in claim 20 wherein said bolt retraction arm [184] on said first lever hub [180] further comprises a U-shaped notch [188].

23. A mortise lock as recited in claim 20 wherein said bolt retraction arm [194] on said second lever hub [190] further comprises a V-shaped notch [197].

24. A mortise lock as recited in claim 20 wherein said bolt retraction arm [194] on said second lever hub [190] further comprises a U-shaped notch [198].

25. A mortise lock as recited in claim 21, 22, 23, or 24 further comprising a lock block screw [162] located in said screw hole [153].

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