D. CHURCHILL.

LOCK FOR LOCKER DOORS.

APPLICATION FILED AUG. 7, 1905.

998,871. Patented July 25, 1911.

2 SHEETS—SHEET 2.

Fig. 3.

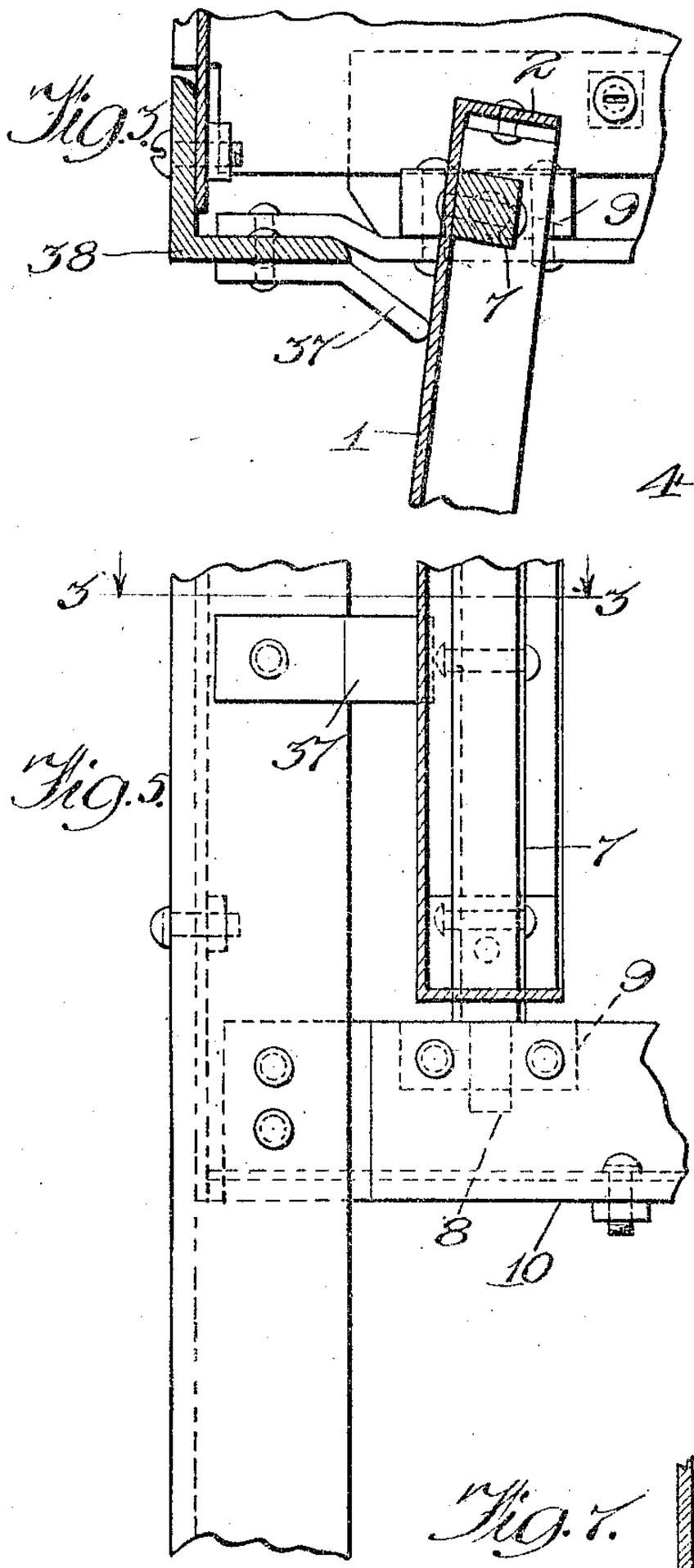


Fig. 4.

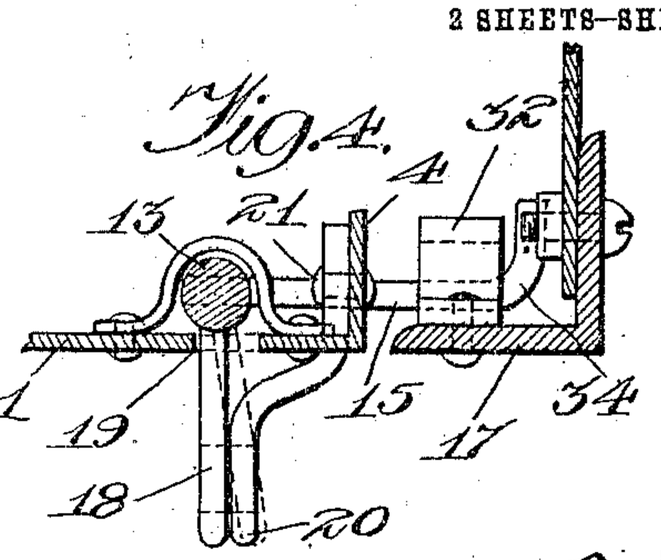


Fig. 5.

Fig. 6.

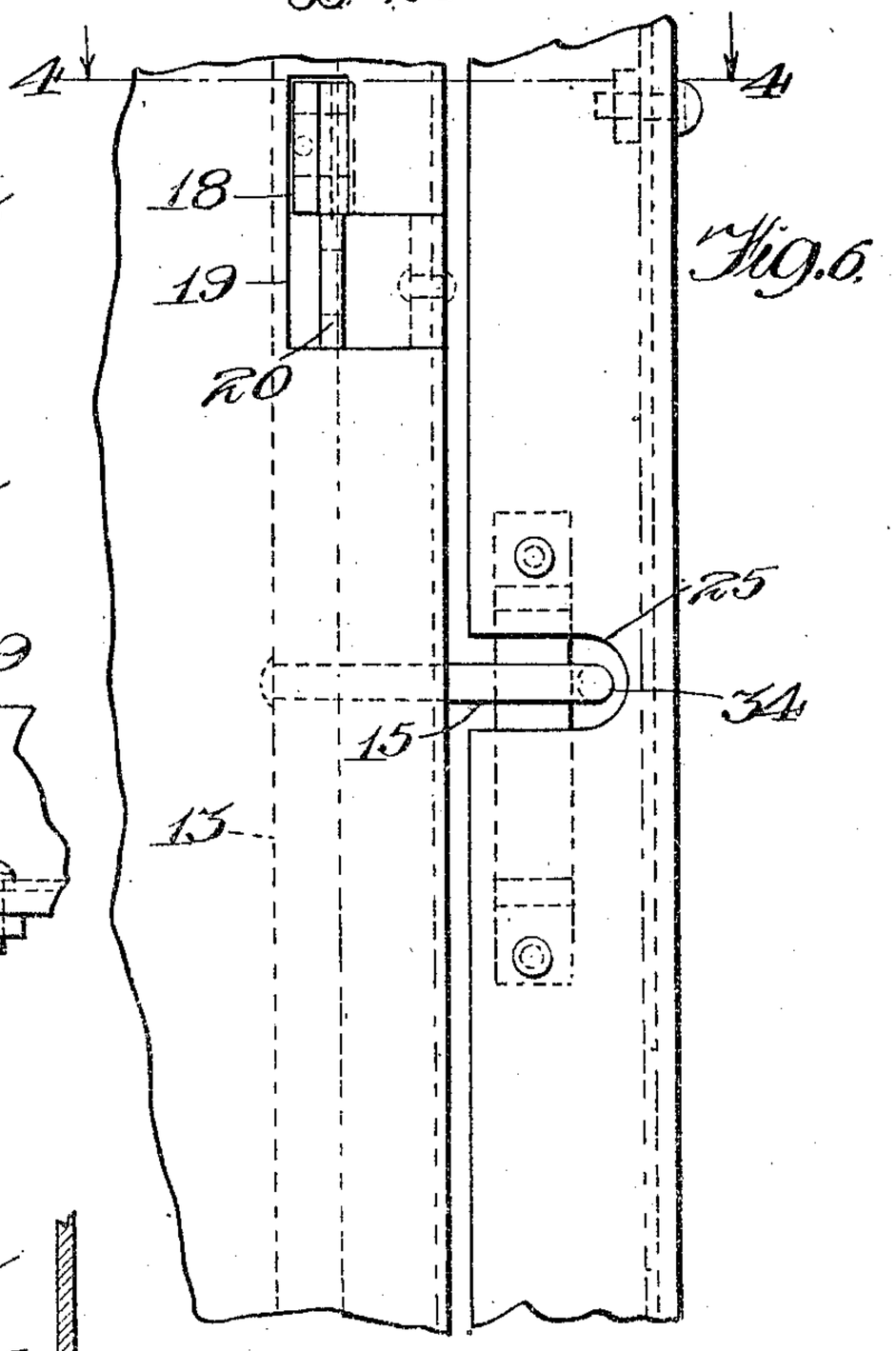
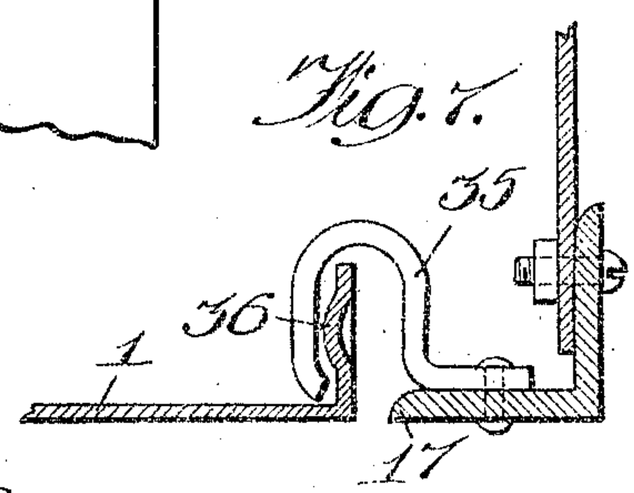


Fig. 7.



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UNITED STATES PATENT OFFICE.

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LOCK FOR LOCKER-DOORS.

998,871. Specification of Letters Patent. Patented July 25, 1911.

Application filed August 7, 1905. Serial No. 272,949.

To all whom it may concern:

Be it known that I, DURAND CHURCHILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Locks for Locker-Doors, of which the following is a specification.

My invention relates more particularly to locks for the doors of metallic lockers or lockers composed of thin sheet metal, and the improvements have reference to the various features whereby the door is rendered rigid and made secure when closed.

The invention has for its primary object to provide an improved and efficient form of lock for locker doors which may be constructed of thin sheet metal and at the same time will be rigid and securely held by said lock from being pried open when closed.

With a view to the attainment of these ends and the accomplishment of certain other objects that will hereinafter appear, the invention consists in the features of novelty which will now be described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings,—Figure 1 is a front elevation of my improved lock on a locker door, showing the same closed and partially broken away; Fig. 2 is an inside elevation thereof; Fig. 3 is an enlarged plan section of one corner of the door and connected parts on an enlarged scale, the section being taken on the line 3, 3, Fig. 5; Fig. 4 is an enlarged plan section on the line 4, 4, Fig. 6; Fig. 5 is a front elevation of the parts shown in Fig. 3; Fig. 6 is a front elevation of the parts shown in Fig. 4; and Fig. 7 is an enlarged plan section taken on the line 7, 7, Fig. 2.

1 is the door proper, which is formed of thin sheet metal and provided around its edges with flanges 2, 3, 4, 5, which are constituted by turning up the edges of the sheet and securing the ends of the flanges thus constituted by means of rivets 6, or other suitable devices. Riveted or otherwise secured to the door parallel with and contiguous to the flange 2 is a rod 7, which is preferably square, and has its ends provided with journals or pins 8 and carried through the top and bottom flanges 3, 5 and journaled in blocks 9 secured above and below the door, one of these blocks being secured to the bottom cross bar 10 and the other to the top cross bar 11, which constitute the upper and lower ends of the door frame. By these means the door is securely journaled or hinged and the edge of the door from end to end is braced by the rod 7, making it practically impossible to bend the door and spring the hinged pintles out of their sockets. If desired, similar rods 12 may be riveted along the upper and lower edges of the door for stiffening the door in a longitudinal direction.

On the edge of the door opposite the hinge rod 7 is mounted a vertically sliding bolt rod 13, which is secured in place in any suitable way, as by straps 14 riveted or attached to the inner face of the door. This bolt rod 13 extends throughout a substantial portion of the height of the door, and is provided at its upper end with a bolt 15 projecting laterally therefrom and at or near its other end with a similar bolt 16. These bolts are substantially the same in construction and they extend laterally a sufficient distance to project across the outer flange 17 of an upright angle iron arranged at one corner of the locker with its upper and lower ends attached to the bars 10, 11 and constituting the side of the door frame, so that when the bolts 15, 16 are behind the flange 17, as shown in Figs. 1, 2 and 4, they will prevent the door from being opened. The bolt rod is held against rotation beyond a certain degree, by a staple 18, which projects through an aperture or slot 19 in the door 1 and is arranged contiguous to a companion staple 20, which is carried through the face of the door 1 and secured by a rivet 21 to side flange 4. Thus when the staple 18 is opposed to the staple 20, the rod 13 is held against rotation and the door is consequently bolted at top and bottom by the bolts 15, 16. This rotary movement of the rod 13 is also prevented by a knob or handle 22 secured to the rod 13 and projecting through a slot 23 formed vertically in the face of the door, but the upper end of this slot is formed with an offset or notch 24 so that the rod 13 may be lifted by means of the knob 22 until the staple 18 passes above the staple 20, as shown in Fig. 6, whereupon the rod may be turned to bring the staple 18 on top of the staple 20, where it will rest and support the rod. When the rod is thus lifted, the bolts 15, 16 come opposite notches or apertures 25, 26 respectively, formed in the flange 17 and thus allow the door to be opened. When the

door is closed again the jar dislodges the staple 18 from the staple 20 and the rod 13 drops and carries the bolts 15, 16 behind the flange 17 as before.

In order that the rod 13 may be locked against vertical movement for preventing the door from being opened, a padlock, not necessary to illustrate, may be passed through the staple 18, 20, or, if desired, the door may be permanently provided with any suitable permutation lock 27 having a bolt 28 adapted to pass through the staples 18, 20. In addition to this lock or as a substitute for this, the door may be provided with a key-lock 29, having a bolt 30 adapted to engage over a lug 31 projecting from the rod 13, and thus prevent the rod from being lifted.

When the bolts 15, 16 enter their respective notches 25, 26 and fall with the rod 13, they engage between the flange 17 and two straps 32, 32 respectively, which are riveted or otherwise secured to the inner face of flange 17, and the ends of the bolt 16 are provided with hooks or bends 34, which are so constructed and arranged that should it be attempted to pry the door away from the flange 17 the hooks will engage the straps 32, 32 and prevent the bolts 15, 16 from being dislodged from behind the flange 17. This prying action of the door is further resisted by hooks or catches 35 riveted or otherwise secured to the inner face of flange 17, and as more clearly shown in Fig. 7, engage around the flange 4 of the door when the door is closed. If desired, these hooks 35 may also be utilized as catches for holding the door from swinging open accidentally when unlocked, by providing the flange 4 with bosses 36 opposite each of the hooks 35 and with which the point of the hook engages.

The opening movement of the door may be limited, if desired, by a stop 37 secured to angle iron 38, which, together with the angle irons or bars 10, 11 and 17, completes the door frame. This stop 37, it will be seen, is so close to the plane of the locker as not to be objectionable, and at the same time it is a sufficient distance from the axis of the hinge to be effective in stopping the door. This is because the hinge is situated within the locker and consequently a considerable distance from the plane of the outer face or front of the locker, and it is also situated a considerable distance laterally from the edge of the door frame, as shown in Fig. 3, thus leaving a space between the angle iron 38 and the face of the door when the door is open, but when it is closed this space is filled or closed by that portion of the door which projects beyond the hinge and toward the angle iron 38. Not only does this arrangement enable me to provide a door with a neat and effective stop for checking its opening movement, but it locates the hinge entirely within the locker and protects the hinge pintles from the possibility of being driven out or dislodged from their sockets 9. The closing or inward movement of the door at the opposite edge is prevented or stopped by the hooks 35 as well as by the straps 32, which receive the impact of the bolts 15 as the door closes, and thereby throws the staple 18 off the staple 20 in the event the jar should not be sufficient to do so.

Having thus described my invention what I claim as new therein and desire to secure by Letters Patent, is:

1. In a lock door, the combination with a door frame provided with a passage-way opening through one edge of said frame, of a door movable about an axis, a bolt projecting from one edge of said door radially with respect to said axis, said bolt being provided with a bent extremity normal to the lateral surface of the door and said extremity being movable through said passage-way, means for raising the bolt relatively to said passage-way, and means on the frame with which the bent extremity of said bolt engages for holding the bolt against movement transverse to the edge of the door frame.

2. In a lock door, the combination with a door frame having a passage-way opening through the edge thereof, of a strap secured to the door frame behind and crossing said passage-way, a door hinged in the frame, and a vertically movable bolt mounted on the door and adapted by the movement of the door to pass through said passage and engage between the frame and said strap, said bolt having a hook or lateral projection for engaging the strap.

3. In a lock door the combination with the door frame having a passage in the edge thereof, and the door proper hinged in the frame, of a vertically movable bolt mounted upon the door transversely of the frame and adapted to pass through said passage and sink behind the frame, a staple connected with said bolt, and projecting through the door, a second staple secured to the door contiguous to said first staple, and means for locking said staples together.

4. In a lock door, the combination with a door frame provided with a passage-way extending through the edge thereof and a door hinged in said frame, of a bolt rod vertically disposed along the edge of the door and movably connected thereto, a knob or handle secured to said rod and projecting through the door, said handle being movable with the rod to lift the rod, and a bolt secured to said rod and projecting from the edge of the door whereby it is adapted to be moved through said passageway and to drop down behind the frame.

5. In a lock door, the combination with a

door frame having a passage-way therein at the upper and lower portions thereof, and a door hinged in said frame, of a bolt rod vertically disposed along the edge of the door and attached thereto, and bolts on said rod projecting from the edge of the door, said bolts being movable axially and angularly about the axis of the bolt rod.

6. In a lock door the combination with the door frame, having a passage in the edge thereof, and the door proper hinged in the frame, of a rotary bolt rod extending vertically on the edge of the door, a bolt projecting transversely of the door frame from said rod and adapted to pass through said passage, said rod being vertically movable. means whereby said rod may be lifted and rotated, and means whereby it may be temporarily supported in its elevated position with the said bolt opposite the said passage.

7. In locking devices for metal lockers and the like, the combination of a rotary and vertically-sliding bolt rod carried by the door-frame and provided with a projection extending laterally in a plane transverse to the bolt rod, a lock carried by the door-frame and having its bolt arranged to be projected forward across the path of the lateral projection of the bolt rod, to hold the catch-bar against sliding movement, said projection being movable transversely across the path of the bolt when it is retracted, and a second projection on the bolt rod for locking the door, adapted to unlock the door when the bolt rod is rotated.

8. In locking devices for metal lockers and the like, the combination of a rotary and vertically-sliding bolt rod carried by the door-frame and provided with a projection extending laterally in a plane transverse to the bolt rod, a lock carried by the door-frame and having its bolt arranged to be projected forward across the path of the lateral projection of the bolt rod to hold the catch bar against sliding movement, said projection being movable transversely across the path of the bolt when it is retracted, and auxiliary fastenings located at the top and bottom of the door-frame and controlled by said sliding bolt rod and adapted to unlock the door when the bolt rod is rotated.

9. In a lock, the combination with a door frame, of a door movably mounted therein, a bolt rod rotatably and reciprocably mounted along one edge of said door, and bolts mounted on said bolt rod, said bolts being adapted by the movement of said bolt rod to be moved into and out of engagement with the side of the door frame.

10. In a lock, the combination with a door frame, of a door movably mounted therein, a bolt rod reciprocably and rotatably mounted on the door, a plurality of bolts mounted on said bolt rod and adapted by the movement of said bolt rod to be drawn into and out of engagement with said door frame, means mounted on the door for locking the bolt rod against reciprocation, and means on the door frame for locking said bolt rod against rotation.

In witness whereof, I have hereunto set my hand this 13th day of July, 1905, in the presence of the subscribing witnesses.

DURAND CHURCHILL.

Witnesses:
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