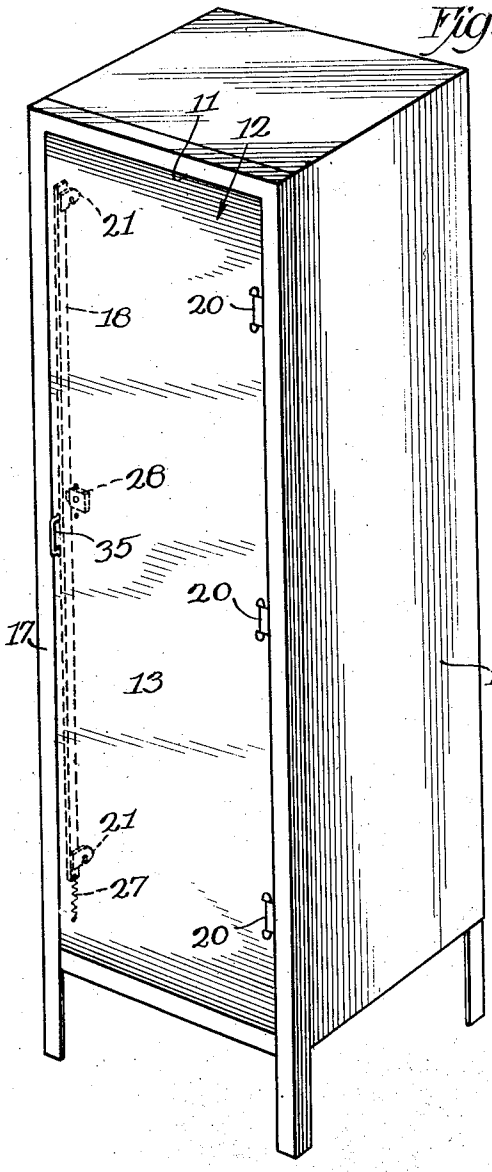
Sept. 13, 1927. 1,642,501

J. KNELL

LATCH AND LOCK MECHANISM

Filed March 25, 1927

Fig. 1



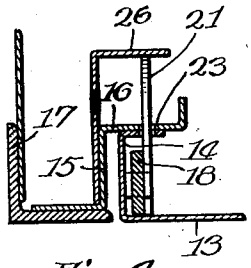


Fig. 4

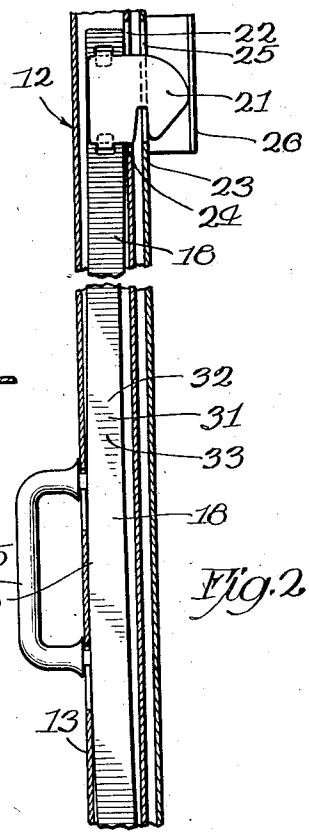
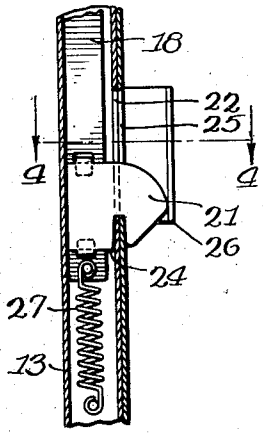


Fig. 2

Fig. 3



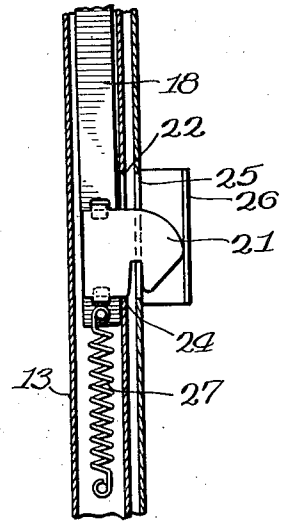
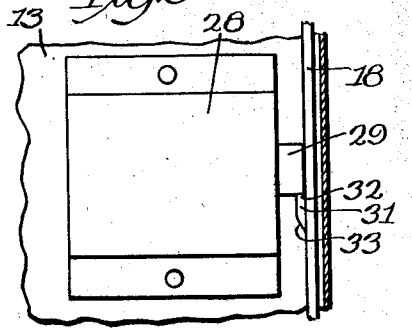


Fig. 5



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UNITED STATES PATENT OFFICE.

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LATCH AND LOCK MECHANISM.

Application filed March 25, 1927. Serial No. 178,218.

This invention relates to latch mechanism, and more particularly to latches and locks for locker doors, closet doors and the like.

The principal object of the invention is the provision of new and improved latch mechanism that will remain in inoperative position when the latch is released and that will automatically move to latching position when the door is closed.

Another object of the invention is the provision of new and improved latch mechanism with means for locking the same in latched position.

A further object of the invention is the provision of new and improved latch mechanism for locker doors, closet doors and the like that is cheap to manufacture, easily assembled, efficient in use, that is light, durable and not likely to become broken or get out of order.

Other and further objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is a perspective view of a locker showing my invention in position thereon;

Fig. 2 is a vertical section of a portion of the locker, showing the invention in unlocked position;

Fig. 3 is a view similar to Fig. 2, with parts broken away, and showing the latch in locked position;

Fig. 4 is a section on line 4—4 of Fig. 3; and

Fig. 5 is a section showing the lock and latch bar in elevation, with parts broken away.

It has been proposed to employ a locking bar to secure the free edge of the door of lockers and the like to the jamb at a plurality of points along the door and to provide means for holding the bar in elevated position, but these devices are more or less complicated and require the use of springs and the like for assisting in holding the bar in elevated position. The present invention contemplates the use of a latching bar that is more or less resilient whereby the resiliency of the bar itself is utilized for assisting in holding the bar in elevated position when the latch is released.

It is the common practice to employ padlocks and other locks requiring a positive operation for locking the latch bars in latching position. This is objectionable because it often results in loss of garments and the like on account of the forgetfulness or neglect of the owner or lessee of the locker in locking the door. In the present invention, the latch is automatically engaged and the bar locked in position on closing the door, thus insuring a safe depository by merely closing the locker door.

In the form of the device selected to illustrate one embodiment of the invention, the reference numeral 10 designates, by way of example, a locker or cabinet which, of course, may be a closet or any other receptacle. The locker is of the usual or any well known construction. Since the details of its construction constitute no part of the present invention, it is not thought necessary to illustrate or describe the same in detail. The locker 10 is provided with the conventional opening 11 in its front side which is adapted to be closed by a door or closure 12. The door 12 comprises a panel 13 which may be and preferably is provided with a reinforcing channel 14 about its edge. The channel may be formed by bending the sheet metal of which the locker door is usually composed, laterally, and then backward parallel with the panel. The door is hinged as at 20 along one of its vertical edges to the front wall adjacent to the opening. A door jamb 15, rabbeted as at 16 for receiving the free edge of the door is provided along the opposite edge of the opening. This jamb may also be of sheet metal bent to form and rigidly secured to the angle iron 17 forming the corner of the locker, if desired.

A locking bar 18 is slidably mounted in the channel 14 and is bent laterally intermediate its ends as indicated at 19. The bar 18 is preferably in a plane at right angles to the door panel and has rigidly attached to each end thereof a latch or catch member 21 which extends inwardly through upper and lower elongated openings or slots 22 in the return bent portion or flange of the channel 14, and is adapted to engage a keeper 23 on the door jamb for holding the door in closed position. The keeper may be and preferably is formed by providing an elongated slot 25 in the door jamb through which the catch extends and engages the lower marginal wall forming said slot for holding the door closed. The lower marginal walls of the slots 22 and 25 are in substantially the same horizontal plane where-

by their lower marginal walls may be engaged by said latch.

One, or, if desired, both of the latches or catch members 21, are provided with shoulders 24 for engaging the lower portion of the wall forming the slot 22 when the latch bar is elevated to inoperative position. The curve of the bar 18 is such that the ends will engage the flange, and the curved portion the panel, with the bar slightly under tension, whereby when the bar is raised the resiliency of the same will force the ends with the catches outwardly to cause the shoulder 23 to engage the lower marginal wall of the slot, for holding the latch bar in elevated position.

A strike plate 26 is provided for engaging the latch 21 when the door is closed for forcing the latch outwardly against the tension of the locking bar for disengaging the shoulder 24 from the slot 22 and to permit the latch bar to automatically drop to latching position. In order to overcome friction, a coil spring 27 may be secured at one end to the lower portions of the door and latch bar for assisting gravity in lowering said bar when the shoulder 24 is disengaged from the slot 22.

It is desirable that means be provided for automatically locking the bar in lowered position when the door is closed. In the present disclosure, which is by way of example only, a spring lock 28 is employed for this purpose. The lock 28 is of any approved construction and is shown more or less diagrammatically on the drawing. The bolt 29 of the lock is normally held extended by spring mechanism in the usual manner. A locking lug 31 secured to the locking bar and having its upper end at substantially right angles to the bar for forming a shoulder 32 for engaging beneath said bolt 29 is employed for this purpose. The lower surface of the lug is provided with an inclined surface 33 for automatically retracting the bolt 29 when the bar is lowered from elevated or unlocked position. In lowering the locking bar 18 from its elevated position, the bolt 29 will be retracted by the inclined surface 23 and permit the bar to be lowered to locking position.

The locking bar 18 is provided with the usual handle 35 for manipulating the bar.

In the operation of the device, when it is desired to open the door, the key is inserted in the lock 28 and the bolt 29 retracted. The catches 21 are then disengaged from their keepers by elevating the locking bar 18 by means of the handle 35. When the bar has been elevated a sufficient distance the shoulder 24 of one or both of the catches, as the case may be, is forced outward into the slot 22 by the resiliency of the locking bar and will hold the bar in elevated position with the catches 21 in released position. When the door is closed the catch 21 is forced outward by the engagement of the catch 21 with the strike plate 26 which disengages the shoulder 24 from the slot 22 and permits the spring 27 to lower the bar and catches to locking position. In the meantime the lug 31 has retracted, and passed below, the locking bolt 29, which will positively lock the bar in lowered position and prevent unauthorized opening of the door.

In order to open the door the key is inserted in the lock 28 and turned to retract the bolt 29, after which the locking bar may be elevated by the handle 35 in the usual manner. The handle being raised far enough to disengage the shoulder 24 from the flange of the channel 14, said shoulder will spring out into the slot 22 for holding the bar and catches in unlocked position.

While I have shown the latch bar as formed from a strip of metal rectangular in cross-section, and bent edgewise, it is understood that any suitable bar may be employed and bent in any suitable manner, the form or shape of the bar being immaterial so long as it is so bent that the portion of the bar to which the shoulder 24 is attached is forced outwardly by the resiliency of the bar.

It is thought from the foregoing taken in connection with the accompanying drawings, that the construction and operation of my device will be apparent to those skilled in the art, and that various changes in size, shape, proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. In combination with a locker having a door hinged thereto, a keeper on said locker, a resilient curved latching bar on said door, means associated with said bar for engaging said keeper, said means being provided with a shoulder for holding said bar in elevated position, a striker plate for engaging said means when the door is closed for releasing said shoulder, and means for lowering said bar to cause said first named means to engage said keeper.

2. A latching mechanism for doors comprising a latching bar, said bar being curved between its ends, and a hook on each end portion of said bar extending in the direction opposite to said curve.

3. A locker door, comprising a panel having hinge members along one vertical edge, the free edge of said door being provided with a laterally facing channel, a latching bar slidably mounted in said channel, said bar being bent edgewise, the ends of said bar engaging one of the side walls of said channel and the bent portion of said bar engaging the other side wall of said channel, a latch member on one end of said bar, said member extending through a slot in the in-

ner wall of the channel and having a shoulder for engaging in the lower portion of said slot when said bar is elevated, and means for automatically releasing said shoulder when the door is closed.

4. In a locker having an opening in its front wall, a door jamb at one side of said opening, a door hinged to the front wall adjacent to the other side of said opening, the free edge of said door being provided with a channel, a latch bar within said channel, a handle carried by said bar, a catch on one end portion of said bar and extending through a slot in said channel and adapted to engage said jamb when the door is closed, a shoulder on said catch, said bar being curved and having its ends and curved portion frictionally engaging opposite sides of said channel whereby when said catch is elevated said shoulder will be forced outward by the resiliency of said bar to engage the marginal edge of said slot for holding said bar in elevated position, and means for releasing said catch on the closing of said door.

5. In a locker having an opening in its front wall, a door jamb at one side of said opening, a door hinged to the front wall adjacent to the other side of said opening, the free edge of said door being provided with a channel, a latch bar within said channel and extending in a plane at right angles to said door, a handle carried by said bar, a catch on one end portion of said bar and extending through a slot in said channel and adapted to engage said jamb when the door is closed, a shoulder on said catch, said bar being curved edgewise and having its ends and curved portion frictionally engaging opposite sides of said channel whereby when said catch is elevated said shoulder will be forced outward by the resiliency of said bar to engage the marginal edge of said slot for holding said bar in elevated position, means for releasing said catch on the closing of said door, a lug on said bar, and a spring latch for engaging said lug for holding the same in lowered position.

6. A latching mechanism for doors comprising a latching bar, said bar being curved laterally between its ends, a hook on each end portion of said bar extending in the direction opposite to said curve, and a lug on the side of said bar having an inclned lower surface.

7. In combination, a locker provided with a door hinged thereto, a locking bar slidably mounted on said door, a keeper on said locker, means carried by said bar and extending through a slot in said door for engaging said keeper for holding said door closed, a shoulder associated with said bar, said bar being adapted to force said shoulder inward to engage said slot when said bar is elevated, and a striker plate for releasing said shoulder when said door is closed.

8. In combination, a locker provided with a door hinged thereto, a locking bar slidably mounted on said door, a keeper on said locker, means carried by said bar and extending through a slot in said door for engaging said keeper for holding said door closed, a shoulder associated with said bar, said bar being adapted to force said shoulder inward to engage said slot when said bar is elevated, a striker plate for releasing said shoulder when said door is closed, and a coiled spring for moving said bar downward into latching position.

9. A locker provided with a door hinged thereto, a resilient locking bar slidably mounted on said door at the free edge thereof, a keeper on said locker, means carried by said bar for engaging said keeper for holding said bar in closed position, a shoulder associated with said bar, means on said locker for automatically engaging said shoulder upon elevating said bar for holding said bar elevated in released position, means for automatically releasing said shoulder upon closing the door, and means for automatically locking said bar in lowered position upon closing said door.

In testimony whereof I affix my signature.

JOHN KNELL.