Jan. 5, 1932. J. P. JOHANSSON 1,840,037

LOCK

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Fig. 1.

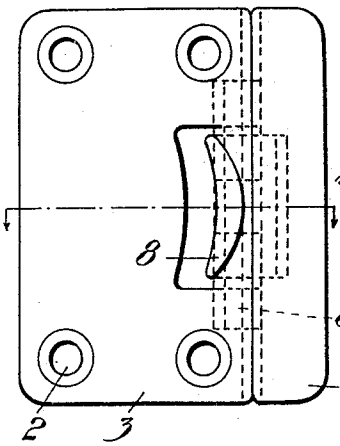


Fig. 2.

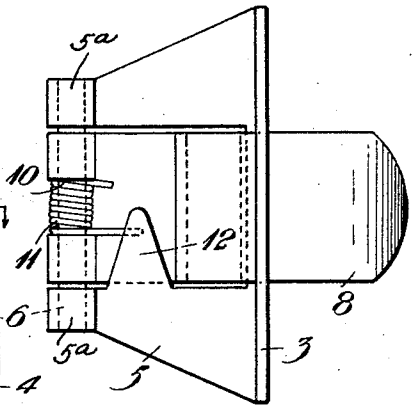


Fig. 3.

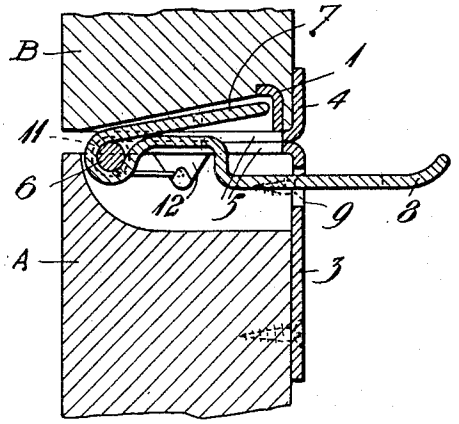
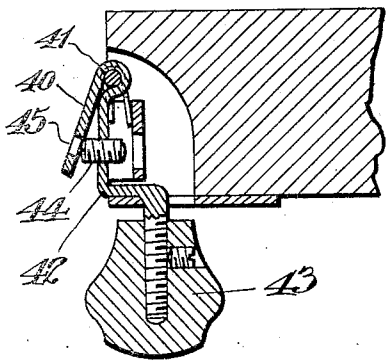


Fig. 6.



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Fig. 4.

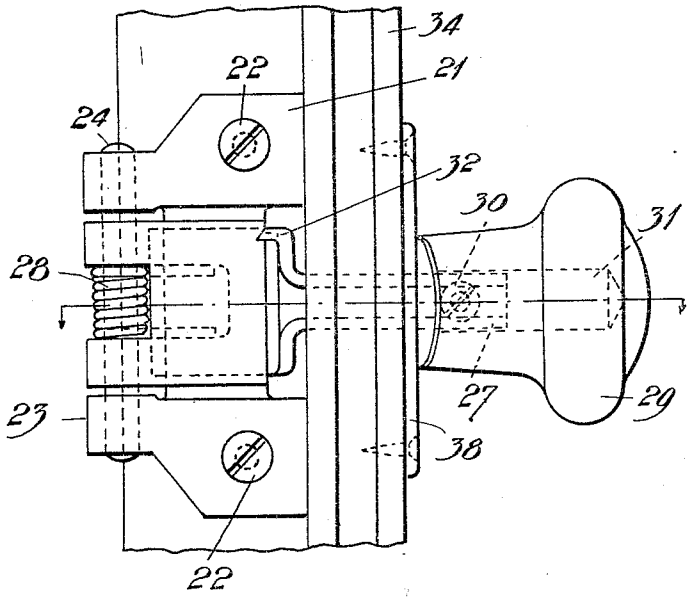
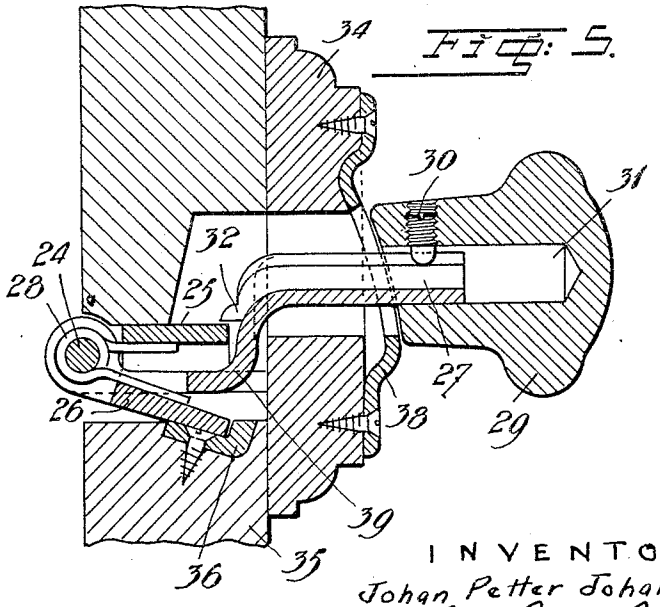


Fig. 5.



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UNITED STATES PATENT OFFICE

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LOCK

Application filed June 7, 1929, Serial No. 369,046, and in Sweden July 4, 1928.

The present invention relates to improvements in locks, adapted for doors, cabinets and the like, of the kind which are provided with a lockbolt mounted to turn. Such locks are distinguished for a smooth and easy locking-operation when shutting the door, as the bolt easily turns aside, due to its ability to rotate. In such locks, however, certain difficulties are encountered when it is sought to combine said advantage with a turning-movement of the lockbolt through a considerable angle. Such a turning-movement is, however, in locks hitherto known, a necessity, because of the fact that the distance between the door and the door-post usually increases after the lock is mounted, due to the shrinkage of the door, a circumstance which is inevitable. Now, this invention relates to an arrangement, which possesses the advantage of a relatively limited turning-movement of the lock-bolt and at the same time avoids the troubles, inherent in this limited movement in locks hitherto known. The invention is essentially characterized by the fact, that the lock-bolt is arranged in such a way as to allow an adjustment of the maximum movement, corresponding to the locking-position.

The lock-bolt suitably consists of a latch mounted to rotate about a pin, a part adapted to open the latch and rigidly connected therewith being arranged so as to allow the latch to be bent away from said part, whereby at the same position of the opening-mechanism the latch will extend farther out of the door in locked position. The latch may consist of strip-iron or the like, bent around the pivot of the latch, one branch forming the locking-latch or lock-bolt, and the other branch forming a lever which serves for the opening-operation. By bending said branches apart the adjustment required to accommodate the maximum movement of the bolt in locking position, will be obtained. To facilitate the bending operation the strip-iron may for instance, be made less resistant at the point, at which the bending is desired.

Other features of the invention will be more fully set forth in connection with the description of the embodiments shown in the annexed drawings.

Figs. 1, 2 and 3 show a simple lock for cabinets, cupboards or the like, Figs. 1 and 2 showing the lock in front-view and side view, respectively, and Fig. 3 being a longitudinal section through a portion of a door and its jamb showing the latch in locking position; Figs. 4 and 5 are respectively a side view and a longitudinal section through a portion of a door and its jamb, and illustrating a modified form of the latch; and Fig. 6 is a detail sectional view illustrating another modification of the latch.

In the embodiment shown in Figs. 1 to 3, the latch-carrying member comprises a plate which is bent upon itself to form a pair of intermediate parallel portions 5, and a pair of end flanges 3 and 4 at right angles to said parallel portions. The flange 3 is provided with screw holes through which it may be secured to a door A, while the flange 4 forms a stop adapted to contact with the door jamb B thereby to limit the closing movement of the door. The intermediate portions 5 are cut away at their connecting portion and are curved so as to form a pair of end sleeves 5^a for the reception of a pintle 6 on which the locking latch to be hereinafter described is mounted for rotation. The locking latch comprises a plate which is bent about the pintle 6, one portion of said plate forming the latch proper 7 adapted to enter a recess in the door jamb and to engage a stop to prevent opening of the door without manipulation of the opening lever. The other portion 8 of said plate extends through an opening 9 in the flange 3 and forms a latch-operating handle. The latch is acted upon by a coil spring 10 wound about the intermediate portion of the pintle 6, thereby to cause the latch automatically to enter the locking recess and remain therein until the handle is manipulated. For this purpose, that portion of the latch which embraces the pintle is cut away as indicated at 11. One end of the coil spring bears against the latch 7, the other end of said spring resting against a projection 12 formed on one branch 5 of the supporting plate. In order to hold together the

two parts 7 and 8 of the latch-forming plate, the said parts may be connected by a rivet or the like at a point adjacent to the pintle 6, the parts being left free of each other throughout the remainder of their area. An adjustment of the latch 7 in relation to the stop 1, cooperating therewith, may consequently be effected simply by bending, with the aid of a screw-driver or the like, the part 7 somewhat from the handle part 8.

Figs. 4 and 5 show a latch according to the invention, specially adapted for cabinets or the like.

In these figures, the latch-supporting member comprises a pair of end plates 21 connected together by a web 25, the plates 21 being perforated for the reception of screws 22 by which they are secured to the edge of the door. The plates 21 are provided with a pair of eyelets 23 adapted to receive the ends of a pintle 24. The latch comprises a member bent upon itself to form a latch proper 26 and an operating handle portion 27, the connecting portion being curved to embrace the pintle 24 and cut away intermediate the ends of the pintle to provide for a coil spring 28 in encircling relation to the pintle. One end of said spring bears against the web 25 and the opposite end against the latch 26, thereby normally urging the latch away from the web 25. Between the pintle 24 and the free end of the handle portion 27, the said portion is twice bent at right angles thereby to form an intermediate portion 39 adapted to abut against the web 25 during the unlatching movement of the latch thereby to limit said movement. The handle part 27 is bent at its outer end into tubular form and a handle-knob 29 is mounted to slide on said tubular end. By means of a screw 30 the knob may be fixed at a suitable point on the tube. The knob has a deep recess 31 so as to permit it to be displaced on the tube for adjustment to suit different thicknesses of doors. A projection 32 is formed on the handle part in position to contact with the web 25 during the locking movement, thereby to limit the turning of said handle part.

The latch is shown in Fig. 4 as placed in a door, looking at the end of the door. A molding of wood 34 is attached to the door, as is the common practice in order to cover the door-slit when the door is shut.

Fig. 5 shows the same latch, in sectional top view. The figure also shows the door-jamb 35 provided with a depression in which is secured a member 36 with which the latch 26 engages when the door is closed and which serves to prevent opening of the door without manipulation of the handle 27.

38 is a protecting plate, secured to the molding below the handle-knob, a portion of which plate is bent in an arc of a circle having its center in the center-line of the pin 24, so as to permit the handle-knob 29 to follow the plate when turning said knob aside. The handle-knob may be correspondingly shaped at its inner end as shown in the drawings.

When it is desired to unlatch the door, the handle-knob 29 is pressed aside till the inner part 39 of the handle portion of the latch strikes against the web 25. The latch 26 will then have moved out of its depression in the door jamb. By pulling the handle-knob 29 the door will now open. Upon releasing the handle-knob with the door in the open position the locking-latch will again be pressed out by the spring 28 and the handle part 27 and the handle knob 29 will also move outwards, until the projection 32 strikes against the web 25.

When it is desired to latch the door in closed position it is necessary only to push the door toward its jamb. The latch 26 will then be pushed in as it passes the edge of the door jamb, and upon arriving opposite the depression in said jamb will be caused by the tension of its spring to occupy its latching position in contact with the member 36. If the door should contract so as to widen the slit between it and its jamb to such an extent that the latch 26 will not engage with the member 36, by putting, for instance, a screwdriver between the adjacent parts 26 and 39 of the latch and prying them apart, said latch may be bent forward. The latch 26 will then extend further from the door without any other change in the mechanism of the latch.

In the embodiment shown in Fig. 6, as in the previous embodiments, the bolt latch proper consists of one branch 40 and a strip-iron bent round a pivot 41, the other branch 42 forming the part which carries the handle knob 43. To facilitate bending the branches in a direction from each other, according to this embodiment a threaded screw 44 is disposed in the branch 42, one end of said screw engaging the other branch 40.

In order to facilitate the rotation of the screw for adjustment purposes, the branch 40 is, opposite to the screw, provided with an orifice 45 of smaller diameter than the screw. Through this opening the screw is easily accessible by means of a screwdriver.

Having now particularly described the nature of my invention and the manner of its operation, what I claim is:

1. A door latch, comprising in combination a latch member pivoted for movement in the direction of movement of the door, elastic means normally retaining said latch in latching position, a lever integral with said latch and adapted to withdraw the latch from said position and a setscrew threaded in said lever and operative to cause the latch to extend to a greater or less distance from the edge of the door.

2. A door latch, comprising in combination a latch member pivoted for movement in

the direction of movement of the door, elastic means normally retaining said latch in latching position, a lever integral with said latch and adapted to withdraw the latch from said position and a setscrew threaded in said lever and operative to engage the latch and force it angularly away from the lever thereby to cause the latch to extend to a greater or less distance from the edge of the door.

3. A door-latch comprising in combination a latch member pivoted for movement in the direction of movement of the door, elastic means normally retaining said latch in latching position, and a lever integral with said latch and adapted to withdraw the latch from said position, said latch member and lever being made of one piece of metal plate and being bent around the pivot pintle in such a manner that the angle between the latch member and the lever may be increased by bending these parts apart, thus enabling the latch member to extend to a greater distance from the edge of the door.

JOHAN PETTER JOHANSSON.