March 18, 1930. F. KOONS, SR 1,750,933

DOOR LATCH MECHANISM

Filed May 20, 1929

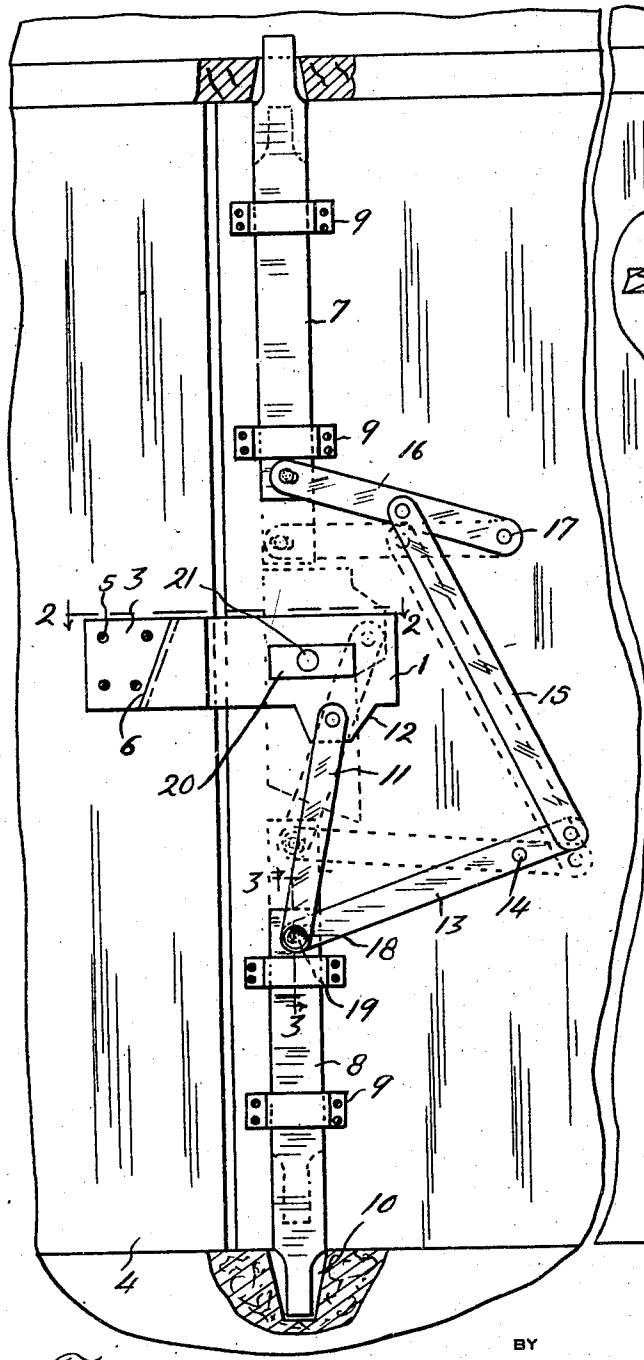
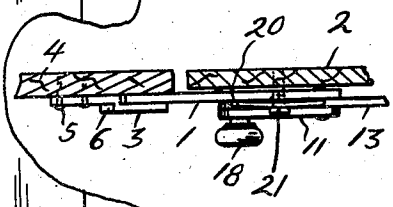


Fig. 1.

Fig. 2.



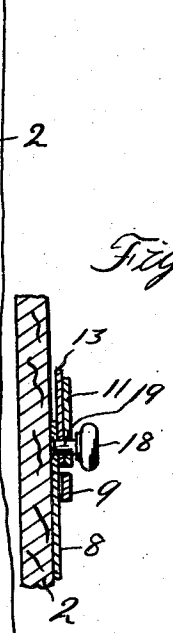


Fig. 3.

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UNITED STATES PATENT OFFICE

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DOOR-LATCH MECHANISM

Application filed May 20, 1929. Serial No. 364,348.

This invention relates to door latch mechanisms, and particularly to latch mechanisms for garage doors.

An object of the invention is to mount latches upon a door to secure the same at its free vertical edge, and also at its top and bottom edges, and to provide a simple and inexpensive mechanism for actuating said latches in common.

Another object is to provide for holding a pair of coacting doors closed by a mechanism comprising a latch on one of said doors engageable with a keeper on the other, and an additional pair of latches on the first-mentioned door for securing the same at top and bottom, the three latches being adapted for actuation in common.

These and various other objects the invention attains by the construction hereinafter described and illustrated in the accompanying drawing, wherein:

Figure 1 is an interior view of a pair of doors equipped with the herein disclosed mechanism, showing both the latched and unlatched positions thereof.

Figure 2 is a fragmentary horizontal sectional view of same, taken upon the line 2—2 of Figure 1.

Figure 3 is a fragmentary vertical section taken on the line 3—3 of Figure 1.

In these views, the reference character 1 designates a pivotal latch bolt mounted interiorly upon a hinged door 2, adjacent to its free vertical edge and coacting with a keeper 3 interiorly secured to a companion hinged door 4. As best appears in Figure 2, the keeper 3 is formed by a sheet-metal plate having a portion seated upon and secured to the door 4 by screws 5 or the like, and a portion spaced from said door to permit the bolt 1 to be swung between the door 4 and said keeper. Preferably the offset 6 formed between the two said portions of the keeper is inclined to the vertical, as appears in Figure 1, to form an abutment limiting the closing throw of the latch bolt 1.

The door 2 furthermore carries upon its inner face adjacent to its free vertical edge, a pair of latch bolts 7 and 8, respectively slideable upwardly and downwardly in guides 9 formed by metal plates screwed or otherwise fastened at their ends to said door and having their mid portions spaced from the latter to accommodate said bolts. In its closed position, the bolt 8 is adapted to enter a suitable socket 10.

A link bar 11 connects the bolts 1 and 8 for actuation in unison, said bar diverging from the vertical edge of the door 2 as it extends upwardly and being pivoted to a lug 12 upon the rear portion of the bolt 1.

To adapt the bolts 7 and 8 for actuation in common, a lever 13 pivoted at one end to the upper extremity of the bolt 8 extends from said bolt toward the hinged edge of the door 2, and is intermediately pivoted at 14. The other end of said lever is connected by a link bar 15 to an intermediate point of a lever 16, mounted approximately horizontally and terminally pivoted to the lower end of the bolt 7 and upon the door 2 as indicated at 17.

At a suitable point upon one of said bars, links or bolts, there is provided a handle for actuating the entire mechanism. As illustrated, said handle has the form of a knob 18 rigidly carrying a stud 19 passing through the link 11, lever 13, and bolt 8, and riveted to the latter as best appears in Figure 3.

It is preferred to frictionally retain the bolts in either their latched or unlatched positions, as for example, by mounting beneath the head of the pivot 21 for the bolt 1, a leaf spring 20 subjecting the bolt to a predetermined pressure suitable to hold the mechanism in any desired position.

The described latch mechanism is adapted to very securely maintain the closed position of one or a pair of doors and may be quite inexpensively manufactured in as much as its primary parts are simple and readily produced from heavy sheet metal or strap iron.

What I claim is:

1. In a latch mechanism, the combination with a bolt pivotally mounted upon a door to swing across a vertical edge thereof, of a pair of bolts mounted upon said door to slide respectively across its upper and lower edges, a swinging link connecting one of said slid-

ing bolts to said pivotal bolt, adapting the bolts so connected for actuation in common, and means connecting the two sliding bolts for reverse actuation in common independently of said link.

2. In a door latch mechanism, the combination with a pair of bolts respectively slideable across the upper and lower edges of a door, of a pair of levers pivoted upon said door to swing up and down, one of said levers being terminally pivoted and the other intermediately pivoted, means pivotally connecting corresponding ends of said levers to said bolts, and a swinging link connecting the other end of the intermediately pivoted lever to an intermediate point of the terminally pivoted lever.

3. A door latch mechanism comprising a bolt pivoted on a door to swing across a vertical edge thereof, a keeper engageable by said bolt in the closed position of the door, a pair of bolts slideable upon the door respectively across its upper and lower edges, a swinging link extending from one of said sliding bolts and engaging said pivotal bolt rearwardly of its pivot, a pair of levers having corresponding ends thereof to said sliding bolts and extending therefrom approximately horizontally, means pivoting the other end of one of said levers upon said door, means intermediately pivoting the other lever on the door, and a link connecting the other end of the intermediately pivoted lever to an intermediate point of the terminally pivoted lever.

In testimony whereof I sign this specification.

FRANK KOONS, Sr.