

May 17, 1932.

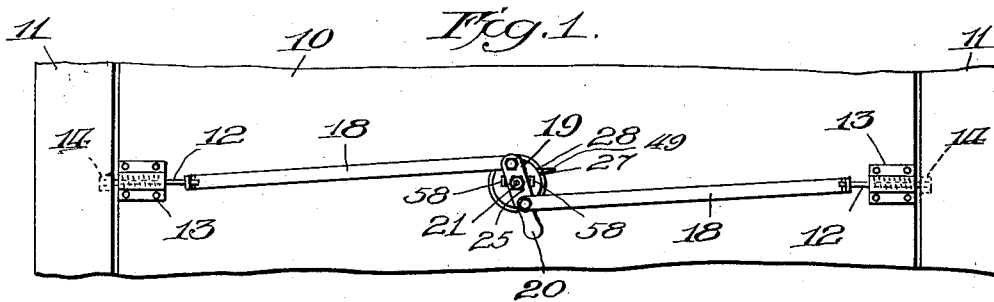
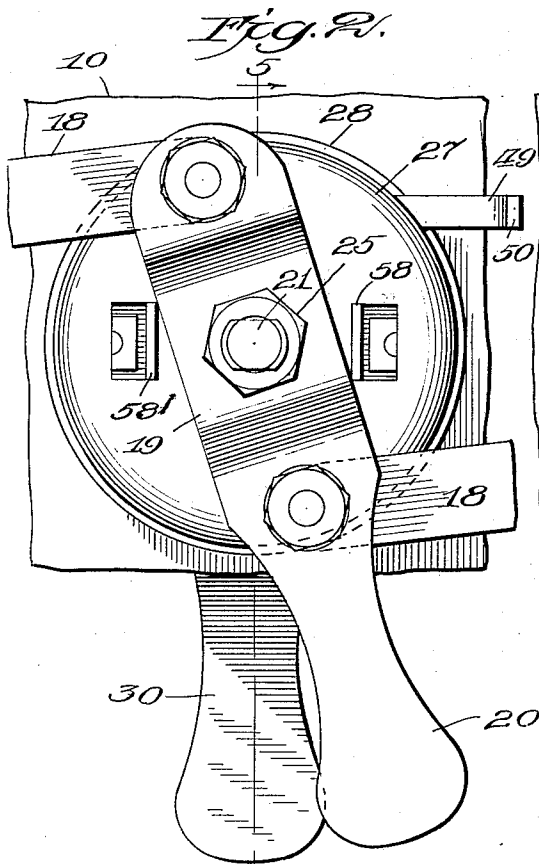
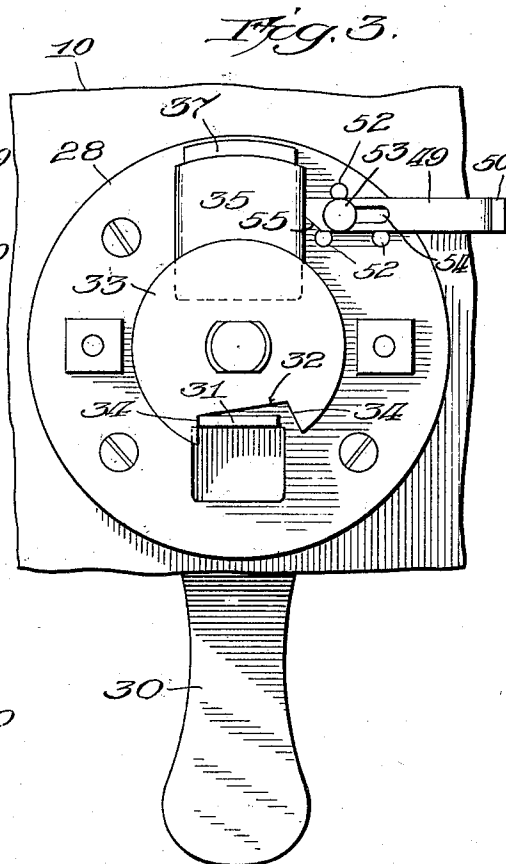
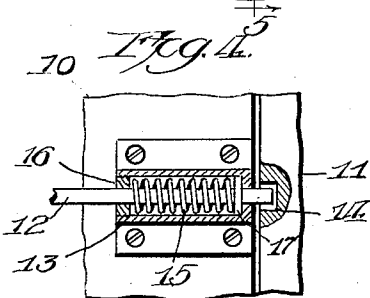
E. H. CARLSON

1,858,804

DOOR SECURING MECHANISM

Filed Jan. 12, 1931

2 Sheets-Sheet 1



Inventor:
E. H. Carlson

By Rector, Hibben, Davis & Macaulay
Attys

May 17, 1932.

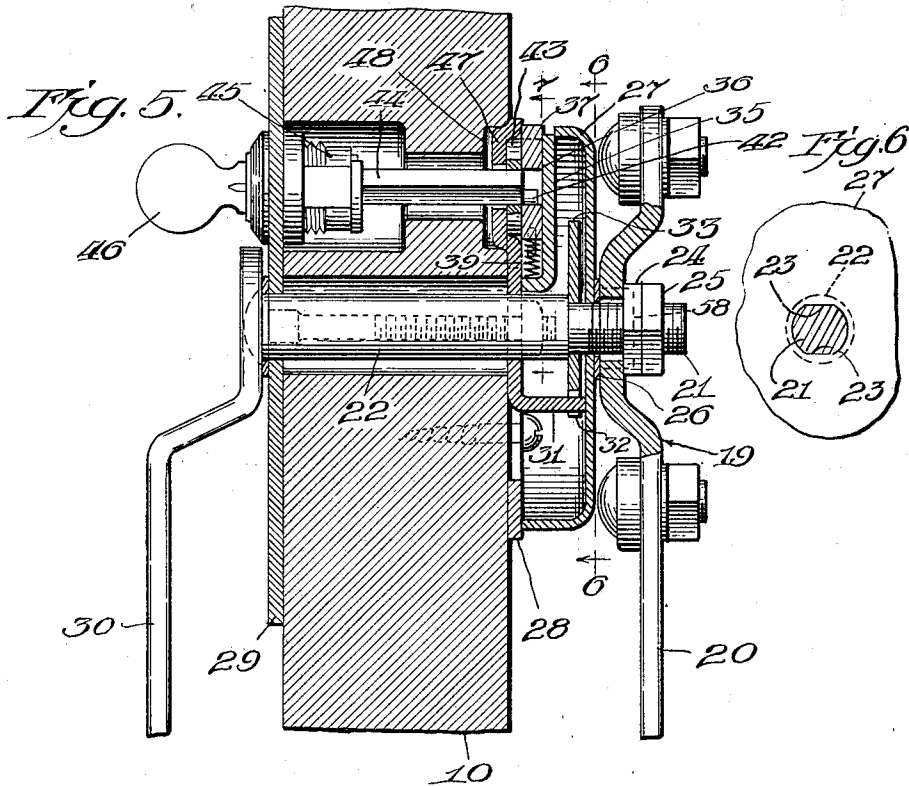
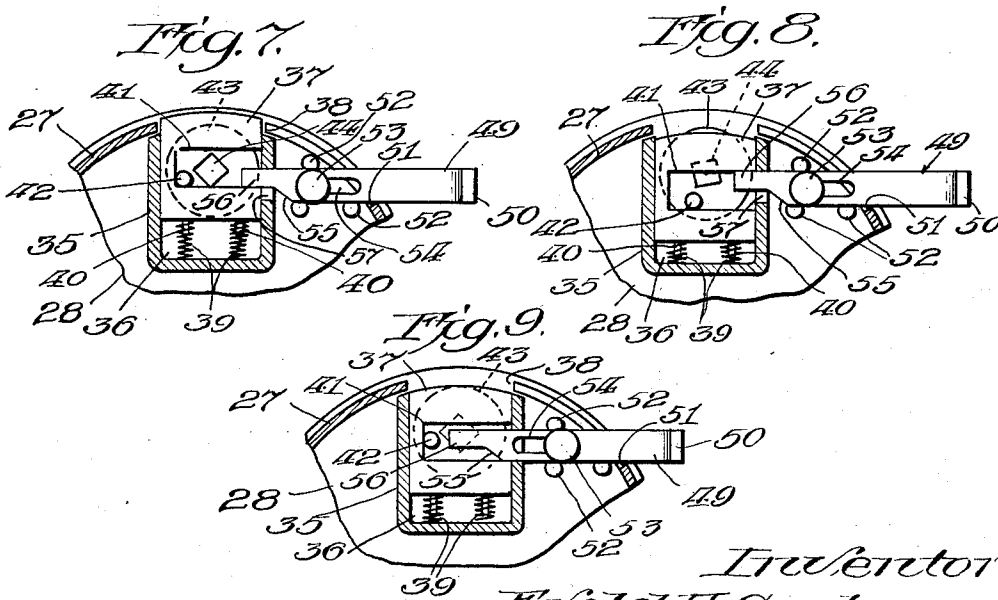
E. H. CARLSON

1,858,804

DOOR SECURING MECHANISM

Filed Jan. 12, 1931

2 Sheets-Sheet 2



36 52
39 Inwented
By E. A. Carlson
By Rector, Hibben, Davis & Macanley
Attys.

UNITED STATES PATENT OFFICE

EVOLD H. CARLSON, OF CHICAGO, ILLINOIS

DOOR-SECURING MECHANISM

Application filed January 12, 1931. Serial No. 503,166.

My invention relates to door securing mechanisms and is directed towards providing an arrangement of this character which is more particularly intended for garage doors, although the essential conception is readily applicable in other surroundings.

One object of my invention is to devise a door securing mechanism comprising bolt bars which may be locked in securing position against unauthorized openings from one side of the door and released from the same side, or independently released on the opposite side of the door for retraction to an unlocking position, regardless of whether or not the locking means has been neutralized.

A further object is to provide a securing mechanism of the character indicated in which the bolt bars are provided with a pair of independently operable, actuating levers located on opposite sides of the door and associated with a single locking means, the latter being releasable from either side of the door.

A further object is to devise an arrangement of the type set forth comprising a lock mechanism and bolt bars operatively associated therewith for securing the door in locked position, the tumbler of the lock mechanism under locking conditions being connected to the bars to prevent their retraction and capacitated for release by a key or equivalent actuation of the lock mechanism from one side of the door and by a simple cam bar from the opposite side.

A further object is to provide a door securing mechanism having a lock which may be rendered wholly inoperative by devices actuatable from one side of the door and maintained in this condition for such time as may be desired.

A further object is to devise a securing mechanism for doors in which the bolt bars are normally extended for engagement with recesses in the door frame and prevented from being retracted by a lock whose tumbler may be released from either side of the door.

The present invention embodies particular advantages when utilized in connection with garage doors, as it permits the door to be securely locked against unauthorized openings from one side thereof, while permitting

their free opening from the opposite side, independent of the locking mechanism, in the event that access is had to the interior of the garage by doors other than the door in question. It also permits the locking mechanism to be neutralized for such time as may be desired with the result that the bolt securing means may be releasable from either side of the door, a factor which is of prime importance in garages of the public type. The releasing levers for the securing bolts are so disposed on opposite sides of the door that the inside lever may be operated wholly independently of the outside lever, so that the lock mechanism need not be disturbed in the event that the securing bolts are withdrawn from within the garage.

These and further objects of my invention will be set forth in the following specification, reference being had to the accompanying drawings, and the novel means by which said objects are effectuated will be definitely pointed out in the claims.

In the drawings:

Figure 1 is a partial elevation of the interior side of a garage door and showing the securing bolts in extended or locking position, the particular door shown being of the upwardly sliding type, although the particular kind of door does not form any part of the present invention.

Fig. 2 is an enlarged elevation of the rear side of the locking and releasing mechanism, as viewed in Fig. 1.

Fig. 3 is a view similar to Fig. 2, the interior releasing lever and the disk which establishes connection therewith and the exterior releasing lever being removed to show certain internal parts.

Fig. 4 is an enlarged view, partly in section, showing one of the bolt securing means in engagement with the frame of the door.

Fig. 5 is a section along the line 5—5 in Fig. 2, looking in the direction of the arrows, and showing the internal construction of the locking mechanism and its association with the releasing levers for the bolts.

Fig. 6 is a section along the line 6—6 in Fig. 5, looking in the direction of the arrows, and showing the relation between the rock

shaft which extends through the door and the member which establishes connection therebetween and the interior releasing lever.

Figs. 7 and 8 are sections along the line 7-7 in Fig. 5, looking in the direction of the arrows and showing, respectively, the positions assumed by the tumbler of the lock mechanism in locking and releasing position with reference to the exterior releasing lever.

Fig. 9 is a section similar to that shown in Fig. 8, but showing the tumbler of the lock mechanism retracted by an interior cam bar which is arranged to actuate the tumbler independently of the lock mechanism.

Referring to Fig. 1 of the drawings, the numeral 10 designates a door which, in the present instance is considered to be of the vertically movable type, although the precise nature thereof forms no part of the present invention. Said door is slidable within a door frame 11 and is retained in closed position by means of a pair of oppositely disposed bolts 12 which are slidably mounted in casings 13 attached to the inner side of the door and whose outer ends project within recesses 14 formed in the door frame 11.

The inner ends of said bolts are pivotally connected by means of links 18 to the opposite ends of a lever 19 having a handle portion 20. Said lever is preferably located centrally of the door 10 and is loosely carried on the reduced, threaded end 21 of a rock shaft 22 which projects entirely through the thickness of the door as hereinafter described. The lever 19 is therefore free to independently actuate the bolts 12 and is retained in the position indicated by means of adjusting and lock nuts 24 and 25, respectively, which set said lever against a separating washer 26, the latter in turn contracting with the rear surface of a flanged, or cup-shaped, disk 27 fixedly mounted on the reduced portion 21, the latter being provided with a pair of oppositely disposed, flat surfaces 23 (see Fig. 6).

The rock shaft 22 is journaled in a plate 28 which is affixed to the rear side of the door 10 and also in a plate 29 which is secured to the outside of said door, said shaft projecting entirely through said last named plate to receive on the end thereof a second releasing lever 30. From the description of the several parts as noted above, it will be understood that an actuation of the releasing lever 30 will impart a motion of rotation to the disk 27, the flanged portion of which extends toward the inside surface of the door, but will not exercise any effect on the other releasing lever 19 through the shaft 22 directly.

Beneath the shaft 22 a flange 31 projects rearwardly from the plate 28 for reception within a slot 32 formed in a disk 33 which is also fast on the shaft 22 by reason of the

flat surfaces formed on the latter, said disk being located within the flanged disk 27. In the operation of the mechanism, the end walls 34, 34 of the slot 32 engage the flange 31 and thus determine the limits of movement of the lever 30, thereby preventing undue strain on the several parts, since a person operating the lever 30 would otherwise be unable to ascertain when the bolts 12 were sufficiently retracted to free the door for movement.

Above the shaft 22, a casing 35 is secured to the rear side of the plate 28 to thereby form a pocket 36 which opens upwardly and within which is slidably mounted a tumbler in the form of a plate 37. In the locking position of the door, the tumbler 37 projects through a slot 38 formed in the flanged portion of the disk 27 and is at all times subjected to the pressure exerted by a pair of springs 39 whose lower ends abut against the bottom of the pocket 36 with the opposite ends encircling centering pins 40 which project downwardly from the underside of the tumbler 37.

A slot 41 is cut partly across the width of the tumbler 37 and the walls of said slot are engaged by a crank pin 42 which is carried by a disk 43 mounted on the inner end of a stem 44 whose forward end is connected to a convenient type of lock mechanism which is designated generally by the numeral 45 (see Fig. 5). The internal construction of the lock mechanism 45 forms no part of the present invention, but however constructed, it is contemplated that it will be connected in some manner to the forward end of the stem 44 such that when the key 46 manipulates said lock mechanism in the usual manner, it will impart a motion of rotation to the stem 44 and consequently a reciprocatory movement to the tumbler 37, motion in a counterclockwise direction, as viewed in Fig. 7, moving said tumbler downwardly until it has completely cleared the walls of the slot 38, thereby freeing the disk 27 for rotation. This latter position is shown in Fig. 8. The disk 43 seats against an offset portion 47 of the plate 28 and the latter is fitted within a convenient recess 48 cut into the thickness of the door.

It is frequently desirable to neutralize the locking mechanism from the inside of the door to the end that the outside releasing lever may be employed to open the door without the necessity for using a key. This purpose is fulfilled by a cam bar 49 having a flange 50 at one end thereof suitable for finger engagement and which projects through an opening 51 formed in the flanged portion of the disk 27 for slidable mounting between a plurality of pins 52 which project rearwardly from the plate 28. The bar 49 is retained in position against said plate by means of a headed pin 53 which passes through an elongated slot 54 formed in the cam bar 49. The actuating end of the cam bar 49 is pro-

vided with an inclined surface 55 and beyond said surface, a finger 56 projects through an opening 57 provided in one wall of the casing 35. The width of the opening 57 is sufficient to permit the free movement of the cam bar 49 and when this movement occurs, a movement toward the left is viewed in Fig. 7, the inclined surface 55 engages the lower wall of the slot 41 to thereby move the tumbler 37 into the unlocking position shown in Fig. 9, it being understood that the slot 41 possesses sufficient width to permit this unlocking movement under the actuation of the cam bar 49 without binding on the crank pin 42, or on said cam bar. When the cam bar 49 is returned to the position shown in Fig. 7, the springs 39 will restore the tumbler 37 to locking position, provided the slot 38 of the disk 27 is in registering position.

As before stated, the only connection between the lever 19 and the bolts 12 is by means of the links 18 and said links are also utilized as instrumentalities to establish an operative connection between the external releasing lever 30 and said bolts. For this purpose a pair of ears 58, 58 project rearwardly from the surface of the disk 27, being located on opposite sides of the lever 19 and spaced sufficiently therefrom to permit a free and independent movement of the lever 19 from the inside of the door, regardless of whether or not the tumbler 37 is in locking engagement with the disk 27. However, when said tumbler is in a retracted, or unlocking position, as shown in Figs. 8 and 9, the lever 30 may be moved to thereby rotate the disk 27 in a clockwise direction, as viewed in Figs. 2 and 7, and to accordingly engage the ears 58 with the lever 19, thus transmitting said actuating movement through the lever 19 and links 18 to the bolts 12.

By the use of my improved door securing mechanism, it is therefore possible, assuming the tumbler 37 to be in a retracted position, to release the bolt means from either side of the door, or to release the bolt from the inside by means of the lever 19 regardless of whether or not said tumbler is in a retracted position. The door may therefore be opened from the inside, assuming a locked condition of the same, without the necessity for first releasing the locking mechanism by means of the key 46 from the outside. The capacity for neutralizing the lock mechanism by means of the cam bar 49 is of particular advantage in garages of all types, since the door 10 may be entirely closed with the bolts 12 extended into the recesses 14, without affecting the capacity of the door to be opened from either side thereof.

While I have shown one set of elements and combinations thereof for effectuating my improved door securing mechanism, it will be understood that the same is intended for purpose of illustration only and in no wise

to restrict my device to the exact forms and structures shown, for many changes may be made therein without departing from the spirit of my invention.

I claim:

1. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in a closed position, releasing means on one side of said door, locking means on the same side of the door for preventing unauthorized actuation of said releasing means, a second, independently operable releasing means on the opposite side of said door, said first releasing means being connectible to said bolt means through said second releasing means, and means on the same side of the door as said second releasing means for neutralizing said locking means to free said first releasing means for movement.

2. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in a closed position, releasing means on one side of said door, locking means on the same side of the door comprising a tumbler engageable with said releasing means for preventing unauthorized actuation of the same, a second, independently operable releasing means on the opposite side of said door, said first releasing means being connectible to said bolt means through said second releasing means, and a member on said opposite side of the door movable to retract said tumbler from engaging position whereby said locking means is neutralized and said first releasing means is freed for actuation.

3. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in closed position, a shaft extending through said door, a handle fixed to said shaft on one side of said door, a second handle loose on said shaft on the opposite side of said door, a first connection between said second handle and bolt means, a second connection between said shaft and second handle, a lock mechanism key controlled from the first handle side of said door and having a tumbler for preventing actuation of said second connection, and means for releasing said tumbler independently of said lock mechanism.

4. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in a closed position, a shaft extending through said door, a handle fixed to said shaft on one side of said door, a second handle loose on said shaft on the opposite side of said door, a first connection between said second handle and bolt means, a second connection between said shaft and second handle, said second connection permitting the free and independent actuation of said second handle, a lock mechanism key controlled from the first handle side

of said door and having a tumbler for preventing actuation of said second connection, and means for releasing said tumbler independently of said lock mechanism.

5. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in a closed position, a shaft extending through said door, a handle fixed to said shaft on one side of said door, a second handle loose on said shaft on the opposite side of said door, connections between said second handle and bolt means, a flanged disk fixed on said shaft, means on said disk for engaging said second handle when rotated through a certain range of movement, a lock mechanism key controlled from the first handle side of said door and having a tumbler for preventing actuation of said disk, and means on the second handle side of said door for releasing said tumbler independently of said lock mechanism.

6. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in closed position, a shaft extending through said door, a handle fixed to said shaft on one side of said door, a second handle loose on said shaft on the opposite side of said door, connections between said second handle and bolt means, a flanged disk fixed on said shaft, ears formed on said disk for engaging said second handle when rotated through a certain range of movement, a lock mechanism key controlled from the first handle side of said door and having a tumbler for preventing actuation of said disk, and means on the second handle side of said door for releasing said tumbler independently of said lock mechanism.

7. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in a closed position, a shaft extending through said door, a handle fixed to said shaft on one side of said door, a second handle loose on said shaft on the opposite side of said door, connections between said second handle and bolt means, a flanged disk fixed on said shaft, means on said disk for engaging said second handle when rotated through a certain range of movement, a lock mechanism key controlled from the first handle side of said door and having a tumbler for preventing actuation of said disk, and a cam bar for releasing said tumbler independently of said lock mechanism located on the second handle side of said door.

8. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in a closed position, a releasing lever on one side of said door, a second, independently operable, releasing lever on the opposite side of said door, said first releasing lever being connected to said bolt means through said

second lever, locking means for said first releasing lever, and means for neutralizing said locking means from either side of the door.

9. A door securing mechanism comprising in combination, a door, bolt securing means on said door for retaining the same in closed position, a shaft extending through said door, a handle fixed to said shaft on one side of said door, a second handle loose on said shaft on the opposite side of said door, a first connection between said second handle and bolt means, a second connection between said shaft and second handle, locking mechanism comprising a tumbler for preventing actuation of said second connection, and means for controlling the position of said tumbler from either side of the door.

In testimony whereof I have subscribed my name.

EVOLD H. CARLSON.