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W. D. FERRIS ET AL.

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DOOR LOCK

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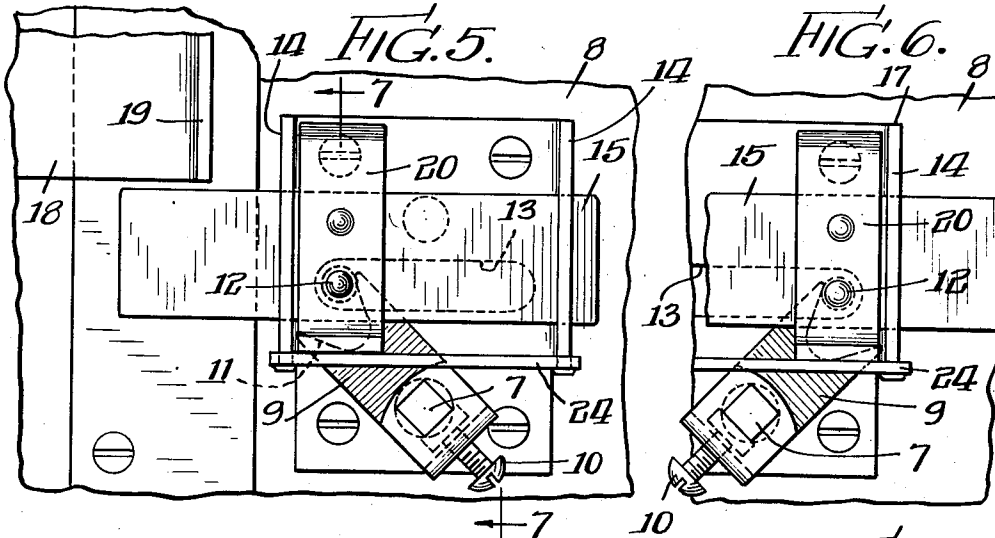
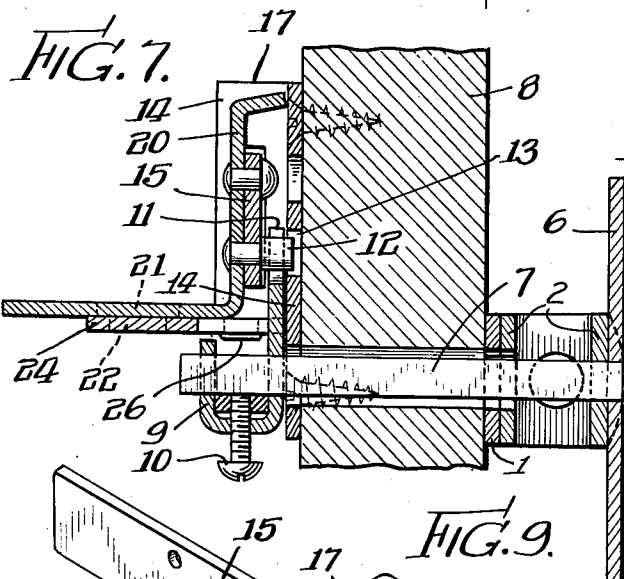
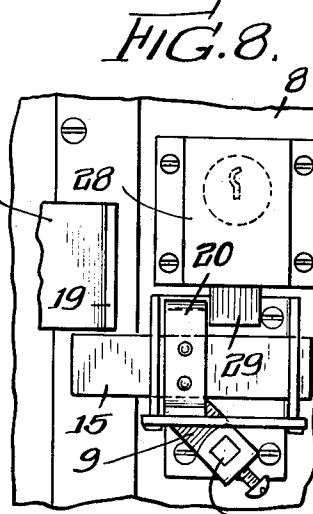
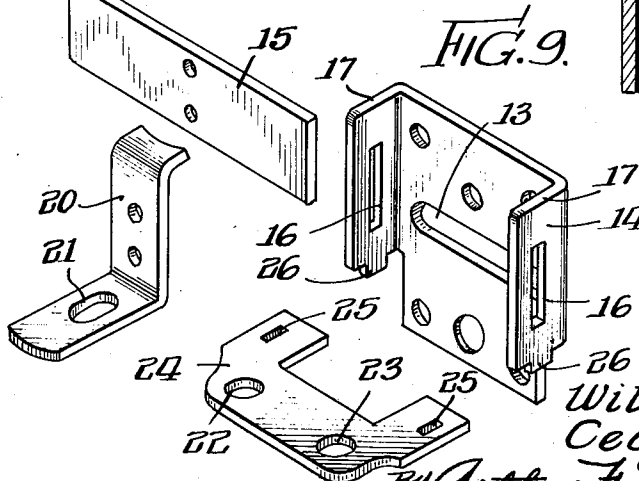
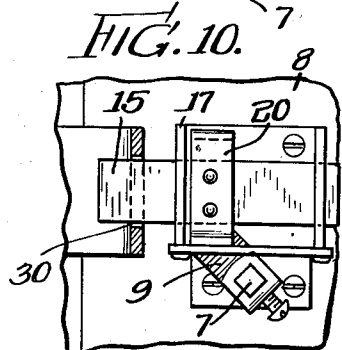
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UNITED STATES PATENT OFFICE

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DOOR LOCK

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9 Claims. (Cl. 292-143)

This invention relates to door locks, and more particularly to locks for garage doors, whereby the latter can be locked and unlocked from the outside.

Generally stated, the object of the invention is to provide a novel and improved construction and arrangement whereby a padlock or some other locking device, can be applied outside, or inside, to keep the door locked, and whereby the rotation of an outside handle will unlock the door inside thereof, when the said padlock or other device is taken off or unlocked.

It is also an object to provide certain details and features of construction and combinations tending to increase the general efficiency and desirability of a garage door lock of this particular character.

To the foregoing and other useful ends, the invention consists in matters hereinafter set forth and claimed and shown in the accompanying drawings, in which—

Fig. 1 is a vertical section of a garage door showing adjacent portions of the building, with a lock shown embodying the principles of the invention.

Fig. 2 is an enlarged perspective of the said lock shown in Fig. 1 of the drawings, with adjacent portions of the door and building shown in section, the view being taken from inside the door.

Fig. 3 is a similar view taken from outside the door.

Fig. 4 is a perspective of certain portions of the lock.

Fig. 5 is an inside elevation of said lock, with adjacent portions of the door and door-frame shown.

Fig. 6 is a similar view, showing the elements of the lock in unlocking position.

Fig. 7 is a vertical section on line 7-7 in Fig. 5 of the drawings.

Fig. 8 is a view similar to Fig. 5, on a smaller scale, showing a different form of the invention.

Fig. 9 is a perspective of certain parts of the lock mechanism in separated condition.

Fig. 10 is a view similar to Fig. 8, on the same scale, showing a different form of the invention.

Referring to Figs. 1 to 7 inclusive, and Fig. 9, the invention comprises a member 1 that is secured to the outer side of the door, and that is adapted to receive the member 2 flatwise against its outer side, the two members having coinciding holes 3 and 4, through which the padlock 5 may be inserted to lock the door in closed position.

An outside handle 6 is provided and is made rigid with the rotatable rod 7 that extends

through holes in the members 1 and 2, and through the garage door 8 as well, and which carries a short arm 9 on its inner end portion, this arm being adjustable lengthwise of said rod, and the latter being preferably square or polygonal to prevent rotation of the arm thereon, said arm having a set screw 10 by which it is adjustably fixed in position on said rod or shaft. It will be understood, of course, that the member 2 must be rigid with the handle 6, and therefore rigid with the rod or shaft 7, in order that the said padlock may be employed to prevent rotation of said handle. The upper end of the arm 9 has a notch 11 for engagement with the rivet head 12 that is slidable back and forth in the slot 13 formed in the bracket plate 14, which latter is secured to the inner side of the door. This rivet head 12 is fixed on the locking bolt 15 which slides in the vertical slots 16 and 16 formed in the flanges 17 of said bracket plate 14, previously mentioned. A fixed bracket piece 18 is fastened on the side of the doorway, and the end of the bolt 15 slides under the angle portion 19 of this plate 18, thereby locking the garage door in closed vertical position, as shown in Figs. 1 and 2 of the drawings.

The bolt 15 may be provided with a rigid angle piece 20, having its lower horizontal portion provided with a hole 21, adapted to register with either the hole 22 or the hole 23 in the horizontal plate 24 that is preferably secured by slots 25 therein to the lower ends 26 of the two flanges 17 and 17, previously mentioned. Thus, a padlock 27 can be applied, as shown in Fig. 2, inside the door, if so desired.

The length of the rod or shaft 7 is sufficient for doors of different thicknesses, and by rotating this rod or shaft, after unpadding the door, or after unlocking it, the bolt 15 can be moved into the position shown in Fig. 6 of the drawings, thus disengaging it from the portion 19, and permitting the door to be opened.

In Fig. 8 of the drawings, the construction is similar to that previously shown, but in this case an ordinary barrel lock 28 is employed instead of the outside padlock, and a key can be inserted from the outside to disengage the bolt 29 of this lock from the upper end of the portion 20 previously mentioned, thus permitting the bolt 15 to then be shifted into unlatching position.

In Fig. 10 of the drawings, the construction is similar to that shown in Fig. 5, but in this case the portion 19, previously mentioned, is provided with a vertical slot 30 for receiving the end portion of the bolt 15, so that the door is held against

any up or down displacement in any way whatever.

Thus, in each form of the invention, it will be seen that locking mechanism is provided on the inside of a garage door, which can be unlatched by rotating an outside handle, and in addition means are provided, either in the form of a padlock or barrel lock, or some equivalent, for locking the said locking mechanism against being operated by said handle, until after the door is unpadlocked, or until after the barrel lock is operated by a key to in effect unlock the said inside locking mechanism. In this way, therefore, in each form of the invention, a separate side door is not necessary for the garage, as the one door, which is opened and closed for the motor vehicle, is sufficient for all purposes, as this relatively large front door can be locked inside and unlocked from the outside, and when thus unlocked, the door is adapted to be moved into an overhead or horizontal open position, in any suitable or desired manner, and by providing one or more handles on the outside of the door, of any suitable or desired character. Of course, when an inside padlock, such as the one indicated at 27, is employed, it will be understood that the garage must have another door in addition to the door 8 shown and described, for in such case the garage must be entered and the said padlock 27 removed, before someone on the outside can turn the handle 6 and thereby disengage the locking bolt 15 from the strike-piece 19, in the desired manner. But by applying the padlock 5 to the outside of the door, to prevent rotation of the handle 6, the door can be unlocked from the outside, and no additional door will be necessary.

Thus it will be seen that the lock mechanism is so constructed that it can be used at either the right or the left hand side of the doorway, as either end of the bolt 15 may be used to engage the strike-piece 19, and the latter can be simply turned upside down when it is transferred to the other side of the doorway. At one side of the doorway the hole 22 would be used for a padlock, but when the lock is used at the other side of the door, then the hole 23 would be used for that purpose. The bracket 18 can be turned upside down when it is transferred to the other side of the door, at the other side of the doorway, for while in the drawings the lock is shown at the right hand side of the door, when viewed from the outside, it is obvious that it can be used at the left hand side thereof as explained.

Thus, in each form of the invention, there are handle means, such as the handle 6 or the handle-piece 20, having a portion rigid therewith for engagement with the supplemental locking means. As shown in Fig. 1, the said rigid portion is the element 2, which is rigid with the handle 6, or it may be the base portion of the handle-piece 20, for either rigid portion may engage a padlock, thereby to lock said rigid portion to an element which is rigid with the door. The said rigid element may be the member 1, or it may be the member 24, or it may be the casing of the lock 28, depending upon which form of the invention is employed. Thus, in each form of the invention, the supplemental locking means are adapted to engage a portion rigid with some sort of handle means, thereby to lock the latter to an element rigid with the door. In each form of the invention, however, the same rod 7 is used, and it will be understood that for this rod the member 1 and the bracket plate 14 are provided with

coinciding holes as shown in Fig. 7 of the drawings.

It will also be seen that when the door 8 is moved upwardly into its horizontal or overhead open position, it swings about a horizontal axis provided by the pivot 31 for the arms 32 that are secured to the door, but this form of pivotal mounting for the door is old and well known and does not need any further description. It will be seen, however, that the main locking mechanism, having provisions for supplemental locking means, is especially adapted for use on an overhead garage door of this character.

It is obvious that the door latching mechanism shown and described is operative on either a right handed or a left handed door, and can be used at either the right or the left of a door, in view of the fact that both ends of the latch bolt 15 are adapted for engagement with a strike-piece or keeper. For one door the hole 22 would be used, while for a differently hung door the hole 23 would be used, for the padlock 27 shown and described.

What we claim as our invention is:

1. In a garage door, an inside latching mechanism having a sliding bolt for locking the door in closed position, an outside rotary handle having means in the form of a rod extending through the door below said bolt for operating said mechanism, means engaging and spacing said handle from the door the same distance for doors of different thicknesses, and a supplemental locking device for locking said first-mentioned mechanism in locked condition, whereby the supplemental locking device must first be unlocked before the said handle can be used for unlocking the said inside mechanism, said mechanism comprising a plate secured flatwise to the inside of the door and having vertical flanges spaced apart the width of the plate, with a vertical slot in each flange for said bolt, an arm adjustable on said rod for doors of different thicknesses, extending upwardly between said plate and bolt, and means on the latter to engage the end of said arm.

2. A structure as specified in claim 1, there being a bracket piece fixed on the outer side of the door, a co-acting bracket piece rigid with said handle, outside of said fixed bracket piece, the two bracket pieces forming said spacing means and having coinciding holes for padlocking them together, so that the handle cannot be rotated until after the padlock is removed, and having coinciding inside and outside holes for said rod.

3. In a door latch mechanism, a guide plate rigidly secured to the inside of the door, a latch bolt slidable on said plate, a rigid horizontal flange on said plate, a horizontal handle rigidly secured to said bolt and projecting beyond the edge of said flange, with a hole in the latter and a hole in said handle to receive a padlock, a shaft, an arm on said shaft for operating said bolt, and means outside the door for operating said shaft.

4. A structure as specified in claim 3, comprising a lock for engaging a portion integral with said handle above the upper edge of said bolt.

5. In a door latch mechanism, an outside rotary handle mounted on a rod extending through the door to operate said mechanism, an angle-piece rigid with the outside of the door and provided with an outwardly extending right-angle portion having a hole therein, the angle-piece also having a hole for said rod, and a member having

right-angle portions at its opposite ends, with one of said right-angle portions formed with an integral part parallel with the body of said member, rigid with and spacing the handle from said angle-piece, the other right-angle portion of said member having a hole therein to coincide with said first-mentioned hole to receive a padlock.

6. A structure as specified in claim 5, said rod being square and having adjustable means on the inner end portion thereof for doors of different thicknesses, so that the spacing of the handle from the door is the same for the doors of different thicknesses.

7. A structure as specified in claim 5, the han-

dle being vertical in locking position and spaced a distance from the angle portions having said holes and said integral part being spaced from said body.

8. A structure as specified in claim 5, and an inside latch bolt parallel with said angle piece and said member in latching position, the distance between said bolt and said angle piece and said member being variable for doors of different thicknesses.

9. A structure as specified in claim 5, said rod being polygonal in cross section and said integral part having a hole fitting said rod.

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