Feb. 17, 1942. J. R. RICH 2,273,594

GARAGE DOOR ACTUATING MEANS

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Fig. 1.

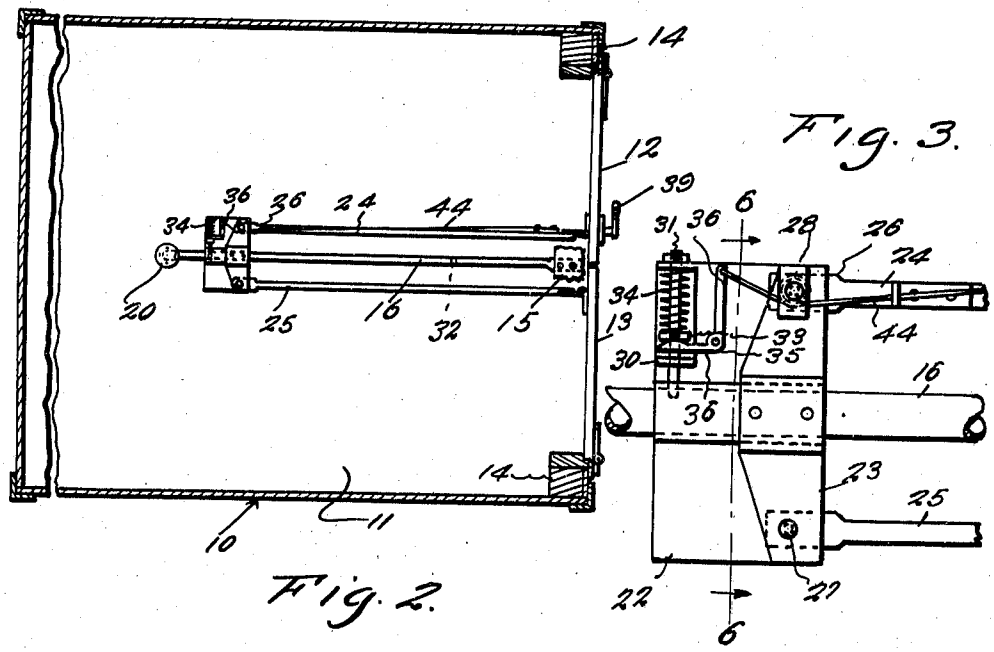


Fig. 2.

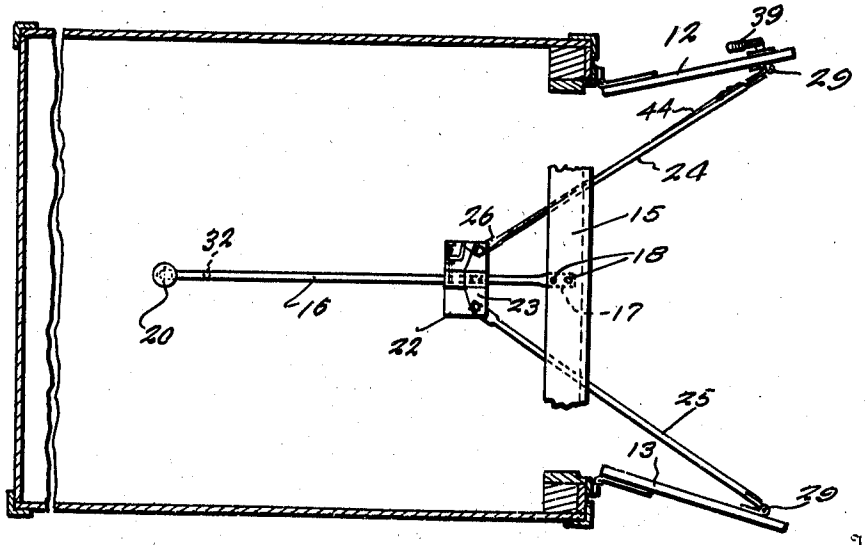


Fig. 3.

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Fig. 4.

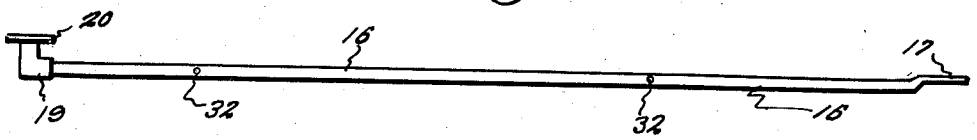


Fig. 5.

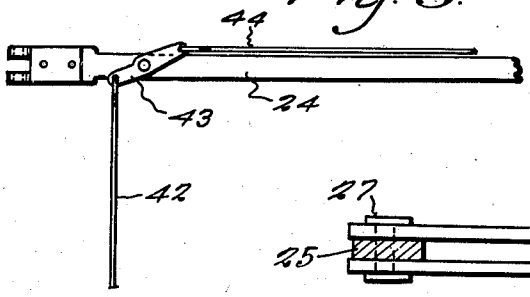


Fig. 6.

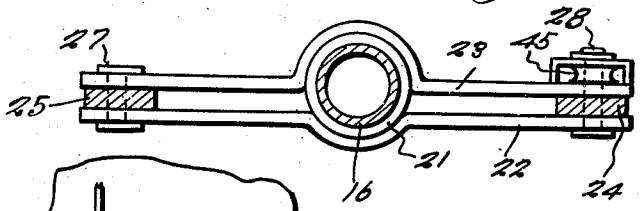


Fig. 7.

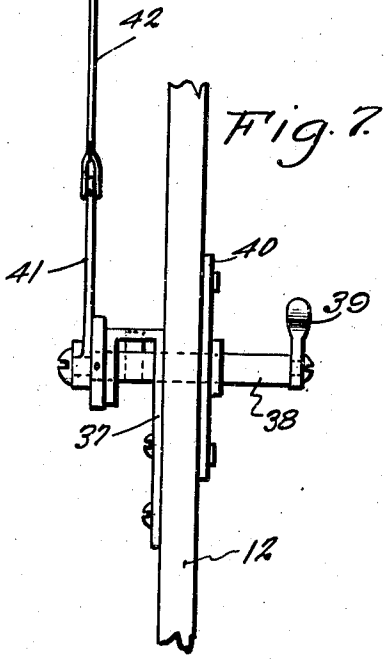
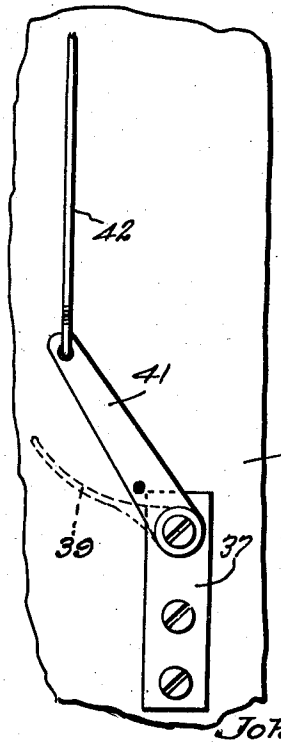


Fig. 8.



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Fig. 9.

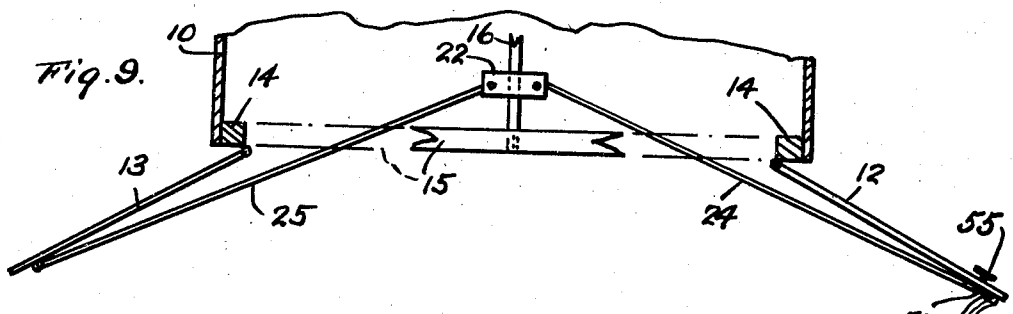
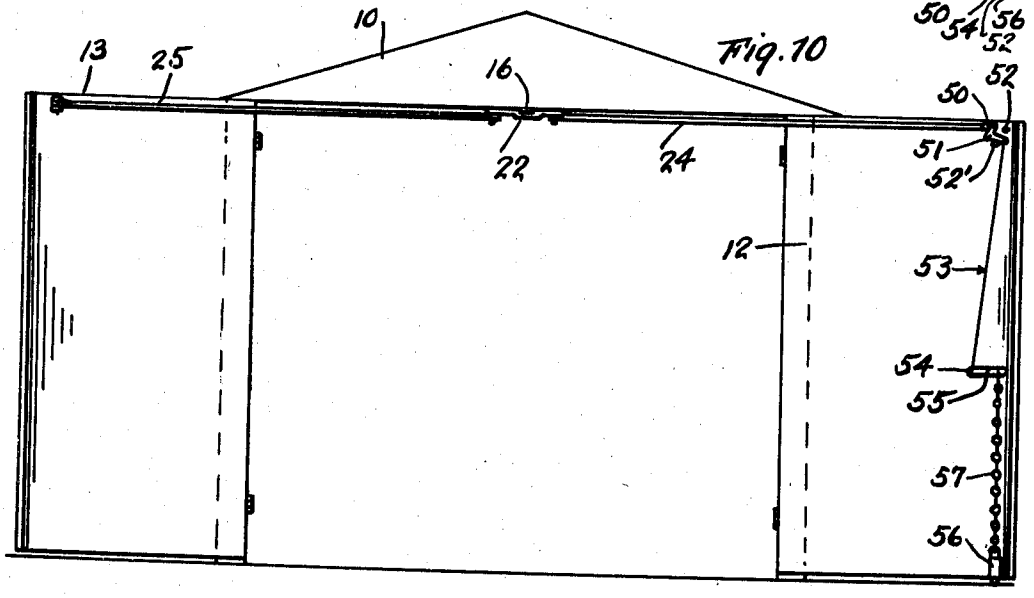


Fig. 10



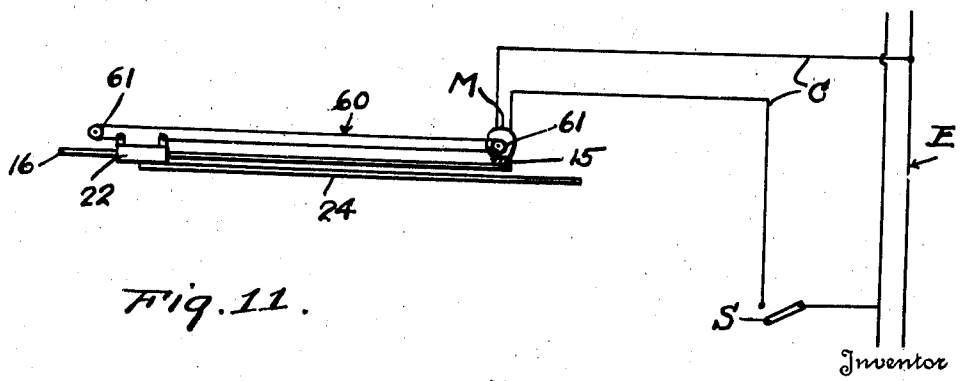


Fig. 11.

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UNITED STATES PATENT OFFICE

2,273,594

GARAGE DOOR ACTUATING MEANS

John R. Rich, Houston, Tex.

Application October 9, 1939, Serial No. 298,665

2 Claims. (Cl. 292—277)

This invention relates to doors and has special reference to a door controlling and locking device for the double doors of a garage.

One important object of the invention is to provide a novel device of this character whereby opening and closing movements of one leaf of a double door will simultaneously effect similar movement of the other leaf.

A second important object of the invention is to provide a novel locking arrangement for a device of this kind whereby the doors may be locked in both opened and closed positions.

A third important object of the invention is to provide a novel construction of lock for such doors wherein a single bolt is used to effect locking of both doors.

A fourth important object of the invention is to provide a novel arrangement whereby the locking device is operated from a conveniently located door handle or knob.

A fifth object of this invention is to provide door stopping means engageable with the ground and automatically operable by the door manipulating means.

A sixth object of this invention resides in the provision of electrically operable means moving the door opening means.

With the above and other objects in view, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claims.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:

Figure 1 is a section of a garage and its doors, the section being taken on a horizontal plane and looking upwardly, with the doors closed.

Figure 2 is a view similar to Figure 1 but with the doors open.

Figure 3 is a fragmentary bottom plan view showing a slide used herein together with certain associated parts including the lock mechanism.

Figure 4 is a detail side elevation of a certain guide member used herein.

Figure 5 is a bottom plan view showing a portion of a certain link and part of the lock actuating mechanism associated therewith.

Figure 6 is a detail section on the line 6—6 of Figure 3.

Figure 7 is an edge view of one of the doors and showing parts of the lock actuating mechanism associated therewith.

Figure 8 is an elevation of a portion of the inner face of the door shown in Figure 7.

Figure 9 is a top view partially in section of a garage showing the doors open and the operable means thereof connected to a ground engaging stop.

Figure 10 is a front view thereof.

Figure 11 is a diagrammatic side view of the door operating means connected to electrically operable means.

In the embodiment of the invention herein shown there is disclosed a garage 10 having a ceiling 11. The garage is provided with a double door comprising the individual doors or leaves 12 and 13 which are hinged to door posts 14. Across the top of the door opening extends a lintel 15.

A guide member 16 has one end 17 flattened and secured to the under side of the lintel 15 at the center thereof as by screws 18. This guide member is preferably formed of a length of pipe and at its rear end carries an elbow or L-fitting 19 which in turn carries a plate 20 suitable screwed to the ceiling 11, the guide member 16 extending at right angles to the lintel 15. On the guide member 16 is slidably mounted a short pipe section 21 to the upper side of which is riveted or otherwise suitably secured a relatively wide rectangular plate 22. On the under side of the pipe 21 is similarly secured a relatively narrow plate 23. The members 21, 22 and 23 form a slide and the outer end portions of the plates 22 and 23 are spaced so that links 24 and 25 may have their flattened ends 26 pivotally secured between these plates by rivets 27 and 28. The remaining or front ends of the links are secured by hinges 29 to the doors 12 and 13 adjacent the free edges thereof and at the upper parts of said doors.

Mounted on the under side of the plate 22 is a bracket 30 wherethrough slidably extends a bolt 31 positioned for selective engagement in the holes 32 formed in the rear and front portions of the member 16. On the bolt 31 is a collar 33 wherewith engages one end of a coiled compression spring 34 the other end of which engages the bracket 30 so that the bolt is constantly urged to project into the holes 32. A bell crank lever is pivoted at its angle by a pivot 35 and has a short arm 36 engaging the collar 33 on the side opposite the spring. The long arm 36 of this normally lies parallel to the bolt 31.

Secured adjacent the free edge of the door 12 is a bracket 37 and through this bracket and the door 12 extends a shaft 38 carrying on the outer side of the door a handle or knob 39. The shaft

passes through the usual escutcheon to provide finish for the door. On the inner end of the shaft 38 is fixed a rock arm 41 to which is connected one end of a wire 42 which has its other end connected to one arm of a lever 43 pivoted intermediate its end to the link adjacent the door 12. A wire 44 has one end connected to the remaining arm of the lever 43, extends around a pulley 45 rotatably mounted on the rivet 28 and has its other end connected to the bell crank arm 36.

In the operation of the invention it will be plain that any movement of the slide on the guide member 16 will effect simultaneous movement of the doors 12 and 13, the doors opening upon forward movement of the slide and closing upon rearward movement thereof. Consequently, manual opening or closing movement of one door will effect like movement of the other door. If the doors be partially open the bolt 31 will engage against the guide 16 but movement of the doors to fully opened or fully closed position will bring the bolt 31 into alinement with a respective opening 32 and the spring 34 will force the bolt into such opening thus locking the doors in the desired position. To release the doors the handle 39 is turned to swing the arm 41 downwardly. This causes the wire 42 to bias the lever 43 which in turn causes the wire 44 to bias the bell crank so that the short arm 36 of the latter acts on the collar 33 to retract the bolt 31 which permits movement of the slide.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that changes may be made in the form, proportions and construction of the apparatus herein set forth without departing from the spirit of the invention. It is not therefore, desired to confine the invention to the exact embodiment now disclosed but it is desired to include all embodiments which come within the scope of the appended claims.

In the modified form of this invention as shown by Figures 9 and 10 one of the links, in the present instance, indicated by the numeral 24 is connected to a rocker arm 50 pivoted to the door as at 51 and swingably disposed at one end between a frictional engaged stop 52 and lug 52', and having its free end connected to a cable or other suitable element 53 which in turn is connected to one end of a rocker arm 54 on the spindle of a door knob 55, the opposite end of the rocker arm is connected to a door stop 56 by a chain 57 or other suitable elements. Through the instrumentality of the aforesaid means the rocker arm 50 will he held against movement by the frictional stop 52 during opening of the doors and, upon reaching their limit of movement the door knob is turned to slacken on the chain 57 whereupon the door stop will engage the ground. Where the door opening mechanism is operated by mechanical or electrical means the rocker arm 50 will remain in normal position with the stop 56 raised until the doors reach their open or closed limit, whereupon, increased exertion on the rocker arm 50 by the links 24 and 25 will cause the same to rock and thus manipulate the door stop through the connecting means therebetween.

In the form shown by Figure 11 of the drawings the slide 22 is connected to an electric or other type of motor M through the instrumentality of a belt 60 or other suitable element passing over pulleys 61, said electric motor in the present illustration being connected to a source of electricity indicated by the letter E through the provision of a circuit C having a switch S or other controlling means therein.

What is claimed is:

1. In an actuating apparatus for double swinging doors for a garage, a locking device comprising a guide member provided with spaced holes, a tube slidable on the guide member, a wide rectangular plate secured on the top of the tube, a relatively narrow plate secured on the bottom of the tube, said plates being spaced apart to receive actuating links between them, a bracket secured on the underside of the top plate, a bolt slidable through said bracket for selective engagement in the holes of the guide member, yieldable means normally maintaining the bolt projected into one or the other of said holes, a bell crank pivotally mounted on the top plate and engageable with the bolt for actuating the same and means for remotely controlling the actuation of the bell crank to move the bolt to released position.

2. In an actuating apparatus for double swinging doors for a garage; a locking means comprising a guide, a tube slidable on the guide, a relatively wide top plate and a relatively narrow bottom plate fixed to the tube, a bracket secured to one of said plates, a bolt slidable through the bracket and engageable with the guide, yieldable means normally holding the bolt in said engagement, a bell crank pivoted to one of said plates and having one of its arms in engagement with the bolt and means connected to the other arm of the bell crank for remotely controlling the same to release, or permit the engagement of, said bolt with the guide.

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