

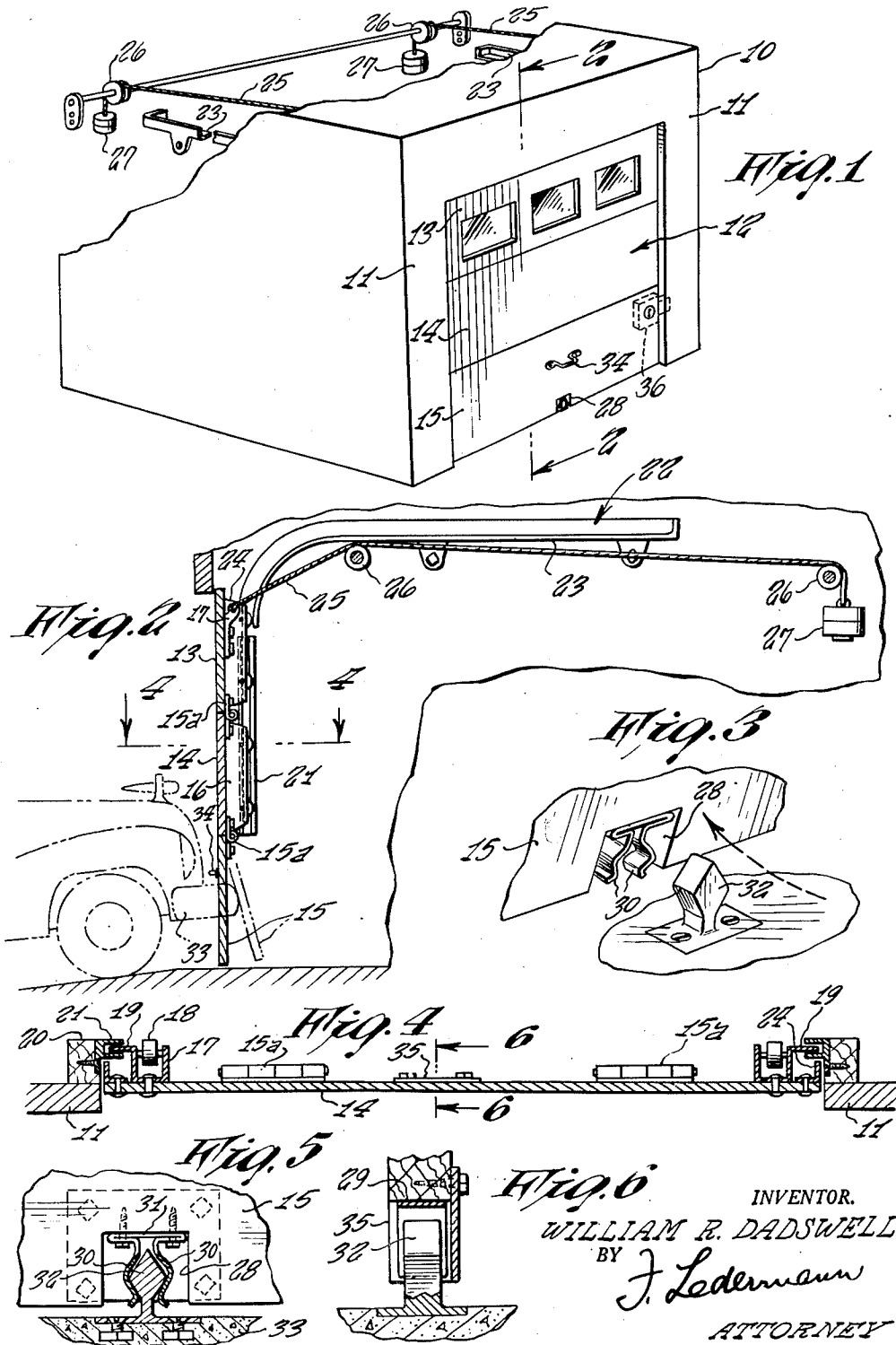
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BUMPER-OPERATED GARAGE DOOR

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BUMPER-OPERATED GARAGE DOOR

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5 Claims. (Cl. 160—190)

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This invention relates to garage doors, and the main object is the provision of a novel, practical and useful improvement whereby the closed door may be automatically opened by impact of the bumper of the car therewith, thus eliminating the necessity for the driver to alight from the car in order to open the door.

The above broad as well as additional and more specific objects will be clarified in the following description wherein characters of reference refer to like-numbered parts in the accompanying drawing. It is to be noted that the drawing is intended solely for the purpose of illustration and that it is therefore neither desired nor intended to limit the invention necessarily to any or all of the exact details of construction shown or described except insofar as they may be deemed essential to the invention.

Referring briefly to the drawing,

Fig. 1 is a perspective view, with parts broken away to expose the interior, of a garage having the door of this invention embodied therein.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary perspective view of the lower mid-portion of the door together with the stationary floor projection from which the lower panel of the door has been swung back, as by impact of the car bumper therewith.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a fragmentary front elevational view of the door in closed position showing the door catch in engagement with the floor projection, with parts broken away and partly in section.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4.

Referring in detail to the drawing, the numeral 10 indicates a garage having the usual wide door opening through the front wall thereof, on the sides of which two uprights 11 extend. The door 12 is made of a plurality of horizontal hinged panels, such as those shown at 13, 14 and 15, the hinges 15a serving to hinge the panels 13 and 15 to the panel 14.

The upper panels 14 and 13 have, at their sides, aligned frame members 17 supporting rollers 18 on axes parallel with the door panel, and for this purpose the members 17 may be U-shaped in cross-section, as shown in Fig. 4. Tongues 19 extend outward from the members 17. In uprights 20 positioned behind the door opening uprights 11, channel members 21, one on each side of the door opening, are secured to the uprights 20, and the tongues 19 of the door panels 14 and 13 ride in these channels.

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The channels 19 terminate at a level at or near the top of the door opening. Inside the garage, on each side thereof at a level above the door opening in the same vertical plane as the channel 21 on that side, is an angle iron 22 which extends horizontally from a point rearward of the door opening to a point relatively close to the latter, and the forward portion of the angle iron then curves downward to terminate at the top of the corresponding channel 21. Thus, when the door opens as the panels 13 and 14 rise the rollers may ride on the lower flanges 23 of the angle irons 22. Each top corner of the panel 13 has an ear 24 fixed thereto.

A cable 25 has one end attached to the ear 24 on one side of the door and is supported on spaced rollers 26, the other end of the cable having a counterweight 27 thereon. A similar cable, counterweight, and roller assembly is provided at the other side of the door, attached to the ear 24 on that side. In place of the counterweights, springs, not shown, might be used to normally draw the cables rearward. It is assumed that the weight of the two counterweights is sufficient to overbalance the weight of the door 12 and hence causes the latter normally to rise or open.

The lowermost panel 15 has a cut-out 28 in its lower edge, and to the roof 29 of the cut-out is secured the base of a yoke having two depending deformed spring fingers extending from the base 31. The fingers 30 are deformed complementarily and preferably are V-shaped, substantially as shown. A projection 32 is preferably imbedded in the floor 33, and is provided with substantially the diamond-shaped longitudinal section shown. This projection is so positioned on the floor as to extend into the cut-out when the door is closed so that the spring fingers 30 may engage the sides thereof to hold the door down in closed position.

With the door in the position shown in Figs. 1 and 2, it is obvious that the lowest panel 15 is free to swing on its hinges 15a. Assuming that the door is closed and that the spring fingers 30 are in frictional engagement with the projection 32, then when the bumper 33 of the oncoming car strikes the panel 15 it will force the latter rearward and thus disengage the fingers 30 from the projection 32. Hence, the released door will be raised by the weight of the counterweights 27 and the driver may drive the car into the garage.

So that the door may be easily closed, one or more handles 34 may be provided on the lowest panel 15. In pulling the raised door down by means of the handle, as the panel 15 nears the

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bottom of the door opening it is pushed inward so that it clears the projection and, finally, with the panel 15 low enough, as shown in Fig. 3, the same is swung forward so that the fingers 30 slide over the sides of the projection 32. In the latter position the door will remain closed, as is obvious.

In order to exclude the elements from entering the garage through the cut-out 28, a plate may be secured to the back of the panel 15 to cover the opening into the garage. A lock 36, adapted to be opened by a key, may be provided to lock the door when the car is in the garage.

It is thus apparent that a very easily operated automatically opened garage door has been provided, which will eliminate the need for the driver to get out of his car in order to open the door, and this feature is of particular advantage in case of inclement weather.

Obviously modifications in form or structure may be made without departing from the spirit or scope of the invention.

Besides the method of locking the lowermost door panel on the projection 32 by sliding the clip 30, 30 thereover, as described above, the locking may be accomplished by merely drawing the door down forcibly all the way, and as the panel 15 nears the floor the fingers 30 upon striking the projection 32 will be spread by the peaked upper end of the projection and then snap into the locked position shown in Fig. 5.

Thus the door may be closed in either of the two methods set forth.

I claim:

1. In combination with a structure having a doorway and a vertically slidable door mounted in the doorway and means normally urging said door upward to open the doorway, said door being formed of at least two mutually hinged horizontal panels and being adapted to be lowered manually to close the doorway, an upward projection in the floor of the doorway lying substantially in the plane of the doorway, the lowermost of said panels being adapted to swing on its horizontal hinge axis when the door is in the closed position, spring clips extending from the lower portion of said lowermost panel and mutually opposed to each other, the surfaces of said projection on both sides of the vertical center line thereof being deformed, each of said

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clips being deformed complementarily to one of said surfaces of the projection and being substantially in alignment therewith rearward of said projection when the door is in lowered position, said lowermost panel being adapted to be swung forward manually on said hinge axis to slidably engage said clips on the respective of said surfaces of said projection whereby said lowermost panel may be pushed back by the bumper of an automobile to disengage said clips from said projection thereby permitting said means to raise said door to open said doorway.

2. The combination set forth in claim 1, said surfaces on each side of said projection comprising two intersecting non-vertical planes.

3. In combination with a structure having a doorway and a door provided with means for normally sliding said door upward to open the doorway, said door comprising at least two mutually hinged horizontal panels, a deformed upward projection in the floor of the doorway, a complementarily deformed spring clip adapted to engage said projection mounted on the lowermost of said panels, said door being adapted to be lowered manually to closed position with said lowermost panel in swung back position to position said clip rearward of said projection, said lowermost panel being swung forward into the plane of the doorway to engage said clip with said projection to releasably lock the door in closed position, whence upon pushing back said lowermost panel to disengage said clip from said projection said door is released to permit said means to raise the same to open the doorway.

4. The combination set forth in claim 3, the vertical cross-sectional conformation of said projection on a plane through the doorway being diamond-shaped, said spring clip comprising two depending legs each complementary in deformation to one side of said diamond-shaped projection.

5. The combination set forth in claim 3, said lowermost panel having a rectangular cut-out in the lower edge thereof, said clip being secured to the roof of said cut-out and extending downward therefrom.

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No references cited.