May 20, 1930. G. E. GRIMM 1,759,193

VEHICLE DOOR

Original Filed July 5, 1923

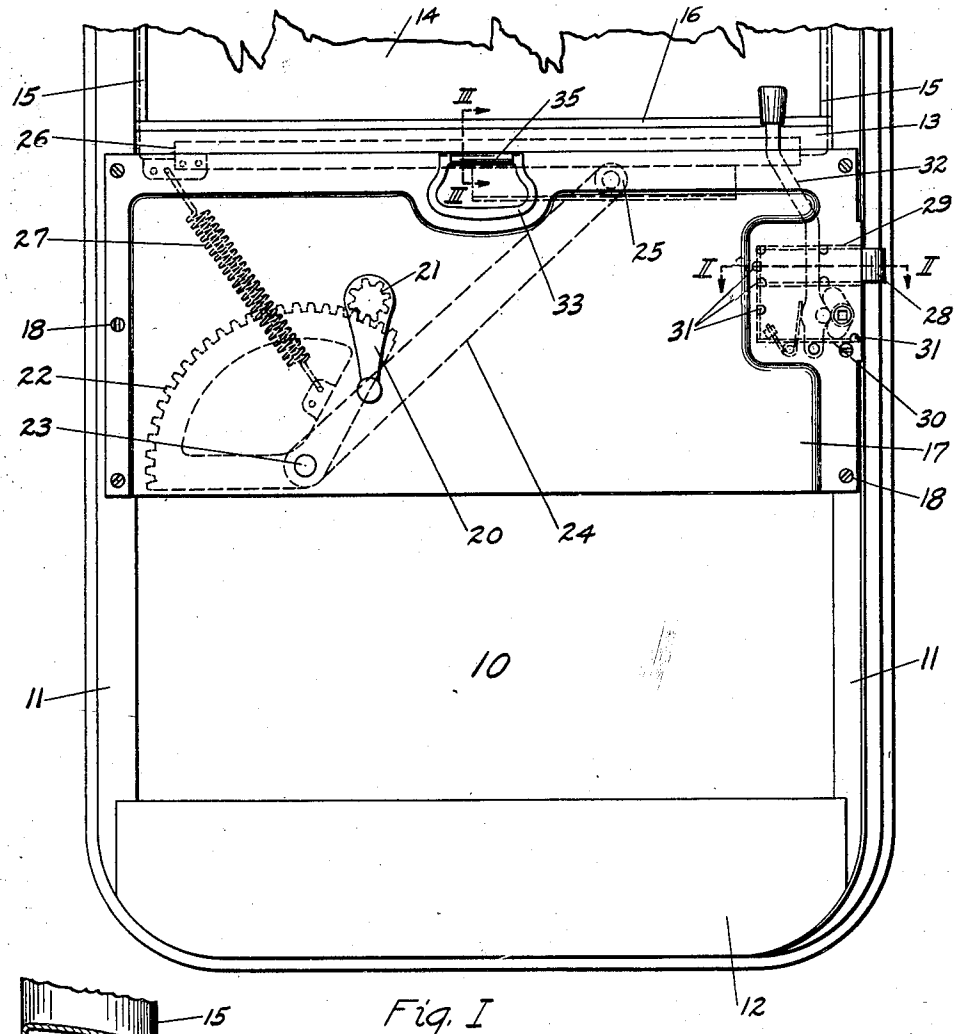



Fig. I

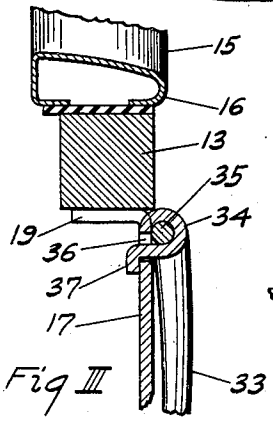



Fig III

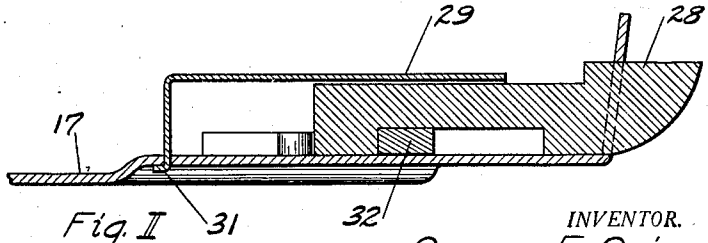



Fig. II

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# UNITED STATES PATENT OFFICE

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## VEHICLE DOOR

Original application filed July 5, 1923, Serial No. 649,588. Divided and this application filed May 21, 1924. Serial No. 714,873.

This invention relates to vehicle doors and the like, and has for one object to provide in combination, improved hoisting, latching and door pull mechanisms, all disposed upon a single panel or lock-board in a manner to form a complete unit, ready for attachment to the door frame.

A further object of the invention is to so construct the various door controlling devices, such as the sash hoisting mechanism, the door latching mechanism, and the door pull handle, as to make it possible to assemble and connect them to a single panel or lock-board, thus permitting the work to be done on the bench under the most favorable conditions. The completed assembly is then mounted upon and connected with the door frame as a unit, requiring but little time in its application, and insuring accuracy in the mounting of the several mechanisms carried by the lock-board.

A further object of the invention is to reduce the number of parts of the door latching mechanism, and to economize in the construction thereof, by mounting the latch bolt and other details of the latch mechanism directly in contact with the panel or lock-board, which is adapted to form one side of the housing for said mechanism, thus eliminating a portion of the housing ordinarily employed.

To these and other ends, the invention embodies certain novel features of construction and arrangement of parts, as will be hereinafter more fully pointed out and claimed, it being understood that the invention is susceptible of various modifications, embodiments and arrangements to suit special and varying conditions under which the invention may be practiced.

A structure constituting one embodiment of the invention, is illustrated in the accompanying drawings, in which:

Figure I is an interior side elevation of a door before the upholstery is applied, and illustrating one form of invention.

Fig. II is an enlarged sectional plan through the door latch, taken on line II—II of Fig. I, and

Fig. III is an enlarged detail section through the door handle, taken on line III—III of Fig. I.

Like reference characters illustrate corresponding parts throughout the several views of the drawings.

In illustrating the present invention, I have preferably shown it applied to a vehicle door 10 including the stiles 11 connected by the lower rail 12 and also by an upper rail (not shown), as well as by the spaced inner and outer intermediate rails, only one of which is shown, as indicated at 13, all adapted to be connected in any desired manner. The sash or window glass 14 is suitably mounted for vertical movement in the door frame, and is held against inward displacement by the moldings or finishing strips 15 and 16, shown in Figs. I and III.

The panel or lock-board 17 is preferably formed of stamped metal and is connected with the upright door frame members 11, as by means of the screws 18. The panel is provided along its upper edge with an outwardly turned flange 19, upon which rests the cross-frame member 13 of the door, and to which the flange is suitably secured as by means of screws (not shown).

One of the important features of the invention is the mounting of all parts of the window hoisting and door latch mechanisms upon the panel or lock-board, including also the handle for closing the door and the application of the completed unitary structure to the door frame, simply by placing it in position thereon and driving the screws for connecting it therewith.

The hoisting mechanism for the sash may be of any improved type, preferably such as that disclosed in my co-pending application, Serial Number 649,588, filed July 5, 1923, the present application being a division of said co-pending application.

The hoisting mechanism disclosed in said co-pending application is only partially illustrated herein. The present disclosure embodies the operating handle or lever 20 connected with an actuating gear 21 rotatably mounted upon the panel-board and meshing with a segment 22 pivoted upon the panel at 23 and having rigidly connected therewith an

arm 24 provided with a grooved roller 25 engaging a channel-shaped member 26 in which the bottom of the glass 14 is secured. A counter-balancing spring 27 is connected at one end with the segment 22, and at the other end with the panel-board, as shown in Fig. I.

The latch or locking mechanism for the door, carried entirely by the lock-board, may be of any approved type suitable for the purpose, and preferably constitutes a latch-bolt 28 mounted to slide directly upon the inner face of the door board which forms one side of the housing of the latch mechanism, thus economizing in the number of parts and the amount of material used. The opposite portion of the housing for the latch mechanism, comprises a stamping 29 for the latch-bolt and an additional stamping 30 for the remaining parts of the mechanism, each stamping being secured to the door board by intergral tongue-like portions 31 projecting through openings in the board and bent over, as indicated in Figs. I and II. The stampings 29 and 30 may be formed of one piece, if desired, and arranged to include all portions of the latch mechanism. The latch-bolt 28 is suitably spring-pressed and adapted to be released from the inside of the vehicle by a lever 32 and from the outside thereof by a suitable handle (not shown), operatively connected with the latch mechanism in any well-known manner.

The door pull handle 33 is preferably connected with the lock-board by having an integral portion 34 of the flange 19 thereof bent back and looped around the handle bolt 35 and projected through an opening 36 in the door-board and secured by bending down, as indicated at 37 in Fig. III. This construction affords a strong and economical method of attaching the pull handle, and reduces the number of parts used, thereby reducing the cost of manufacture.

While the construction herein shown and described is well adapted to fulfill the objects primarily stated, it is to be understood that changes in the form, proportions, arrangement of parts and details of construction, may be resorted to when found expedient, without departing from the spirit of the invention as expressed in the claims.

I claim as my invention:—

1. In combination with a door frame and a panel mounted thereon, means for securing a handle thereto comprising a tongue extending from said panel and bent to form a hinge eye for the handle, and a slot in the panel adjacent said tongue, the free end of said tongue being projected through said slot and clinched to said panel.

2. In combination with a door frame including vertical stiles and an intermediate rail, a panel secured thereto and provided with a flange secured to said rail and a tongue cut from said flange and bent to form a handle loop the free end of said tongue being secured to said panel.

3. In combination with a door frame including vertical stiles and an intermediate rail and panel secured thereto and provided with a flange secured to said rail, a tongue cut from said flange and bent to form a handle lop and a slot in the panel adjacent said tongue, the free end of said tongue being projected through said slot and clinched to said panel.

In testimony whereof I affix my signature.

GEORGE E. GRIMM.