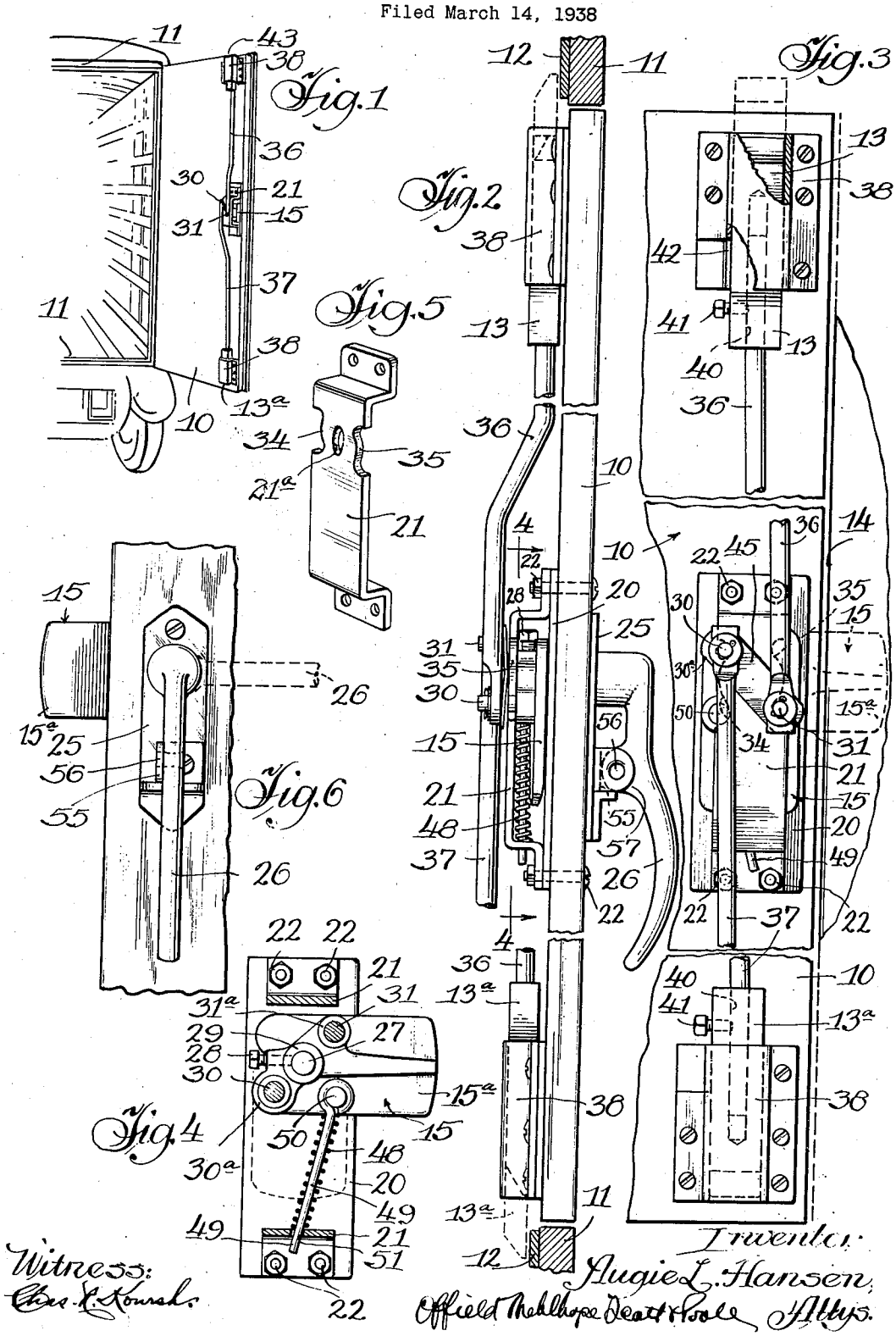
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DOOR LOCK

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DOOR LOCK

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1 Claim. (Cl. 292—5)

This invention relates to improvements in multiple door locks particularly adapted for automobile bodies of the commercial type, although not limited to such use.

The principal object of the invention is to provide an improved and simple locking mechanism having a plurality of locking bolts operated by a single handle and having a snap action so that the lock will be positively moved either into fully opened or fully closed position.

Other objects and advantages of the invention will appear from the following description.

The invention may best be understood by reference to the accompanying drawing, in which

Fig. 1 is a perspective fragmentary view of an automobile body to which an embodiment of my invention has been applied.

Fig. 2 is an enlarged fragmentary side view of the door and lock shown in Fig. 1, with the mechanism in unlocked position.

Fig. 3 is an inside face view of the door and lock shown in Fig. 2.

Fig. 4 is a detail section taken on line 4—4 of Fig. 2, and showing the locking mechanism in locked position.

Fig. 5 is a detail perspective view of the cover plate forming part of the locking mechanism.

Fig. 6 is a fragmentary detail view from the outside of the door showing the locking handle in closed position.

In the embodiment of the invention illustrated in the drawing, 10 indicates the rear door of a commercial automobile body to which my improved locking mechanism is appiled; 11, 11 indicate opposed door frame members having suitable keeper plates 12, 12 in position to be engaged by the end locking bolts 13 and 13a; and 14 indicates a suitable abutment adapted to be engaged by a swinging bolt or locking piece 15 at the center of the door. The abutment 14 may be either a fixed door frame member, or the edge of another swinging door having as usual separate latch or fastening means therefor.

The locking mechanism includes an elongated base plate 20 disposed adjacent the inner edge of the door approximately at the center thereof, and a cover plate 21 having its central portion spaced in parallel relation thereto. In the form shown, the plates 20 and 21 are both secured to the door by bolts 22, 22 at opposite ends thereof. An outer plate 25 is secured to the exposed face of the door, and a shaft 26 having a handle 27 mounted thereon extends through said outer plate, door 10 and base plate 20, and bearing aperture 21a of the cover plate 21. (See Fig. 4.)

A locking piece 15 consisting of a relatively flat rectangular piece of metal is fixed on the inner end of the shaft 26, as by a set screw 28 passing through a boss 29 projecting from the outer face of said locking piece 15, as viewed from the interior of the door. It will be observed that the locking piece 15 is pivotally mounted on shaft 26 nearer one end of the base plate 20 and cover plate 21, so that the elongated locking portion 15a of said locking piece may be swung inwardly beneath the cover plate 21 when the locking piece is in unlocked position, as shown in Fig. 3.

The locking piece 15 has a pair of pivot pins 30 and 31 mounted in bosses 30a and 31a, respectively, disposed at opposite sides and in alignment with the pivotal axis of the locking piece 15 and at an angle of approximately 45 degrees to the longitudinal axis of said locking piece, as clearly seen in Fig. 4. The pins 30 and 31 project beyond the cover plate 21 at opposite sides thereof, in the form shown herein, the said cover plate having arcuate shaped notches 34 and 35 formed in its opposite edges to accommodate the pins 30 and 31, respectively, and form stops to limit the pivotal movement of said locking piece. A pair of tie rods 36 and 37 are pivotally mounted on the outer ends of pins 30 and 31, respectively, and extend in opposite directions along the edge of the door to locking bolts 13 and 13a. Each of said locking bolts is longitudinally slidable in an elongated guide member 38 secured adjacent the edge of the door 10.

Each of the rods 36 and 37 is preferably connected to its respective bolt 13 and 13a by inserting its outer end in a drilled hole 40 extending lengthwise of said bolt and securing the rod and bolt in proper adjusted position by a set screw 41. In the form shown herein, a portion of the side wall of each guide member 38 is cut away as indicated at 42, to accommodate the set screw 41 carried by the locking bolt as the latter is moved into its extended locking position.

A leaf spring 45 is interposed between the outer face of the cover plate 21 and the inner faces of the rods 36 and 37, and is held in place by pins 30 and 31 which pass through opposite ends thereof so as to swing bodily with the locking piece 15. Said spring 45 is normally flexed outwardly at its ends so as to urge the rods 36 and 37 outwardly and also urge the locking piece 15 toward said plate in order to take up play and prevent rattle of the parts.

The pivotal movement of the locking piece 15 is partially controlled by a coil spring 48 mounted on a guide rod 49, which rod is pivotally con-

nected on pin 50 carried by the locking piece 15, and has its opposite end 49a slidably mounted in an aperture 51 formed at the lower shoulder 52 of cover plate 21.

The arrangement of spring 48 is such that when the locking piece 15 is swung to one extreme position, as for instance in the locking position shown in Fig. 4, said spring and its guide rod 49 are swung therewith to one side of a dead center line extending between the shaft 27 and the bottom end of spring 49 where it engages the shoulder 52. The spring 48 is normally kept under compression so as to urge the locking member into its locked position. When the locking piece is swung by manual operation of the handle 26 to unlocked position, an additional compression is imposed on the spring until the latter passes the dead center line, after which said spring assists in completing the swinging movement of said locking piece into its fully unlocked position shown in full lines in Fig. 3. The same snap action is afforded when the mechanism is operated in reverse direction to lock the door. The bolts 13 and 13a are of course operated simultaneously with the locking piece 15.

In the form shown, the outer plate 25 is provided with a stop 55 having an eye 56 therein adapted to be engaged by an eye 57 on handle 26 so that the handle 26 can be secured by a padlock or the like when in locking position shown in Fig. 6.

Although I have shown and described one particular embodiment of my invention, it will be understood that I do not wish to be limited to the exact construction shown and described, but that various changes and modifications may be made without departing from the spirit and scope of my invention as defined in the appended claim.

I claim as my invention:

In a locking mechanism, a frame including a base plate spaced in parallel relation therewith and a cover plate, a manually operable control shaft rotatably supported in said base plate, a pivotally movable locking piece fixed on said shaft between said base plate and said cover plate and having a portion thereof swingable into extended locking position beyond said frame, a pair of pivot pins carried by said locking piece and extending on opposite sides of said cover plate, a pair of push rods pivotally connected to said pins and extending in opposite directions from said frame, reciprocably movable locking bolts connected at the outer ends of said push rods so as to be operative simultaneously with said locking piece, and a leaf spring interposed between the outer face of said cover plate and the ends of said push rods and movable with the latter to yieldingly urge said locking piece into bearing engagement with the under face of said cover plate.

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