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SLIDING DOOR LATCH

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Fig. 3

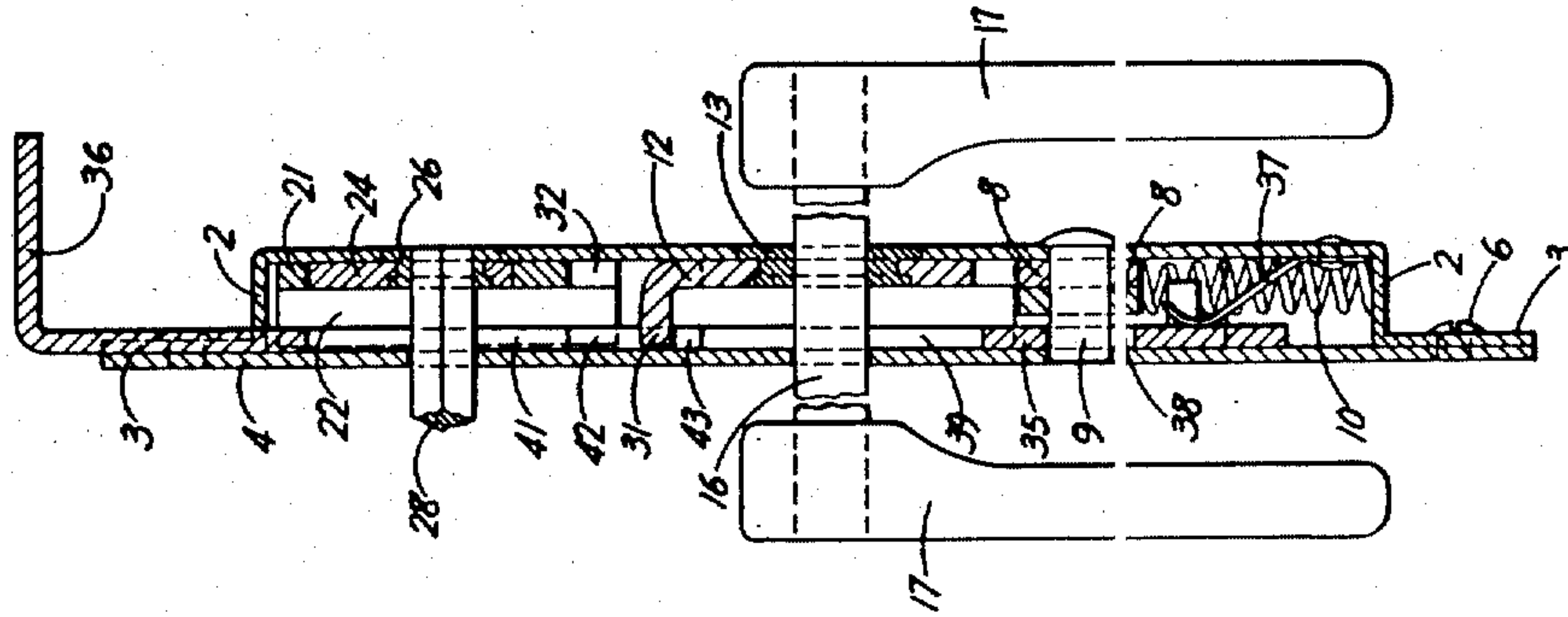


Fig. 2

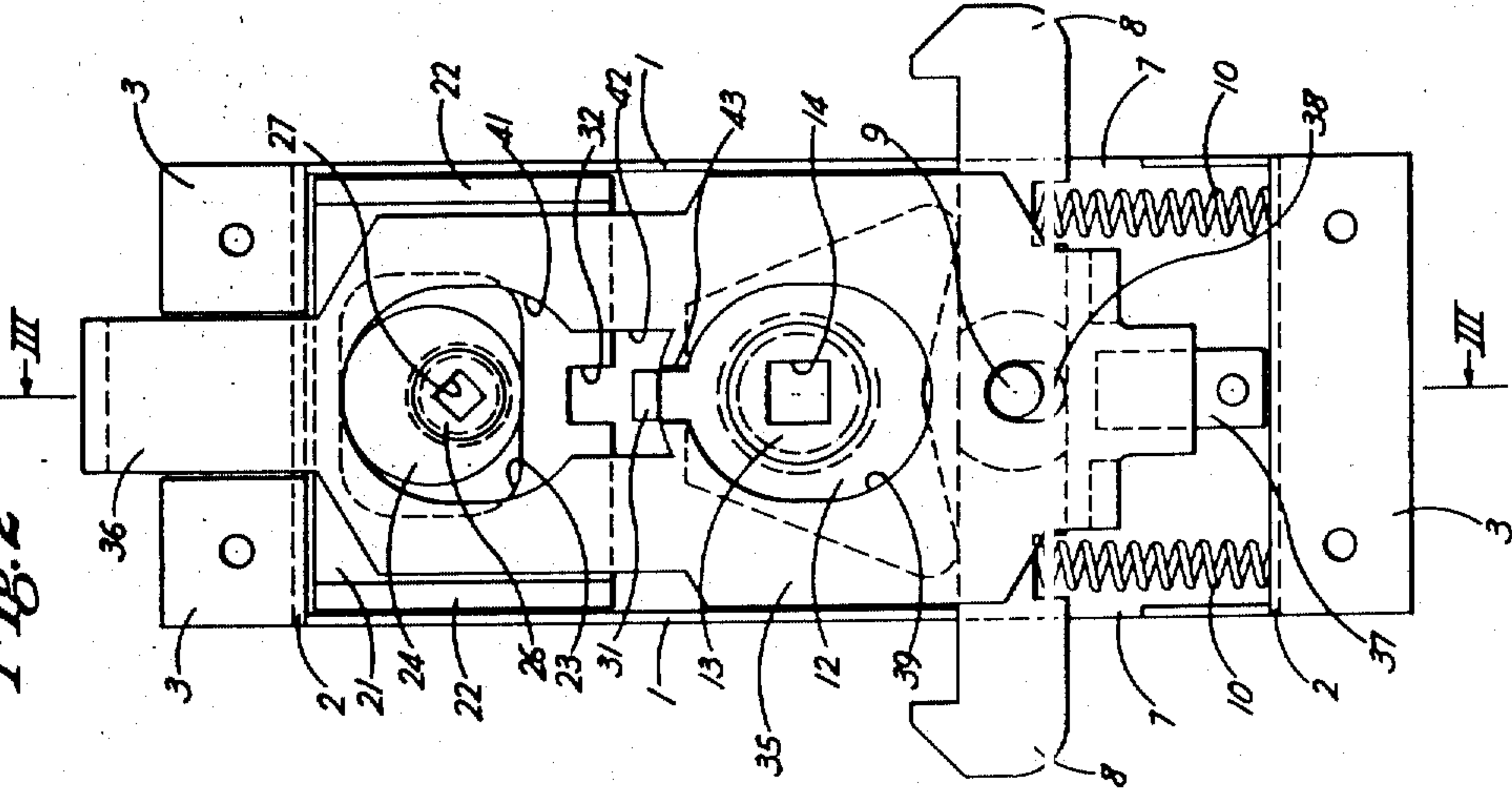
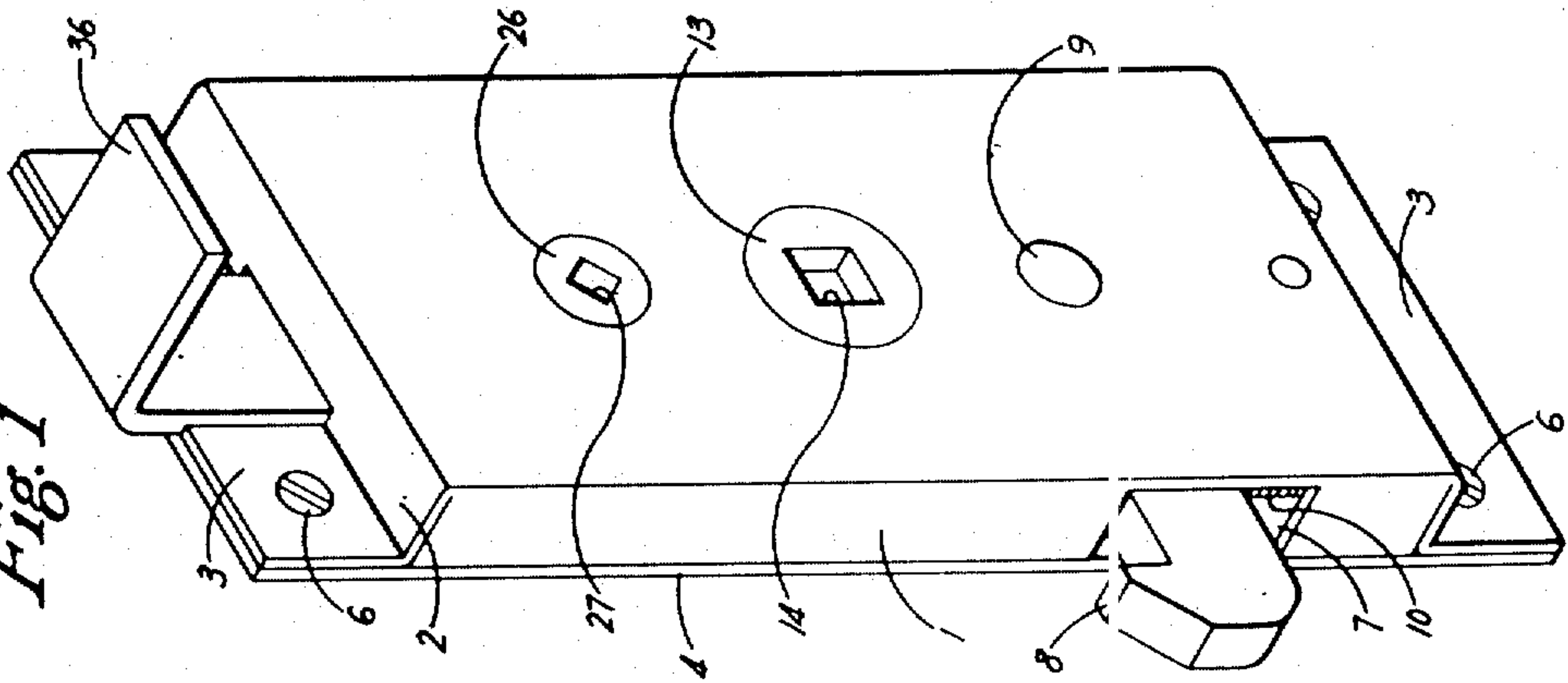


Fig. 1



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SLIDING DOOR LATCH

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1 Claim. (Cl. 292—124)

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This invention relates to locks or latches, and more particularly to those particularly suited for use with sliding doors.

It is among the objects of this invention to provide a sliding door latch which can be locked by a key from one side and by a self-contained locking member from the other side, which will permit the door to be closed even though the latch is locked, which is of simple and inexpensive construction, which can hold a sliding door either open or closed, and which is sturdy and dependable in operation.

In accordance with this invention a bolt projects from one side of a case in which the inner end of the bolt is pivotally mounted. The bolt normally is held in operative or latching position in any suitable manner, such as by a spring. Inside the case there is manually operable means by which the bolt can be swung from latching to inoperative position by turning a handle or knob outside the case. In order to be able to lock the manually operable means from in front of the case, key operated means are provided in the case. These means may include a locking member and a key actuated member for moving it into engagement with the bolt-actuating means so that the latter cannot move. Also mounted in the case is a manually operable member which projects therefrom for locking the bolt-actuating means from in back of the case. This member preferably is in the form of a bar slidably mounted in the case and shaped to obstruct movement of the bolt-swinging means when the bar is slid in a certain direction. This locks the bolt-swinging means independently of the other locking member. No key is required for moving the bar. By using a pair of bolts projecting from opposite sides of the case, this latch can be used for locking a sliding door either in open or in closed position or, if the latch is mounted on a separating strip, it can lock two sliding doors that are slid toward the strip from opposite directions.

The preferred embodiment of the invention is illustrated in the accompanying drawings in which Fig. 1 is an isometric view of my latch; Fig. 2 is a front view of the latch with the cover removed; and Fig. 3 is a vertical section taken on the line III—III of Fig. 2, but with the cover in place.

Referring to the drawings, a case is formed from a metal sheet which has its edges turned at right angles to form side walls 1 and its ends bent to form upper and lower end walls 2 provided with vertical projections 3. A flat cover

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plate 4 is connected to the front of these projections by any suitable means, such as by screws 5. Near the bottom of the case the opposite side walls are cut away to form openings 6 through which a pair of bolts 7 extend. The inner ends of these bolts are reduced in thickness and overlap each other, their overlapping portions being provided with aligned openings through which extends a pivot pin 8 rigidly mounted in the back wall of the case and projecting into an opening in the cover plate. The outer ends of the bolts, which are provided with upwardly projecting hooks, therefore can be swung up and down on the pivot pin. Normally the bolts are held in their upper horizontal position by vertical coil springs 9 compressed between them and the lower wall of the case.

Either one of these bolts can be swung down against the resistance of the underlying spring 9 by means of an actuating member or depressor 10 that has rounded lower corners engaging the tops of the bolts. This depressor is rigidly mounted on a cylindrical member 11 rotatably mounted in the rear wall of the case provided with a square axial passage 12 for reception of a square shaft 13 carrying knobs or handles 14 so that the depressor can be turned from either the front or the back of the case. When the depressor is turned, one lower corner or the other presses down on the underlying bolt, depending on which way the depressor is turned.

Provision is made for locking this latch from in front of the case, i. e. outside the door, by means of a key. For this purpose a locking plate 15, disposed in the upper part of the case, is slidable vertically therein and is provided with rearwardly projecting side flanges 16 which engage the cover and thereby hold the slide against the back of the case. The central part of the plate is provided with a generally rectangular opening 17 in which a circular cam 18 is rotatably mounted. This cam is rigidly mounted eccentrically on a small cylindrical member 19 which in turn is rotatably mounted in the rear wall of the case. Member 19 is provided with a square axial passage 20 that receives the square shaft 21 of a key operated lock (not shown) that may be mounted in front of the case in the usual way.

When a key is turned in the lock, it turns shaft 21 and thereby rotates the cam 180° to move the slide downwardly toward depressor 10. The adjacent portions of the slide and depressor are provided with interengaging detents so that when the slide is moved down it will engage the de-

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presser and prevent it from being rotated. Preferably, the top of the depresser is provided with a lug 31 that projects forward, while the lower edge of the slide is provided with a vertical notch 32 adapted to fit down snugly over the lug to hold the depresser against rotation. However, it will be seen that even when the depresser is held stationary by the slide, the door to which this latch may be attached can be closed because the pressure of the outer end of one of the bolts against the keeper on the door frame can swing that bolt downwardly away from the depresser and allow the bolt to snap into engagement with the keeper, where it will remain until the slide is raised away from lug 31 by means of the key-operated cam 24.

Another feature of this invention is that the latch can be locked, from in back of the case, i. e. inside the door, without the use of a key. Accordingly, a vertical locking bar 35 is slidably mounted in the case between depresser 12 and cover plate 4. The upper end of the bar is provided with a tongue 36 that extends up through a notch in the front edge of the upper wall of the case and then rearwardly. The lower end of the bar is pressed against the cover by a leaf spring 37 attached to the lower end of the rear wall of the case, while opposite sides of the upper portion of the bar are cut away to accommodate flanges 22 on slide 21. The lower portion of the bar is provided with a vertical slot 38 through which pivot pin 9 extends. This pin controls the distance the bar can be moved up and down in the case. The central portion of the bar is provided with an opening 39 to accommodate the handle shaft 16, and the upper portion of the bar is provided with an opening 41 for key-operated shaft 28.

Extending downwardly in the bar from upper opening 41 is a recess 42 into which depresser lug 31 normally projects. This recess is wide enough to allow the lug to swing back and forth in the bar when the depresser is turned in either direction by one of the handles in order to depress one of the bolts 8. However, at the bottom of recess 42 there is a central vertical slot 43 which receives the lug when the locking bar is lifted by its tongue 36 from the position shown in the drawings. As this slot is substantially no wider than the depresser lug, it prevents the lug from being moved and thereby holds the depresser stationary when slide 21 is in its upper, inoperative position. By pushing down on tongue 36, slot 43 is moved below the depresser lug so that the depresser again can be turned in either direction.

The latch disclosed herein is particularly useful for sliding doors on the sides of trucks where it is desirable to be able to lock the doors quickly from the inside without having to bother with

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keys. With this latch it is only necessary to lift the locking bar tongue with the finger to lock the latch, or depress the tongue to unlock the latch. Outside of the truck the latch can be locked safely with a key. The latch itself has only a few parts and can be made inexpensively and assembled quickly. Most of the parts are stamped out, and there is practically nothing to get out of order.

According to the provisions of the patent statutes, I have explained the principle and construction of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claim, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

A sliding door latch comprising a vertical case, a bolt projecting from a side of the case into latching position, means pivotally connecting the inner end of the bolt in the case on a horizontal axis, a manually oscillatable member in the case for swinging the bolt out of latching position, said member being provided with a lug portion spaced vertically from and projecting substantially parallel to the axis of that member, and a vertical locking bar slidably mounted in the case beside said member and projecting from the end of the case that is adjacent said lug portion, said bar being provided with a recess normally receiving said lug portion and of sufficient width to permit the lug to swing sideways so that said oscillatable member can be turned, and said bar also being provided with a slot leading out of said recess toward the axis of said member for receiving said lug portion and holding it substantially stationary when the bar is slid toward said end of the case into locking position.

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