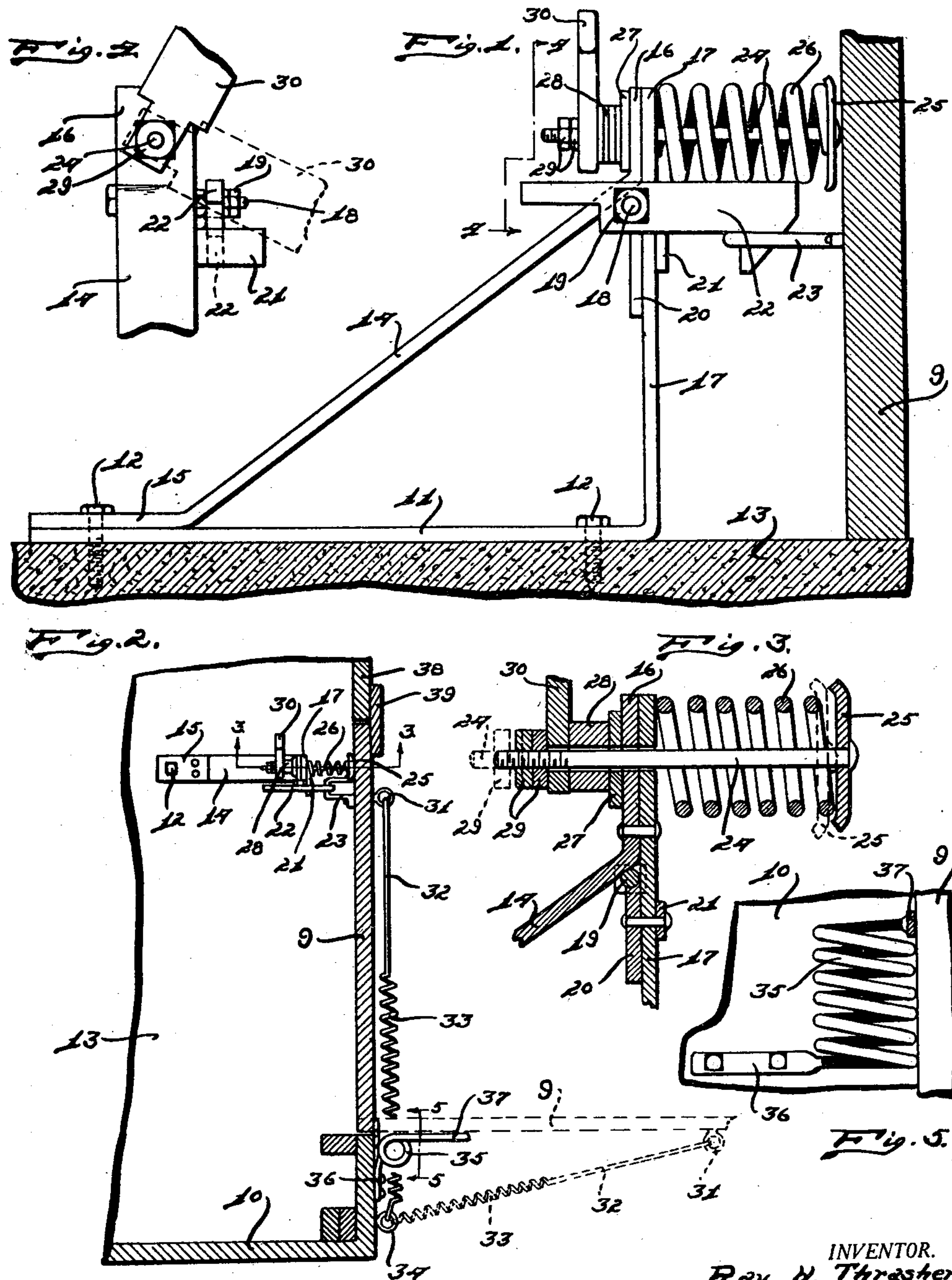


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DOOR LATCH AND OPENER

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DOOR LATCH AND OPENER.

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My invention relates to a new and useful improvement in a door latch and opener adapted for use particularly on outbuildings, such as garages and the like, although from the description given, it will be apparent that the invention may be used on inside doors as well.

It is an object of the present invention to provide a door latch and opener which will be simple in structure, economical of manufacture and highly efficient in use.

Another object of the invention is to provide a mechanism of this class whereby the door may be latched and upon an inward movement of the door, a mechanism automatically moved to unlatch the door.

It is another object to provide a thrust member which will thrust the door in the direction of open position upon release of the latching mechanism.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawings which form a part of this specification, and in which,

Fig. 1 is a side elevational view of the invention showing it mounted on a door.

Fig. 2 is a top plan view of the invention showing it mounted on a door, the door and supporting structure being shown in section.

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a fragmentary sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a fragmentary view taken on line 5—5 of Fig. 2.

In the drawings I have illustrated the invention adapted for use with a door 9 swingably mounted on the wall 10 of the building or supporting structure.

The invention comprises an L-shaped member having one side 11 fastened by the screws 12 to the floor 13 of the building with which used. This L-shaped member 11 is reinforced by a brace 14 which has an end 15 angularly turned to lie in engagement with the portion 11 of the L-shaped member and a portion 16 angularly turned to lie in engagement with the portion 17 of the L-shaped member. Extending transversely of the portion 17, directly beneath the angularly turned portion 16, is a bolt 18 having the nut 19 threaded thereon. A reinforcing

strip 20 is mounted on the portion 17 so that the bolt 18 is supported between the brace 14 and this reinforcing plate 20. Extending transversely of the portion 17 of the L shaped member and projecting laterally outwardly from one side is an abutment strip 21. Pivotally mounted on the bolt 18 is a latch member 22 adapted to engage the U clip 23 which is fastened to the door 9. Projected through registering openings formed in the portion 17 of the L-shaped member and the angularly turned portion 16, is a bolt 24 carrying at one end the plate 25 which is adapted to engage one end of the coil spring 26, the other end of the coil spring engaging the portion 17 of the L-shaped member. Suitable washers 27 and 28 are mounted on the bolt 24 which is provided with the nuts 29 serving to retain the actuating bar 30 in position. The L-shaped member is mounted on the floor 13 in such a position that when the door 9 is moved to closed position, the latch 22 will engage the U-shaped clip 23 and lock the door in closed position. The actuating arm 30 may be swung to either side of the L-shaped member 17 so that when the door is thrust inwardly and the bolt 24 moved rearwardly against the compression of the spring 26, the arm 30 will be permitted to swing downwardly to either side of the L-shaped member. When the arm 30 is moved to the position shown in Fig. 4, and the door 9 moved inwardly so as to compress the spring 26 and relieve the arm 30 of the frictional engagement with the washers 28 and the nuts 29, the arm 30 will move downwardly in response to gravity into the position shown in dotted lines in Fig. 4, striking the rear portion of the latch 22 and rocking it upwardly into inoperative or disengaging position, so that it disengages the U-shaped clip 23. A release of the inward pressure on the door 9 will permit the spring 26 to move to its normal position, thrusting the door 9 slightly outwardly. Secured to the outer side of the door 9 is an eyelet 31 which is pivotally fastened to a rod 32 connected to the spring portion 33, this spring portion 33 being connected to the eyelet 34 on the wall 10. The spring 33, being under tension while the door is closed, will move the door, upon its release, outwardly to the position shown in dotted lines in Fig. 2, this position being a fully open position. An abutment member is mounted on the wall 10, this abutment

member consisting of a spring portion 35 having one end 36 outwardly turned for fastening to the wall 10, and the other end 37 outwardly turned to form an engagement member for engaging the door and limiting its outward movement. By having the spring portion 35 in this abutment member, a yieldable engagement member 37 is presented so that no sudden jar is transmitted to the door.

The latch mechanism may be so arranged that the door is locked in closed position. When the actuating arm 30 is moved to the position shown in Fig. 2, an inward pressure on the door 9 will move the bolt 24 rearwardly to release the frictional engagement on the arm 30, and this arm 30 will fall downwardly on the opposite side to that shown in Fig. 4, thus leaving the latch member in operative position, the forward end of this latching member being heavier than the rearward end and falling by gravity into engagement with the U-shaped clip 23.

As shown in Fig. 2, this U-shaped clip 23 is of such length to permit a slight inward movement of the door without effecting a raising of the latch. Consequently, when desired, the arm 30 may be moved to a position where access to the interior of the building through some other entrance than the door 9 would be necessary in order to release the door 9 for movement to open position.

In the drawings I have shown a cooperating door 38 having the overlapping cleat 39, this cooperating door 38 being of the usual type and being adapted for fastening to the secured door 9.

With a door fastener of this class a garage door or the like may be opened by the individual desiring to place a car in the garage without requiring his dismounting from the car. A slight pushing of the door inwardly would release the latch and upon a backing of the car away from the door, the spring arrangement described would move the door to open position. The tension of the spring is intended to be such that a man could not through his own efforts move the door inwardly sufficiently to release the latch, the use of a car for this purpose being necessary.

While I have illustrated and described the preferred form of my invention, I do not wish to limit myself to the precise details of structure shown, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device of the class described adapted for use with a swingably mounted door, comprising: a supporting member; a latch swingably mounted on said supporting

member; a U-shaped clip mounted on said door and adapted for engagement with said latch, said latch, through gravity, locking upon its engagement with said U-shaped member; a horizontally disposed slidable member mounted on said supporting member; a swingably mounted releasing member on said horizontally disposed member adapted, upon downward swinging, for engaging and unlatching said latch; and a resilient member for frictionally retaining said swingably mounted releasing member in inoperative position.

2. A device of the class described adapted for use with a swingably mounted door, comprising: a supporting member extending upwardly adjacent the lower end of said door; a latch member swingably mounted on said supporting member and directed toward said door; means on said door for engaging said latch member, said latch member moving by gravity into latching position with said means; rockable means carried by said support adapted, upon downward rocking, for engaging and unlatching said latch; and resilient means for maintaining a frictional engagement with said rockable member and normally retaining the same in inoperative position, said frictional engagement being released upon compression of said resilient means.

3. A device of the class described adapted for use with a swingably mounted door, comprising a supporting member extending upwardly adjacent the lower end of said door; a latch member swingably mounted on said supporting member and directed toward said door; means on said door for engaging said latch member, said latch member moving by gravity into latching position with said means; rockable means carried by said support adapted, upon downward rocking, for engaging and unlatching said latch; and resilient means for maintaining a frictional engagement with said rockable member and normally retaining the same in inoperative position, said frictional engagement being released upon compression of said resilient means, said resilient means being compressible upon the inward movement of said door slightly from normal position.

4. A device of the class described adapted for use with a swingably mounted door, comprising: an upwardly directed support; a latch swingably mounted on said support; means on said door for engaging said latch, said latch moving by gravity into latching position with said means; a horizontally disposed member; an arm swingably mounted on said horizontally disposed member, said member projecting from said support; a spring embracing said member and engaging said support at one end and said member at the other end, said spring normally maintaining a friction on said rockable member

and preventing its rockable movement, said spring being compressible upon inward movement of said door slightly beyond normal position, said rockable member rocking
5 downwardly for releasing said latch upon compression of said spring.

5. A device of the class described adapted for use with a swingably mounted door, comprising: a supporting member; a latch
10 swingably mounted on said support; means on said door for engaging said latch, said latch moving by gravity into latching position with said means; a rod extending horizontally through said support; an arm rotat-
15 ably mounted on said rod, adjacent one end, positioned at one side of said support; a spring embracing said rod at the opposite

side of said support and engaging at one end said support; an abutment member on said rod for engaging the opposite side of
20 said spring, said spring normally preventing rotatable movement of said arm on said rod, said arm being movable to move by gravity upon compression of said spring down-
wardly at either side of said support, the
25 downward movement of said arm into engagement with said latch effecting a releasing of the same, said spring being compressible upon the inward movement of said
30 door slightly beyond normal position.

In testimony whereof I have signed the foregoing specification.

RAY H. THRASHER.