P. MATURO.

AUTOMATIC LATCH.

APPLICATION FILED NOV. 19, 1920.

1,394,635.

Patented Oct. 25, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

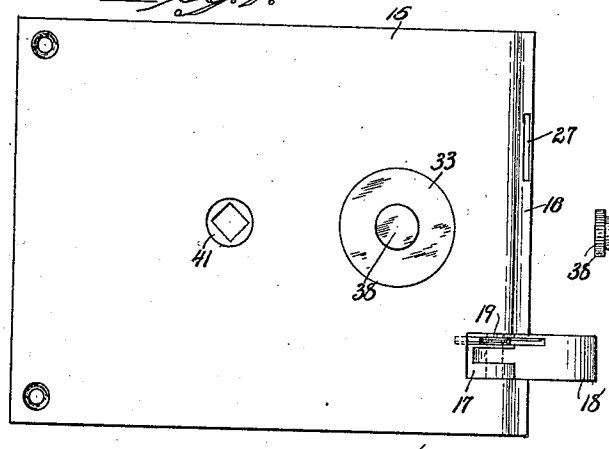
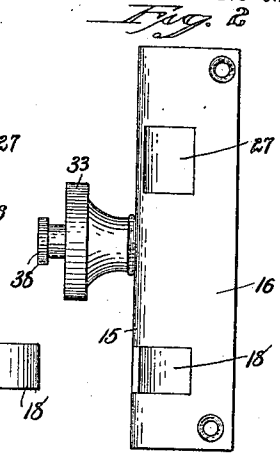


Fig. 2.



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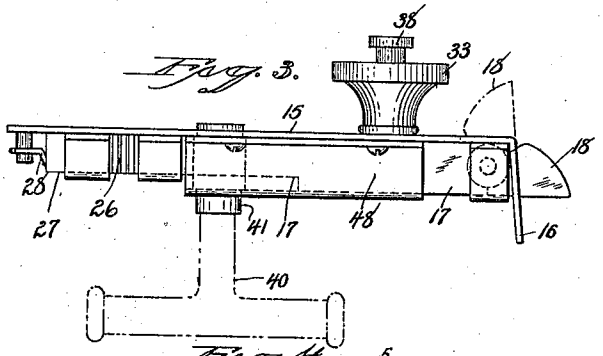

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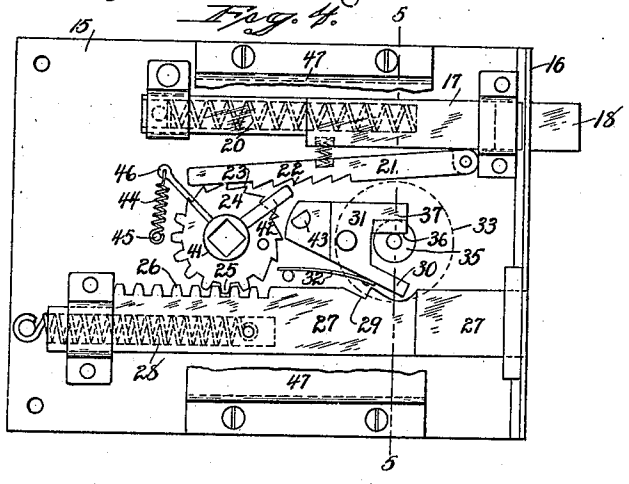

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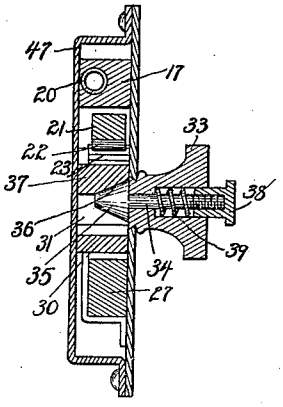

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2 SHEETS—SHEET 2.

Fig. 6.

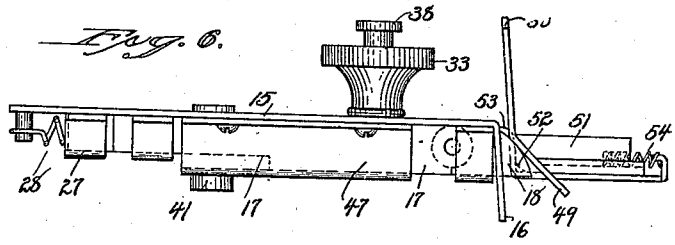


Fig. 7.

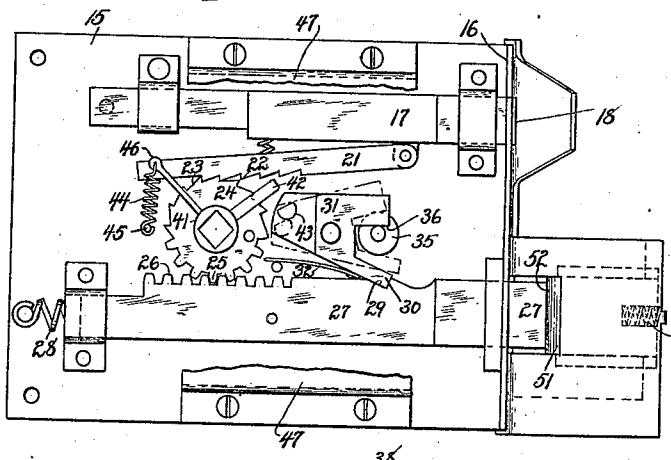


Fig. 10.

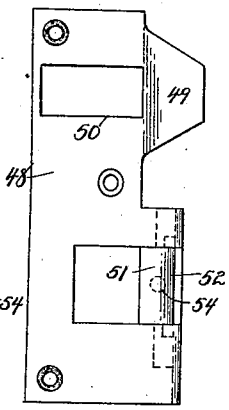


Fig. 8.

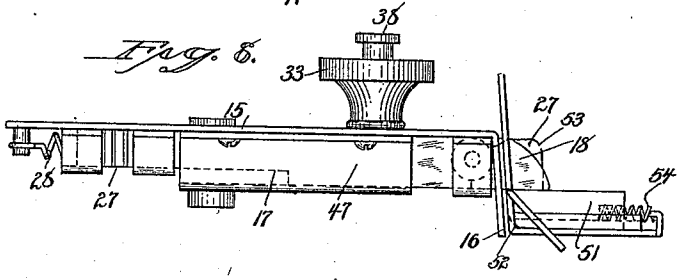
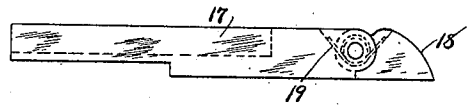


Fig. 9.



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UNITED STATES PATENT OFFICE.

PASQUALE MATURO, OF NEW HAVEN, CONNECTICUT.

AUTOMATIC LATCH.

1,394,635. Specification of Letters Patent. Patented Oct. 25, 1921.

Application filed November 19, 1920. Serial No. 425,079.

To all whom it may concern:

Be it known that I, PASQUALE MATURO, a subject of the King of Italy, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Automatic Latches; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1, a face view of an automatic latch constructed in accordance with my invention.

Fig. 2, end view of the same.

Fig. 3, an underside view thereof.

Fig. 4, an inside view with the cap plate broken away and showing latch bolt in retired position.

Fig. 5, a sectional view on line 5—5 of Fig. 4.

Fig. 6, a view similar to Fig. 3 showing the latch bolt as just engaging with the striker.

Fig. 7, a view similar to Fig. 4, showing the bolts in position just before the door reaches its final closed position.

Fig. 8, a view like Fig. 6 showing the parts in position when the door is fully closed and locked.

Fig. 9, a detached plan view of the tripper.

Fig. 10, a face view of the keeper detached.

This invention relates to an improvement in automatic latches and while adapted in use on doors generally, is particularly adapted for use on vehicle doors. The object of this invention is to produce a latch, automatic in the closing movement and by which a door when closed may be released from the inside by pressure upon a push button and the invention consists in the construction and arrangement of parts as will be hereinafter described and particularly recited in the claims.

In carrying out my invention, I employ a usual case plate 15 formed with a front flange 16. Mounted on the case plate for longitude movement is a tripper 17, to the outer end of which is pivoted a nose 18 projecting through the flange 16, and normally held in position by a spring 19, the nose being free to swing as indicated by broken lines in Fig. 2. The tripper is normally thrown forward by a spring 20. Pivoted to the tripper is a ratchet bar 21, provided with ratchet teeth 22 arranged to engage with ratchet teeth 23 on a disk 24 which is also provided with spur teeth 25, meshing with a rack 26 formed in the edge of a latch bolt 27 which is normally retracted by a spring 28. The latch bolt 27 is also formed with a locking notch 29 to receive a locking finger 30 formed on a dog 31 pivotally mounted in the case between the two bolts and normally depressed by a spring 32. Mounted in the case plate 15 is a fixed knob 33 through which a spindle 34 extends, the spindle 34 being provided at its inner end with a cam point 35 arranged to engage with a bevel edge 36 of an arm 37 of the dog 31. This spindle is provided with a button 38 and is normally forced outward by a spring 39. If an outside handle 40 is employed as indicated by broken lines in Fig. 3 the handle hub 41 on which the disk 24 in mounted is provided with a projection 42 adapted to engage with a lug 43 on the dog so as to turn that dog by the handle 40. A spring 44 is connected with a fixed pin 45 and to the outer end of an arm 46 mounted in the hub 41 and tends to turn the disk 24 to its normal position. Upon the retraction of disk 24, the ratchet teeth 23 thereof will not engage with the teeth 22 of the ratchet bar 21. The parts described are held in place by a cap plate 47.

In connection with an automatic latch thus described, I employ a keeper 48 provided with a cam-striker 49 and an opening 50 for the tripper. I also form the keeper with a sliding abutment 51 having a cam face 52 by which it is forced backward by the engagement with it of the latch bolt 27 against a spring 54. The inner face 53 of the latch bolt is preferably slightly rounded.

In closing a door to which my automatic latch is applied, the nose 18 of tripper engages with cam 49 of the striker plate and is forced backward thereby and in this backward movement the rack bar 21 engages with the disk 24, turning that disk and moving the latch bolt 27 forward, the end of the latch bolt engaging with the slide block 51 crowds that slide block inward so that as the door completes its closing movement the tripper slides into the opening 50 in the strike plate and the latch bolt passes beyond slide bolt 51 which under the action of its spring 54 moves in front of the latch bolt and thus firmly locks the door in its closed position.

To open the door from the inside it is only necessary to press the push button 38 inward, causing the cam point 35 to lift the dog 31 so as to move the finger 30 out of the notch 29 allowing the spring 28 to withdraw the lock bolt and when this lock bolt is withdrawn the door is released because the nose of the tripper will turn on its pivot, as indicated by broken lines in Fig. 3, so that the door may be opened without obstruction.

To open the door from the outside turning the handle 40 turns the hub 41 and disk 24 and hence turns the projection 42 against the lug 43 so as to lift the finger 30 out of engagement with the lock bolt and permit that bolt to be retired so as to unlock the door and permit it to be opened.

I claim:

1. An automatic latch, comprising a case plate, a tripper mounted thereon, said tripper provided at its outer end with a pivotal nose, a ratchet bar pivotally connected with the latch bolt, a latch bolt formed with a rack and with a latch notch, a disk between the lock bolt and ratchet bar, said disk being provided with teeth for engagement with the rack on the latch bolt and with the ratchet bar, a pivotal dog adapted to engage the said latch bolt when in its thrown position, and means for lifting the said dog out of engagement with said latch bolt.

2. An automatic latch comprising a case plate, a tripper mounted thereon, a nose pivotally connected with the outer end of said tripper, a spring normally tending to throw the tripper outward, a ratchet bar pivotally connected with said tripper, a disk provided with ratchet teeth for engagement by said ratchet bar, said disk also formed with spur teeth, a latch bolt formed with a rack with which the spur teeth engage, a dog formed with a finger to engage with said notch and with a cam surface, a knob fixed to the inner face of the case plate, a spring plunger mounted in said knob and provided at its inner end with a cam point coacting with a cam surface on said dog whereby an inward movement of the plunger will lift the dog out of engagement with said latch bolt.

3. A combined lock and latch comprising a case plate, a tripper mounted thereon, a nose pivotally connected with the outer end of said tripper, a spring normally tending to throw the tripper outward, a ratchet bar pivotally connected with said tripper, a disk provided with ratchet teeth for engagement by said ratchet bar, said disk also formed with spur teeth, a latch bolt formed with a rack with which the spur teeth engage, a dog formed with a finger to engage with said notch and with a cam surface, a knob fixed to the inner face of the case plate, a spring plunger mounted in said knob and provided at its inner end with a cam point coacting with a cam surface on said dog whereby an inward movement of the plunger will lift the dog out of engagement with said latch bolt, said dog provided with a stud, said disk mounted on a hub and a projection from the disk adapted when turned to engage with the said stud and move the said dog.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

PASQUALE MATURO.

Witnesses:
LOUIS FUSCO,
CARMINE R. FUSCO.