

Aug. 1, 1950

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2,517,059

TOUCH LATCH

Filed June 27, 1947

2 Sheets-Sheet 1

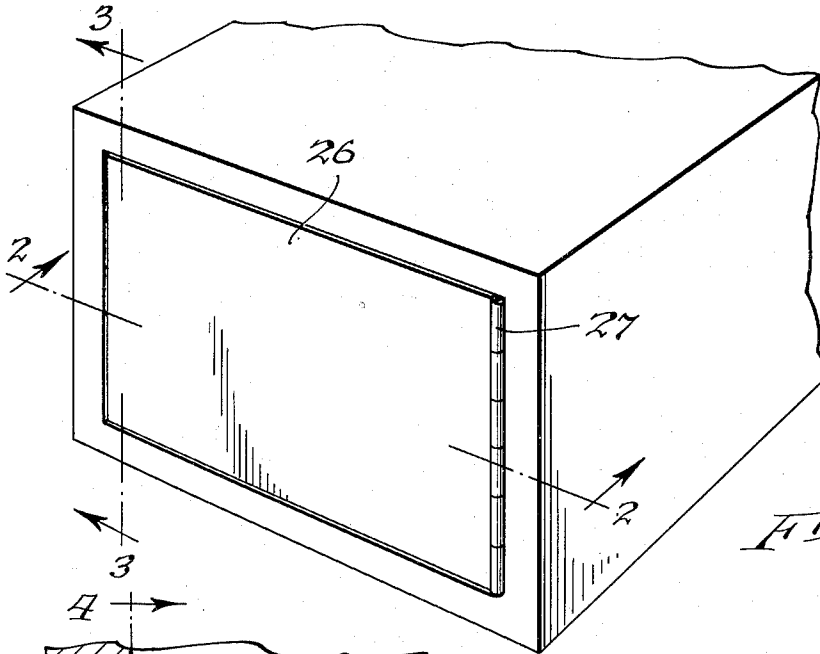


Fig. 1.

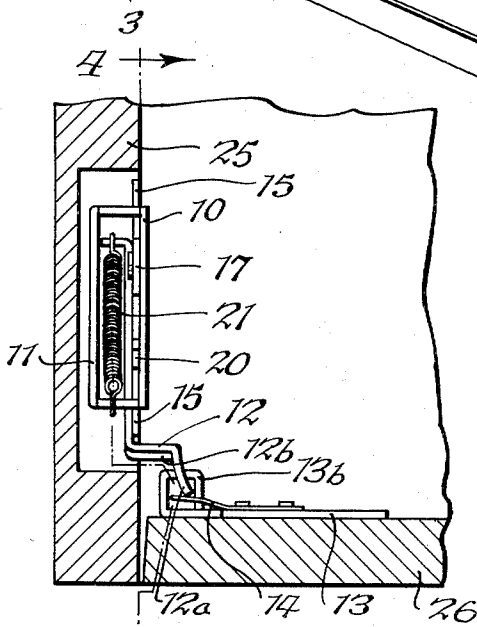


Fig. 2.

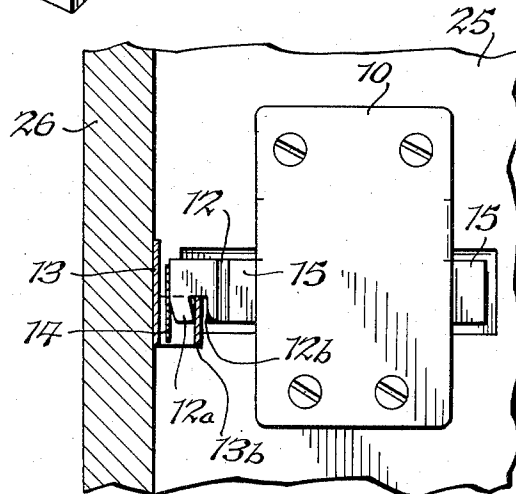


Fig. 3.

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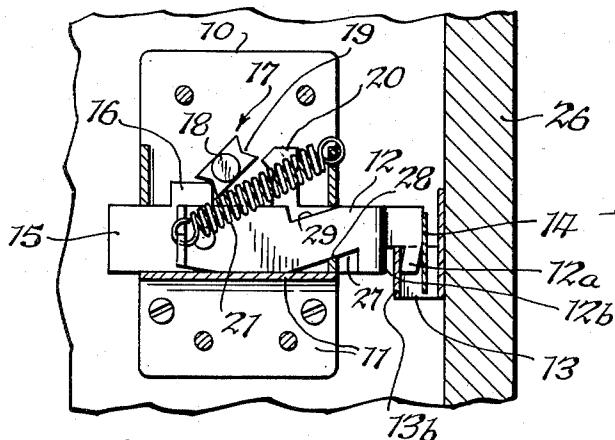


Fig. 4.

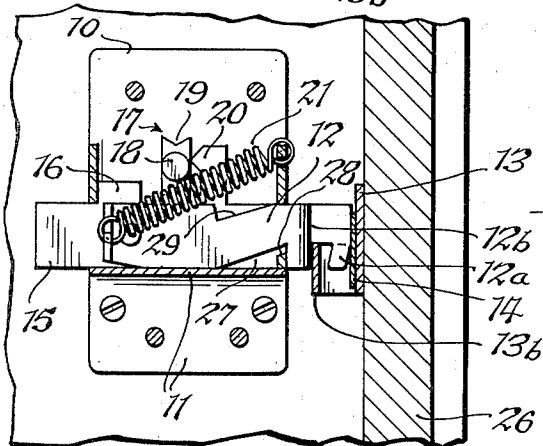


Fig. 5.

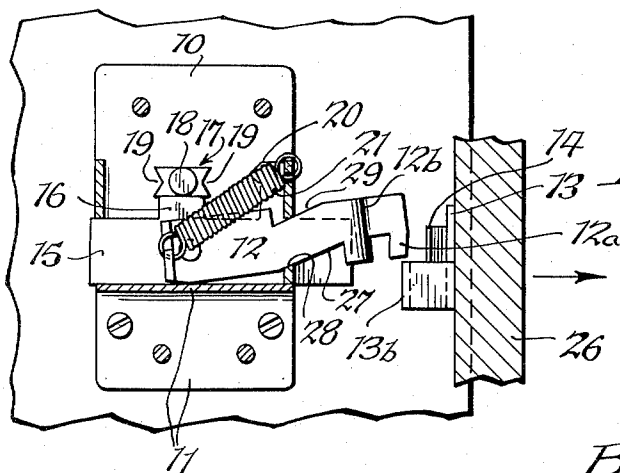


Fig. 6.

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UNITED STATES PATENT OFFICE

2,517,059

TOUCH LATCH

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7 Claims. (Cl. 292—99)

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This invention relates to a new and improved touch latch for cabinets and the like. As will be understood, a touch latch is one which requires no knob or pull to open the door. When the door is closed, the latch operates, securing the door in closed position. When it is desired to open the door, the door is merely pushed slightly, and the latch releases, permitting the door to be opened, usually by a spring.

I am aware that certain forms of touch latch have already been proposed and are available on the market. However, as far as I know, these are unsatisfactory, usually unreliable in operation, frequently fail to latch the door in closed position, fail to release when the door is pushed to open it, and in some cases are gravity or inertia operated and will not operate except in the position for which they are designed.

It is an object of this invention to provide a touch latch which is positive and reliable in operation and which will unfailingly latch when the door is shut and unfailingly release when the door is pushed to open.

It is a further object of this invention to provide a touch latch which is simple to construct, requiring no expensive or precision parts, and which is unlikely to get out of order.

It is a further object of this invention to provide a touch latch in which the latch keeper has no moving parts and the latch itself has a combination of longitudinal and swinging movement for engaging and releasing.

It is a further object of this invention to provide a latch which does not utilize gravity or inertia effects and will operate in any position in which it may be placed.

Still other objects and advantages of my invention will be apparent from the specification.

The features of novelty which I believe to be characteristic of my invention are set forth with particularity in the appended claims. My invention itself, however, both as to its fundamental principles and as to its particular embodiments, will best be understood by reference to the specification and accompanying drawing, in which

Fig. 1 is a perspective view of a cabinet equipped with a latch according to my invention, with the door closed,

Fig. 2 is a section on lines 2—2 of Fig. 1,

Fig. 3 is a section on lines 3—3 of Fig. 1, and

Figs. 4, 5, and 6 are sections on lines 4—4 of Fig. 2, showing successive positions of the latch mechanism.

Referring now more particularly to Figs. 1, 2,

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3, and 4, 10 designates the main plate of the latch on which the mechanism is mounted and 11 a cover plate provided with holes for mounting screws secured in any suitable manner to enclose the mechanism. The latch itself is designated as 12, and is in the form of an elongated bar having downwardly projecting off-set tongue 12a and flat surface 12b at its outer end to engage latch keeper 13.

Latch hook 12 is pivoted at its rear end on latch bar 15, which is mounted for longitudinal movement through openings in cover plate 11, these openings having sufficient clearance from lock bar 15 to permit its longitudinal movement, but otherwise to confine it in position. Lock bar 15 has on its upper side and near one end projection 16, and spaced therefrom in the direction of the latch end arm 20 terminating in a V-shaped finger, the V pointing away from the latch end.

Pivotaly mounted on main plate 10 above lock bar 15 there is provided what is termed a star wheel 17, pivoted at 18. As shown, this is in the form of a rectangle having a greater length than width and having its ends provided with V-shaped notches 19.

Keeper 13 is in the form of a plate having an upward extension carrying spring 14 engaging latch tongue 12a to prevent vibration and rattle, and having another portion 13b folded into the form of a rectangular shaped tube. In closed position, latch tongue 12a lies within tubular portion 13b of keeper 13, while latch surface 12b is outside the keeper.

Operation of the latch will now be described. Preferably the latch is mounted within the cabinet and the keeper on the door in the relative positions shown by Figs. 2 and 3, so that when the door is to close, the lower forward face of tongue 12a is engaged by keeper 13. Continued pressure on the door will now move locking bar 15 and latch 12 to the left in Fig. 6, and the engagement of latch 12 with cover plate 11 serves to rotate latch 12 in a clockwise direction as it moves to the rear. The center point of V finger 20 is located slightly above pivot point 18 of star wheel 17.

Continued rearward motion of lock bar 15 clears projection 16 from star wheel 17, leaving the star wheel free to rotate. As finger 20 engages with the right-hand end of star wheel 17, star wheel 17 is given a slight counter-clockwise rotation sufficient to carry one of its points into the path of projection 16.

When the door is released, spring 21, attached

at one end to latch 12 and at the other to the inside of the cover plate, moves lock bar 15 to the right, and the right-hand corner of projection 16 engages in lower notch 19 of star wheel 17, carrying it to the position shown in Fig. 4. At this point no further forward movement of the bar can occur because of the engagement between projection 16 and star wheel 17. The latch will now remain closed as long as the door is not touched.

If it is desired to open the door, the door is again pushed in, keeper 13 pushes latch tongue 12a, lock bar 15 moves to the left clearing projection 16 from star wheel 17, and leaving the latter free to rotate, and in continued movement of lock bar 15, the point of V finger 20 strikes the star wheel 17 (see Fig. 5), rotating it slightly counterclockwise, and as pressure on the door is released, spring 21 will now pull latch 12 and lock bar 15 to the right as far as it will go, and this time the right-hand face of projection 16 strikes star wheel 17, rotating it to the position shown in Fig. 6, wherein the latch is fully opened, and the front end of latch bar 12 is lifted by the engagement of angular face 27 with side wall bearing edge 28. The top of latch bar 12 has clearance portion 29 bearing on the side wall of cover plate 11.

Thus it will be seen that the complete latching cycle, that is, two operations of latch 12, one to latch and one to unlatch, result in 180° rotation of star wheel 17.

Referring to Fig. 2, the offset of latch tongue 12a permits the body of the latch to be countersunk in the wall of the cabinet, with main plate 10 flush with the inner surface of wall 25.

In the specification I have explained the principles of my invention and the best mode in which I have contemplated applying those principles, so as to distinguish my invention from other inventions; and I have particularly pointed out and distinctly claimed the part, improvement, or combination which I claim as my invention or discovery.

While I have shown and described certain preferred embodiments of my invention, it will be understood that modifications and changes may be made without departing from the spirit and scope thereof, as will be clear to those skilled in the art.

I claim:

1. In a touch latch, in combination, a carrier plate, a locking bar mounted on said carrier plate for endwise sliding movement, a star wheel mounted on said carrier plate adjacent said locking bar, projections on said locking bar for engaging and shifting said star wheel to latch and release positions alternately, and for limiting the movement of said locking bar, and a hook latch pivotally mounted on said locking bar for swinging movement as said locking bar moves endwise one of said projections engaging said star wheel to lock said bar in latched position.

2. In a touch latch, in combination, a carrier plate, a locking bar mounted on said carrier plate for endwise sliding movement, a star wheel mounted on said carrier plate adjacent said locking bar, said locking bar having spaced projections for alternately engaging and shifting said star wheel to latch and release positions, and for limiting the movement of said locking bar, and a hook latch having a downwardly projecting finger for engaging within a keeper, pivotally mounted on said locking bar for swinging movement as said locking bar moves endwise one of said projections engaging said star wheel to lock said bar in latched position.

3. The combination claimed in claim 1 in which said hook latch is provided with a surface engaged by the keeper to actuate the latch to closed position as the door is closed.

4. The combination claimed in claim 1 with a keeper having a spring engaging said latch in closed position.

5. The combination claimed in claim 1 in which said hook latch is provided with a surface engaged by the keeper to actuate the latch to closed position as the door is closed, and a keeper having a spring engaging said latch in closed position.

6. The combination claimed in claim 1 in which said hook latch is provided with a cover plate engaging portion inclined at an angle to the direction of movement of said locking bar.

7. The combination claimed in claim 1 in which said hook latch is provided with cam surfaces engaging said cover plate, said cam surfaces being so shaped as to effect swinging movement of said hook latch as it moves endwise.

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