

Dec. 12, 1939.

A. LEVINE

2,183,121

LATCH MECHANISM

Filed July 11, 1939

2 Sheets-Sheet 1

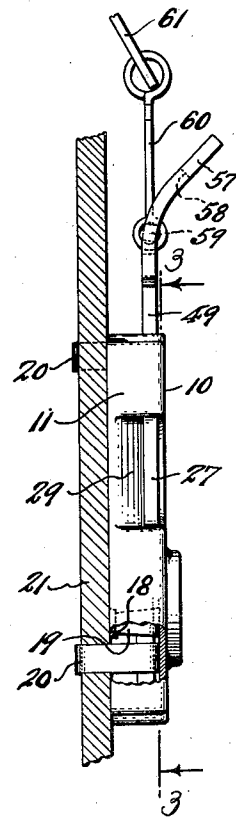
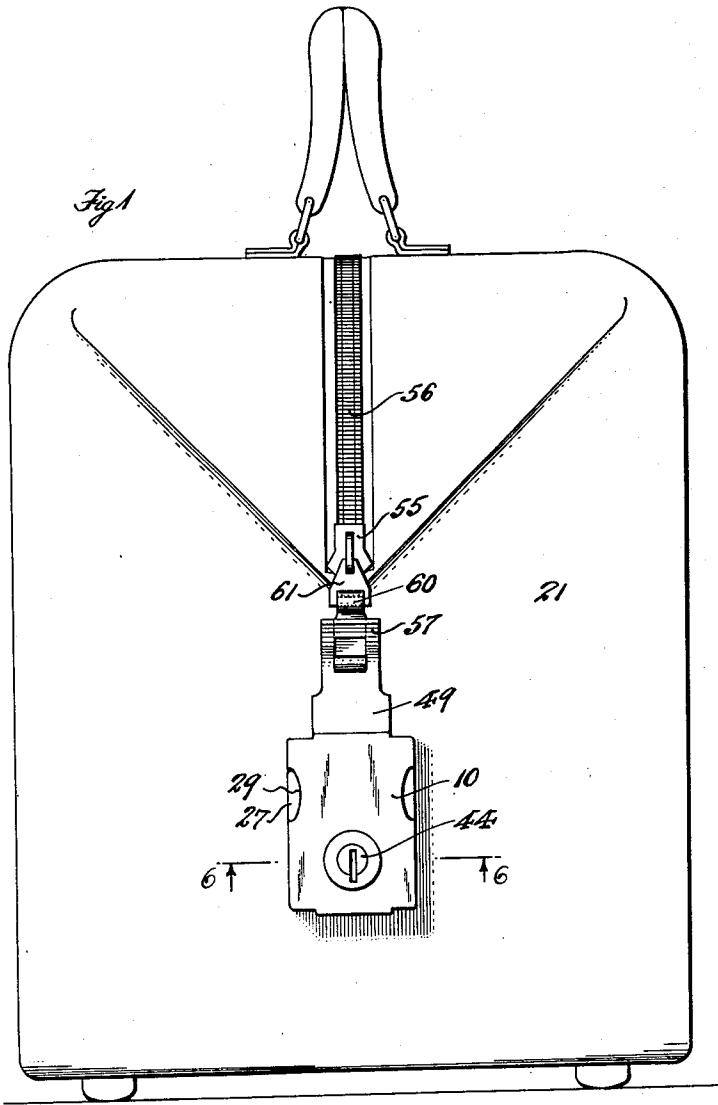


Fig. 2

INVENTOR.

Abraham Levine,

BY

George S. Richards
ATTORNEY.

Dec. 12, 1939.

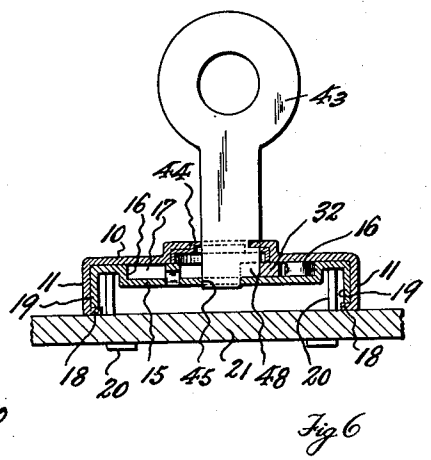
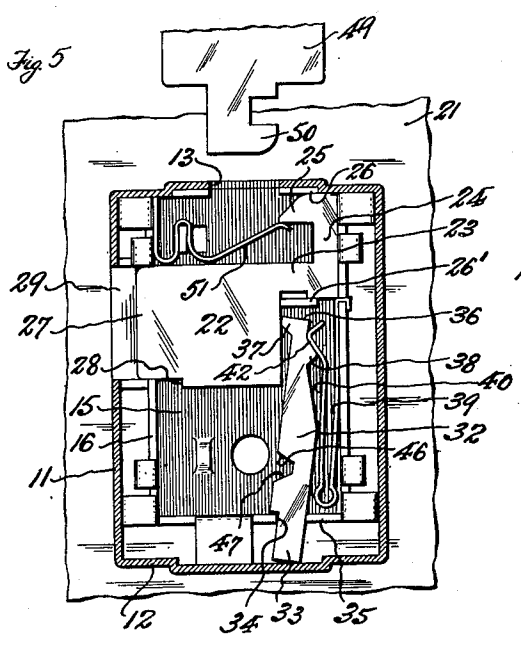
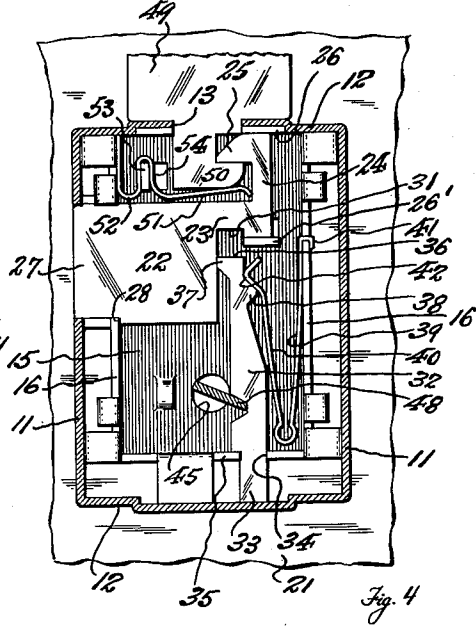
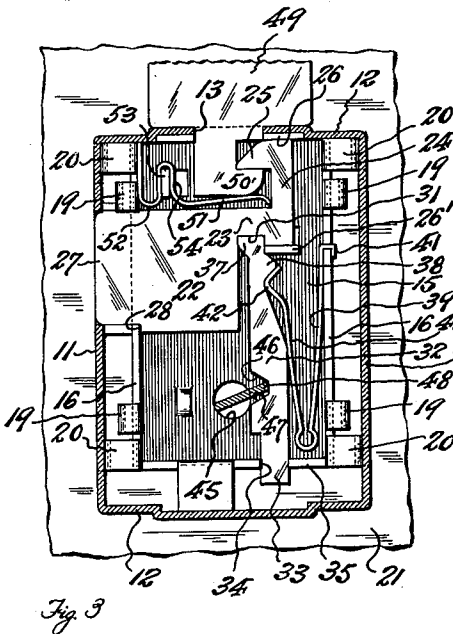
A. LEVINE

2,183,121

LATCH MECHANISM

Filed July 11, 1939

2 Sheets-Sheet 2



INVENTOR.
Abraham Levine,
BY *George S. Richards*
ATTORNEY.

UNITED STATES PATENT OFFICE

2,183,121

LATCH MECHANISM

Abraham Levine, Elizabeth, N. J.

Application July 11, 1939, Serial No. 283,750

6 Claims. (Cl. 70-68)

This invention relates, generally, to improvements in latch mechanism; and the invention has reference, more particularly, to latch mechanism of the latch hook receiving and engaging type.

The invention has for an object to provide a simple and easily manipulated spring latch mechanism suitable for use generally in connection with bags, brief cases, and similar containers, and, more specifically, to provide a latch mechanism for securing slide fastener operators in slide-fastener closing position; said latch mechanism being also provided with novel cooperative key actuatable means for locking the latch mechanism against unauthorized manipulation.

The invention has for another object to provide a manipulatable latch mechanism including a slidable latch plate and a pivoted locking tumbler arranged in novel cooperative relation, and provided with a single spring means operative to control both said members.

The invention has for a further object to provide in a latch mechanism of the kind mentioned, a novel form and arrangement of spring means for ejecting an inserted latch-hook means when the latter is released from the restraint of the latch plate of said mechanism.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the same.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which:

Fig. 1 is an end elevation of a bag having a slide-fastener closure means and equipped with the novel latch mechanism of this invention for securing the slide-fastener operator in slide-fastener closing position; Fig. 2 is an enlarged side elevation of the latch mechanism, viewed from left to right in Fig. 1; Fig. 3 is a horizontal sectional view through the latch mechanism casing, taken on line 3-3 in Fig. 2, and showing the slidable latch plate locked against unauthorized manipulation; Fig. 4 is a view similar to that of Fig. 2, but showing the slidable latch plate released subject to manipulation; Fig. 5 is a view similar to that of Fig. 2 with the slidable latch plate moved to latch-hook releasing position and with said latch-hook ejected; and Fig. 6 is an enlarged cross-section, taken on line 6-6 in Fig. 1, but showing the locking tumbler key entered for cooperation with said tumbler.

Similar characters of reference are employed

in the above described views, to indicate corresponding parts.

The latch mechanism, according to this invention, comprises a hollow casing 10 having side walls 11 and end walls 12. The forward end wall is provided with an access opening 13 through which a latch hook means, to be engaged by the latch mechanism, may be inserted. Arranged within the casing 10 is a base plate 15, bounded by side flanges 16, thus forming a chamber 17 in which the working parts of the latch mechanism are operatively disposed. Said casing and the contained base plate are secured together by suitable means, such e. g. as by the interturned lugs 18 which are adapted to interlock with and beneath the offset spacer legs 19 with which the base plate 15 is provided. Said base plate 15 is additionally provided with suitably disposed downwardly projected clenching elements 20, which are engageable through a bag body 21 in connection with which the latch mechanism is to serve.

Mounted in the chamber 17 of said base plate 15, for transverse sliding movement, is a latch plate 22, the same having an extension 23 of reduced width projecting from its inner end coincident with its upper edge. Extending upwardly from the free end portion of said extension 23 is a latch arm 24 which terminates at its upper extremity in a rearwardly projected chamfered latch nosing 25. Said extension 23 and latch arm 24 are guided, during sliding movements of the latch plate, by and between guide lugs 26 and 26' which are struck upwardly from the base plate portion 15. Said lower guide lug also serves as a stop for purposes subsequently mentioned. The outer end portion of said latch plate 22 is reduced somewhat in width to provide a push or finger piece 27, and so as to form a stop shoulder 28 which, by abutment against a side flange 16 of the base plate, limits the outward movement of the latch plate 22, and so as to dispose the latch nosing 25 in normal latching position. The side wall 11 of the casing 10, toward which the push or finger piece 27 of the latch plate is directed, is provided with an inwardly slotted depressed portion 29 through which the free end portion of said push or finger piece projects, so as to be thereby exteriorly exposed and accessible to the fingers of the operator of the latch mechanism. Formed in the lower marginal portion of said latch plate extension 23 is an indented lock tumbler receiving notch 31.

The reference character 32 indicates a locking

tumbler having tail piece 33 fulcrumed in a notch 34 in an upstanding flange 35 with which the base plate 14 is provided. Said locking tumbler 32 is disposed in substantially longitudinal extension behind the inner end of said latch plate 22, and is provided at its free end 36 with a lateral bill 37 which bears against said inner end of the latch plate, said free end 36 being opposed to the receiving notch 31 with which said latch plate extension 23 is provided. Formed on the outer longitudinal side of said locking tumbler 32, adjacent to its free end is a laterally projecting nosing 38. Said locking tumbler 32, as thus mounted, is capable of both swinging movement about its fulcruming tail piece as well as longitudinal bodily movement. Cooperative with said locking tumbler 32 is a control spring means, which comprises a spring body doubled upon itself to provide an anchoring or purchasing branch or leg 39 and a resilient branch or leg 40. Said anchoring branch 39 abuts the adjacent side flange 16 of the base plate 15, and is secured to said flange 16 against longitudinal displacement by an anchoring clip portion 41 engaged in a transverse receiving notch with which said flange is provided. The resilient branch 40 of said spring body is provided at its free end portion with a laterally projecting nosing 42 which thrust against the locking tumbler, while at the same time being adapted to engage one or the other side (as the case may be) of said tumbler nosing 38 according to a given selected longitudinally shifted position occupied by said tumbler.

It will be observed that the single spring means described serves the double purpose of yieldingly maintaining the locking tumbler in either of its longitudinally shifted latch plate locking or releasing positions, while also transmitting, through swinging movement of the tumbler, an outward thrust to the latch plate for yieldably retaining the same in its operative latching position.

The locking tumbler 32 is adapted to be actuated by a suitable key 43, and to this end a slotted key barrel 44 is rotatably mounted in connection with the casing 10, and is cooperative with a key pivoting socket or opening 45 which is provided in the base plate 15 for alignment therewith. Formed in the inner longitudinal margin of the locking tumbler 32 is an indented notch bounded by spaced shoulders 46 and 47 adapted to be operatively engaged by the bit 48 of the inserted key 43.

Cooperative with the latch mechanism is a latchable member 49 having a latch hook 50 adapted to be entered through casing access opening 13 for latched engagement with the latch plate 22 of the latch mechanism.

Normally, the locking tumbler 32 occupies the longitudinally retracted position shown in Fig. 4 whereby the latch plate 22 is released subject to manipulation. Under such condition, when the latch hook 50 is inserted through the access opening 13 of the casing 10, its rounded extremity will thrust against the chamfered side of the latch nosing 25, thereby forcing back the latch plate against the tension of the spring means 39-40, as transmitted through the locking tumbler 32, so as to allow said latch hook 50 to pass by said latch nosing 25, whereafter the latch plate resumes normal position under urge of said spring means, thus engaging said latch nosing 25 in holding relation to said latch hook 50. When it is desired to release the latch hook 50 for disengagement from the latch mechanism, the

operator presses upon the exposed push or finger piece 27, thus moving the latch plate inward against the tension of said spring means, and thereby withdrawing the latch nosing 25 from holding relation to said latch hook.

The latch mechanism is provided with means for automatically ejecting the latch hook 50, when the latter is released as above described. This ejecting means comprises a flat spring element, the resilient arm 51 of which is disposed intermediate the upper edge of the latch plate 22 and the access opening 13, so as to lie in the path of and to be engageable by the latch hook 50 when it is operatively entered through said opening 13. The butt end of said spring means is provided with a U-shaped anchoring element 52 adapted to be inserted and frictionally held between a side flange 16 of the base-plate 15 and an abutment lug 53 struck out of the latter, to thereby anchor said spring means in place. Preferably the resilient arm 51 is joined with said anchoring element 52 by an offsetting portion 54. When the latch hook 50 is entered in the casing and engaged by the latch plate, said latch hook 50 thrusts downwardly upon the resilient spring arm 51 thereby putting the latter under tension, so that when said latch hook 50 is released from the restraint of the latch plate, the reaction of the spring arm 51 will immediately eject the latch hook outwardly through the opening 13.

When the latch hook 50 is operatively entered in and engaged by the latch mechanism, if it is desired to lock the latch plate 22 against unauthorized releasing movement, the key 43 is inserted through the key barrel 44 and fulcrumed in the opening 45 with its bit 48 entered in the notch of the locking tumbler. By rotating the key 43 anticlockwise, the bit 48 thrustingly moves against the shoulder 46, thus projecting the locking tumbler 32 endwise toward the latch plate extension 23 whereby the free end 36 of the former is projected past and thus brought into engagement with the stop 26' as it is at the same time entered in the receiving notch 31 of the latter, thus restraining the locking tumbler against swinging movement, and thereby locking the latch plate 22 against releasing manipulation (see Fig. 3). Thereafter, rotation of the key in the opposite or clockwise direction thrustingly moves the key bit 48 against the shoulder 47 of the locking tumbler so as to retract the latter to normal initial position, free and clear of the stop 26', with its end 36 withdrawn from the notch 31, thereby freeing the locking tumbler for swinging movement and the latch plate 22 for manipulation. The endwise movements of the locking tumbler will cause the nosing 38 thereof to spring past and to one side or the other of the spring nosing 42 (the resilient branch 40 of the spring means yielding to such passage), so that the locking tumbler 32 will yieldably hold in either of the advanced or retracted positions to which it has been moved by the actuating key.

A use for which the latch mechanism of this invention is especially well adapted is that of securing the slidable operator 55 of a slide fastener closure means 56, with which hand bags, brief cases, and other types of containers are equipped, against accidental release or against unauthorized manipulation. To this end, the latch mechanism is affixed to that end of the bag or like body 21 toward which the operator 55 is moved to close the slide fastener means 56, 75

and so as to be located adjacent to terminal point of the latter. For such use, the latchable member 49 is provided at its outer end portion with an outwardly turned finger piece 57.

5 Formed in the finger-piece 57 is an elongated opening or slot 58 having a cross-bar 59 extending from side to side thereof, adjacent to the juncture of said finger-piece 57 with the latchable member 49. Pivoted on said cross-bar 59 is one end of a link 60, the opposite end of which is connected with the pull-piece 61 of the slide fastener operator 55 (see Figs. 1 and 2). It will be obvious that upon moving the operator 55 to slide fastener closing position, the latchable member 59 connected therewith is brought into opposition to the latch mechanism so that the latch hook 50 may be entered in the latter and latched thereto by the operation of the latch plate 22, thus holding the operator 55 against accidental slide fastener releasing movement. Under these circumstances should it be desired to further secure the thus engaged parts against unauthorized releasing manipulation, the locking tumbler 32 is actuated by the serving key 43 to move the same into locking relation to the latch plate 22, as already above described.

Since many changes could be made in the above described structures, as well as in the details of construction thereof, without departing from the scope of my invention as defined by the following claims, I do not limit the invention to the exact arrangement and construction of the devices and parts as set forth in the foregoing specification, nor do I confine myself to the exact details of the construction of said parts as illustrated in the accompanying drawings.

I claim:

1. A latch mechanism comprising, a casing having an access opening at one end, a latchable member having latch-hook means insertable through said opening, a transversely disposed latch plate slidably supported within said casing adjacent to said access opening, said casing having a side opening through which an end portion of said latch plate exteriorly projects to provide an exposed manipulating means therefor, a locking tumbler mounted within said casing subject to swinging movement in engagement with said latch plate and to key actuated longitudinal movement, a fixed stop means with which the free end portion of said locking tumbler is engaged so as to restrain swinging movement thereof when the same is moved longitudinally toward said latch plate, a spring means bearing on said locking tumbler to transmit through swinging movement of the latter a thrust adapted to yieldably hold said latch plate in latching position, and cooperative elements on said spring means and locking tumbler for selectively yieldably retaining the latter in longitudinally advanced locking or retracted releasing relation to said latch plate.

2. A latching mechanism as defined in claim 1, including an ejector spring means within said casing in opposition to the access opening of the latter, the same being adapted to be tensionally flexed by engagement of the inserted and latched latch hook means of said latchable member.

3. A latch mechanism comprising, a casing having an access opening at one end, a latchable member having latch-hook means insertable through said opening, a transversely slidably

latch plate supported within said casing adjacent to said access opening, said casing having a side opening through which an outer end portion of said latch plate exteriorly projects to provide an exposed manipulating means therefor, said latch-plate having an extension of reduced width projecting from its inner end coincident with its upper edge and a latching means carried by said extension, a locking tumbler mounted within said casing subject to both lateral swinging and longitudinal bodily movements, the free end portion of said locking tumbler being adapted by its swinging movement to bear against the inner end of said latch plate, a fixed means engageable by the free end portion of said locking tumbler to stop swinging movement of the same, said locking tumbler having means engageable by an actuating key for moving said tumbler longitudinally into and out of engagement with said fixed stop means, said casing having a key receiving and supporting means, a spring means bearing on said locking tumbler to yieldably swing the same toward said latch plate to thereby yieldably hold the latter in latching position, and cooperative lateral nosings on said spring means and locking tumbler for selectively yieldably retaining the latter in longitudinally advanced or retracted releasing relation to said latch plate.

4. A latching mechanism as defined in claim 3, including an ejector spring means within said casing in opposition to the access opening of the latter, the same being adapted to be tensionally flexed by engagement of the inserted latch hook means of said latchable member.

5. A latch mechanism adapted for securing the operator of a slide fastener closure means of a container in fastener closing position comprising, a casing having an access opening for opposition to the fastener closing terminus of said operator, means to affix said casing to the container, a manipulatable latching means contained by said casing, a latchable member having at one end latch-hook means insertable through said casing access opening for engagement by said latching means, said latchable member having an upturned longitudinally projected finger piece at its other end, a link pivotally connected by its inner end to said latchable member to extend therefrom beneath said finger piece, said link being connected by its outer end to said fastener operator, a locking tumbler means also contained by said casing, said tumbler means having means engageable by an actuating key for moving said tumbler means into and out of locking relation to said latching means, and said casing having means to receive and operatively support a key for actuating said tumbler means.

6. A latch mechanism as defined in claim 1 wherein the casing is provided with means for affixing the same to a container equipped with slide fastener closure means with the casing access opening opposed to the slide fastener closing terminus of the slide fastener operator, and wherein the latchable member is provided at its outer end with an upturned longitudinally projected finger piece, and a link pivotally connected by its inner end to said latchable member to extend therefrom beneath said finger piece, the outer end of said link being adapted for affixed connection to said slide fastener operator.