July 30, 1940. G. R. GIBSON 2,209,727

LOCKING MECHANISM FOR CABINET DRAWERS

Filed Oct. 14, 1938 3 Sheets-Sheet 1

Fig. 1.

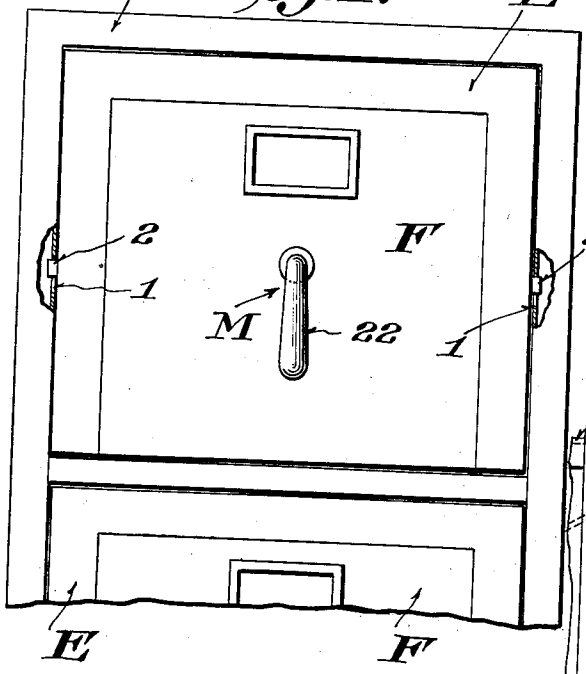


Fig. 5.

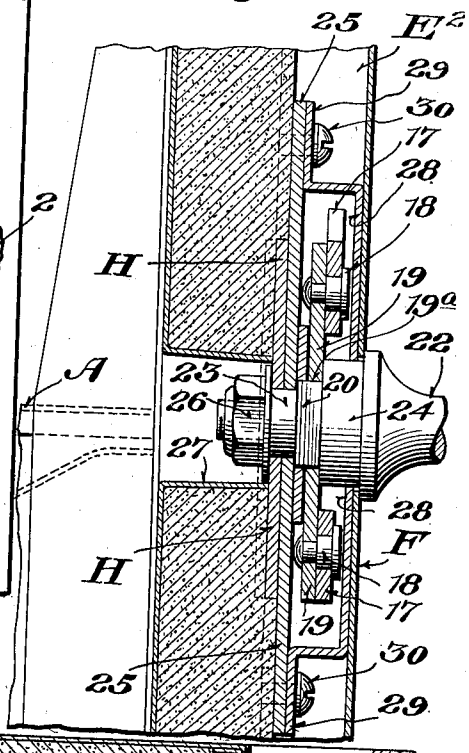
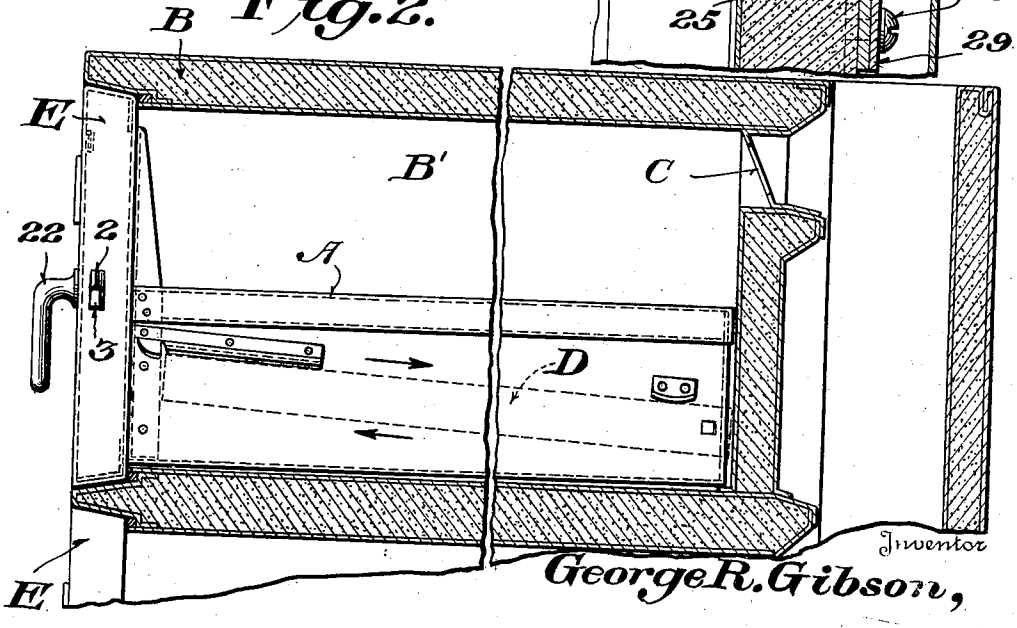


Fig. 2.



Inventor

George R. Gibson,

By Wallander & Groff

Attorneys

July 30, 1940. G. R. GIBSON 2,209,727

LOCKING MECHANISM FOR CABINET DRAWERS

Filed Oct. 14, 1938 3 Sheets-Sheet 2

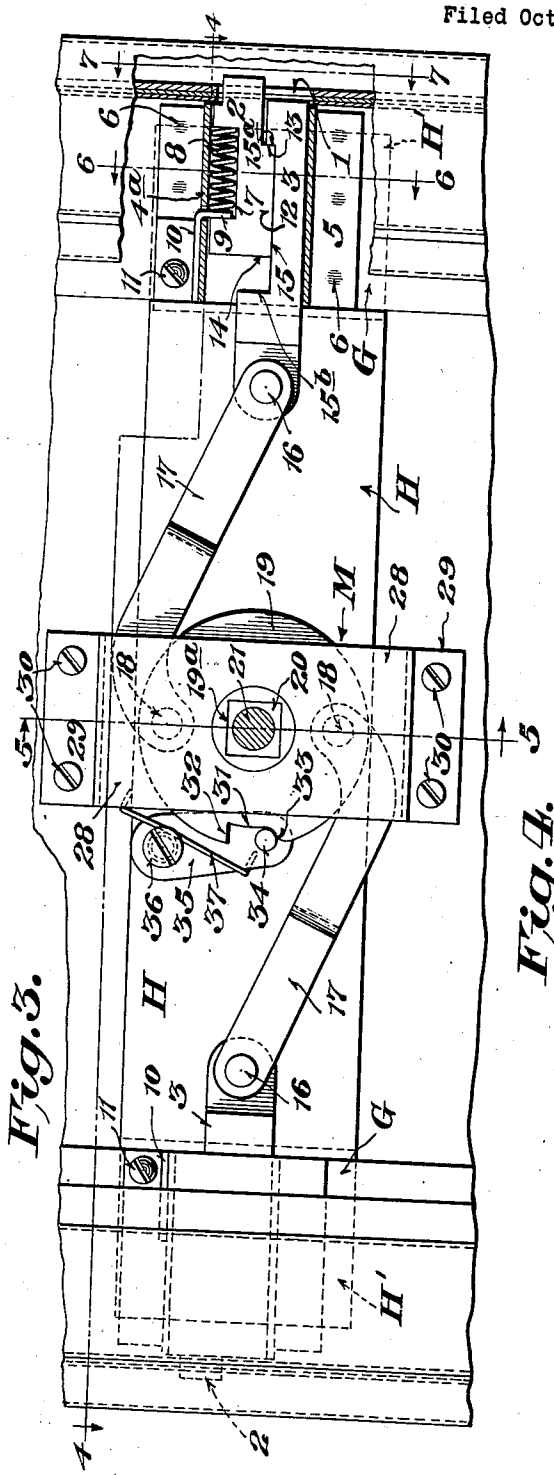


Fig. 3.

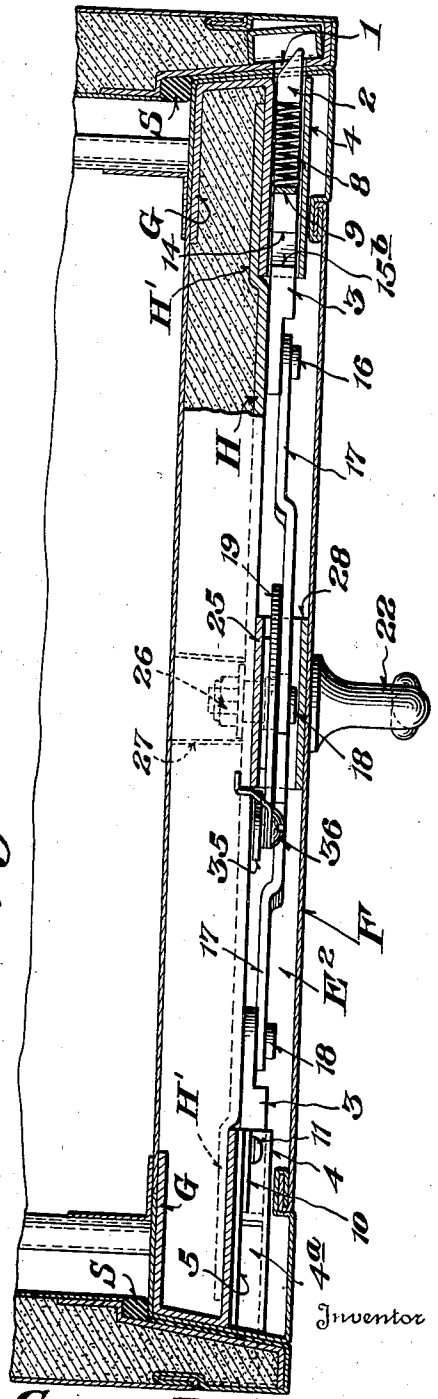


Fig. 4.

Inventor

George R. Gibson,

By Walhampton & Groff

Attorneys

July 30, 1940. G. R. GIBSON 2,209,727

LOCKING MECHANISM FOR CABINET DRAWERS

Filed Oct. 14, 1938 3 Sheets-Sheet 3

Fig.6.

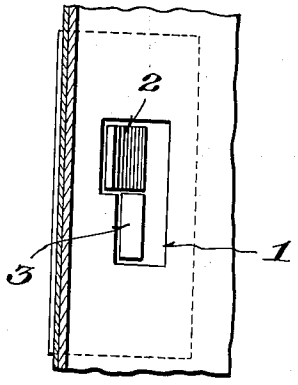


Fig.7.

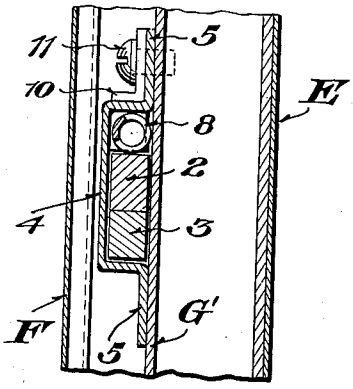


Fig.8.

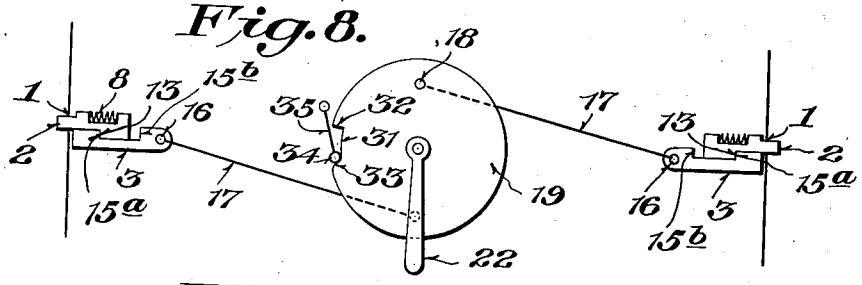


Fig.9.

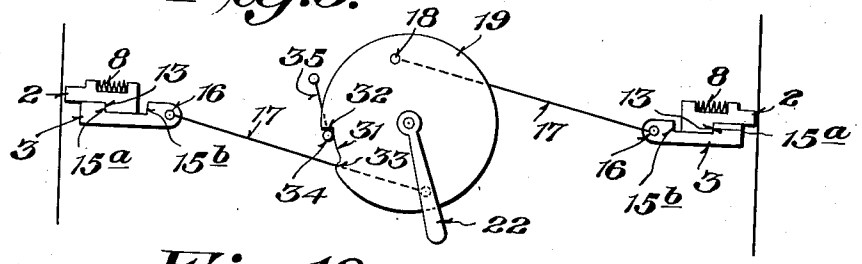
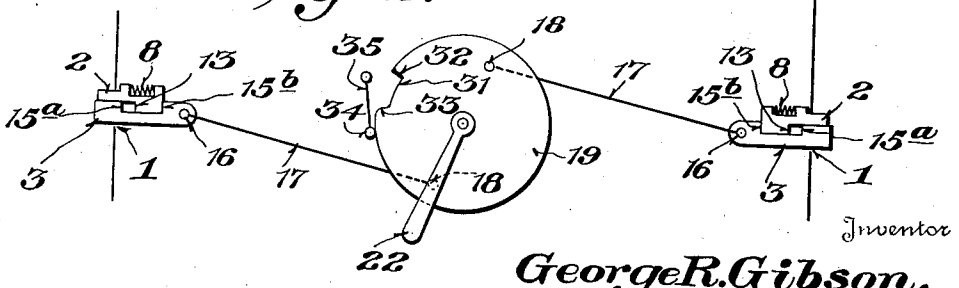


Fig.10.



Inventor

George R. Gibson,

By Wadham Dewey & Groff

Attorneys

Patented July 30, 1940 2,209,727

UNITED STATES PATENT OFFICE

2,209,727

LOCKING MECHANISM FOR CABINET DRAWERS

George Roscoe Gibson, Brookfield, Ohio, assignor to The General Fireproofing Company, Youngstown, Ohio, a corporation of Ohio

Application October 14, 1938, Serial No. 235,037

10 Claims. (Cl. 292—36)

This invention relates to fireproof cabinets, and more particularly to a novel mechanism for automatically latching the individual drawers in closed position and also locking the same when desired through a common manually controlled handle.

In certain types of storage cabinets, particularly those intended to store films or other combustible material, it is necessary to keep the same closed except when removing or replacing a film. To that end the present invention proposes to mount the drawers so that the operator must hold the drawer open by pulling the same forward, and when the pulling force is released, the drawer will automatically slide or gravitate to closed position and become latched against accidental opening by pressure from within. While the cabinet is provided with suitable venting means connected to a flue so that if the contents of a particular drawer should become ignited the major force of the consequent combustion will pass out the flue, nevertheless the drawer itself, due to the present invention, will not be forced open to endanger the occupants of the room or spread the conflagration. Hence, the drawer not only automatically slides to a closed position when released, but, at the same time, it becomes latched to prevent accidental opening. Moreover, it is desirable to also provide a positive lock or bolt which will not only augment, or supplement, the holding effect produced by the latches but also serve to wedge or seal the drawer in the cabinet when the drawer is not in immediate use.

Another object of the invention is to provide a drawer mounted to automatically slide to a closed position with novel latching and locking means controlled by single manual element. Thus, the operator may readily control the latch for opening the drawer, and on the other hand, lock or bolt the drawer by proper manipulation of the handle, in a different direction.

A further object of the invention is to provide a simple and practical operating construction which lends itself to standard manufacturing practices, and which in use is reliable and efficient.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a front elevation of a drawer and part of the cabinet embodying the present improvements.

Figure 2 is a vertical longitudinal sectional view of a drawer compartment having the drawer therein.

Figure 3 is an enlarged detail elevation of the improved latching and locking means.

Figure 4 is a horizontal sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a detail vertical sectional view taken on the line 5—5 of Figure 3.

Figure 6 is a detail sectional view taken on the line 7—7 of Figure 3.

Figure 7 is a detail sectional view taken on the line 6—6 of Figure 3.

Figures 8, 9 and 10 are diagrammatic views illustrating the several positions of the latch and lock means in different positions of the manually controlled handle.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

The drawer designated generally as A is slidably mounted within the compartment B' of the cabinet, which, as previously indicated, may be provided with the venting means C. The drawer is mounted on a suitable sliding drawer guide designated as D in dotted lines in Figure 2, the said drawer guide being mounted at an angle so that the drawer will automatically slide or move to its closed position.

The drawer A is provided with a head E having suitable insulating material molded therein except for a compartment E^2 at the front thereof which houses the means for operating the latch and lock elements. This compartment is covered by a front panel F whose top and side edges are framed by a part of the metallic casing which constitutes the major portion of the drawer head.

Referring to Figures 3, 4 and 5 it will be observed that the drawer head includes in its organization suitable reinforcing means for carrying and supporting the latch and lock mechanism and also forming a strong and rigid drawer head. For example, the reinforcing means includes in its organization a pair of inwardly facing vertical channel members G—G, which are preferably coextensive vertically with the ends of the drawer head and are connected by the transversely arranged cross member or strap H. The end portions H' of said strap are slightly offset inwardly to lie behind the forward wings of the channel members G—G. This transverse cross piece or strip H not only braces and connects the inwardly

facing channel members but also forms the primary rigid base for the latching and locking mechanism.

The means for holding the drawer in the cabinet essentially includes one or more latch and lock units preferably arranged at opposite sides of the drawer head, and a control means arranged centrally of the drawer head. Since the latch and lock means of each unit are similar in construction, a description of one unit will suffice for both.

The side of the cabinet adjacent each latch and lock unit, preferably provided with a keeper opening 1 of substantially elongated stepped formation at its front edge to receive the beveled latched end of a latch 2 and the locking end of a sliding bolt 3. The latch 2 and the bolt 3 are super-imposed for slidable movement within a housing 4 (Figs. 3, 4 and 7) which consists of a transversely arched plate having the flanges 5—5 which may be secured to the outer face of one of the wings of the upright channel members G—G by spot welding 6 or otherwise. The latch 2 is provided at its upper side with a recess 7 for receiving a coil spring 8 whose forward end engages one of the vertical walls of the recess while its rear end engages the downturned flange portion 9 of an abutment member 10. This member is secured to the upper flange 5 of the housing by a screw or equivalent fastening 11. It will, of course, be observed that the upper wall 4a of the housing 4 is suitably slotted to admit the downturned end 9 of the abutment 10 into the recess 7 of the latch to afford an abutment or stop for the rear end of the spring 8. The purpose of the spring 8, arranged as described, is to force the latch normally outward, or, in other words, to project the latch automatically toward the keeper 1.

The bottom of the latch 2 is provided with an offset portion 12 which provides spaced shoulders 13 and 14. The offset portion 12 including the shoulders referred to fits into a recess 15 of the bolt 3. This recess, in turn, provides a shoulder 15a for engaging with the shoulder 13 of the latch and a shoulder 15b for engaging with the shoulder 14 at the rear of the latch. It will also be understood from the drawings that the shoulders 13 and 14 are spaced closer together than the distance between the shoulders 15a and 15b on the bolt 3 so that the movement of the bolt 3 toward locking is greater than the movement of the latch 2 to latching position.

The sliding bolt 3 is pivotally connected at its rear end, as indicated at 16, with a link 17. This link is pivotally connected as indicated at 18 with a dial or disc member 19 of the manual control mechanism designated as M.

The control mechanism including the dial or disc 19 is supported on the transverse plate or strip H previously referred to. As will be observed from Figures 3, 4 and 5 the dial 19 is provided with a square opening 19a for receiving a square or equivalent portion 20 carried by the shaft 21 which includes the angularly disposed operators handle 22. This shaft in addition to carrying the square or other key portion 20 is provided with portions 23 and 24 of different diameter. The portion 23 which is of less diameter than the portion 24 is journaled in a plate 25 carried by the strip H, and projects through registering openings in the plate and strap to receive a lock nut 26. This nut is accessible through a well 27 formed in the rear metallic wall of the drawer head. The portion 24 of the handle shaft which is of larger diameter than the portion 23 is journaled in the front wall of an arched plate 28 which lies immediately behind the panel F of the drawer head. This plate 28 is provided with the offset flanges 29 secured to the plate 25 by suitable fastenings 30.

The dial 19 is provided with a peripheral notch 31 having a stop shoulder 32 and a friction shoulder 33 at opposite ends thereof. This notch is intended to receive the friction pin 34 of a spring pressed pawl or detent 35 pivotally supported as at 36 on the transverse strip H. A spring 37 is employed to urge the friction pin 34 of the pawl or detent into the notch 31.

As will be apparent from Figures 3 and 4 the dial 19 which is under the control of the handle 22, has the link members 17—17 of opposite lock and latch units pivotally connected thereto at diametrically opposite points 18—18. It will, therefore, be seen that a partial rotation of the dial or disc through the handle 22 will, in turn, impart movement to the links, and this movement will be transmitted to the sliding bolts 3.

The normal position of the latch and lock means is shown in Figures 3, 4, 5 and 8 of the drawings. From these views it will be observed, particularly with reference to Figure 8, that when the parts are in their normal position, the handle 19 is in its vertical position so that the bolts 3 are retracted while the latches 2 are projected by the springs 8 toward the keeper means 1 in the sides of the drawer cabinet. Thus, in this position, the drawer head is held in its latched position in the cabinet. If it is desired to open the drawer it is only necessary to move the handle 22 to the right in Figure 9 which will cause the dial 19 to turn counter-clockwise and thus operate the links 17 to pull the bolts 3 inwardly. When the bolts are thus pulled inwardly, the shoulders 15a on the bolts will engage the shoulders 13 on the latches and draw the latter inwardly against the force of the springs 8. Thus, the latches are released from the keepers and the drawer may be pulled open. To prevent the handle 22 from being turned too far in an anti-clockwise direction, the friction pin 34 of the detent 35 will engage the locking shoulder 32 of the notch 31 in the periphery of the dial. When the handle 22 is released from the position shown in Figure 9 the springs 8 will force the latches 2 outwardly or in other words project them laterally and thus pull the bolts 3 along with them and return the handle 22 to the normal vertical position shown in Figure 8.

If it is desired to lock the drawers in the compartments of the cabinets and against the seal S, the bolts 3 are actuated so as to project them into the keepers 1 by rotating the handle 22 in a clockwise direction, as shown in Figure 10. When the handle is turned in this direction, the friction pin 34 will ride over the shoulder 33 of the notch and the consequent movement of the dial 19 will force the links 17 outwardly. This movement will force or project the bolts 3 toward the keeper means, and, in so doing the shoulders 15a of the bolts will pull away from the shoulders 13 of the latches and the shoulders 15b will engage the shoulders 14 of the latches, thereby not only forcing the bolts into the keepers but at the same time holding the latches 2 in their projected positions. When it is desired to unlock the drawer by releasing the bolts 3 it is only necessary to turn the handle 22 in an anti-

clockwise position from that shown in Figure 10 to the vertical position shown in Figure 8. The bolts 3 will then be withdrawn from the keepers 1 and the latches 2 will be free to operate under the force of the springs 8. The drawer may then be pulled open by moving the handle 22 in a further anti-clockwise position as shown in Figure 9.

The shoulder 33, due to its engagement with the pin 34, when the parts are in the position shown in Figure 8, also prevents the latches 2 from kicking out the bolts 3 as the said latches are forced forward by the springs 8 when the drawer automatically closes. That is to say, assuming the drawer is in its closed and latched position, the latches 2 and the handle 22 assume the position shown in Figure 8. If it is desired to unlatch the drawer, for opening, the handle 22 is moved to the position shown in Figure 9, as previously described. If the operator releases the handle 22, the force of the springs 8 will shift bolts 3 back to the position shown in Figure 8, likewise force the handle 22 back to the vertical position shown in said figure. When the door gravitates to closed position the latches 2 will be forced inwardly as they pass over the frame parts leading to the keepers. This will compress the springs 8. When the latches 2 register with the keeper openings 1 the springs will release their stored energy and, therefore, the shoulders 13 and 15a will come together with a force which would tend to kick out the bolts 3 a sufficient distance to make them engage the keeper opening 1 and thus lock the drawer. Therefore, the shoulder 33 when engaged with 34 prevents this accidental movement of the bolts 3 since the engagement of the shoulder 33 and pin 34 prevents movement of the dial and the lengths 17 connected with the bolts.

From the foregoing description, it will be apparent that the present invention provides a cabinet including a drawer slidably mounted to move to closed position within a compartment of a cabinet, the said drawer having latch means for automatically holding the drawer within the compartment, and said latch means being adapted to be controlled by an operator's control element which also actuates the means for locking or bolting the drawer in sealed position. By a simple manipulation of the manual control means the drawer may be readily opened and closed, while on the other hand, when it is desired, it may be securely pressed or locked in closed position.

I claim:

1. Combined latch and lock means for closures, comprising, latch means adapted to automatically engage a keeper means for holding the drawer against accidental opening, lock means, and manually controlled handle operated means movable to one side of a normal vertical position to withdraw the latch means from the keeper means and movable to the other side of said normal position to force the lock means into engagement with the keeper means.

2. A closure fastener, comprising, latch and lock means, springs for causing the latch means to be automatically projected, and manually controlled means for projecting and retracting said lock means while the latch means are projected, said latch and lock means having cooperating parts whereby a portion of the retracting movement of the lock means also retracts the latch means.

3. A closure fastener, comprising combined latch and lock units, each of said units including a spring pressed latch having an offset portion and a sliding bolt having a recessed portion for receiving said offset portion of the latch, said recess being a greater length than the offset portion to permit the bolt to slide outwardly free of the latch to effect locking of the drawer, and one end of the recessed portion of the bolt and one end of the offset portion of the latch adapted to cooperate when the bolt slides inwardly to thereby retract the spring pressed latch, and means for controlling the latch and lock means of said units.

4. A closure fastener, comprising, combined latch and lock units, each of said units including a spring pressed latch having an offset portion and a sliding bolt having a recessed portion for receiving said offset portion of the latch, said recess being a greater length than the offset portion to permit the bolt to slide outwardly free of the latch to effect locking of the closure, and one end of the recessed portion of the bolt and one end of the offset portion of the latch adapted to cooperate when the bolt slides inwardly to thereby retract the spring pressed latch; and means for controlling the latch and lock means of said units, said last named means including a disc, a handle exposed at the outer side of the drawer head and having a shaft portion engaged with said disc, link means pivotally connecting said bolt with the disc at a point between the axis of the disc and its periphery, and means for limiting the movement of the disc.

5. A closure fastener, comprising, manually controlled mechanism for controlling the latching and locking of said closure, said mechanism including supporting means within the closure comprising inwardly facing channel members and a transverse plate connecting the front wings of said channel members, latch and bolt units slidable in housings carried by the front faces of the front wings of said channel members at the location of said transverse plate, springs for automatically projecting said latch means, sliding bolts constituting said lock means, an oscillatable member, a handle exposed at the outer face of the closure and having a shaft keyed to said oscillatable member, said shaft also having a portion journaled in said transverse plate, link means connecting the oscillatable member with the sliding bolts, and cooperating inter-engaging parts on the latch and lock means whereby the manipulation of the oscillatable member through the handle will control the projection and contraction of the latch means and also permit the bolt to move to locking position independently of said latch means.

6. A closure fastener, comprising, a latch and bolt housing supported within the closure, a recessed bolt slidable on a portion of the housing, a latch having an offset portion slidably mounted within the recessed portion of the bolt, a spring within the housing for forcing the latch to projected position, an oscillatable member, a housing for said oscillatable member including a rear plate and a front transversely arched plate having flanges secured to said rear plate, a shaft journaled in said front and rear plates of the housing for the oscillatable member and having a handle exposed at the outer face of the closure, said oscillatable member being keyed to said shaft for movement therewith, link means connecting said oscillatable member with said bolt, and means for limiting the movement of said oscillatable member.

7. A closure fastener, comprising, a latch and bolt unit within the closure for cooperation with said keeper means, a spring for projecting a latch automatically to a position to engage said keeper means, a bolt having spaced shoulders for alternately engaging cooperating shoulders on the latch and spaced closer together than the shoulders on the bolt, a handle constituting a lever, an oscillatable member controlled by said handle, link means between said oscillatable link means and said bolt, and spring pressed detent means for limiting the movement of said oscillatable member.

8. A closure fastener, comprising, slidably mounted inter-engaged latch and bolt members for cooperation with a keeper means, a spring for normally projecting said latch into said keeper means, and manually operated handle means for actuating said bolt, said handle means comprising a disc adapted to be oscillated by said handle, a link connecting said disc with said sliding bolt, said disc having a notch provided with a locking shoulder and a friction shoulder, and a spring pressed detent having a friction stud adapted to ride in said notch and engage the locking shoulder thereof when the handle is turned to withdraw the bolt and the latch and to engage said friction shoulder and ride out of the notch when the handle is turned to release the latch and move said locking bolt into locking engagement with the keeper means.

9. Closure fastening means comprising, a closure-carried locking bolt projectable into and retractable from closure locking cooperation with a keeper, means for projecting and retracting said bolt, a closure-carried latch, spring means tending constantly to project said latch into closure latching cooperation with said keeper, and a lost motion connection between said locking bolt and said latch permitting the latch to be projected by its spring into said keeper when the locking bolt is projected and also when the locking bolt is in a predetermined retracted, closure-unlocking position, said connection including means to retract said latch from said keeper and hold it retracted therefrom by retraction of said locking bolt to a position beyond its aforesaid predetermined retracted position.

10. Closure fastening means comprising a closure-carried locking bolt projectable into and retractable from closure locking cooperation with a keeper, means for projecting and retracting said bolt, a closure-carried latch, spring means tending constantly to project said latch into closure latching cooperation with said keeper, and a lost motion connection between said locking bolt and said latch permitting the latch to be projected by its spring into said keeper when the locking bolt is projected and also when the locking bolt is in a predetermined retracted, closure-unlocking position, said connection including cooperating shoulders on said bolt and said keeper effective to retract said latch from said keeper and hold it retracted therefrom by retraction of said locking bolt to a position beyond its aforesaid predetermined retracted position.

GEORGE ROSCOE GIBSON.