Feb. 11, 1930. A. EVENSEN 1,746,854

DEVICE FOR AUTOMATICALLY LOCKING DRAWERS AND THE LIKE

Filed July 20, 1928 4 Sheets-Sheet 1

Fig. 1.

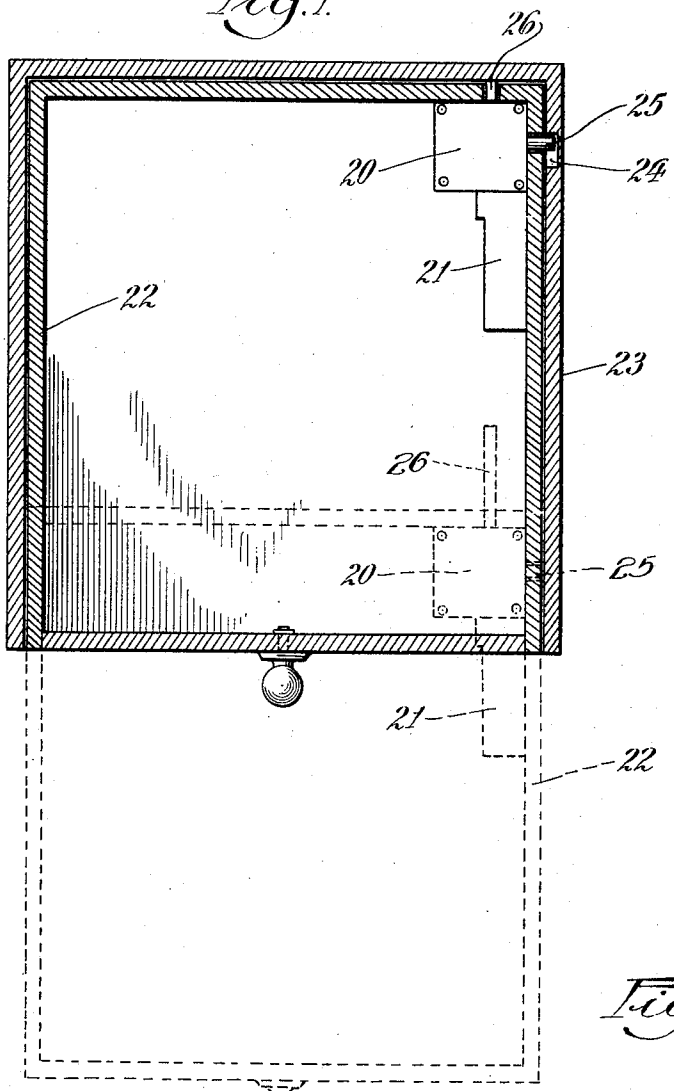



Fig. 13.

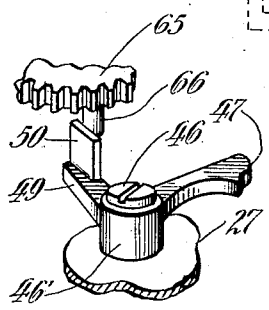



Fig. 12.

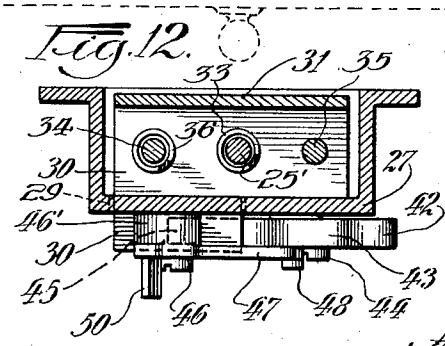
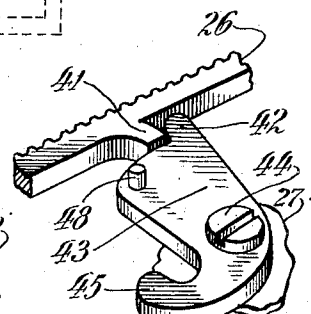



Fig. 14.

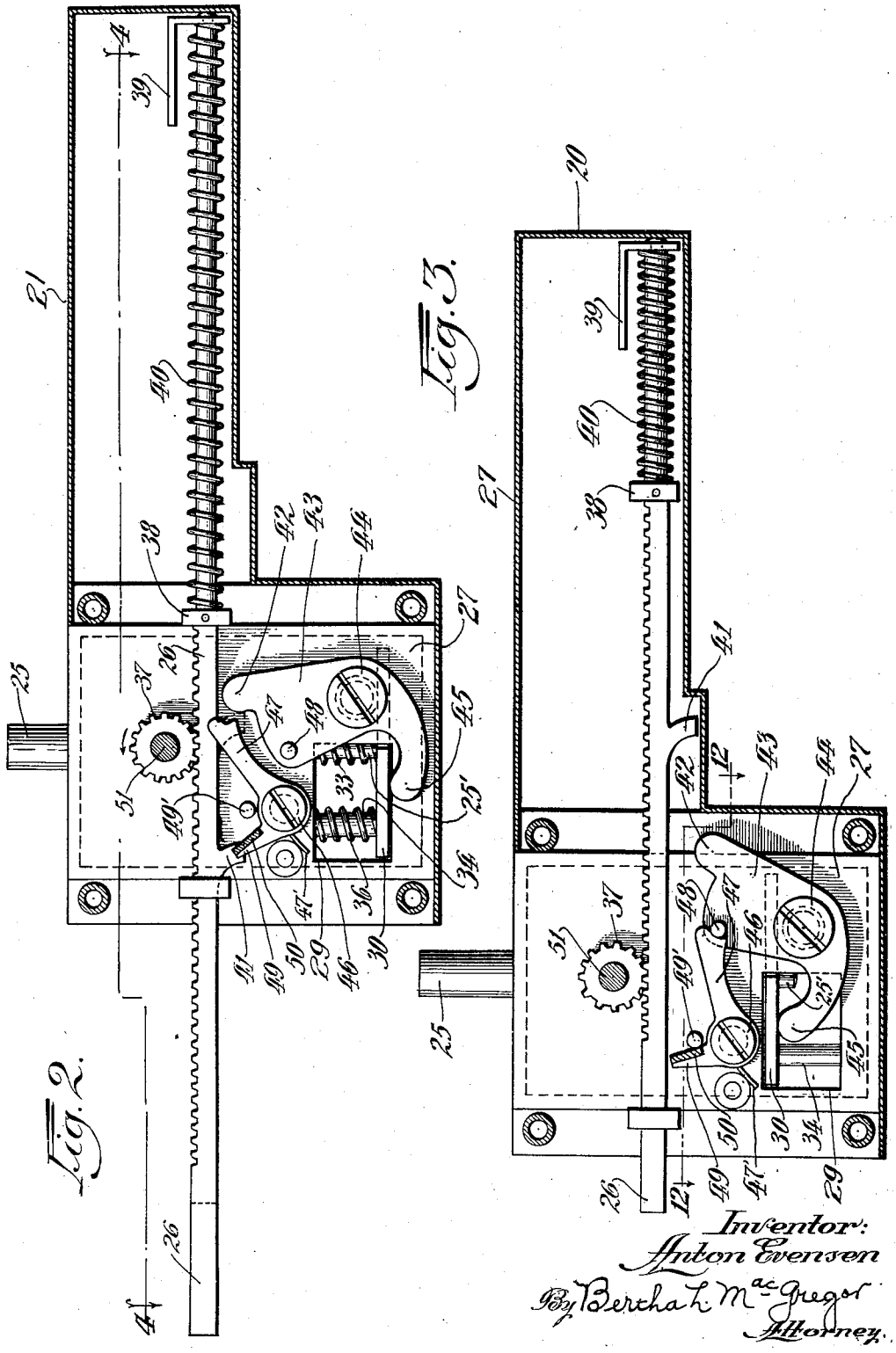



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DEVICE FOR AUTOMATICALLY LOCKING DRAWERS AND THE LIKE

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DEVICE FOR AUTOMATICALLY LOCKING DRAWERS AND THE LIKE

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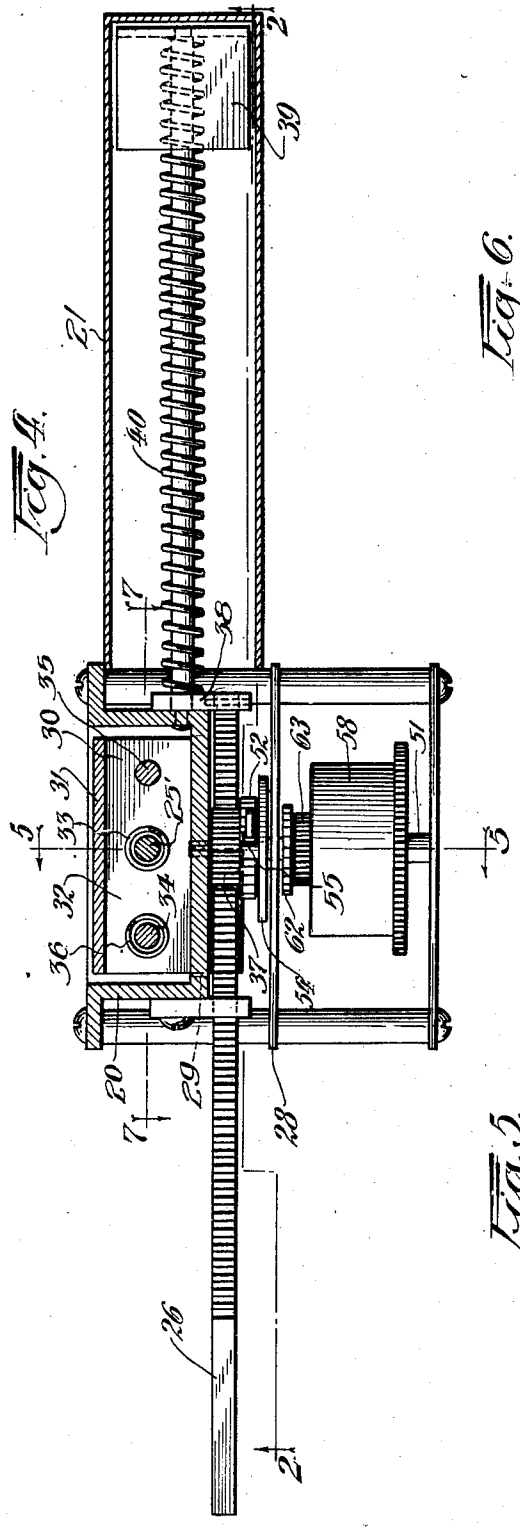


Fig. 4.

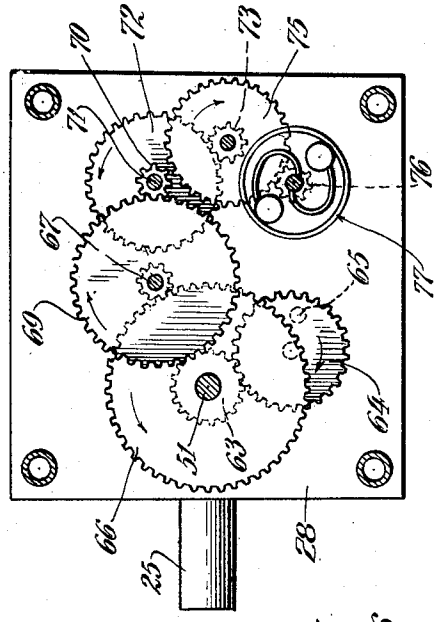


Fig. 6.

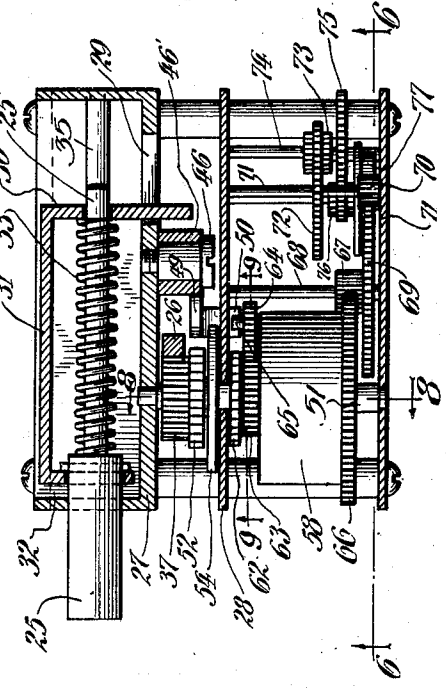


Fig. 5.

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DEVICE FOR AUTOMATICALLY LOCKING DRAWERS AND THE LIKE

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Fig. 7.

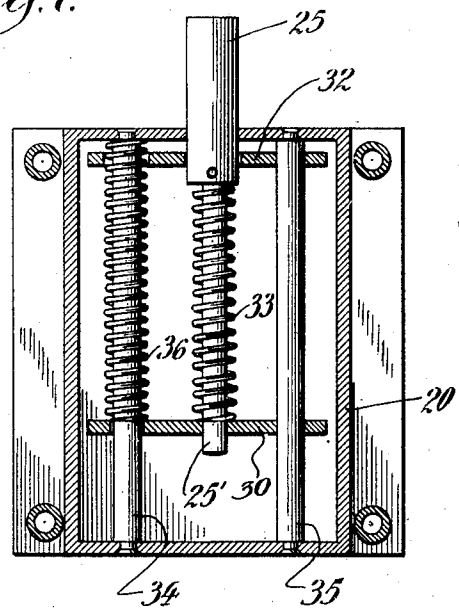



Fig. 9.

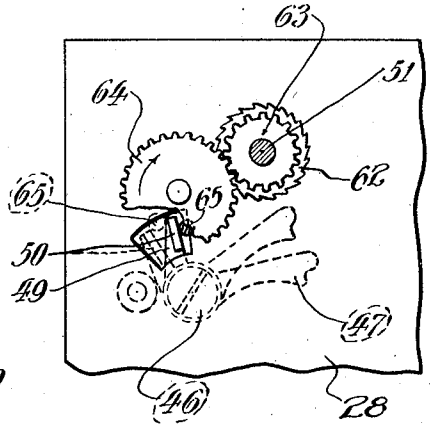



Fig. 8.

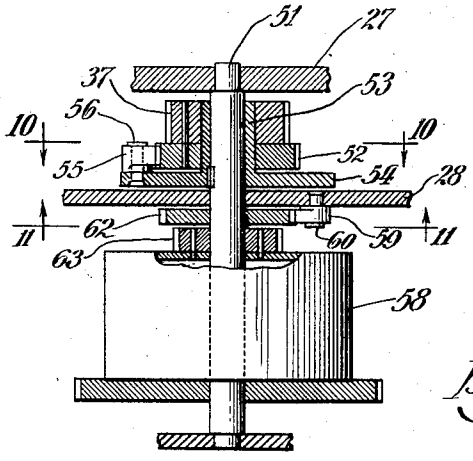



Fig. 10.

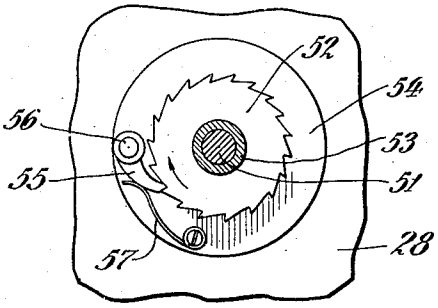
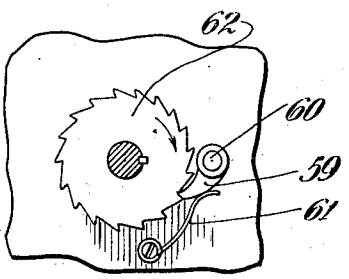



Fig. 11.




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Patented Feb. 11, 1930

1,746,854

# UNITED STATES PATENT OFFICE

ANTON EVENSEN, OF FOX LAKE, ILLINOIS

## DEVICE FOR AUTOMATICALLY LOCKING DRAWERS AND THE LIKE

Application filed July 20, 1928. Serial No. 294,137.

This invention relates to an attachment for automatically locking desk or cabinet drawers, doors and the like. The device will maintain the drawer in locked position for a predetermined time, and automatically permit the reopening of the drawer after a predetermined time.

The object of the invention is to provide a keyless device which may be conveniently attached to a drawer or door. In using my invention, the mere moving of the drawer to closed position will actuate mechanism for locking the drawer in said position and will simultaneously wind a spring which will require a predetermined time to unwind and through certain operative connections to release the locking mechanism before the drawer may again be opened.

The mechanism embodying my invention will effectively prevent daylight robberies of cash drawers and the like, for but a moment is required to push the drawer to closed position and when once closed it cannot be opened until a predetermined time has elapsed.

The objects and advantages will more fully appear as I proceed with my specifications.

In the drawings:

Figure 1 is a plan sectional view of a cabinet drawer, having attached thereto a locking device embodying my invention; the full lines showing the attachment and drawer in closed position and the dotted lines indicating same when the drawer is open.

Figure 2 is a bottom plan, partly in section, taken on the line 2—2 of Figure 4, looking upwardly as indicated by the arrows; this view indicating the position of the parts when the drawer is open.

Figure 3 is a view similar to that of Figure 2 but showing the parts in the position they assume when the drawer has been closed.

Figure 4 is a longitudinal, vertical, sectional view taken in the plane of the line 4—4 of Figure 2, looking in the direction indicated by the arrows.

Figure 5 is a transverse, vertical, sectional view taken on the line 5—5 of Figure 4, looking in the direction indicated by the arrows. In this view the follower is shown in "set" position.

Figure 6 is a transverse, horizontal, sectional view taken on the line 6—6 of Figure 5, looking in the direction indicated by the arrows.

Figure 7 is a horizontal, sectional view taken in the plane of the line 7—7 of Figure 4, looking in the direction indicated by the arrows.

Figure 8 is a longitudinal, vertical, sectional view taken on the line 8—8 of Figure 5.

Figure 9 is a horizontal section on the line 9—9 of Figure 5, looking upwardly.

Figure 10 is a horizontal, sectional view taken on the line 10—10 of Figure 8, looking downwardly as indicated by the arrows.

Figure 11 is a horizontal sectional view taken on the line 11—11 of Figure 8, looking upwardly as indicated by the arrows.

Figure 12 is a longitudinal, vertical, sectional view taken on the line 12—12 of Figure 3, looking in the direction indicated by the arrows.

Figure 13 is a perspective view showing part of the tripping mechanism which is shown in Figure 9.

Figure 14 is a perspective view of the lever for setting the mechanism for compressing the bolt springs.

In that embodiment of my invention shown in the drawings, a substantially rectangularly shaped housing for the mechanism about to be described is indicated at 20 and a forwardly disposed extension housing at 21. The housing may be secured in or beneath the drawer 22 at the rear and adjacent one side thereof. The desk or cabinet 23, of which the drawer 22 is a part, has a recess 24 in its side registering with an aperture in the side wall of the drawer, to accommodate a locking bolt 25 which is intended to enter therein when the drawer is closed. The rear wall of the drawer 22 is also apertured to accommodate a rack 26, suitably supported in the housing.

The housing 20 is divided into three horizontal chambers by partitions 27 and 28 (see Figure 5). The partition 27 is cut away at

29. A follower comprising a member 30, connected to a horizontal portion 31, having a wall 32 depending therefrom opposite the member 30, is located above the partition 27. Said wall 32 is apertured as shown in Figure 4 and the member 30 is apertured as best shown in Figure 12. The member 30 extends downwardly into the recess 29 of the partition 27 and is movable therein.

The locking bolt 25 has a part 25′ of decreased diameter and is slidably mounted in the central aperture of the follower wall 32, extending through said aperture and through an opening in the housing 20; while the part 25′ is similarly mounted in the follower wall 30. A coiled spring 33 surrounds the bolt 25′ and bears against the end of the bolt 25 and against the inner surface of the follower wall 30. The tendency of the spring 33 is to force the bolt 25 outwardly into the cabinet recess 24 when the follower has been actuated to place the spring 33 under tension.

A pair of bolts 34, 35 are parallel to the bolt 25—25′ and are rigidly secured in opposite side walls of the housing 20 and extend through apertures in the follower walls 30 and 32. A coiled spring 36 is wrapped around one of the bolts 34 or 35, one end bearing against the housing wall 20 and the other against the follower wall 30. The purpose of this spring 36 is to return the follower and bolt to the position shown in Figure 2, when the tripping mechanism, later to be described, is released in order to relieve the tension on the bolt 25. The follower wall 32 contacts with a pin on the bolt 25 and thereby withdraws it from the recess 24.

I shall now describe the mechanism for placing the springs 33 and 36, and consequently the bolt 25, under tension: This is accomplished by means of the mechanism located between the partitions 27 and 28, said mechanism including the rack 26 which is actuated by the closing of the drawer. This rack 26 functions to wind or set a time-controlled spring by engagement between the rack teeth and a gear 37 operatively connected with the spring, and it simultaneously functions to actuate the follower, comprising the parts 30, 31, 32, so that the bolt 25 will be placed under tension through the spring 33 and be ready to assume its locked position when the drawer is completely closed.

The rack 26 has connected to its forward end a member 38 forming a shoulder, said part 38 being apertured and slidably mounted on a rod connected to a bracket support 39. A coiled spring 40 is wrapped around the rod and its ends bear against the bracket and shoulder for the purpose of forcing the rack outwardly toward the rear when the drawer is opened, and room is provided between the drawer and the cabinet for the rack 26 to extend through the opening at the rear of the housing and through the drawer.

The rack has rigidly secured to it a curved arm 41, shown in bottom plan in Figures 2 and 3. When the rack is moved inwardly and forwardly by the closing of the drawer, this curved arm 41 comes into contact with the part 42 of a lever 43, which is pivotally connected at 44 to the partition 27. This causes the hooked end 45 of the lever 43, moving about the pivot 44, to engage the depending member 30 of the follower, and moves it from the position shown in Figure 2 to that shown in Figure 3.

A tripping lever is pivotally mounted at 46 on the partition 27, the boss 46′ spacing it from the said partition so this lever is in a plane slightly below the plane of the lever 43. The arm 47 of this lever normally engages a pin 48 depending from the lever 43 to hold said lever 43, and consequently the follower member 30, in the position shown in Figure 3. The lever arm 47 is held in said normal position by the spring 47′. The lever arm 49 may be arrested by a stop pin 49′. Depending from this lever arm 49 is a lug 50, which extends downwardly through a recess in the partition 28 and which contacts with a tripper mechanism when the unwinding of the time spring has actuated said tripper means.

It will be seen that when the rack 26 is moved forwardly by closing the drawer, the curved arm 41 contacts with the part 42 of the lever 43, thereby swinging the lever arm 45 about the pivot 44 to contact with the follower member 30, thereby compressing springs 33 and 36 and placing the bolt 25 under tension. Thus the bolt 25 will snap into the recess 24 of the cabinet 23 when in registering position.

As stated, this same movement of the rack simultaneously functions to set the time mechanism now to be described: Referring more particularly to Figures 5 and 8, the rack 26 meshes with the teeth of the gear 37 on the rotatable shaft 51. A ratchet 52 is connected to the gear 37. Both the gear and ratchet are loosely mounted upon the sleeve 53, which is integral with the disk 54. The sleeve 53 and disk 54 are keyed to the shaft 51. On the disk 54 is a pawl 55, pivotally mounted at 56 and spring-pressed by a spring 57. When the gear 37 is rotated by the rack 26, the gear 37 and ratchet 52 being connected, said ratchet will engage the pawl 55 on the disk 54 and will rotate said disk 54, and, consequently, will rotate the shaft 51 by which the time spring within the barrel 58 will be wound.

A pawl 59, pivotally mounted at 60 under the partition wall 28, is pressed by a spring 61 so as to engage a ratchet 62, which is keyed to the shaft 51. This holds the shaft 51 against rotation while the time spring is unwinding.

Figures 5 and 9 show the tripping mechanism, which is actuated by the unwinding of

the spring in barrel 58, and which must be actuated before the bolt 25 is released. A gear 63, loosely mounted on the shaft 51, is fastened to the spring in the barrel 58. Said gear 63 meshes with a gear 64 which carries a pin 65 which is adapted to engage the tripping device 50 on the lever arm 49, when the gear 64 has been rotated in a reverse direction by the unwinding of the time spring. This tripping releases lever 47 from pin 48 on lever 43, and permits the follower to resume position shown in Figure 2 to release bolt 25.

Referring now to Figures 6 and 8, the means for governing the unwinding of the timing spring within the barrel 58 includes a main gear 66 beneath the barrel 58, operatively connected to the timing spring, said gear 66 meshing with a pinion 67 on the shaft 68, which carries a gear 69 which meshes with a pinion 70 on the shaft 71, said shaft 71 carrying the gear 72 which meshes with the pinion 73 on shaft 74. The shaft 74 carries the gear 75, which meshes with pinion 76 for the governor 77.

This train of gears and the governor 77 may be constructed or adjusted to permit the unwinding of the spring in the barrel 58 and the trip action between pin 65 and part 50 of the lever 49 to take place at a comparatively short time after the parts have been "set" by the closing of the drawer, or they may be arranged to keep these parts in locking position over night, if desired.

When the tripping action has taken place by the unwinding of the spring in the barrel 58, rotation of the gear 63, in mesh with gear 64, carrying the pin 65 for contact with the part 50 on lever 49, by which contact between the lever 47 and pin 48 on lever 43 is disengaged, releasing the follower wall 30 and springs 33, 36 to permit the bolt 25 to be withdrawn from the recess 24, the drawer 22 may be opened. The opening of the drawer gives the spring 40 an opportunity to expand, pushing the rack 26 rearwardly. This reverse travel of the rack 26 in mesh with the gear 37, has no effect upon the shaft 51 because the gear 37 and ratchet 52 (keyed together) being loose on the sleeve 53, will merely slip past the pawl 55 on the disk 54. The parts will remain in the positions shown in Figure 2 until the drawer is again closed, when such closing action will again place the locking bolt under tension and wind the time spring in the manner heretofore described.

Summarizing the operation of the mechanism hereinabove described, it will be seen that the means for placing the locking bolt 25 under tension includes the rack 26, which is operated by the closing of the drawer, said rack carrying the curved arm 41 which contacts with the lever 43, and through the arm 45 of said lever moves the follower wall 30 to compress the spring 33 on the bolt 25.

The means for maintaining the bolt 25 under tension includes the pivotally mounted lever 47, which is spring-pressed to normally engage the pin 48 on the lever 43 and hold it in the position shown in Figure 3.

The means for winding the time-controlled mechanism and placing it in operative condition includes the rack 26 meshing with gear 37, connected to ratchet 52, the latter engaging the pawl 55 on disk 54, connected to rotatable shaft 51; said shaft being connected to the spring within the barrel 58.

The means for holding the shaft 51 against reverse rotation after it has been driven to set the time-controlled mechanism includes the pawl 59 engaging the gear 62, which is keyed to the shaft 51.

The time-controlled spring has a gear 63 attached to it, said gear 63 being in mesh with a gear 64 carrying the pin 65. The winding of the spring moves this pin 65 into the position shown in dotted lines Figure 9. The parts are in the positions just described when the drawer has been closed and the bolt 25 has entered the recess 24.

To permit the opening of the drawer, it is necessary for the time-controlled mechanism to reverse or unwind and for the locking bolt to be released and withdrawn. The unwinding of the spring in the barrel 58 is governed by the governor 77, operatively connected through the train of gears to the gear 66 connected to the spring. This unwinding causes the gear 63 on the shaft 51 to mesh with and rotate the gear 64 and move the pin 65 from the position shown in dotted lines to that shown in full lines in Figure 9, where, at the end of the unwinding period, the pin 65 will contact with the depending portion 50 on the lever 49, and, by swinging said lever about its pivot 46, will disengage the arm 47 from the pin 48 on lever 43 to release the follower and the bolt 25.

The drawer may then be opened and, although the direction of the travel of the rack is reversed by the opening of the drawer, it will not affect the position of the mechanism, because the operative action between the rack 26 and shaft 51 is disconnected by the slipping of the pawl 55 with respect to the ratchet 52.

Obviously modifications may be made in the construction without departing from the scope of my invention, and I do not intend to be limited to the precise form shown and described, except as pointed out in the appended claims.

I claim as my invention:

1. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, and means for simultaneously placing said bolt

under tension and for putting the time-controlled mechanism into operative or "set" condition.

2. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, a rack operable by the closing of the drawer, means for placing said bolt under tension, and means for putting the time-controlling mechanism into operative condition, both said means being relatively connected with the rack.

3. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, means for placing said bolt under tension and for simultaneously putting the time-controlled mechanism into operative condition, and means operatively connected with the time-controlled mechanism for automatically releasing the tension on the locking bolt and withdrawing same from engagement with the cabinet.

4. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, means operable by closing the drawer for placing said bolt under tension and for simultaneously putting the time-controlled mechanism into operative condition, and means operatively connected with the time-controlled mechanism for automatically releasing the tension on the locking bolt and withdrawing same from engagement with the cabinet.

5. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, means operable by closing the drawer for placing said bolt under tension and for simultaneously putting the time-controlled mechanism into operative condition, and means operatively connected with the time-controlled mechanism for automatically releasing the tension on the locking bolt and withdrawing same from engagement with the cabinet, said means for placing the bolt under tension including a rack, a pivoted lever, a second spring-pressed lever, a follower and a coiled spring between the bolt and the follower.

6. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, means operable by closing the drawer for placing said bolt under tension and for simultaneously putting the time-controlled mechanism into operative condition, and means operatively connected with the time-controlled mechanism for automatically releasing the tension on the locking bolt and withdrawing same from engagement with the cabinet, said means for placing the bolt under tension including a rack, a pivoted lever, a second spring pressed lever, a follower and a coiled spring between the bolt and the follower, and the means for simultaneously putting the time-controlled mechanism into operative condition including said rack, a gear in mesh with the rack, a rotatable shaft connected with the time-controlled mechanism and operative connections between the gear and the rotatable shaft.

7. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, means operable by closing the drawer for placing said bolt under tension and for simultaneously putting the time-controlled mechanism into operative condition, and means operatively connected with the time-controlled mechanism for automatically releasing the tension on the locking bolt and withdrawing same from engagement with the cabinet, said last mentioned means including a rotatable gear carrying a pin adapted for engagement with the means for placing the bolt under tension for tripping the same.

8. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the drawer is closed to hold the drawer in closed position, time-controlled mechanism, means operable by closing the drawer for placing said bolt under tension and for simultaneously putting the time-controlled mechanism into operative condition, and means operatively connected with the time-controlled mechanism for automatically releasing the tension on the locking bolt and withdrawing same from engagement with the cabinet, said means for placing the bolt under tension including a rack, a pivoted lever, a second spring-pressed lever, a follower and a coiled spring between the bolt and the follower, the means for automatically releasing the tension on the locking bolt including a rotatable gear carrying a pin adapted for engagement with the spring-pressed lever.

9. In a device for automatically locking cabinet drawers and the like, secured to the drawer, a spring operated locking bolt adapted for engagement with the cabinet when the

drawer is closed to hold the drawer in closed position, time-controlled mechanism, means operable by closing the drawer for placing said bolt under tension and for simultaneously putting the time-controlled mechanism into operative condition, and means operatively connected with the time-controlled mechanism for automatically releasing the tension on the locking bolt and withdrawing same from engagement with the cabinet, said means for placing the bolt under tension including a rack, a pivoted lever, a second spring-pressed lever, a follower and a coiled spring between the bolt and the follower, and the means for simultaneously putting the time-controlled mechanism into operative condition including said rack, a gear in mesh with the rack, a rotatable shaft connected with the time-controlled mechanism and operative connections between the gear and the rotatable shaft, the means for automatically releasing the tension on the locking bolt including a rotatable gear carrying a pin adapted for engagement with the spring-pressed lever.

In testimony that I claim the foregoing as my invention I affix my signature this 14th day of July, 1928.

ANTON EVENSEN.

## CERTIFICATE OF CORRECTION.

Patent No. 1,746,854. Granted February 11, 1930, to

ANTON EVENSEN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, line 14, claim 2, for the word "relatively" read "operatively"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of March, A. D. 1930.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.