

May 16, 1933.

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1,909,848

LOCK MECHANISM FOR CABINETS

Filed April 14, 1931

3 Sheets-Sheet 1

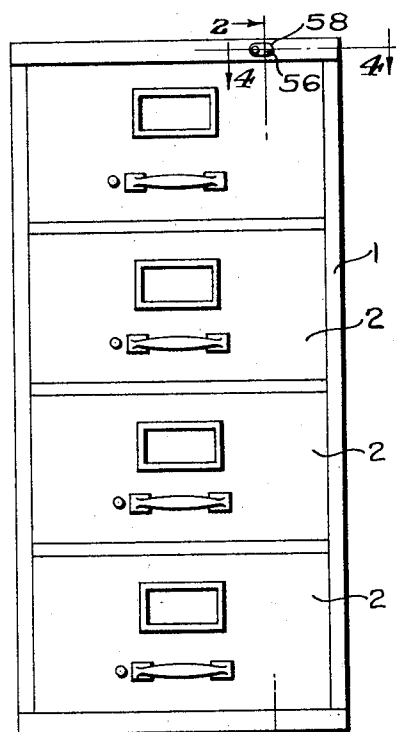


Fig. 1

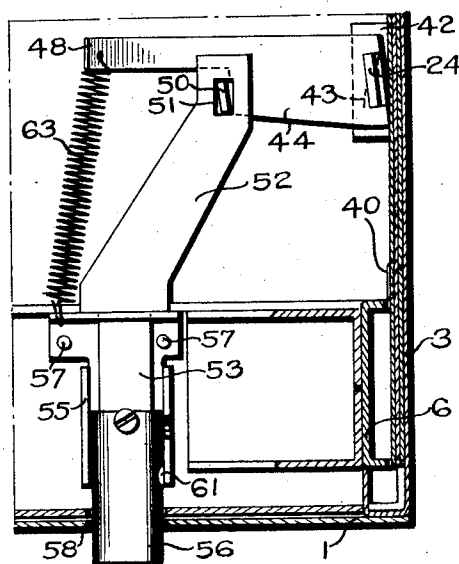


Fig. 5

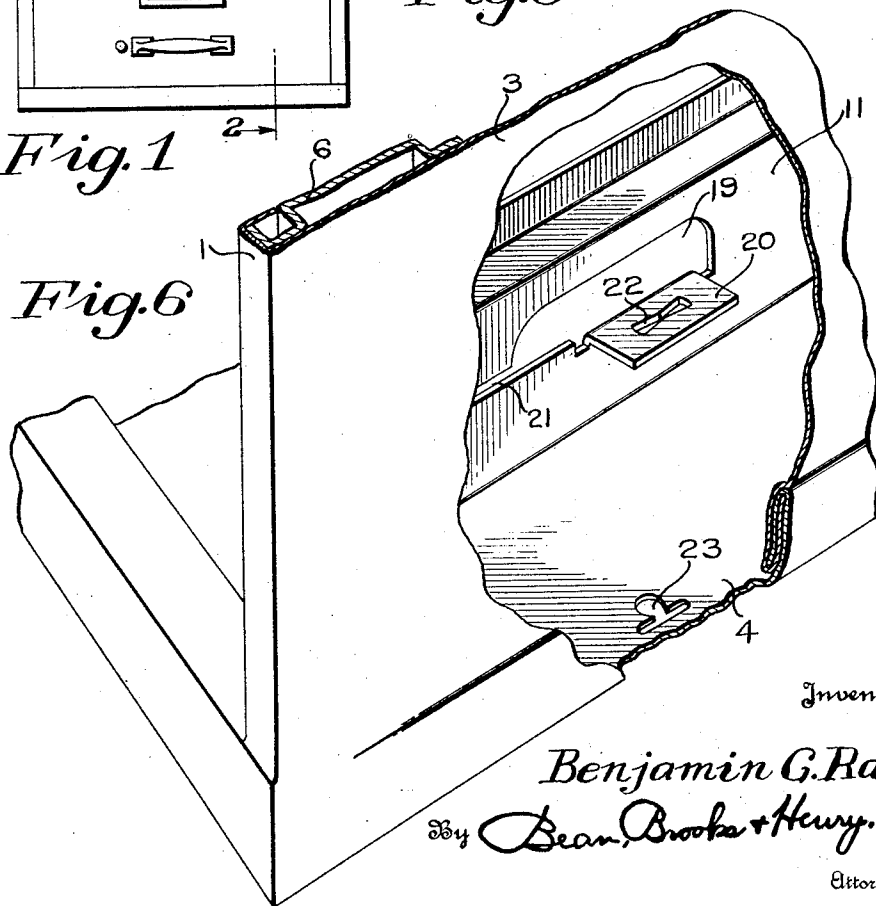


Fig. 6

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Fig. 2

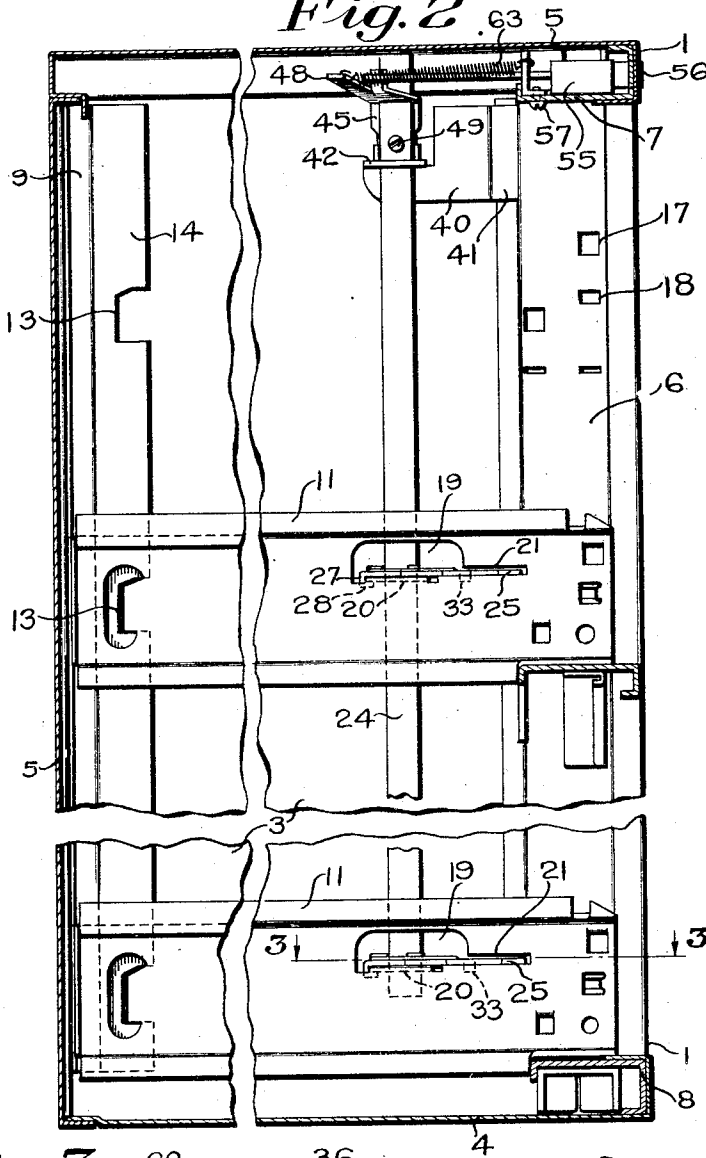
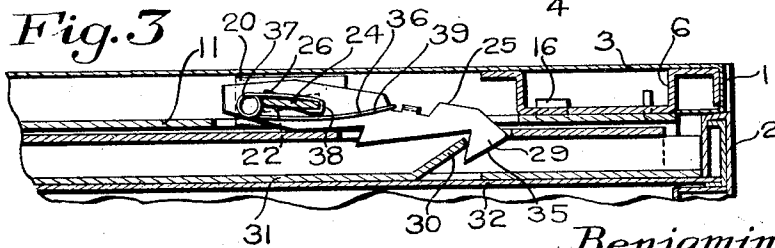


Fig. 3



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Fig. 7

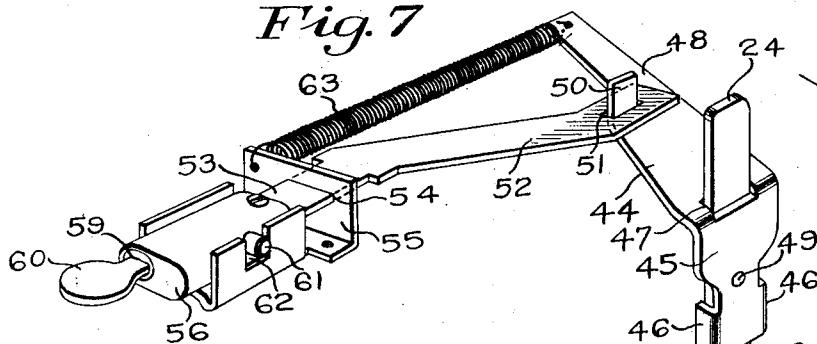


Fig. 4

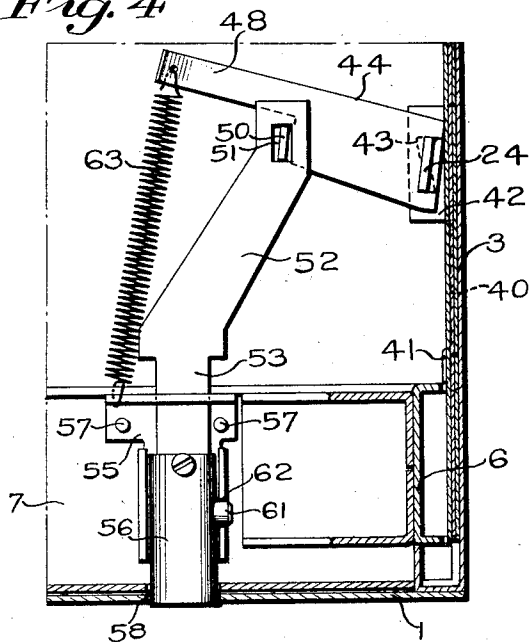
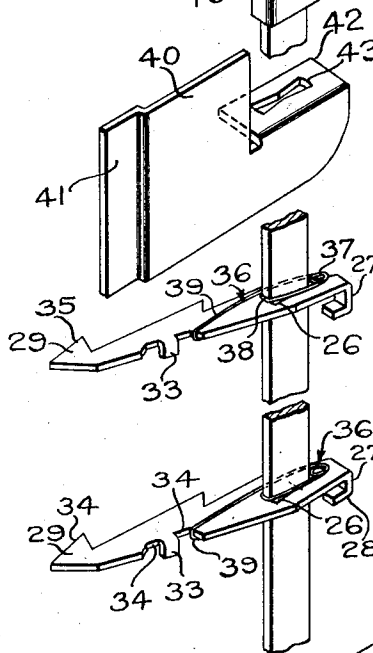
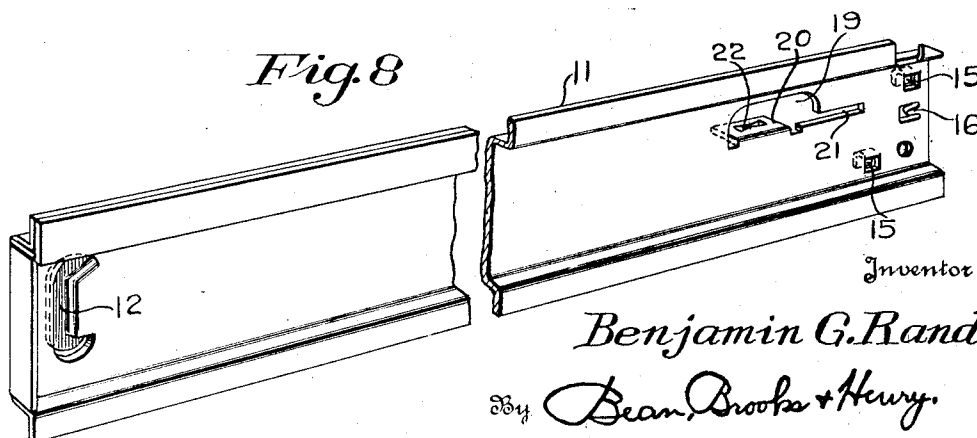


Fig. 8



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UNITED STATES PATENT OFFICE

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LOCK MECHANISM FOR CABINETS

Application filed April 14, 1931. Serial No. 530,108.

This invention relates to locking devices for cabinets, particularly file cabinets, for locking the drawers in closed position.

The invention comprehends the construction of a filing cabinet having a drawer or a plurality of drawers, or other similar type of furniture construction, with parts of the cabinet structure provided and arranged for the mounting of a locking mechanism adapted to retain the drawers locked in closed position, that may be assembled in the cabinet after it is completed. The invention is applicable to filing cabinets constructed of sheet metal so as to have the locking mechanism applied in one side of the cabinet adjacent the front wall, and utilizes the case slides or other stationary part of the drawer supporting and guiding structure as a support for the latch members which engage parts on the drawers in locking the drawers in closed position, the case slides, or other corresponding parts, being constructed to form the latch mounting.

The invention also includes a movable latch construction, as well as a lock controlled operating structure, for the movable latches, and parts for mounting this operating structure in a cabinet in a convenient manner to facilitate the attachment of these parts to the cabinet in its completed form.

The invention comprehends other features residing in the details of construction and assembly of the lock mechanism and the parts of the cabinet for mounting this mechanism therein, as more fully set forth in the following detailed description of one form of the invention, it being understood, however, that various changes in the size, shape and relation of these parts may be made without departing from the scope of the invention as comprehended by the claims.

In the drawings:

Fig. 1 shows a front elevation of a filing cabinet with the lock mechanism applied.

Fig. 2 is a vertical section through the filing cabinet taken on line 2—2 of Fig. 1, the section being in broken form with portions omitted for convenience in illustration.

Fig. 3 is a horizontal section through a portion of one side of the cabinet taken on line 3—3 of Fig. 2, and showing one of the

movable latch members in locking engagement with a latch member carried by a drawer.

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 1 through a portion of the top of the cabinet showing the lock controlled parts in locking position to hold the movable latch members in position to coact with the latch members on the drawers for retaining them in closed position.

Fig. 5 is a view similar to Fig. 4 showing the parts in unlocked position so that the drawers may be opened.

Fig. 6 shows a lower front corner of the cabinet in perspective, with portions broken away and shown in section to illustrate the structure of a case slide for mounting a movable latch member, and the opening in the bottom wall of the cabinet to facilitate the insertion or removal of the latch operating bar.

Fig. 7 shows the assembled locking mechanism in perspective, disassembled from the cabinet, and in disassembled relation with the supporting bracket.

Fig. 8 shows one of the case slides constructed for supporting a movable latch member and its operating bar, in perspective.

A sheet metal filing cabinet is illustrated, having a front wall 1 provided with a plurality of openings for receiving the drawers 2. The cabinet has side walls 3, a bottom wall 4, and a rear wall 5. A rectangular frame member having side members 6 and connecting top and bottom members 7 and 8 respectively, is secured against the rear face of the front wall 1 inside of the cabinet, and cooperates with the side, top and bottom walls to form a rigid cabinet structure.

Rear uprights 9 are secured to the side walls 3 adjacent the rear wall 5 of the cabinet to reinforce the rear end of the cabinet structure and provide a mounting for the drawer supporting and guide members. These drawer supporting and guiding members may be of any suitable well known design using channel-shaped case slides 11 arranged in opposed pairs at opposite sides of

the cabinet to support the movable parts that carry and support the drawers 2 for movement into and out of the cabinet. These case slides are secured at their forward and rear ends to the side members 6 of the rectangular front frame member and uprights 9 respectively, by any suitable means. As shown in the drawings, these case slides are interlocked with the rear uprights 9 by means of tongues 12 formed on the rear ends interlocking in slots 13 formed in the forwardly extending flanges 14 of rear uprights 9. The front ends of the case slides are secured to side members 6 of the front frame member by means of tongues 15 and 16 formed from the body of the case slides, interlocking in openings 17 and 18 respectively in side members 6. Any other well known method of rigidly connecting the case slides to the inside of the cabinet may be used, if desired. By mounting the case slides on side members 6 of the front frame member and rear uprights 9, they are spaced inwardly from side walls 3, of the cabinet as clearly shown in Fig. 3, and by reason of this, provide a space for receiving portions of the locking mechanism for the drawers.

The case slides 11 at one side of the cabinet are specially constructed for use with this invention in having the channel-shaped portion provided with an opening 19 near the front end formed by striking out a portion of the body of the case slide to provide a laterally extending latch support 20 at the lower edge of the opening. A slot 21 is also formed in the case slide extending forwardly from opening 19 in the manner shown in Figs. 2 and 6. A slot 22 is provided in each latch supporting projection 20, each slot having a narrow central portion and being wider at its ends, and the slots in the latch supports 20 of successive case slides being in axial alignment with each other. An opening 23 is formed in the bottom wall 4 as shown in Fig. 6, having portions in alignment with the slots 22 of latch supports 20, so that the movable latch operating bar 24 may be inserted in a completed cabinet structure through opening 23 in bottom wall 4 and through slots 22 in the respective projections 20 on the case slides so as to assume the position shown in Fig. 2.

Movable latch members 25 are formed of elongated sheet metal strips having slots 26 adjacent one end portion of a shape similar to slots 22 for receiving the operating bar 24 in the manner shown in Figs. 2 and 7. The adjacent end of the strip forming latch 25 is extended laterally at 27 and then inwardly at 28 to provide a guide finger. This guide finger engages around the edge of latch supporting projection 20 in the operative position of the movable latch member thereon and serves to prevent axial sliding movement of the latch member on bar 24. The particu-

lar shape of opening 26 in latch member 25 provides for a limited pivotal movement of the latch member relative to bar 24, while slot 22 in projection 20 provides for partial rotation of bar 24, so that latch 25 may be positioned for operation to retain a drawer in closed position, or moved out of this position, to permit opening of the drawer.

The opposite end of latch member 25 is provided with a projection 29 extending beyond one side thereof, as clearly shown in Figs. 3 and 7, and is adapted to coact with a latch member 30 formed by an angular projection on drawer slide 31 mounted on side wall 32 of the drawer. The movable latch member 25 is formed on the edge opposite to projection 29 with a laterally extending stop lug 33 and adjacent cut-out portions 34. Stop lug 33 is adapted to engage the outer face of case slide 11 adjacent to slot 21 for limiting movement of latch member 25 in operative relation to latch member 30, so that when movable latch member 25 is in this operative position and drawer 2 happens to be open, the closing movement of the drawer will cause the angular portion of latch member 30 to engage cam face 35 formed on projection 29, for moving latch member 25 outwardly on its pivot so that latch member 30 may pass projection 29 and move into position for latching engagement. Latch member 25 is resiliently retained in its operative or coacting position with latch member 30 by a spring member 36 having a coiled portion at 37, a short arm 38 provided with a hooked end engaging around the bar 24 and having a long arm 39 provided with a hooked end engaging around an edge of latch member 25 in one of the recesses 34. This spring member 36 acts to resiliently move latch member 25 in a clockwise direction around bar 24 as shown in Fig. 3 to normally hold said latch member in operative position to coact with latch member 30.

A supporting bracket 40, Figs. 2, 4, 5 and 7, is formed with an offset flange 41 engaged over the rear edge of a side member 6 of the front frame adjacent the upper end thereof, while the intermediate portion of the bracket lies against side wall 3, to which it is suitably secured. The other end of this bracket is provided with a lateral extension 42 having a slot 43 enlarged at its ends and having a narrow portion at the center aligned with the slot 22 in latch supporting projection 20, and receiving the upper end of operating bar 24.

An operating arm 44 for bar 24 is shown in Fig. 7 and comprises a bar engaging portion 45 having laterally extending parallel tongues 46 engaging opposite edges of bar 24 just above lateral projection 42 of bracket 40, while an opening 47 in the angularly extending portion 48 of the operating arm, adjacent its juncture with portion 45, re-

ceives the end of bar 24. A screw 49, or other suitable securing means, extends through an opening in bar 24 and into bar engaging portion 45 for rigidly securing these parts together. The lower end of portion 45 of operating arm 44 rides on projection 42 and supports the operating bar 44 in its operative position for limited rotative movement to operate latch members 25 into coacting and non-acting relation with respect to latch members 30 on the drawers. The angularly extending portion 48 of operating arm 44 is formed with an angular stud 50 extending through opening 51 in lock bar 52. The opposite end of this lock bar is provided with reduced extension 53 slidably engaged in slot 54 of lock supporting bracket 55 and the end of the portion 53 is attached to lock barrel 56 shown in Fig. 7.

The lock supporting bracket 55 is mounted on the upper face of upper cross member 7 of the front frame, as shown in Fig. 2, and suitably secured thereto by screws 57, or the like. The lock barrel 56 projects through an opening 58, Fig. 4, in the upper edge of the front wall of the cabinet. The front end of the lock barrel 56 is provided with a key slot 59, Fig. 7, for receiving the key 60 through which the latch mechanism (not shown) contained in barrel 56 is adapted for actuation by the key to project or retract the lock finger 61 adapted for locking engagement with the keeper slot 62 in lock supporting bracket 55.

A coil spring 63 has one end connected with arm 48 and the opposite end connected to bracket 55 and normally actuates operating arm 44 toward lock supporting bracket 55 for moving lock bar 52, the lock barrel, and other connected parts to a position in which locking latches 25 will be moved to an inoperative or non-coacting position relative to latches 30 in order that the drawers 2 may be freely moved in and out of the cabinet. This position of operating arm 44, lock bar 52 and connected parts, is shown in Fig. 5, while the locking position of these parts is illustrated in Fig. 4. It will be noted that in the unlocked position of the parts, the end of lock barrel 56 projects outwardly beyond the front face of the cabinet so that when it is desired to move the parts into locking position, it is only necessary to press lock barrel 56 to the position shown in Fig. 4, where the locking stud 61 registers with keeper slot 62 into which it is projected by the mechanism within the barrel 56 in the usual and well known manner. The key operated mechanism within barrel 56 for projecting and retracting stud 61 is a structure now well known in the art, and for this reason it is not deemed necessary to illustrate it here to any greater extent.

When the parts are positioned as shown in Fig. 4, operating bar 24 is moved to its

limit position in a clockwise direction in slots 43 and 22 respectively. This provides for the movement of movable latch members 25 through opening 19 and guide slot 21 in which the free ends of latch members 25 are slidably guided to their operative or co-acting position as shown in Fig. 3, with latch members 30 on the drawers. The latch members 25 are retained by spring members 36 substantially at their limit of movement in a clockwise direction, as shown in Fig. 3, on bar 24, while stop projection 33 engaging the outer face of case slide 11 limits this movement. In case any of the drawers are in open position supported out of the cabinet, as above explained, and the lock barrel 56 has been moved to locking position so as to project movable latches 25 into operative or co-acting position, the closing movement of the drawers will cause latch members 30 to engage the cam surface 35 and move them relative to bar 24 against the tension of springs 36, thereby permitting the latch members 30 on the drawers to move past latch members 25 without injuring these parts, until the drawer is in the closed position, when the spring 36 will again project latches 35 into their operative position for coacting with latch members 30, as shown in Fig. 3, in which position they will retain the drawer in closed position. By retracting the stud 61 in the lock barrel through use of key 60, spring 63 will then move lock bar 52 and lock barrel 56 into the position of Fig. 5, which will operate bar 24 to its opposite limit of movement in slots 22 and 43 and will move latch members 25 outwardly and out of engagement with latch members 30 on the drawers so that the drawers may be moved into open and closed positions.

By forming the latch supporting projections 20 on the case slides for the drawer supporting and guiding mechanism, the use of independent brackets or other mounting means for the drawer locking mechanism is eliminated, and by forming the opening 23 in the bottom wall 4 of the cabinet and mounting the supporting bracket 40 at the upper end of the cabinet with slots 43 aligned with slots 22, it will be seen that latch members 25, operating bar 24, and operating arm 44, may be readily inserted into a completed cabinet structure and assembled by merely inserting the screw 49 in position. Then, the application of lock supporting bracket 55 to cross member 7 by securing it in position through the use of screws 57 or the like, will place the remaining portion of the lock mechanism in assembled relation on the cabinet in a most convenient manner. In this way, a cabinet may be constructed in completed form and sold with or without a lock mechanism according to the order of a customer, and should it be desired to subsequently equip the cabinet with lock mechanism, the same

can be easily applied, without the necessity of attaching any additional parts to the cabinet structure, in view of the fact that the supporting portions for the lock mechanism are all formed by parts of the cabinet structure, with the exception of bracket 40, and this bracket is placed in the cabinet when made and assembled.

The invention claimed is:

1. A locking mechanism for cabinets having a front wall formed with a drawer receiving opening, and drawer supporting and guiding means comprising case slides mounted in the cabinet and drawer slides movably supported thereon and attached to a drawer, coacting latch members for retaining the drawer in closed position mounted on said case slides and drawer slides operable to lock the drawer in closed position in the cabinet, one of said latch members being relatively movable to the other member, and cabinet-carried lock-controlled means operable in said case slides for actuating said movable latch member into and out of coacting relation with the other latch member.

2. A locking mechanism for cabinets having a front wall formed with a drawer receiving opening, side walls, and drawer supporting and guiding means comprising case slides mounted in said cabinet in spaced parallel relation to said side walls, drawer slides movably supported thereon and attached to and movably supporting a drawer in the cabinet through said drawer receiving opening, coacting latch member carried by said case slide and drawer slide respectively for retaining the drawer in closed position, one of said latch members being movable, and lock-controlled means in said cabinet between said case slides and side walls operable to actuate said movable latch member into coacting relation with the other latch member.

3. A locking mechanism for cabinets having a front wall formed with a drawer receiving opening and drawer supporting and guiding means comprising case slides mounted in the cabinet and supporting a drawer for movement into and out of the cabinet through said drawer receiving opening, a latch operating member rotatable in said case slides, a latch member movably supported on one of said case slides and mounted on said latch operating member, a latch member on the drawer coacting with said first mentioned latch member in one position thereof to retain said drawer in closed position, and lock controlled means for rotating said latch operating member to position the first mentioned latch member in coacting and non-coacting relation with the latch member on the drawer.

4. A locking mechanism for cabinets having a front wall formed with a drawer receiving opening and drawer supporting and guiding means comprising case slides mount-

ed in the cabinet and supporting a drawer for movement into and out of the cabinet through said drawer receiving opening, a latch operating member rotatable in said case slides, a latch member mounted on said operating member for limited rotating movement relative thereto and supported by one of said case slides, resilient means normally holding said latch member at one limit of movement on said operating member, a coacting latch member on the drawer cooperating with the first-mentioned latch member in one position to retain said drawer in closed position, and lock-controlled means for rotating said operating member to position said first-mentioned latch member in coacting and non-coacting relation relative to the latch member on said drawer.

5. A locking mechanism for cabinets having a front wall formed with a drawer receiving opening and drawer supporting and guiding means comprising case slides mounted in the cabinet and supporting a drawer for movement into and out of the cabinet through said drawer receiving opening, a latch operating bar, a projection formed on a case slide having an opening rotatably receiving said operating bar, a latch member movably supported on said projection having an opening receiving said operating bar for limited rotative movement, means formed in the case slide for guiding said latch member, a coacting latch member on the drawer, said latch members coacting in one position thereof to retain said drawer in closed position, resilient means for normally retaining said movable latch member at one limit of movement on said operating bar, and lock-controlled means for actuating said operating member to position said movable latch member in coacting and non-coacting relation with the other latch member.

6. A locking mechanism for cabinets having a front wall formed with a drawer receiving opening and drawer supporting and guiding means comprising sheet metal drawer supporting case slides mounted in the cabinet, a drawer having metal portions supporting it on the case slides for movement into and out of the cabinet through said drawer receiving opening, a pair of coacting latch members, one struck out from the metal portions on said drawer, and the other on a case slide, said case slide being formed to movably support and guide said other latch member, and lock-controlled means for actuating said other latch member into coacting and non-coacting positions relative to the latch member on said drawer, said latch members retaining said drawer in closed position when in engaged coacting relation.

7. The combination with a cabinet having a front wall formed with a drawer receiving opening, a bottom wall, drawer supporting and guiding means comprising case slides

mounted in the cabinet and supporting a drawer for movement into and out of the cabinet through said drawer receiving opening, a latch supported on one of said case slides, said support and bottom wall being formed with aligned openings, said front wall having an opening therein for receiving part of a lock mechanism, a latch member on said drawer, and supporting means in said cabinet for parts of a drawer locking mechanism, of an attachment for said cabinet forming a drawer locking mechanism, comprising a movable latch member mounted on said latch support for cooperating with said drawer carried latch in one position to retain said drawer in closed position, a latch operating member engaged in the opening in said latch support, engaging said movable latch member, and removable and insertable through the opening in said bottom wall, and lock-controlled actuating means for said operating member detachably carried by the supporting means in said cabinet having a part operable in the opening in said front wall to actuate said operating member to position said movable latch member in cooperating and non-cooperating positions relative to said drawer carried latch member.

8. The combination with a cabinet having a front wall formed with drawer receiving openings, a bottom wall, side walls, drawer supporting and guiding means comprising case slides mounted inside the cabinet in adjacent but spaced relation to said side walls, said case slides being arranged in pairs at opposite sides of the cabinet, each pair of case slides supporting a drawer for movement into and out of the cabinet through said drawer receiving openings, a plurality of supporting parts mounted in said cabinet between one side wall and the adjacent case slides, and having openings in aligned relation with each other and an opening in the bottom wall, the front wall having an opening for a lock-controlled member, and said drawers having latch members thereon, of attachments forming a locking mechanism capable of assembly in a completely finished cabinet comprising movable latch members adapted for support on said supporting parts, an operating bar insertable through the opening in said bottom wall and mounted in the aligned openings in said supporting parts in engagement with said movable latch members, and lock-controlled means having parts connected with said operating bar and a part projecting in said opening in the front wall, for actuating said operating bar to position said latches in coacting and non-coacting relation with the latch members on said drawers and for locking said drawers in closed position when said movable latch members are in engaged

cooperating relation with the latch members on said drawers.

9. The combination with a cabinet having a front wall formed with drawer receiving openings, a bottom wall, side walls, drawer supporting and guiding means comprising case slides mounted inside the cabinet in adjacent but spaced relation to said side walls, said case slides being arranged in pairs at opposite sides of the cabinet, each pair of case slides supporting a drawer for movement into and out of the cabinet through said drawer receiving openings, a plurality of supporting parts mounted in said cabinet between one side wall and the adjacent case slides, and having openings in aligned relation with each other and an opening in the bottom wall, the front wall having an opening for a lock-controlled member, and said drawers having latch members thereon, of attachments forming a locking mechanism for locking the drawers in closed position comprising parts insertable through the openings in said bottom and front walls and supported by said supporting parts, operable to actuate movable latch members mounted on said supporting parts to cooperate with the latch members on said drawers to releasably retain said drawers in closed position.

10. The combination with a file cabinet having side walls, a front wall provided with drawer receiving openings, and drawers supported in said cabinet for movement into and out of said cabinet through said drawer receiving openings, each drawer having a latch member; of a locking mechanism for said drawers in closed position comprising a latch operating bar at one side of said drawers, movable latch members slidable on said bar, means in the cabinet operably supporting said bar and said movable latches in position so that said movable latches will cooperate with the latch members on the drawers, an operating arm detachably mounted on one end of said bar, and a lock-controlled actuating member connecting with said arm and having a part projecting through and opening in the front wall of said cabinet operable to move said movable latch members through operation of said arm and bar, into and out of position for engaging the latch members on said drawers.

11. In a locking mechanism for cabinets a supporting member for a latch member comprising a case slide formed of a channel shaped member having a central portion provided with laterally extending flanges at opposite side edges, means formed at opposite ends of said central portion to receive connecting members for mounting said slide in a cabinet, and a lateral projection from an intermediate part of said central portion to provide a movable latch support, said central portion having an opening adjacent said lat-

eral projection to receive said movable latch member for guided operation therein.

12. In a locking mechanism for cabinets, a movable latch member comprising a sheet metal strip having one end terminating in a lateral extension having the end formed to provide a guide finger overlying the strip adjacent said extension in spaced parallel relation, an intermediate portion of said strip having a pivot receiving opening formed therein, and the opposite end of said strip having a latch projection extending beyond one edge.

13. In a locking mechanism for cabinets, a combined drawer and latch supporting member, comprising a channel-shaped case slide provided at opposite ends for attachment to a cabinet, the channel portion forming a support for movable drawer guiding and supporting means, and a projection provided on said case slide adjacent an opening formed therein intermediate the ends to provide a movable latch mounting and guiding means.

14. A drawer locking mechanism for cabinets comprising a case slide mounted in the cabinet formed to provide a drawer supporting and guiding portion, and having an opening formed therein, a latch support on said slide adjacent said opening projecting laterally therefrom, a movable latch member at one side of said latch support extending through and guided in said opening, having a guide finger at one end extending over the opposite side of said latch support, and a latch projection at the opposite end, and lock-controlled means for pivotally retaining said movable latch member on said latch support and moving said latch member into and out of position for latching cooperation with a part carried by a drawer supported in said case slide to retain the drawer in closed position in the cabinet.

15. In a filing cabinet having drawers slidable therein, means for slidably supporting the drawers, an oblong latch operating member extending adjacent a plurality of the drawers, means for mounting said member for rotative movement about its longitudinal axis, latching devices pivotally supported transversely of said member, means on the drawers cooperating with the latching devices to provide a latching connection, means for locking the latching member, and yieldable means connected to the latching devices and to said member for urging the latching devices toward the drawers to provide for closing and automatically locking an open drawer after the locking means has been locked.

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CERTIFICATE OF CORRECTION.

Patent No. 1,909,848.

May 16, 1933.

BENJAMIN G. RAND.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, line 33, claim 2, strike out the syllable "cabi-"; line 34, after "cabinet" insert the words "for movement into and out of said cabinet"; line 35, for "member" read "members", and line 42, before "relation" insert the words " and non-coacting"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of July, A. D. 1933.

M. J. Moore.

(Seal)

Acting Commissioner of Patents.