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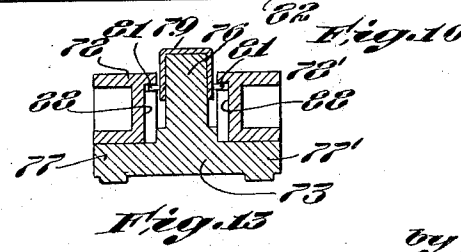
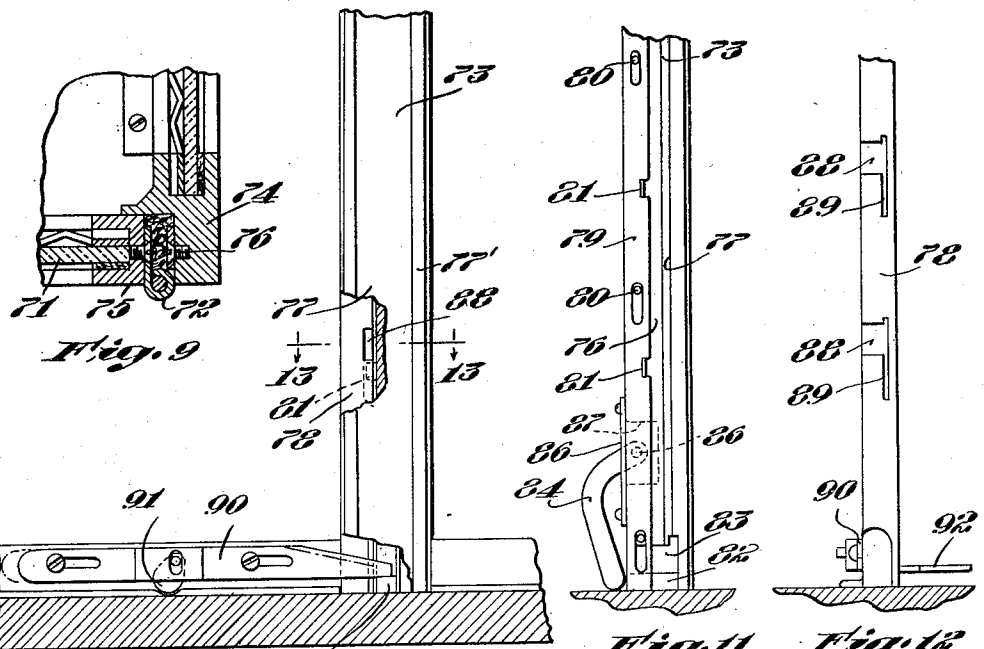
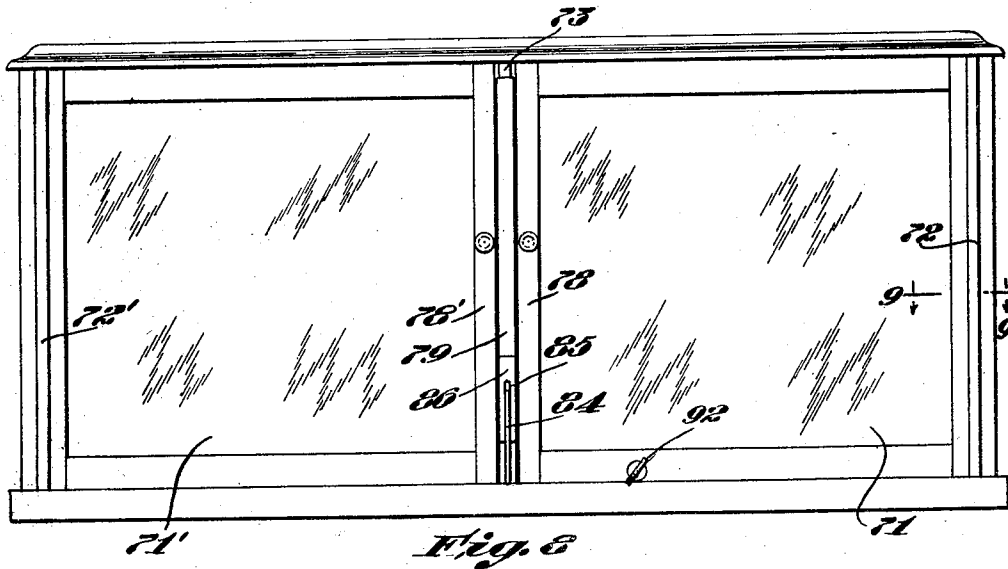
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LOCKING MECHANISM FOR CABINETS

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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LOCKING MECHANISM FOR CABINETS:

Application filed November 4, 1930. Serial No. 493,251.

This invention relates to cabinet construction, and pertains more particularly to mechanism for locking the doors or casements of show-cases or museum cabinets of the type disclosed in my copending application Serial No. 397,520, filed October 5, 1929.

In my said application, I have described a cabinet comprising vertical panels each having a relatively narrow metal frame composed of horizontal and vertical margin pieces, the vertical frame margins interfitting at the corners of the cabinet, and being provided with dust and vermin-proof packing, and one of the panels being suitably hinged to furnish a swinging casement or door closing against one of said vertical pieces. The panel frames receive the margins of glass panes or other transparent panel material, which affords a clear view of objects exhibited within the cabinet, and the erected cabinet is particularly attractive in appearance, as well as dust-proof and durable in use.

The principal purpose of the present invention is to provide improved means for locking the hinged door of the cabinet without necessitating extensive alteration of the frame members, and without impairing the dust-proof features or attractive appearance of the cabinet. Although the subject matter of the invention is peculiarly adapted to the cabinet construction shown in my prior application, it will be apparent that the improved locking mechanism may be advantageously employed in other types of cabinets; and that the structural details herein shown and described are intended to illustrate the general features of my invention, as defined in the appended claims.

The locking mechanism essentially comprises a locking member slidable longitudinally of one of the vertical frame margins which, for the present purpose, constitutes the door jamb of the cabinet; said member preferably having longitudinally spaced, outwardly projecting tongues engageable in complementary slots or recesses in the face of the upright door frame when the member is operated by a convenient lever; and an auxiliary locking element carried by a horizontal margin frame of the door and movable

longitudinally, preferably by a suitable key, to engage the vertically movable locking member and secure it in locking position.

Recommended embodiments of the invention are illustrated in the accompanying drawings, in which:

Fig. 1 is an elevation of a museum cabinet provided with a hinged door and equipped with the improved locking apparatus;

Fig. 2 is an enlarged section on line 2—2 of Fig. 1;

Fig. 3 is a fragmentary rear view of the door frame and jamb, the glass panes being omitted and portions of the elements being broken away to show the locking mechanism;

Fig. 4 is a side view of the lower portion of the door jamb;

Fig. 5 is a corresponding view of the end face of the door;

Fig. 6 is a fragmentary side view of the door jamb, partly in section, taken on the opposite side of Fig. 4 and to larger scale, illustrating the slidable locking member and its operating lever;

Fig. 7 is a face view of an optional form of locking plate attached to the outer surfaces of the jamb and door frame;

Fig. 8 is a view similar to Fig. 1, showing a pair of doors secured by a modified form of the improved locking mechanism;

Fig. 9 is an enlarged section on line 9—9 of Fig. 8, showing a door hinge which is also suitable for the door of Fig. 1;

Figs. 10, 11 and 12 are detail views of the modified structure and correspond to the showings of Figs. 3, 4 and 5; and

Fig. 13 is a section on line 13—13 of Fig. 10.

In the particular embodiment chosen for the purpose of illustration in Figs. 1 to 6, and as more fully described in my said copending application, the museum cabinet preferably comprises side panels having glass panes mounted in rectangular metal frames including vertical and horizontal margin pieces; the vertical or upright frame margins having complementary portions which interfit at two corners of the cabinet to provide a tight corner joint which preferably contains resilient packing material to prevent the entrance

of dust, vermin or moisture through the joint. As shown in Fig. 1, the panel on one side of the cabinet is hinged at 21 to one corner to form a swinging door 22 closing against the opposite corner upright; a panel or cover 23 encloses the top of the cabinet, and the bottom of the cabinet panels may be supported upon a suitable base 24.

Each corner joint preferably comprises a vertical margin piece 25 (Fig. 2) having a longitudinal channel 26 receiving the margin of the glass pane 27, a second channel 28 disposed parallel and opening at right angles to channel 26, and a flange 29 extending inwardly from the margin piece and providing a vertical abutment for a complementary margin piece or frame element. At the two permanent corner joints of the cabinet (not herein specifically illustrated, but shown in the drawings of said application), a complementary margin piece, generally similar to the door frame indicated at 30, has a tenon fitting in the channel 28 and a side abutting the flange 29. This tenon is omitted from the vertical margin pieces 30 and 30' of the hinged door; and in the prior construction the channel 28 of the door jamb was filled with packing material. As hereinafter explained, the channel 28 of the present embodiment is occupied by an element of the locking mechanism; and it will also be observed that the vertical margin pieces of the previous cabinet may easily be modified to permit the installation of the improved locking apparatus.

The horizontal margin pieces at the top and bottom of the fixed panels are secured between the interconnected vertical pieces, and may be of the type generally indicated at 31 of Fig. 2, each having a channel 32 for the glass pane and an inwardly directed bottom flange 33 which is attached to the base 24 (or the cover 23 as the case may be) by screws or other fastenings. The corresponding margin pieces of the door frame may be similarly constructed, as shown at 34 of Fig. 2, except that the flange 33 may be omitted. Packing material 35 may be inserted in the channels 32 at one side of the pane, and a corrugated spring 36 on the opposite side of the pane holds the glass tightly against the packing.

In accordance with the present invention, the channel 28 of the door jamb 25 receives an elongate locking member or bar 37 which is slidable longitudinally of the jamb and which may be retained in the channel by guide pins 38 extending transversely through slots or recesses 39 in the bar (Figs. 3 and 4). The bar 37 may extend approximately from top to bottom of the jamb 25, and preferably has a plurality of locking tongues 40 projecting from its outer face and adapted to engage the door frame at spaced vertical intervals, and hence secure the closed door tightly against the jamb. The bottom end of the

locking member 37 is provided with a transverse lug 41 which extends through an aperture 42 in flange 29 and has an outwardly bent end 43 engageable by an auxiliary locking plate carried by the door for releasably securing the bar 37 in locking position.

The bar is moved longitudinally of channel 28 by means of a handle or lever 44 extending through a slot 45 in the jamb and a cut-away recess 46 in the side of the bar 37, and pivoted to the jamb at 47 (Fig. 6). The opposite sides of the lever have cam surfaces engaging opposite, bevelled faces 48, 49 of the bar 37, so that the bar is smoothly and positively operated to release or lock the door when the lever 44 is lifted or depressed. In Figs. 4 and 6, the movable parts are shown in full lines to indicate locking position, and in broken lines to illustrate released position of the locking mechanism.

The end face of the door frame 30 (Fig. 5) has transverse recesses 50 for receiving the locking tongues 40 when the latter are in raised or unlocking position, as the door is closed against the flange 29 of the jamb. Said end face is also provided with longitudinal slots 51 in which the tongues 40 engage when the locking member 37 is moved downwardly to lock the door, the slots 51 extending downwardly from the recesses 50. The front face of the flange 29 preferably has a shallow channel containing a strip of packing 52 (Fig. 2) abutting the inner face of the door frame 30, and the door is effectively sealed against this dust-proof packing by reason of the multi-point lock afforded by the inter-engaged tongues 40 and slots 51.

When thus locked, the bottom lug 41 of bar 37 seats upon the cabinet base 24, and the flanged end 42 of the lug is engaged and secured by the forward flange 53 of a supplemental locking plate or bolt 54 slidably mounted on the bottom frame 34 of the door. The plate 54 may be connected to the inner face of said frame by screws 55 received in slots 56 of the plate; and is preferably operated by an eccentric 57 having a pin 58 engaging a recess or opening in the plate. The eccentric is attached to the rotatable hub 59 of a cylinder lock, which may be operated by a removable key 60. A casing 61 may be suitably secured over the slidable bolt 54 to protect the moving parts and improve the appearance of the door frame.

The tight seal effect by the locking member 37 is thus supplemented by the security of the bolt 54, so that the cabinet closure is substantially theft-proof as well as dust and vermin-proof. The operation of the locking mechanism will be apparent from the foregoing description, and it will be understood that a convenient handle 62 may be affixed to the door frame for opening and closing the door. The knob 62 may be mounted upon a saddle 63 which embraces the door frame

30 and the jamb 25, thereby restraining transverse separation of these vertical pieces. This type of saddle may also be advantageously employed, as shown at 64 of Fig. 7, in association with a screw 65 threading through the saddle and into the jamb, to furnish a simple form of lock for the cabinet; and the saddle may be used for this purpose alone or in association with the locking mechanism above described.

In the modification shown in Figs. 8 to 13, the improved locking mechanism is adapted for a cabinet having a pair of doors 71, 71' swinging towards each other on hinges 72, 72' against a center upright or door jamb 73. Except for the modified construction of the jamb and the locking member associated therewith, the cabinet may be composed of panels having horizontal and vertical frame elements of the general character shown in Figs. 1 to 6. A suitable type of door hinge (which may also be utilized for the door of Fig. 1) is illustrated in Fig. 9 and consists of a piano hinge 72' received within a recess in the corner upright 74 (corresponding to the vertical margin pieces 25 of Fig. 1) and having its leaves fastened to said upright and to the inner frame margin 75 of the door. Packing 76 may be interposed between the hinge leaves, if desired.

The door jamb 73 is substantially T-shaped in cross-section and comprises an outwardly projecting center rib 76 and side flanges 77, 77' against which the outer frames 78, 78' respectively seat when the doors are closed. An elongate sleeve 79 of U-shaped cross-section is slidably mounted upon the rib 76, as by guide pins 80, and its opposite sides are provided with struck out locking tongues 81, corresponding in operation and purpose to the tongues 40 of the previous example. Similarly the bottom of the sleeve or locking member 79 has a rearwardly directed lug 82 entering a recess 83 in the jamb and adapted to be engaged by an auxiliary locking plate or bolt on one of the doors.

Locking member 79 is moved upwardly and downwardly on the door jamb by a lever 84 entering a slot 85 of a plate 86 fastened to the slide 79, and pivoted at 86 in a recess 87 of the rib 76. As the lever is swung upwardly, it engages the plate 86 and carries the locking member 79 in the same direction; and depression of the lever lowers said member to locking position, the lug 82 then resting upon the cabinet base.

The end face of door frame 78 (Fig. 12) has recesses 88 receiving the tongues 81, and slots 89 extending downwardly therefrom in which the tongues engage when the slide is moved to locking position, in the same manner as previously described. Similarly, the lower frame of one of the doors is provided with a slidable bolt 90 having a reduced forward end which enters the jamb

recess 83 and engages over the base lug 82 of the locking member 79 (Fig. 10); thereby securing said member against accidental release. The plate or bolt 90 is moved longitudinally by an eccentric 91 operated by a key 92. It will be observed that the locking member 79 secures both of the cabinet doors, and that a single auxiliary locking bolt carried by either one of the doors suffices to hold said member in locking position.

From the foregoing it will be apparent that I have devised simple and easily operated locking mechanism which is particularly adapted for the type of cabinet herein described, yet which may readily be installed in cabinets of different construction to provide a secure and efficient lock which engages the door frame at spaced intervals, thereby tightly sealing the door against the door jamb, and which is preferably associated with auxiliary locking means carried by the door and engaging the primary locking member to prevent its release. The several advantages of the improved locking arrangement have been pointed out herein and the particular features of my invention are defined in the following claims, it being understood that the structural details above described may be varied to suit particular purposes without departing from the essence of this invention.

I claim:

1. In a cabinet having a pivoted door closing against a stationary door jamb, locking mechanism for securing the closed door comprising a locking member slidable longitudinally of the door jamb and having a plurality of longitudinally spaced, transversely projecting tongues, the outer surface of said member being substantially flush with the face of the jamb and the end face of the door frame having complementary transverse recesses adapted to receive said tongues when said member is unlocked and longitudinal slots communicating with said recesses and adapted to be engaged by said tongues when the member is moved to locking position, and means for moving said member to effect and release said engagement.

2. In a cabinet having a hinged door closing against a stationary door jamb, locking mechanism for securing the closed door, comprising a locking member mounted for longitudinal sliding movement on the door jamb and having a plurality of locking tongues spaced longitudinally with respect to the jamb and projecting toward the end face of the door frame, said end face having complementary recesses receiving said tongues in locking engagement, said locking member extending approximately to one end of the jamb and having an inwardly projecting lug at its said end, and an auxiliary locking element slidable horizontally of the door frame

and engaging said lug to hold said member in locking position.

3. In a cabinet having a hinged door closing against a stationary door jamb, locking mechanism for securing the closed door, comprising a locking member mounted for longitudinal sliding movement on the door jamb and having a plurality of locking tongues spaced longitudinally with respect to the jamb and projecting toward the end face of the door frame, said end face having complementary recesses receiving said tongues in locking engagement, said locking member extending approximately to one end of the jamb and having an inwardly projecting lug at its said end, an auxiliary locking element slidable horizontally of the door frame and engaging said lug to hold said member in locking position, a lever pivoted to the door jamb for operating the locking member, and an eccentric mounted on the door frame for sliding said auxiliary locking element.

4. In a cabinet having a hinged door closing against a stationary door jamb, locking mechanism for securing the closed door, comprising a locking member slidable longitudinally of the door jamb and having a projecting tongue intermediate its end face and a lug adjacent one of its ends, the end face of the door having a recess receiving said tongue in locking engagement, means for sliding said member to effect said engagement, and an auxiliary locking bolt slidably mounted on the door frame and engageable with said lug to hold said tongue in locking position.

5. In a cabinet having a hinged door closing against a stationary door jamb, locking mechanism for securing the closed door, comprising a locking member slidable longitudinally of the door jamb and having a projecting tongue intermediate its ends and a lug adjacent one of its ends, the end face of the door having a recess receiving said tongue in locking engagement, means for sliding said member to effect said engagement, an auxiliary locking bolt slidable horizontally of the door frame and engageable with said lug to hold said tongue in locking position, an eccentric for sliding the bolt in opposite direction, and a key-operated lock for rotating the eccentric.

6. In a cabinet having panels provided with marginal frames, one of the panels being hinged to provide a door closing against a door jamb formed by the vertical frame of an adjacent panel, and said jamb having a longitudinal channel therein, locking mechanism for securing the closed door, comprising a locking bar fitting said channel and slidable longitudinally therein, said bar having its outer face substantially flush with the face of the jamb and having a locking tongue projecting outwardly therefrom, the end face of the vertical frame of the door having an edge recess adapted to receive said

tongue and having a slot for holding the tongue in locking engagement, and a lever for operating the said bar to effect said engagement.

7. In a cabinet having panels provided with marginal frames, one of the panels being hinged to provide a door closing against a door jamb formed by the vertical frame of an adjacent panel, and said jamb having a longitudinal channel therein, locking mechanism for securing the closed door, comprising a locking member slidable longitudinally within said channel and having a locking tongue projecting outwardly therefrom, the end face of the vertical frame of the door having a recess adapted to receive said tongue in locking engagement, a lever for operating said member to effect said engagement, and auxiliary locking means mounted upon the inner side of a horizontal frame of the door and comprising a bolt movable longitudinally of said frame and adapted to engage said member to hold the tongue in locking position.

8. In a cabinet having panels provided with marginal frames, two of the panels being hinged to provide doors closing against a common door jamb, the jamb having a vertically extending rib, locking mechanism for securing the closed doors, comprising a locking member slidable longitudinally upon said rib and having locking tongues on its opposite sides, the end faces of the respective doors having complementary recesses receiving said tongues in locking engagement, and auxiliary locking means carried by one of said doors and adapted to engage said member to hold the tongues in locking position.

Signed by me at Iliion, New York, this 31st day of October, 1930.

WILLIAM R. RIX. 105

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