April 14, 1931. C. P. SCHWARZ 1,800,847

FURNITURE

Filed Aug. 31, 1927

Fig. 2.

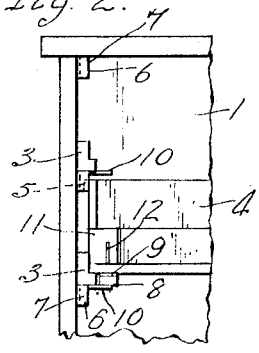
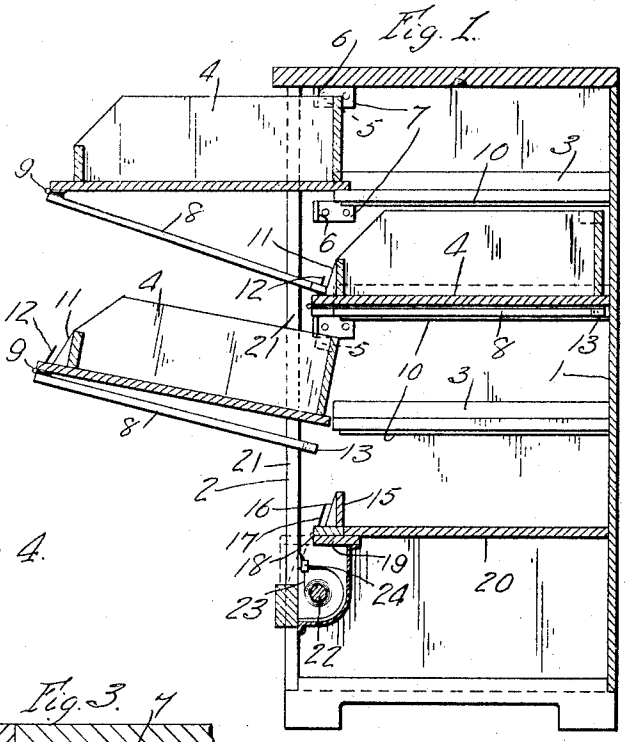


Fig. 1.



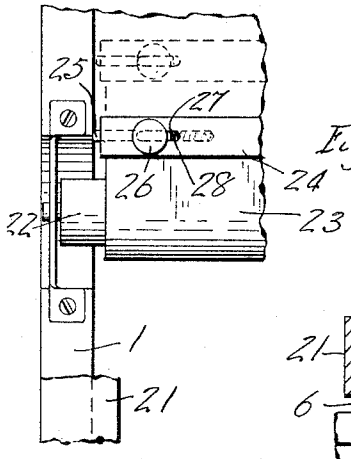
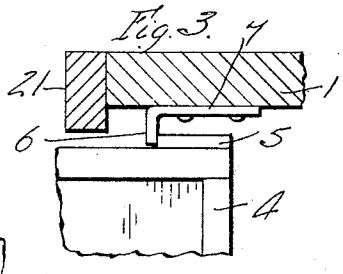


Fig. 4.

Fig. 3.



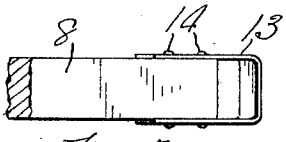


Fig. 5.

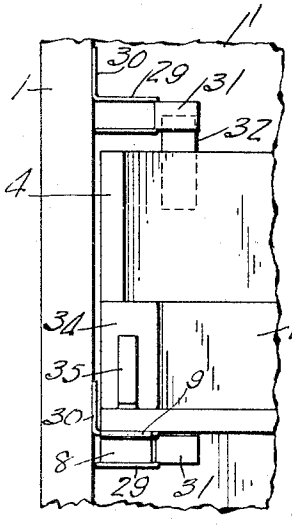


Fig. 6.

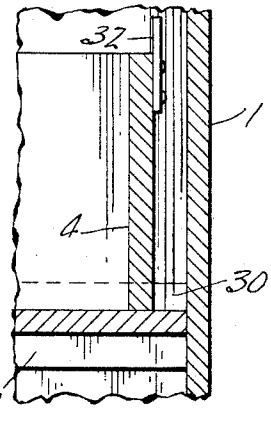


Fig. 7.

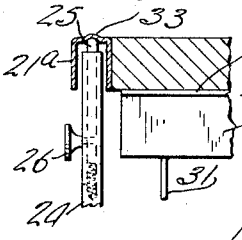


Fig. 8.

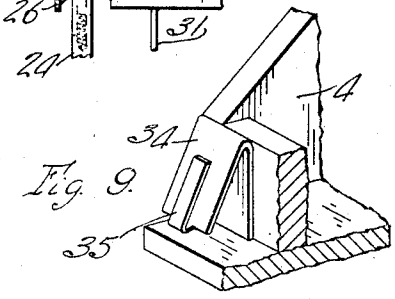


Fig. 9.

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UNITED STATES PATENT OFFICE

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FURNITURE

Application filed August 31, 1927. Serial No. 216,621.

This invention relates to cabinets, and particularly to the type having one or more drawers. When an ordinary drawer is pulled outwardly to the maximum extent, it is supported only at the rear end by the cabinet or guides and consequently tends to sag downwardly at its forward end. To avoid such sagging, the drawers are rarely pulled outwardly to the extent otherwise possible and consequently access to the rear portion of the drawer is often inconvenient or difficult.

An object of the invention is to generally improve cabinets of the types having drawers.

Another object of the invention is to provide an improved cabinet in which the drawers may be pulled outwardly to a maximum possible extent without their complete disengagement, so as to make access to the rear portion of each drawer as convenient as possible; and with which a drawer pulled out to the maximum extent will be firmly supported at its forward end against downward sagging.

Another object of the invention is to provide an improved cabinet with which the drawers may be pulled outwardly to a maximum limited extent without leaving the guides upon which they are supported; with which each drawer may be easily disengaged from the cabinet while it is at its outer limit of movement on said guides; and with which the forward end of each drawer will be firmly held against unintentional vertical movement while the drawer is in its drawn out position.

A further object of the invention is to provide an improved cabinet for accomplishing each or any of the above objects; with which the cabinet and drawers will have a maximum storage space; with which access to all parts of the cabinets and drawers will be convenient; which may be made light in weight and attractive in appearance; and which will be relatively simple and inexpensive.

A further object of the invention is to provide an improved cabinet with which any drawer when pulled outwardly to its full extent, will not drop out and will be rigidy supported while in that position; and with which the contents of the drawers will be conveniently accessible to a maximum extent.

In the accompanying drawings:

Fig. 1 is a sectional elevation of a cabinet constructed in accordance with this invention;

Fig. 2 is a front elevation of a portion of the same;

Fig. 3 is a sectional plan of a portion of the same;

Fig. 4 is a front, sectional elevation of another part of the same;

Fig. 5 is a plan of the free end of one of the props or stilts;

Fig. 6 is a front elevation of a portion of a cabinet also constructed in accordance with the invention, but illustrating a modification thereof;

Fig. 7 is a transverse, sectional elevation of a portion of the rear part of the cabinet shown in Fig. 6;

Fig. 8 is a sectional plan of a portion of the cabinet of Figs. 6 and 7; and

Fig. 9 is a fragmentary, perspective of a portion of one of the drawers of the same.

In the embodiment of the invention illustrated in Figs. 1 to 5 the cabinet comprises a suitable casing 1 having an open front or side 2 and any suitable tops, sides and base. Guides or track bars 3 are secured to the inner face of the sides of the casing at suitable vertical points therein, so as to slidably support a plurality of drawers 4 arranged in superposed relation to one another. These drawers are thus guided inwardly and outwardly through the open side or front 2 of the casing. Stop blocks 5 (Fig. 3) which may be carried by one or both sides of each drawer at the top and rear thereof are engageable with angular ends 6 of stop members 7 which are provided within the casing adjacent the open side or front 2 thereof, so as to limit the outward movement of each drawer. These stop members 7 are located to stop the drawers just before they leave the guides or track bars 3, the angular end 6 of each stop member 7 being approximately parallel to the plane of the open front or side 2. Each drawer may, if desired, be completely disengaged from stop members

7 for complete removal from the casing, by tilting upwardly the forward end of the drawer, after it has been drawn outwardly to the maximum extent, sufficiently to disengage the lower part of the drawer from the track bars or guides 3 and then lowering the drawer. Each drawer may be inserted into the casing by movements the reverse of those just described for its removal.

One or more props or stilts 8 are articulately connected, such as by hinges 9, to the forward end of each drawer in such a manner that the props or stilts may be swung upwardly against, or in close proximity to, the under faces of the drawers. A guide plate or ledge 10 may extend from each guide or track bar 3 for receiving and supporting in sliding movemet the free end of each prop or stilt 3. Each ledge or plate 10 holds its corresponding prop or stilt 8 in proximity to the lower face of its related drawer during the inward and outward travel of that drawer, but its forward end terminates at a point such that the free end of the prop is released and drops off when that drawer approaches its outward limit of movement as determined by its stop block 5 and the stop element 7. The free end of each prop or stilt 8 falls by gravity when so released by its guiding ledge or plate 10, and in falling assumes an acute angular position with respect to the bottom of its drawer. Each drawer below the uppermost one may have, at its forward end, an abutment and guiding surface 11 located within the path of the free end of a prop or stilt connected to the drawer next above, for guiding the free end of that prop or stilt 8 downwardly into engagement with a pin or post 12 also carried by the same drawer forwardly of and in spaced relation to the inclined abutment or guiding surface 11. The free end of each prop or stilt 8 may be provided with a loop 13 which fits over and engages the pin 12 of the drawer next below. This loop 13 may be conveniently provided by telescoping the arms of a U-shaped strip of metal over the sides of the free end of a prop, with the cross portion of the U slightly spaced from the actual free end of the prop or stilt arm, and forming an extension thereof, as shown clearly in Fig. 5. This U-shaped strip of metal may be secured to the prop arm in any suitable manner, such as by rivets 14.

When the free end of a prop or stilt 8 falls and the loop 13 thereof engages over its related pin 12, the pin and adjacent guide surface 11 will prevent endwise movement of that prop or stilt in both directions. Accordingly, the prop or stilt 8 will prevent downward sagging of the forward end of the drawer to which it is attached, and also will prevent any upward movement of the forward end of the drawer that might disengage the drawer from the casing, as previously herein explained. For the lowermost drawer, the cabinet is provided, at a forward point thereof and below the lowermost drawer, with one or more blocks or members 15 each having an inclined guiding surface 16 similar to the guide surfaces 11 of the drawers above. Each block or member 15 carries an upward projecting pin 17 similar to the pins 12 and approximately parallel to and spaced from the guide surface 16. The props or stilts 8 of the lowermost drawer will be guided by the surface 16 over the pins 17 to support and anchor the forward end of the lowermost drawer when it is pulled outwardly the same as for the upper drawers.

The block or member 15 may be connected by a hinge 18 to a cross bar 19 of the casing, so that it may be swung outwardly and downwardly into the position shown in dash lines in Fig. 1 temporarily, in order to make the interior chamber or space beneath the lowermost drawer more easily accessible. While a single prop for each drawer might be sufficient to support the forward end, preferably two props for each drawer, one at each side are employed. The block or member 15 may be continuous across the cabinet, but preferably two such blocks or members, if two props are attached to the lowermost drawer, are provided and disposed at each side of the cabinet. A shelf 20 may, if desired, be disposed in the casing and supported at its forward end upon the cross bar 19.

A strip 21, Figs. 3 and 4, of suitable material may be secured to the forward face of the casing at each side of the opening 2, so as to extend from top to bottom and project slightly laterally into the opening 2 of the casing through which the drawers move. The strips 21, however, do not obstruct the travel of the drawers, as will be obvious from Fig. 3. A spring tension roller 22 is mounted in the lower part of the casing, and a flexible curtain 23 is connected at one end to this roller, so as to be automatically wound upon the roller when the roller is free to rotate. Such a curtain may be formed of any suitable flexible sheet material, but I have found that textile fabrics are very satisfactory for this purpose, as they are relatively inexpensive, will exclude dust, are flexible and may bear various artistic designs which improves the appearance of the cabinet. The other end of this flexible curtain is connected to a binding bar 24 which extends across the side opening 2, through which the drawers move, when pulled outwardly, this bar and the curtain at each side edge extending behind the projecting portions of the strips 21, see particularly Fig. 4.

This binding bar 24 may carry any suitable device for holding it in different adjusted positions along its travel across the casing opening, such securing devices being very common, as, for example, on the curtains of railway coaches. As a simple expedient for

holding the binding bar in adjusted position, sliding bolts 25 may be disposed in the ends of the binding bar for movement endwise therein and provided with operating buttons 26 which extend through slots 27 in the front face of the bar, so that the bolts 25 may be moved endwise by the operating buttons 26. Suitable springs 28 may be disposed within the binding bar, so as to be compressed by the inner ends of the bolts 25 and therefore the bolts will be yieldingly pressed outwardly by the springs to frictionally engage the sides of the cabinet and hold the curtain in adjusted position. The curtain may be easily released and moved to a new position by either sliding the bar against the frictional resistance between the bolts 25 and the casing sides, or by moving the buttons 26 inwardly or toward one another to release the friction. If desired, the inner faces of the sides of the casing at the portion over which the bolts 25 travel may be provided with successively spaced indentations or depressions into which the bolts may snap to effectively hold the binding bar in adjusted position.

Figs. 6 and 7 illustrate a construction similar to that described in connection with Figs. 1 to 5, with the exception that the guides or track bars 29, similar to the guides or bars 3, are formed of sheet metal strips bent longitudinally into the form of a U-shaped channel opening toward the side wall of the casing to which it is secured, and having an angular edge 30 extending as a flange from the free end of one of the arms of the U. This flange 30 fits against and is secured to the adjacent side wall of the casing, and the upper surface of the adjacent arm of the U serves as a track upon which the adjacent side of the drawer is slidingly supported. The space between the two arms of the U forms a track or guide for receiving and guiding the free end of the prop or stilt of the drawer which is supported upon that same guide or track bar.

The cross bar of the U at the forward end of the guide or track bar 29 is cut or slit for a short distance from the forward end to form a tongue 31 (see also Fig. 8) which is bent outwardly at right angles to the longitudinal axis of the guide or track bar 29, and forms a drawer stop taking the place of the stop 6 of Figs. 1 to 4. This stop 31 cooperates with a stop block 32 similar to the block 5, which is provided upon the rear end of the next lower drawer. Such a sheet metal guide or track bar is light, durable and easily formed of sheet metal, and also is easily attached to the casing.

Referring now particularly to Fig. 8, a channel strip 21*a* may be substituted for each strip 21 of Figs. 1 to 4, and in such a case, the channel strips are attached to the casing by securing one of the arms of the channel to the front edge of a side wall of the casing, with the two channels on opposite sides of the main opening 2 facing one another. The side edges of the flexible curtain 23 and the binding bar 24 extend into the open channels, and the cross bar or base portion of each channel may have slight indentations 33 formed therein to provide cavities into which the ends of the bolts 25 may snap in order to hold the closure more effectively in adjusted positions.

Referring now to Fig. 9, the forward end of each drawer 4, instead of having the inclined guide surface 11 and the pin 12, may be provided with an inverted V-shaped piece 34 of suitable material, such as sheet metal, one arm of the V being secured to the front end wall of the drawer at one side of the drawer. The other or free arm of the V serves as an inclined guiding and abutment surface, against which the free end of a prop or stilt 8 may fall, as previously described. A tongue 35 may extend upwardly and backwardly from the free edge of the forward or inclined arm of the V in somewhat spaced relation thereto, so as to provide a pin corresponding to the pins 12 and 17 of Fig. 1 for receiving the loop 13 of a prop or stilt.

The use of a cabinet such as herein described and illustrated is believed to be obvious but may be briefly stated as follows: To open a drawer, the curtain is first lowered to expose the drawer and the drawer pulled forwardly until stopped. As the drawer approaches or reaches its forward limit of movement, the props or stilts 8 carried thereby will fall and engage pins 12, 17 or 35 at points below it, and in that relation of the parts, the props or stilts 8 will prevent sagging and upward vertical movements of the forward end of the drawer. To push the drawer inwardly, the props or stilts are first released from the pins, swung upwardly and the drawer then pushed inwardly.

If a drawer is to be completely removed from the cabinet, it is first pulled outwardly to the full extent, its props or stilts 8 disengaged from the pins or holding means 12, 17 or 35 with which they normally engage, and the forward end of the drawer then tilted upwardly, as shown in the third drawer from the top in Fig. 1. This causes the disengagement of the drawers from the guides upon which the drawers have been supported, and thereupon the drawer may be dropped at the rear end to disengage it from the means by which its outward movement was previously stopped. The drawer may be reinserted in the cabinet by procedure reverse to that just described. The props or stilts 8 do not obstruct access in any way to the drawer which has been pulled outwardly, and by being able to pull the drawers outwardly to a greater extent than heretofore, one may more easily have access to the rear portion of the drawer.

It will be obvious that various changes in the details which have been herein described and illustrated in order to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims.

I claim as my invention:

1. A cabinet comprising a casing having drawer openings and guides, drawers slidable in and out on said guides and through said openings, means for limiting the normal outward movement of said drawers, and means attached to the forward end portion of each drawer and interlocking automatically, when that drawer is pulled outwardly, with the next lower drawer at a point within the limits of the cabinet to prevent sagging of the forward end of that pulled drawer.

2. A cabinet comprising a casing having a drawer opening and guides, a drawer slidable on said guides into and out of said casing through said opening, the upper rear portion of said drawer and the forward portion of said cabinet having cooperating stop portions for limiting the outward movement of said drawer just before the drawer leaves the guides, but permitting removal of the drawer by upward tilting of the forward end of the drawer while said stop portions are engaged, a prop hinged to the forward end of said drawer, extending rearwardly therefrom and confined by said guides in close proximity to the lower part of said drawer during the outward movement of said drawer, said prop being released by said guides at approximately the limit of outward movement of said drawer as determined by said stop portions, and means disposed in said cabinet beneath said drawer for engagement with the free end of said prop as the latter falls after release by said guide to hold said prop against movement in both endwise directions caused by upward and downward tilting of the forward end of said drawer, whereby when said drawer is pulled outwardly, its forward end will be held against downward sagging, and also held against upward tilting which would tend to release it from said stops and guides for complete removal from the cabinet.

3. A cabinet comprising a casing having a drawer opening and guides, a drawer slidable on said guides into and out of said casing through said opening, the upper rear portion of said drawer and the forward portion of said cabinet having cooperating stop portions for limiting the outward movement of said drawer just before the drawer leaves the guides, but permitting removal of the drawer by upward tilting of the forward end of the drawer while said stop portions are engaged, a prop hinged to the forward end of said drawer, extending rearwardly therefrom and confined by said guides in close proximity to the lower part of said drawer during the outward movement of said drawer, said prop being released by said guides at approximately the limit of outward movement of said drawer as determined by said stop portions, the free end of said prop and said cabinet having cooperating pin and aperture means mutually engageable by the falling of the prop when released by said guides, for resisting moving forces acting endwise of said prop, whereby the forward end of said drawer when pulled outwardly will be propped against downward sagging and also against upward tilting movement sufficient to disengage the drawer from both the guides and cabinet stop portions.

4. A cabinet comprising a casing having a drawer opening and guides, a drawer slidable on said guides into and out of said casing through said opening, the upper rear portion of said drawer and the forward portion of said cabinet having cooperating stop portions for limiting the outward movement of said drawer just before the drawer leaves the guides, but permitting removal of the drawer by upward tilting of the forward end of the drawer while said stop portions are engaged, a prop hinged to the forward end of said drawer, extending rearwardly therefrom and confined by said guides in close proximity to the lower part of said drawer during the outward movement of said drawer, said prop being released by said guides at approximately the limit of outward movement of said drawer as determined by said stop portions, the free end of said prop having a loop, said cabinet having, at a point below the free end of said prop when the drawer is at its forward limit of movement, an inclined abutment and guide surface extending approximately tangent to the arc of movement of said loop, and also having a pin parallel to, and spaced forwardly of, said surface over which said loop falls, whereby when the loop is guided over said pin by said surface, said pin and surface will prevent material endwise movements of the prop and thereby prevent downward sagging of the forward end of said drawer and also upward tilting of the forward end of the drawer sufficient to disengage the drawer from the guides and cabinet stop portions.

5. A cabinet comprising a casing having an open face and guides extending inwardly from said open face, a plurality of drawers mounted on said guides, one above another, for movement into and out of said cabinet through said open face, said cabinet and rear portion of each drawer having cooperating means for limiting normally the outward movement of said drawer but permitting complete removal of that drawer from said guides by the upward tilting of the forward ends of said drawer while at its outer limit of movement on said guides, a prop hinged to

the forward portion of each drawer in a manner to permit downward movement of the free end of the prop, said guides having portions cooperating with said props to normally hold them in their upper positions adjacent their related drawers until the drawers have reached approximately their outer limit of movement, each drawer below the top drawer having at its forward end guiding and holding means, into engagement with which the free end of a prop falls when an upper drawer is at its outer limit of movement for preventing vertical movements of the front end of the upper drawer, said cabinet having below the lowermost drawer guiding and holding means into engagement with which the free end of the prop of the lowermost drawer falls when that lowermost drawer is pulled outwardly as far as permitted by said cooperating means, said guiding and holding means of the cabinet preventing endwise movements of the prop of the lowermost drawer.

6. A cabinet comprising a casing having an open face and guides extending inwardly from said open face, a plurality of drawers mounted on said guides, one above another, for movement into and out of said cabinet through said open face, said cabinet and rear portion of each drawer having cooperating means for limiting normally the outward movement of said drawer but permitting complete removal of that drawer from said guides by the upward tilting of the forward ends of said drawer while at its outer limit of movement on said guides, a prop hinged to the forward portion of each drawer in a manner to permit downward movement of the free end of the prop, said guides having portions cooperating with said props to normally hold them in their upper positions adjacent their related drawers until the drawers have reached approximately their outer limit of movement, each drawer below the top drawer having at its forward end guiding and holding means, into engagement with which the free end of a prop falls when an upper drawer is at its outer limit of movement, said guiding and holding means preventing endwise movements of the prop in both directions for preventing downward sagging of the forward end of said upper drawer and also upward tilting of the forward end of said upper drawer in a manner which if not prevented would cause its disengagement of that upper drawer, said cabinet having below the lowermost drawer guiding and holding means into engagement with which the free end of the prop of the lowermost drawer falls when that lowermost drawer is pulled outwardly as far as permitted by said cooperating means, said guiding and holding means of the cabinet preventing endwise movements of the prop of the lowermost drawer to prevent thereby vertical movements of the forward end of that drawer, said guiding and holding means of the cabinet being disposed interiorly thereof, and being movable into a position to facilitate access to the chamber of the cabinet in which it is mounted when access to that chamber is desired.

7. A cabinet comprising a casing having a side opening and drawer guides of sheet metal secured to the casing at the sides of the opening, a drawer slidable on said guides into and out of said casing through said opening, one of said guides having a portion thereof turned back beneath the surface supporting the drawer, to form a track open at the end adjacent said side opening, a prop articulately connected to the forward portion of the drawer and adapted to swing up adjacent a side edge thereof and enter said track when said drawer is in its outer position, said prop sliding endwise along and being supported by said track when the drawer is pushed rearwardly with the free end of the prop inserted in said track, said track terminating at its forward end at a point which will release the prop and permit it to fall when the drawer reaches its outer position, and means into engagement with which the free end of the prop moves for holding the prop and thereby preventing sagging of the forward end of the drawer when in its outer position.

8. A cabinet comprising a casing having a side opening and drawer guides of sheet metal secured to the casing at the sides of the opening, a drawer slidable on said guides into and out of said casing through said opening, one of said guides having a portion thereof turned back beneath the surface supporting the drawer, to form a track open at the end adjacent said side opening, a prop articulately connected to the forward portion of the drawer and adapted to swing up adjacent a side edge thereof and enter said track when said drawer is in its outer position, said prop sliding endwise along and being supported by said track when the drawer is pushed rearwardly with the free end of the prop inserted in said track, said track terminating at its forward end at a point which will release the prop and permit it to fall when the drawer reaches its outer position, and means into engagement with which the free end of the prop moves for holding the prop and thereby preventing sagging of the forward end of the drawer when in its outer position, one of said guides having a tongue struck therefrom adjacent its forward end for engagement by the drawer, when the drawer is pulled outwardly, to limit the outward movement of said drawer materially beyond a point at which the free end of the prop will be released from said track.

9. A cabinet comprising a casing having a drawer opening and drawer guides extending into said casing from said opening, a drawer slidable in and out of said casing through

said opening and on said guides, a prop hinged to the forward end portion of said drawer and extending rearwardly therefrom, means for receiving the free end of said prop when the latter is brought into a position approximately parallel with the guides, and permitting inward and outward movement of the prop with the drawer, and means cooperating with the free end of the prop automatically when the latter is released and falls as the drawer is pulled outwardly approximately its full extent, for preventing all vertical movements of the forward end of the drawer.

10. A cabinet comprising a casing having a drawer opening and drawer guides extending into said casing from said opening, a drawer slidable in and out of said casing through said opening and on said guides, a prop hinged to the forward end portion of said drawer and extending rearwardly therefrom, means for receiving the free end of said prop when the latter is brought into a position approximately parallel with the guides, and permitting inward and outward movement of the prop with the drawer, and an inverted V-shaped element of sheet metal disposed below said drawer, with one of the sides of the V inclined downwardly and outwardly to receive and guide the free end of said prop as the latter falls when released by its guide, said last mentioned wall of said element having a tongue extending upwardly from its lower edge and approximately parallel to and spaced from said wall, to interlock with the free end of said prop and prevent vertical movements of the forward end of said drawer.

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