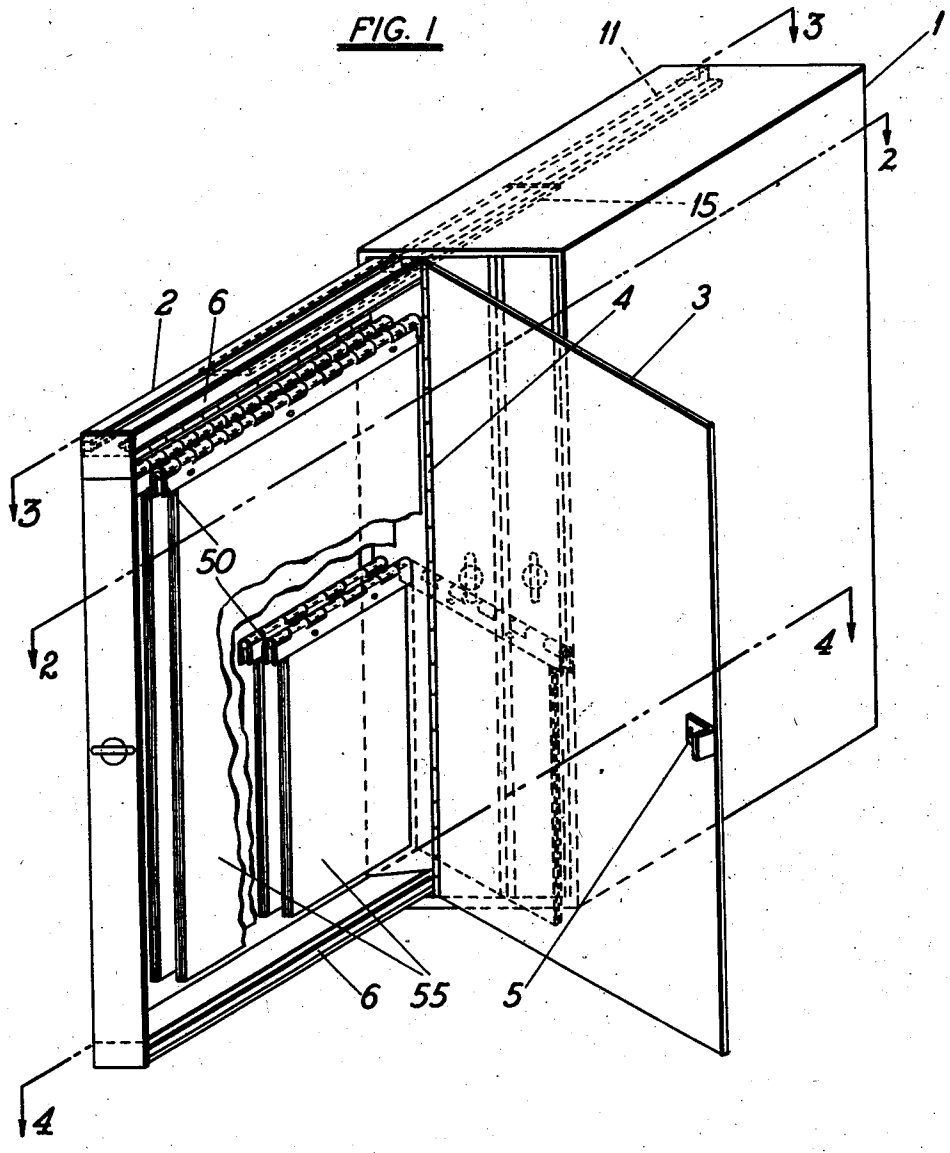
March 6, 1945. C. Z. HUBBELL 2,370,664

FILING CABINET

Filed Sept. 4, 1940 4 Sheets-Sheet 1

FIG. 1



CLARENCE Z. HUBBELL
INVENTOR

BY Philip S Hopkins
ATTORNEYS

March 6, 1945. C. Z. HUBBELL 2,370,664

FILING CABINET

Filed Sept. 4, 1940 4 Sheets-Sheet 2

FIG. 2

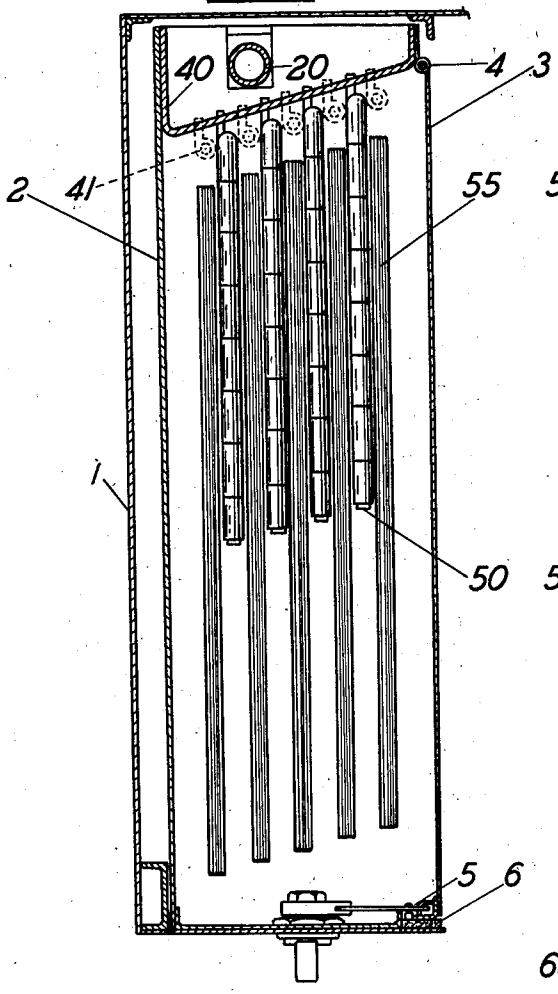
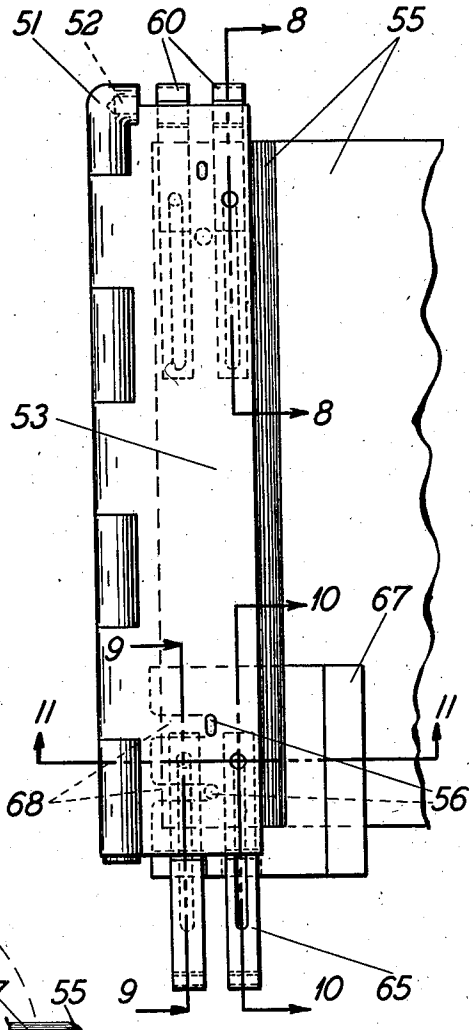


FIG. 7



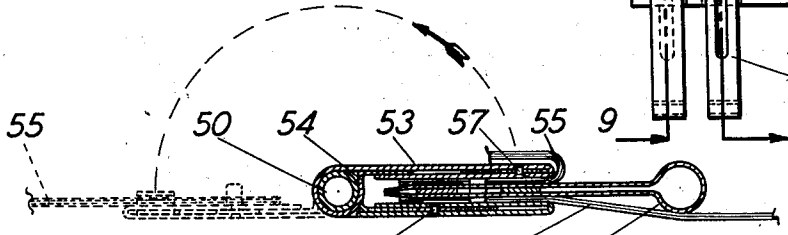


FIG. 11

CLARENCE Z. HUBBELL
INVENTOR

BY Philip S. Hopkins
ATTORNEYS

March 6, 1945. C. Z. HUBBELL 2,370,664

FILING CABINET

Filed Sept. 4, 1940 4 Sheets-Sheet 3

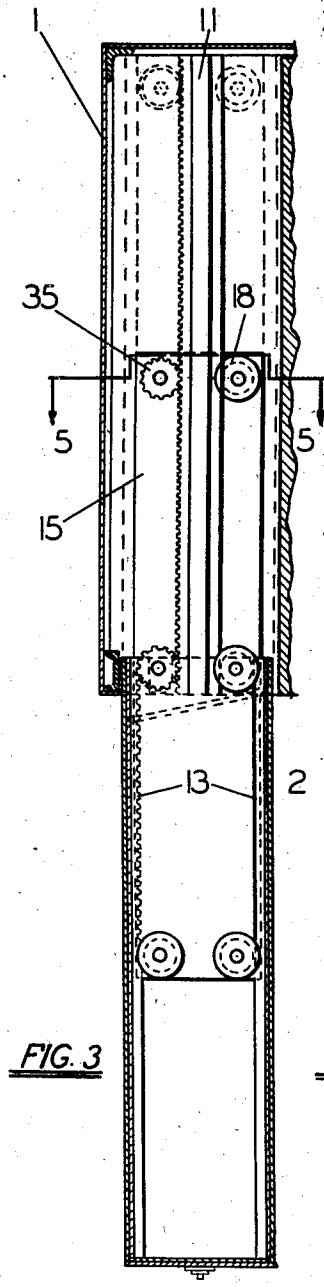


FIG. 3

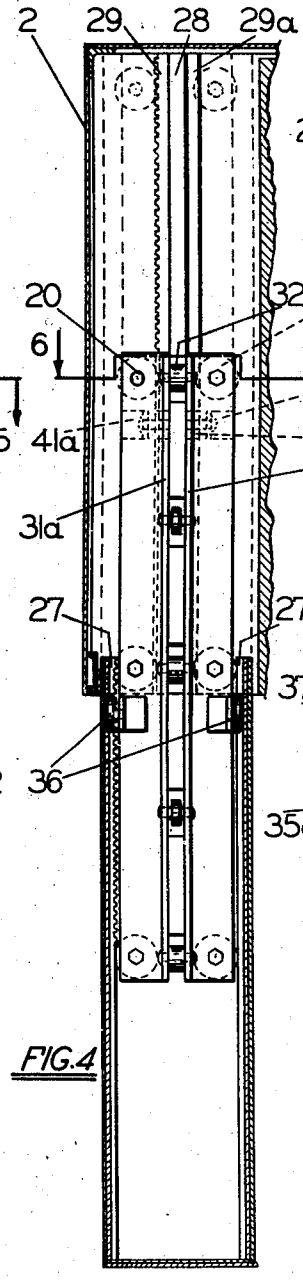


FIG. 4

FIG. 5

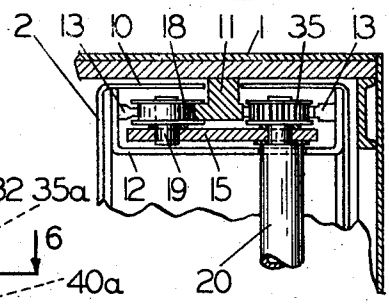
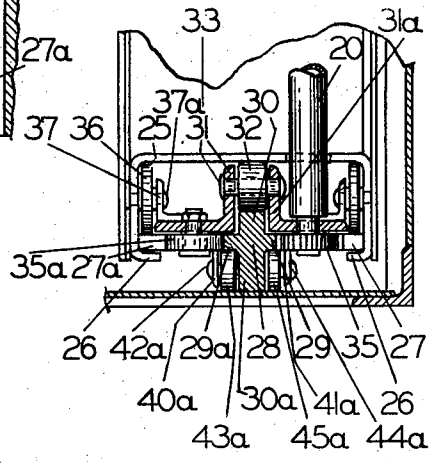


FIG. 6



CLARENCE Z. HUBBELL
INVENTOR

BY Philip S. Hopkins
ATTORNEYS

March 6, 1945. C. Z. HUBBELL 2,370,664

FILING CABINET

Filed Sept. 4, 1940 4 Sheets-Sheet 4

FIG. 12

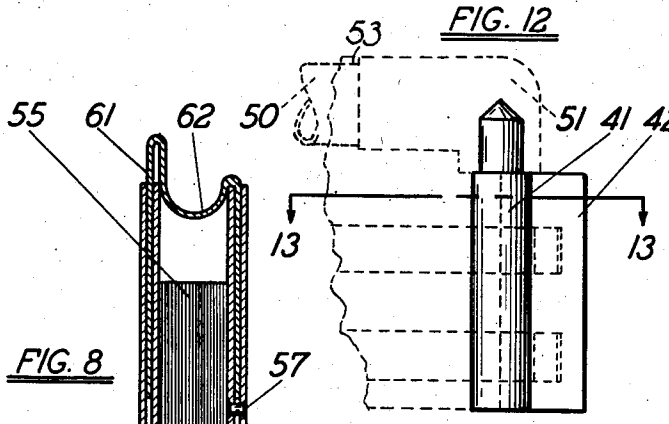


FIG. 13

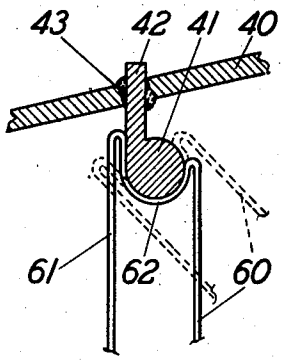
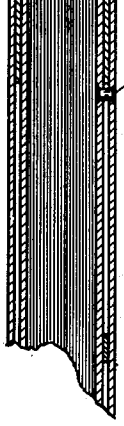


FIG. 8



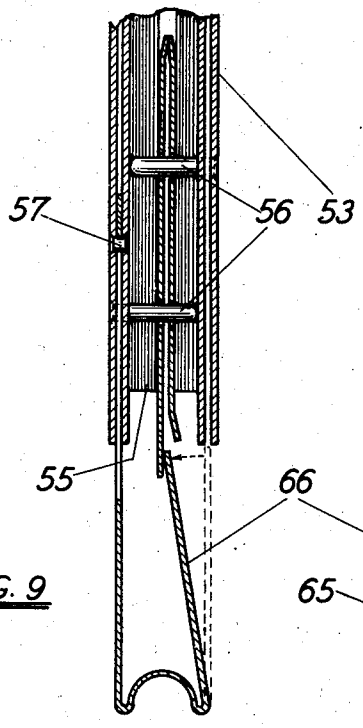


FIG. 9

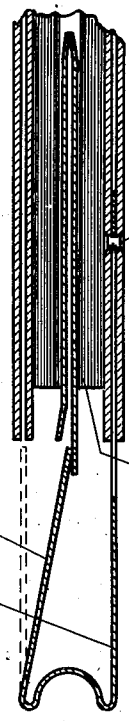


FIG. 10

CLARENCE Z. HUBBELL
INVENTOR

BY Philip S Hopkins
ATTORNEYS

Patented Mar. 6, 1945 2,370,664

UNITED STATES PATENT OFFICE

2,370,664

FILING CABINET

Clarence Z. Hubbell, Johnson City, N. Y.

Application September 4, 1940, Serial No. 355,336

1 Claim. (Cl. 45—2)

This invention relates to filing cabinets and more particularly to vertical filing cabinets having a plurality of slidable dustproof drawers in which are hung a series of horizontal hangers for supporting large drawings, tracings, maps and other sheet material in a flat, undamaged condition.

An object of the invention is to provide a cabinet of this character which will support a large number of sizable drawings and tracings in such a manner that any one sheet may be quickly and readily removed from its hanger without disturbing the remainder of the drawings in the file.

A further object of the invention is the provision of means for pivotally supporting the series of horizontal hangers in such a manner that when one of the vertical drawers is extended, the hangers may be spread apart in a fan-like manner to permit easy access to any drawing or tracing within the compartment.

A still further object is the provision of rack and pinion mechanism and guide and weight bearing rollers so arranged at the top and bottom of the slidable vertical drawers that the drawers may be easily, quietly and rapidly moved back and forth between their closed and extended positions without tilting or binding and will be firmly supported in their fully extended position for the removal of the desired data.

Another important object of the invention resides in the provision of the hereindescribed novel construction and operation of the drawing hangers which permit a large number of sheets to be properly filed in a comparatively small space and yet allow any individual hanger to be opened at the desired point for the removal of a selected sheet, while securely retaining all of the other sheets in proper position within the opened hanger.

In the drawings,

Fig. 1 is a perspective view of a filing cabinet unit with one vertical drawer extended and in partially open position;

Fig. 2 is a horizontal cross-section taken on the plane of line 2—2 of Fig. 1, but showing the drawer in a closed and locked position;

Fig. 3 is a top plan view partly in cross-section of one of the vertical drawers, its rack and pinion mechanism taken on line 3—3 of Fig. 1;

Fig. 4 is a top plan view of the bottom guide structure and supporting mechanism taken on the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary cross-sectional view taken on line 5—5 of Fig. 3 showing the top guide mechanism;

Fig. 6 is a fragmentary vertical section taken on line 6—6 of Fig. 4 showing the bottom supporting rack with its meshing pinion and the guide and weight bearing rollers;

Fig. 7 is an enlarged view showing the details of construction of one of the hangers with its sheet selector, sheet holding springs and cover clamp springs;

Fig. 8 is a fragmentary cross-section of the sheet holder taken on line 8—8 of Fig. 7;

Fig. 9 is a fragmentary horizontal cross-section taken on line 9—9 of Fig. 7 showing the operation of the holding springs and selector;

Fig. 10 is also a fragmentary horizontal cross-section showing the second holding spring and taken on line 10—10 of Fig. 7;

Fig. 11 is a vertical cross-section of the hanger and sheet holder taken on line 11—11 of Fig. 7 and showing the position of the sheet selector and holding springs;

Fig. 12 is an enlarged view of one of the hanger pivot pins with a portion of the hanger and cover springs shown in dotted lines; and

Fig. 13 is a fragmentary horizontal cross-section through one of the hanger pivot pins and its support with one of the cover springs shown in two relative positions.

Essentially, the present invention comprises a metal casing 1 of any suitable size for the reception of one or more vertical slidably mounted drawers 2. These drawers may be constructed of sheet metal of a suitable gauge and are preferably narrow in width as compared to their vertical dimension. The file drawers 2 are formed by a plurality of sheets welded around their peripheries to one side wall with the opposite side wall or door 3 hinged at one rear edge 4 and provided with a lock 5 at the free end thereof. To insure that each of the drawers will be dustproof, it is preferable to insert a yieldable sealing strip 6 around the edges thereof in such a manner that when the doors 3 are closed and locked the file is completely sealed.

Each of the vertical drawers is supported at its top and bottom within the casing 1 by means of anti-friction sliding supports, guides, pinions and racks which insure the easy and rapid reciprocation of the drawers within the casing. This mechanism also insures the free movement of the drawers from closed to open position without any lateral or vertical play or binding and further effects the proper support of the drawers in all positions. The manner of accomplishing this is disclosed in detail in Figs. 3 to 6, inclusive and will be hereinafter more fully described.

With particular reference to Fig. 5 of the drawings, the upper edge of the fixed side wall of the drawer 2 and the extreme rear edge of the pivoted side or door extends upwardly and inwardly as indicated by the numeral 10 with the edges of the inturned portions terminating adjacent a T-shaped guide and rack bar 11 which is suitably secured to the underside of the top of the file casing 1 and extends centrally and longitudinally thereof. A U-shaped channel member 12 is affixed between the side walls of the drawer with inwardly projecting rack and guide portions 13 secured to the inside side walls thereof in the plane with and spaced from the corresponding members 11. A horizontal plate or slide 15 is normally positioned near the bottom of the channel 12 and carried partially by a plurality of longitudinally spaced horizontal rollers 18 rotatably mounted on vertical pins 19 secured to the plate 15, and partially by corresponding geared rollers 35 similarly secured to the plate, the rollers 18 and 35 being provided with flanges to retain them in engagement with said guide and rack tracks respectively. The rear-most roller of the series of geared rollers 35 is fixed upon the reduced end of a vertical shaft 20 which extends downwardly and is connected to the bottom supporting and driving mechanism as will be hereinafter described.

The bottom of the vertical drawer is formed by a depending U-shaped plate 25 having its lower edges 26 inturned to support a horizontal, inwardly extending rack track 27 and a spaced guide track 27*a*.

Centrally arranged at the bottom of the drawer is a longitudinally extending guide member 28 having a horizontally extending rack portion 29, an oppositely extending plain guide surface 29*a*, an upwardly extending guide track 30, and a downwardly extending supporting surface 30*a*. Angle irons 31 and 31*a* are positioned in spaced relation on either side of the guide member 28 and slightly above the plane of the rack and guide surfaces 29 and 29*a*, their upwardly extending portions being connected by a bearing pin 33 which, in turn, carries a series of longitudinally spaced weight bearing rollers 32 adapted to ride upon the upper guide track 30. Attached to each of the oppositely extending horizontal sides of the angle irons 31 and 31*a* are upstanding brackets 37, each of which carries a bearing pin 37*a* and upon which, in turn, are mounted a series of rollers 36. The rollers 36 are adapted to ride upon the upper surfaces of tracks 27 and 27*a* and to bear upon the underside 25 of the drawer bottom, the parts being so arranged that these rollers assist in both carrying the weight of the drawer and in preventing it from tilting either upwardly or downwardly.

The horizontal lateral portion of the angle iron 31*a* is provided with a series of longitudinally spaced horizontal geared rollers 35, one of which is fixed to the vertical shaft 20, and all of which mesh with the spaced rack tracks 27 and 29. The horizontal lateral portion of the angle iron 31 is provided with a corresponding series of longitudinally spaced horizontal plain guide rollers 35*a* adapted to roll between the guide tracks 27*a* and 29*a*. Spaced depending brackets 40*a* and 41*a* attached to angle irons 31 and 31*a*, respectively are provided with bearing pins 42*a* and 44*a* which carry a plurality of pairs of laterally spaced weight bearing rollers 43*a* and 45*a* which are adapted to ride along the underside of the guides 29 and 29*a* to aid further in preventing the drawer from tipping upwardly at any time.

It will thus be noted that by the careful arrangement of tracks, guides and rollers as above set forth, the drawers may be easily moved to open or closed position without tilting, twisting, or binding at any time. It should also be pointed out that inasmuch as the geared rollers 35, one at the top and one at the bottom of each of the drawers, are fixed to the opposite ends of the vertical connecting shaft 20, both the upper and lower portions of the drawers must move together and in synchronism, thus further preventing any possibility of binding.

As shown in Figs. 5 and 6, the plate 12 and angle irons 31 and 31*a* respectively, overlie and underlie the drawer when it is in its fully retracted position and as the drawer is rolled toward its open or extended position, both the top and bottom slides move outwardly about half their length where their motion is arrested and the drawer is in fully extended position so that the pivoted door 3 may be swung open to expose the interior thereof.

The back of each drawer is formed by a vertically extending channel member 40 which may be welded to the side wall of the drawer and positioned at an angle to rather than parallel to the front wall and extending from the pivot 4 of the door 3 toward the opposite wall of the drawer. Each of these back walls 40 is suitably perforated as at 43 for the reception of a plurality of vertical pivots 41 having laterally extending vertical arms 42 welded in the openings 43. Additional pivots may, if desired, be alternately spaced between the upper pivots at any desired height, such as shown in Fig. 1, to accommodate drawings of smaller size and to further take advantage of all the available space in the drawers.

Referring now to Figs. 7 and 11 which show the sheet hangers in more detail, it is preferable to support each hanger on a tube 50 or a rod having an end 51 formed with a vertical socket 52 therein for the reception of a vertical pivot pin 41. A pair of depending cover members 53 are hinged upon the horizontal tube 50 with the free ends of the cover members folded back upon themselves in spaced relation and terminating on either side of alternating angle members 54. This construction permits one side of the pivoted cover to be opened or raised, as shown in dotted lines in Fig. 11.

Numeral 55 denotes the tracings or drawings held between a pair of covers on pairs of pins 56 that are positioned on alternating covers adjacent the front and rear edges thereof. These pins are rigidly fixed to their respective covers and extend through suitable perforations in the tracings or drawings to the opposite cover so that normally each sheet is hung on at least four sturdy pins. As before stated, the side covers 53 are formed of two thicknesses slightly spaced from one another with this distance maintained by rivets 57. The object of this spacing is, first, for the reception of a pair of spaced apart spring clips 60 whose spaced arms 61 are inserted between the walls of the side covers at the rear edges thereof, forming a yieldable lock. Between the arms 61, the spring clips are formed with a curved bearing surface 62 which rides against the lower portion of the vertical pivot pins 41. At the front edges of each hanger a pair of somewhat similar spring clips 65 are inserted between the side walls of the covers to normally hold them flat against the sheets 55.

Thus, as clearly illustrated in Fig. 1 of the drawings, any selected drawer within the cabinet 1 may be pulled out to its fully extended position whereupon the pivoted side wall 3 may be opened, exposing the entire interior of the drawer. The several pivoted hangers 50 within the drawer may then be swung open in a fan-like manner to permit easy access to and inspection of the drawer contents. Information may be taken from the drawings as thus displayed or any particular hanger 50 may be readily removed from its pivot pin 41 by simply lifting the hanger which may then be laid upon a convenient flat surface and any selected drawing may be more easily inspected.

Where it is desired to remove a selected sheet from the sheath contained within any particular hanger, a selector 67 may be employed to assist in the ready removal of the desired sheet. The selector 67 may comprise a pair of slightly spaced flat parallel surfaces formed by a folded sheet of resilient material and provided with vertical slots 68 therein so that it may be inserted between the sheets and will slide beyond the supporting pins 56. After the selector 67 has been properly inserted, the front spring clips 65 are to be pulled outwardly until the short arms 66 thereof leave contact with the side of the binder and contact the overhanging lip of the selector, whereupon the spring clips are again pushed inwardly riding upon the surface of the selector. The rear spring clips may be similarly pulled out and reinserted to unlock the sides of the binder, whereupon the binder may be opened and the desired sheet removed from the pins 56. Accordingly, it will be seen that any selected sheet may be quickly and easily removed from any selected hanger or binder and the remaining sheets will be firmly and securely held in place until the single sheet has been replaced and the binder again locked and positioned upon its hanger.

It will be obvious that many modifications in construction, design and operation may be made without departing from the spirit or scope of this invention as defined by the appended claim.

What is claimed and desired to be secured by Letters Patent is:

In combination with a filing cabinet, a sliding file drawer, said drawer being completely walled, one of said walls being a pivotally mounted side wall to provide a closure for said drawer, the rear wall of said drawer being angularly disposed with respect to the front wall and tapering from one side wall toward the pivotal mounting of the other side wall, upper and lower sets of removable sheet supporting hanger racks pivotally connected to said rear wall, said rear wall being provided with pivot supports for each set of said racks with each set lying in a horizontal plane whereby, when pivoted thereon, the free ends of said hanger racks will project one beyond the other within said drawer, the racks in said upper and said lower sets being equally spaced one from the other, the pivots of the lower set of racks being disposed in vertical planes intermediate the pivots of the upper set of racks, the said upper racks being of equal length and the racks of the said lower set being substantially shorter than the racks of the upper set but of equal length with respect to each other, whereby sheet material on said upper racks may overlap sheet material on said lower racks.

CLARENCE Z. HUBBELL.