Oct. 24, 1939. J. MANDEL 2,176,913

STORAGE CABINET

Filed April 14, 1938 2 Sheets-Sheet 1

Fig. 1.

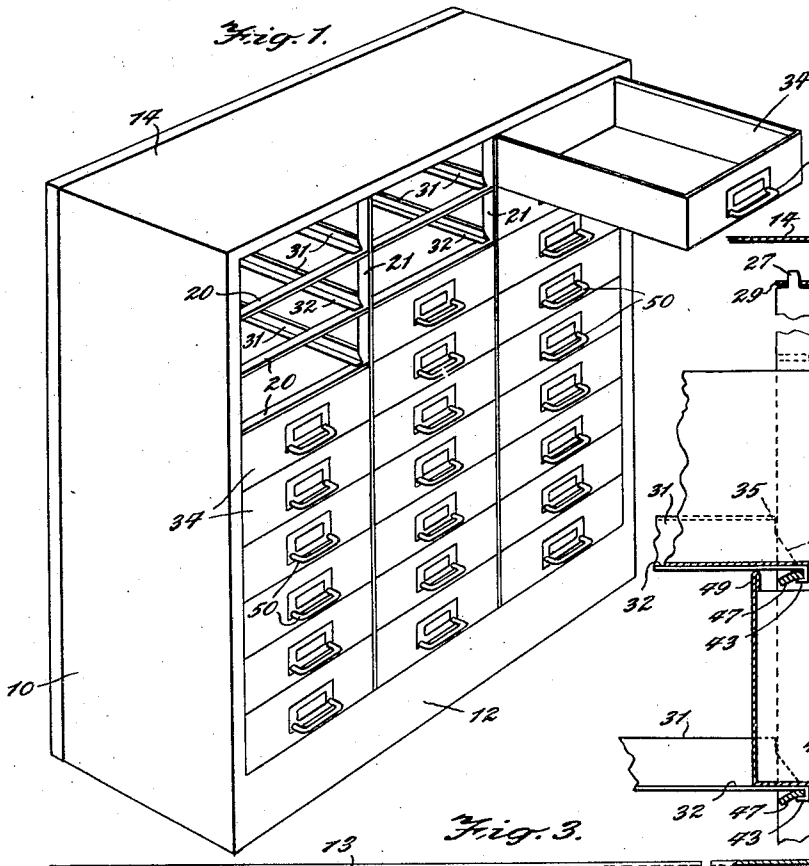
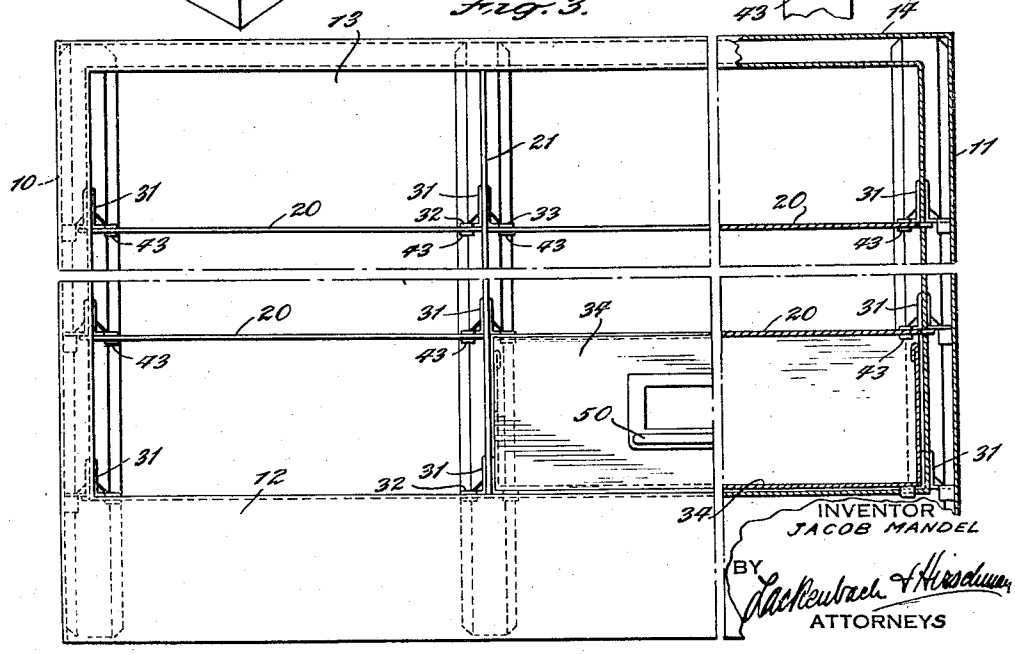


Fig. 2.

Fig. 3.



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Filed April 14, 1938 2 Sheets-Sheet 2

Fig. 4.

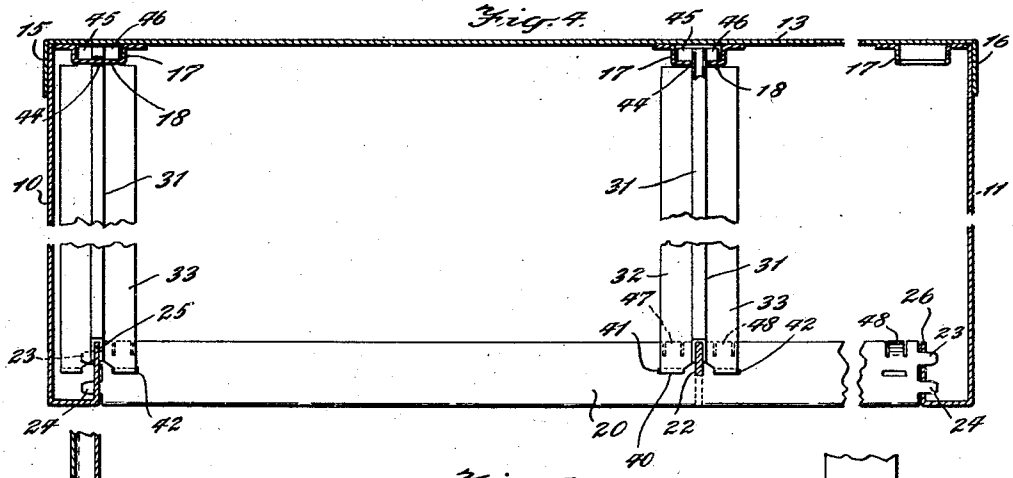


Fig. 5.

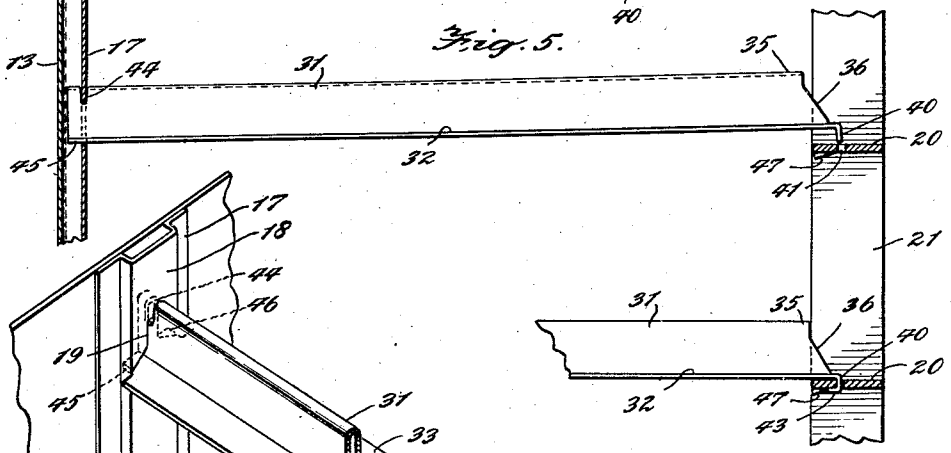


Fig. 6.

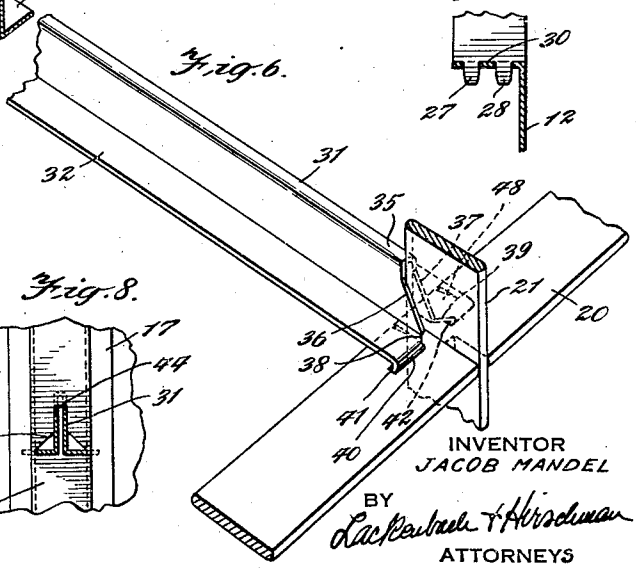


Fig. 7.

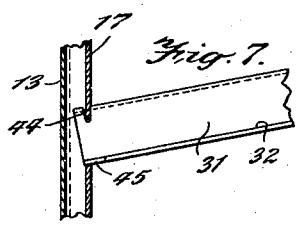


Fig. 8.

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STORAGE CABINET

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Application April 14, 1938, Serial No. 201,891

8 Claims. (Cl. 312—141)

The invention relates to storage cabinets usually constructed of sheet metal and adapted to be readily assembled as a permanent fixture in an office to constitute a cabinet having a plurality of drawers for receiving letters, files, etc. in readily available classified form and grouping.

In its broadest aspects, my novel structure of storage cabinet is of the type usually constructed with a sheet metal frame designed to accommodate any number of drawers made of sheet metal, the drawers being positioned within the frame in tiers disposed vertically within the frame, any number of such tiers of drawers being capable of assembly in a single cabinet frame. In prior structures of this general type, the component parts of the frame for accommodating the plurality of drawers and the track members or runners upon which the drawers are slidably movable, and which constitute part of the complete frame structure, usually have been assembled by spot welding, a procedure which is expensive and time consuming.

In accordance with my invention, I provide such a cabinet structure which is economical in cost of manufacture and which has substantial strength and rigidity and yet is one which can be easily assembled from its component parts.

A primary object of my invention is to provide a storage cabinet in which improvements in the construction of the various parts forming the frame structure, the drawer supporting members, and the various connecting elements, are such as to appreciably reduce the cost of fabricating such parts and to facilitate and thereby greatly reduce the cost of assembling the various elements in the erection of the storage cabinet.

Among the further objects of the invention are the provision of a frame structure for supporting a plurality of drawers, such frame structure being constituted of a rear panel, two sides and a top and bottom, the assembling of the frame structure for supporting a plurality of drawers in the cabinet thus formed being effected by specific interlocking means eliminating the use of spot welding in the assembling of such parts and yet providing a final cabinet structure of substantial strength, rigidity and neat appearance.

Other and more specific objects and advantages of my novel construction of storage cabinet will appear to those skilled in the art from a description of a specific embodiment of my invention selected for illustration and description and in conjunction with which the various novel features in the fabricated parts and their assembly into a unitary structure by novel means, will be pointed out.

Such particular embodiment of my invention, selected for illustration, is shown in the accompanying drawings, in which Fig. 1 is a perspective view of a storage cabinet constructed and assembled in accordance with my invention, showing a complement of drawers included in three tiers provided in the cabinet, one drawer being shown in withdrawn position in such figure; Fig. 2 is a section through the front portion of the storage cabinet showing certain details in the assembly of the front frame and with a portion of a drawer in closed position within the cabinet and a portion of another drawer in its substantially fully withdrawn position; Fig. 3 is a broken vertical section through the cabinet looking towards the rear panel of the structure; Fig. 4 is a horizontal section through the cabinet showing the manner of securement of the front supporting strips to the side members of the cabinet and the assembly of the tracks for supporting the drawers in sliding position between the front and rear panels; Fig. 5 is a partial vertical section showing the manner in which the drawer track members are secured to the back panel and to the front frame member of the storage cabinet; Fig. 6 is a perspective view of the drawer track member or supporting element, showing the manner of its attachment to the rear panel of the cabinet and to the front frame thereof; Fig. 7 is a detailed sectional view showing the mode of securement of the rear end of the track member to the rear panel of the cabinet; and Fig. 8 is a detail, partially in section, showing the rear end portion of the track member locked in the rear panel of the cabinet.

The particular embodiment of my inventive structure shown in the drawings, is constituted of a sheet metal frame designed to accommodate a plurality of drawers about 9" x 12", and about 3" high, the drawers being positioned within the frame structure in tiers of nine, three tiers being illustrated in the particular embodiment described. As will appear from the description hereinafter, any number of such drawers and any size thereof and any division into vertical tiers may be used in any particular structure of storage cabinet constructed and assembled in accordance with my invention.

Referring now more particularly to the drawings, in which similar reference characters identify similar parts in the several views, my improved construction of storage cabinet is constituted of sheet metal side members 10 and 11

joined together at the front by a base 12, and at the rear by a back panel 13. These side members, base plate and back panel may be formed as shown in Fig. 1 integrally with a top panel 14. Preferably, however, for facilitating the fabrication of these elements for the storage cabinet, they may be separately formed and joined together by rivets, spot welding or otherwise, in which case the panels are preferably formed with right angled extremities, for instance, as shown in Fig. 4, with respect to the angles 15 and 16 of the back panel 13.

Upon the inner face of the rear or back panel 13, at intervals substantially equal to the width of a drawer for which the storage cabinet is designed, and running substantially throughout the length, vertically, of such rear panel, are secured by spot welding, a plurality of plates 17 which have the central portions thereof 18 of a width slightly less than the width of the drawer tracks to be hereinafter described, depressed forwardly as shown clearly in Figs. 4 and 6, so that there remains a space between the depressed forward surface of such plate and the rear panel 13 of the cabinet. Along the length of such depressed faces of the plates 18, at intervals substantially equal to the depth of a drawer for which the cabinet has been designed, are provided openings 19 of substantially inverted T-shape with the horizontal portions of the opening being preferably of the tapering form shown in Fig. 6 for facilitating the entrance into the opening, of the rear end of the drawer supporting track members. The manner of securement of such track members by their rear ends to the back panel of the storage cabinet will be described in detail hereinafter.

The frame structure for supporting the drawers is constituted of a series of horizontal metal strips 20 and a series of vertical metal strips 21, the former, at their points of juncture with the latter, being recessed as at 22 substantially half their width, the vertical strips being correspondingly recessed to accommodate the remaining portion of the cooperating horizontal strip, i. e. that portion thereof which constitutes the material in line with the recess 22. In this manner the juncture of the two horizontal and vertical strips is accomplished by means of a halving joint, i. e. one in which the recesses or notches are lapped, the strips being thus locked together.

Each of the horizontal strips 20 is provided at its extreme ends with a pair of projections 23, 24, which are adapted to enter into pairs of apertures provided at appropriately placed intervals throughout the height of the inwardly turned flanges 25 and 26 of the side members 10 and 11 of the cabinet. The vertical strips 21 have their upper and lower extremities similarly provided with projections 27 and 28 which are adapted to be received within apertures in the inwardly turned extremity 29 of the top plate 14 and the inwardly turned extremity 30 of the base plate 12. Thus, the metal strips 20 and 21, joined together at their points of juncture so as to form rectangular recesses for the entrance of the drawers between such strips, constitute a rigid front frame structure extending throughout the front face of the assembled cabinet.

Referring now particularly to Fig. 6, at each point of juncture of the strips 20 and 21, there is supported upon the horizontal strip 20 a horizontal runner generally designated as 31. Such runner is formed of a blank of sheet metal bent so as to have an upwardly extending folded over body portion, the edges of the blank extending laterally from such body portion and constituting tracks 32 and 33 for the drawer 34. As clearly shown in Fig. 6, the front portion of the body of the runner is cut away so as to form an abutment 35 for the vertical strip 21, the body of the runner being chamfered at 36 and 37 to accommodate the rear portion of the vertical strip 21 between the folded parts of the runner body. For facilitating the entry of the rear portion of the strip 21 into the space formed by the folded over body of the runner, the tracks 32 and 33 are also partly cut away at 38 and 39. The ends of the tracks 32 and 33, in the fabrication of the runner, are bent downwardly as shown at 40 in Fig. 5, forming extensions of the tracks of narrower width, which extensions are adapted to pass through slots 41 and 42 in the horizontal strip 20 at each side of the point of juncture thereof with the vertical strip 21. These extensions 40 of the tracks, after positioning the runners as hereinafter described, have the ends thereof, extending beyond the slots 41 and 42 bent inwardly as shown at 43 in Fig. 5, whereby the runners are rigidly secured to the strips 20 and 21.

The rear extremity of the runner 31 is secured to the plate 18, extending from the rear panel 13 of the storage cabinet, by the following means. Near the extreme end of the folded over body of the runner there is provided a slot 44, such slot being removed from the extreme end of the runner by a distance somewhat less than the width of the space between the depressed forward face 18 of the plate 17 and the back panel 13 of the cabinet. The tracks 32 and 33 have their rear extremities cut away as at 45 and 46, so that the securement of the runner 31 to the plate 18 may be accomplished by inserting the end of the body of the runner into the vertical slot 19 in the plate 18, as shown in Fig. 7, and then bringing the runner to a horizontal position, the cut away portions 45 and 46 permitting the extremities of the tracks 32 and 33 to enter the horizontal tapering portions of the inverted T-shaped slot 19 as shown in Figs. 5 and 6.

As a plate 17 must be secured to the cabinet back panel 13 not only at points intermediate the ends of such back panel but also at the very edges thereof, in the corners of the cabinet, in order to support a tier of runners at each side of the cabinet, such plate 17 is constructed of a width which makes possible their use either at the ends or intermediately of the ends of the backing panel 13. The depressed portion 18 of the plate 17 is therefore made of narrower width than the width of the runner 31, including the tracks 32 and 33, so that there will be sufficient space for the flanges of the plate 17, by means of which it is secured to the back panel 13, to be positioned in the cramped corners of the cabinet. The advantages of thus proportioning the plate 17, or rather that of its extending flanges, will be apparent when it is noted that the width of the front face of the side panels, terminating in the turned-in portions 25 and 26 is approximately ¾ inch and that of each track 32 and 33, is approximately ½ inch.

As will be noted from Figs. 2 and 4, each of the horizontal strips 20 has its edge facing inwardly of the cabinet, and upon each side of the point of juncture of such strip with the vertical strip 21, provided with a pair of notched and depressed members 47 and 48 which constitute abutment lugs against which the rear portion of the drawer

extending above the drawer proper, as at 49, is adapted to abut when the drawer is brought to its substantially fully withdrawn position. By reason of this construction, the drawer 34, by means of its handle 50, provided in the front face thereof, may be pulled out of the cabinet to a position in which the contents thereof are accessible but insuring the retention of such drawer in a position from which it may again, with facility be brought to a closed position within the cabinet. The drawer may, of course, be completely withdrawn for removal from the cabinet by tilting the forward portion thereof upwardly so as to have the extension 49 of its back clear the abutments 47 and 48.

While I do not intend to be limited to any specific proportions or other non-essential factors involved in the fabrication and erection of my novel storage cabinet, it may be stated that I have found it most practicable to fabricate the strips 20 and 21, constituting the front frame of the cabinet, of a gauge of metal of slightly less than ⅓ inch, the width of such strips being approximately 1 inch. The sheet metal constituting the drawer supporting runners may be of a thin gauge approximately $\frac{1}{32}$ inch but those skilled in the art will recognize that such recommended gauge of metal may be replaced by a heavier gauge depending upon the particular use to which the storage cabinet is to be put. For storing ordinary files and letters the gauges of metal hereinabove given will be found particularly suitable, but as the novel structure of storage cabinet is equally adapted, for instance, for use in the storage of an assortment of small but rather heavy articles, such as screws, bolts and nails, the gauge of metal used for supporting the drawers may be altered to suit the exigencies of the particular type of material to be stored.

While I have described a particular embodiment of my invention, it is obvious that various changes therein may be made, particularly in the mode of fabrication, proportions and arrangement of the several elements and parts entering into the assembly of the structure, without departing from my invention. Thus, while I have described a particular type of joint between the strips constituting the front frame of the storage cabinet and a particular type of assembly of the runners to such strips and their securement to the back panel of the storage cabinet, it is obvious that another type of joint or assembly may be substituted for one or the other without departing from the general idea of means for providing a storage cabinet of the type and structure herein described and illustrated.

I claim:

1. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in tiers within said cabinet and a frame structure for supporting said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips being joined together by halving joints at points along their lengths substantially equal to the width and height of a drawer, of members for supporting said drawers slidably within said cabinet, said members extending from the points of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being secured to such rear panel at points immediately in line with the points of juncture of said horizontal and vertical strips substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof into which the extremities of the runners are secured, the members for supporting the drawers comprising strips of sheet metal bent to form a folded over body portion from which extend laterally a pair of flanges constituting the tracks for the drawers, the ends of said track members being secured within slots provided in the horizontal metal strips.

2. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in tiers within said cabinet and a frame structure for supporting said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips being joined together, to form openings for receiving said drawers, by halving joints formed by notches cut to like depths into the faces of the strips, and a plurality of runners for supporting said drawers slidably within said cabinet, said runners extending from the points of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being secured to such rear panel within vertically disposed plates mounted upon the rear panel at distances apart substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof into which the extremities of the runners are secured, the runners for supporting the drawers comprising strips of sheet metal bent to form a folded over body portion from which extend laterally a pair of flanges constituting the tracks of the drawers, the horizontal metal strips having, at each side of the points of juncture thereof with the vertical strips, a pair of slots into which the ends of said track members are secured, the protruding portions of such ends being bent back against the bottom surface of said horizontal strips.

3. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in tiers within said cabinet and a frame structure for supporting said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips being joined together by halving joints at points along their lengths substantially equal to the width and height of a drawer, of members for supporting said drawers slidably within said cabinet, said members extending from the points of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being secured to such rear panel at points immediately in line with the points of juncture of said horizontal and vertical strips substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof into which the extremities of the runners are secured, the members for supporting the drawers comprising strips of sheet metal bent to form a folded over body portion from which extend laterally a pair of flanges constituting the tracks of the drawers, the ends of said strips being secured within slots provided in the horizontal metal strips, said flanges having the forward portions thereof cut away to accommodate the rear portion of the vertical strips.

4. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in tiers within said cabinet and a frame structure for

supporting said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips being joined together, to form openings for receiving said drawers, by halving joints formed by notches cut to like depths into the faces of the strips, and a plurality of runners for supporting said drawers slidably within said cabinet, said runners extending from the points of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being secured to such rear panel within vertically disposed plates mounted upon the rear panel at distances apart substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof into which the extremities of the runners are secured, the runners for supporting the drawers comprising strips of sheet metal bent to form a folded over body portion from which extend laterally a pair of flanges constituting the tracks of the drawers, the ends of said runners being secured within slots provided in the horizontal metal strips, said runners having the forward portions thereof cut away to accommodate the rear portion of the vertical strips, with the body portion of the runner being chamfered from a point below the upper extremity of the body portion to the forward ends of the track members.

5. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in tiers within said cabinet and a frame structure for supporting said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips being joined together by halving joints at points along their lengths substantially equal to the width and height of a drawer, of members for supporting said drawers slidably within said cabinet, said members extending from the joints of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being secured to such rear panel at points immediately in line with the points of juncture of said horizontal and vertical strips substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof into which the extremities of the runers are secured, the members for supporting the drawers comprising strips of sheet metal bent to form a folded over body portion from which extend laterally a pair of flanges constituting the tracks of the drawers, the ends of said strips being secured within slots provided in the horizontal metal strips, said members having the forward portions thereof cut away to accommodate the rear portion of the vertical strips, the rear portion of said members having notches cut into the bodies thereof at their upper surfaces whereby the extremity of the member may be positioned within an aperture provided in the panel of the cabinet.

6. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in tiers within said cabinet and a frame structure for supporting said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips being joined together, to form openings for receiving said drawers, by halving joints formed by notches cut to like depths into the faces of the strips, and a plurality of runners for supporting said drawers slidably within said cabinet, said runners extending from the points of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being secured to such rear panel within vertically disposed plates mounted upon the rear panel at distances apart substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof into which the extremities of the runners are secured, the runners for supporting the drawers comprising strips of sheet metal bent to form a folded over body portion from which extend laterally a pair of flanges constituting the tracks of the drawers, the ends of said runners being secured within slots provided in the horizontal metal strips, said runners having the forward portions thereof cut away to accommodate the rear portion of the vertical strips, with the body portion of the runner being chamfered from a point below the upper extremity of the body portion to the forward ends of the track members, the rear portion of said runners having notches cut into the bodies thereof at their upper surfaces whereby the extremity of the runner may be positioned within an aperture provided in the vertically disposed plates secured to the rear panel of the cabinet.

7. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in tiers within said cabinet and a frame structure for supporting said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips being joined together, to form openings for receiving said drawers, by halving joints formed by notches cut to like depths into the faces of the strips, and a plurality of runners for supporting said drawers slidably within said cabinet, said runners extending from the points of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being secured to such rear panel within vertically disposed plates mounted upon the rear panel at distances apart substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof into which the extremities of the runners are secured, the runners for supporting the drawers comprising strips of sheet metal bent to form a folded over body portion from which extend laterally a pair of flanges constituting the tracks of the drawers, the ends of said track members being secured within slots provided in the horizontal metal strips, said runners having the forward portions thereof cut away to accommodate the rear portion of the vertical strips, with the body portion of the runner being chamfered from a point below the upper extremity of the body portion to the forward ends of the track members, the rear portion of said runners having notches cut into the bodies thereof at their upper surfaces whereby the extremity of the runner may be positioned within an inverted T-shaped aperture provided in the vertically disposed plates secured to the rear panel of the cabinet.

8. A metal storage cabinet comprising a casing having side panels, a top panel and a rear panel, a plurality of drawers arranged in a plurality of vertical tiers within said cabinet, and a front frame structure providing openings for receiving said drawers within the cabinet, said frame structure comprising a plurality of horizontal metal strips and a plurality of vertical metal strips, the strips having notches cut to

like depths into the faces thereof and being joined together by halving joints thus constituted, and a plurality of runners cooperating with said front frame structure for supporting said drawers slidably within said cabinet, said runners having their extremities provided with an inverted T-shaped tongue and extending from the points of juncture of said vertical and horizontal strips to the rear panel of the cabinet and being supported upon such rear panel within vertically disposed plates secured to the rear panel at distances apart substantially equal to the width of the drawers, said plates having portions depressed forwardly from the surfaces thereof and having inverted T-shaped openings into which the extremities of the runners are secured.

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