

Nov. 18, 1930.

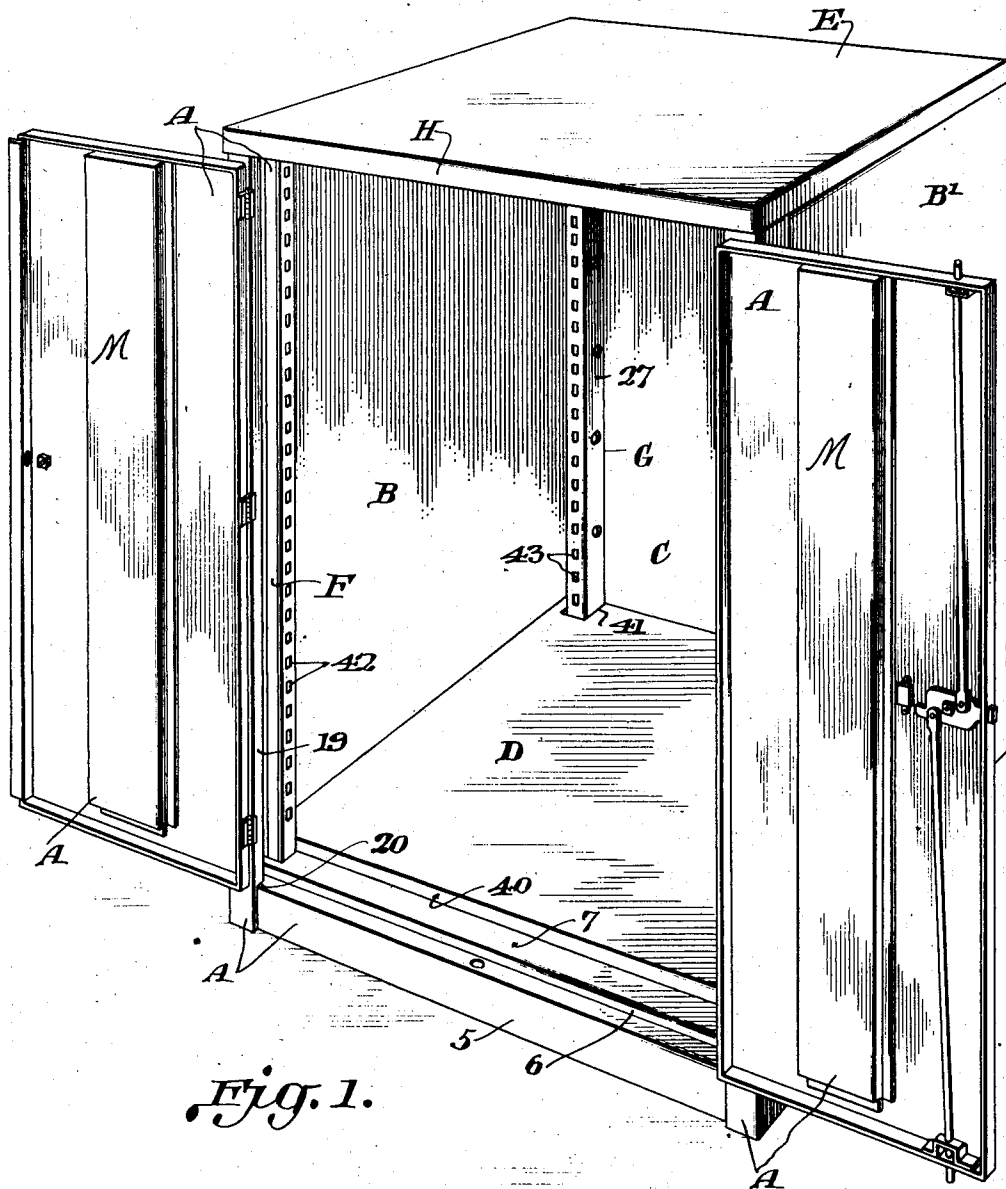
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1,782,344

KNOCKDOWN METAL CABINET

Filed July 12, 1926

5 Sheets-Sheet 1



Witnesses:

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KNOCKDOWN METAL CABINET

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5 Sheets-Sheet 2

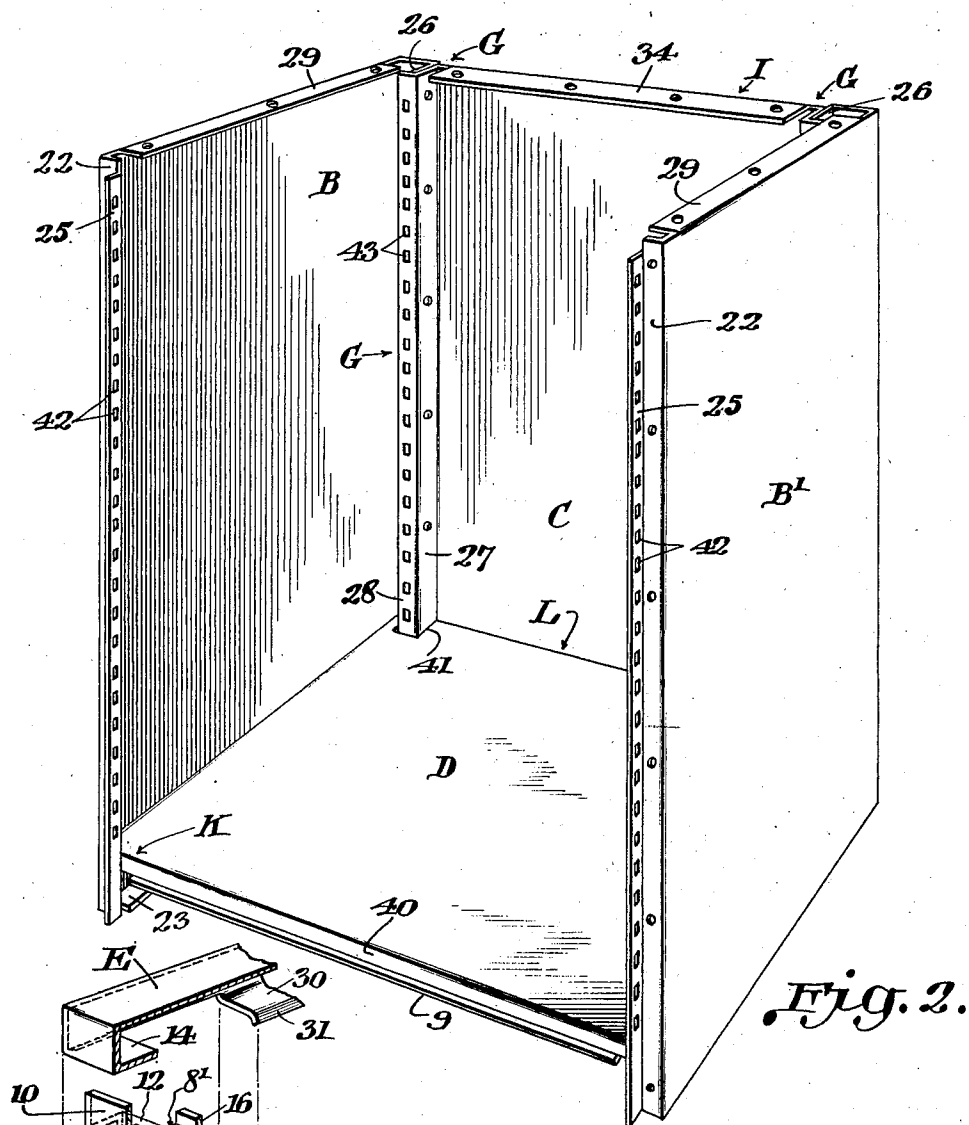


Fig. 2.

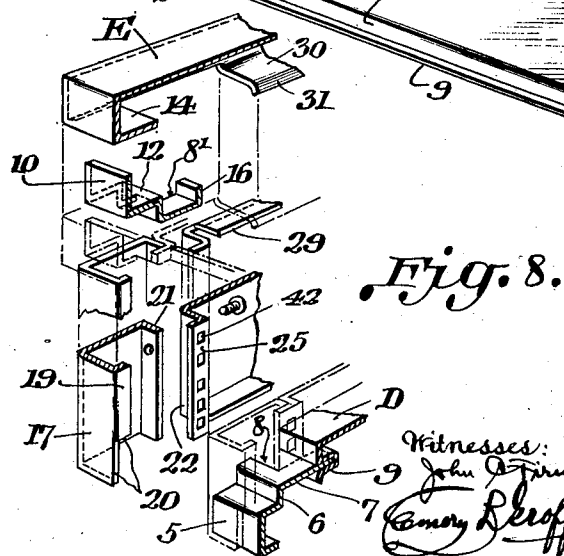


Fig. 8.

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KNOCKDOWN METAL CABINET

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5 Sheets-Sheet 3

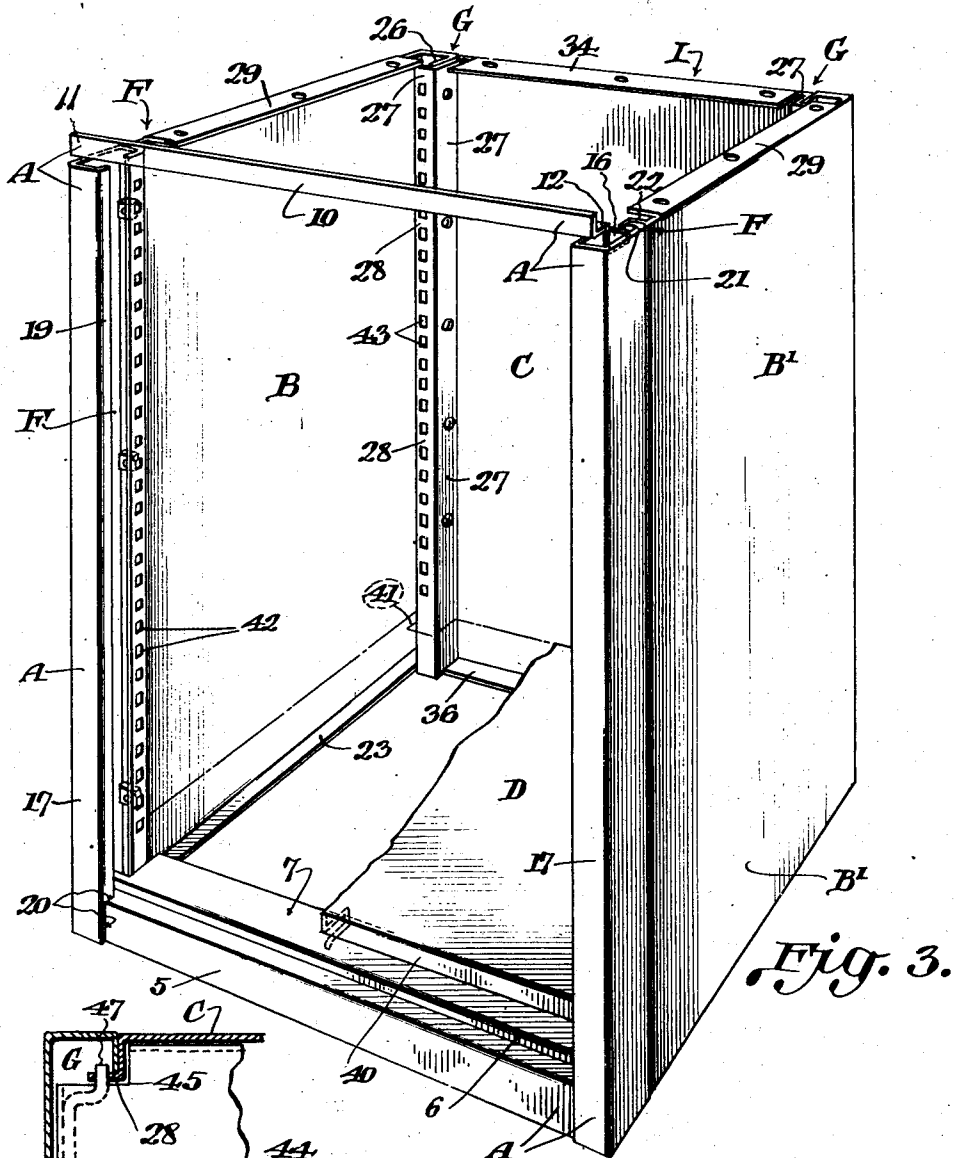


Fig. 3.

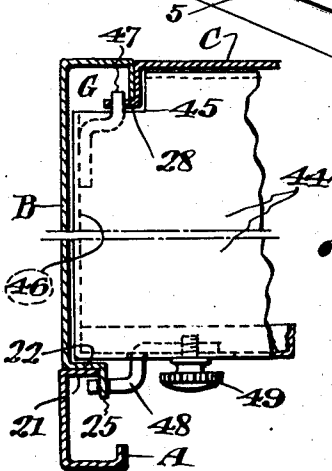


Fig. 9.

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KNOCKDOWN METAL CABINET

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Fig. 5.

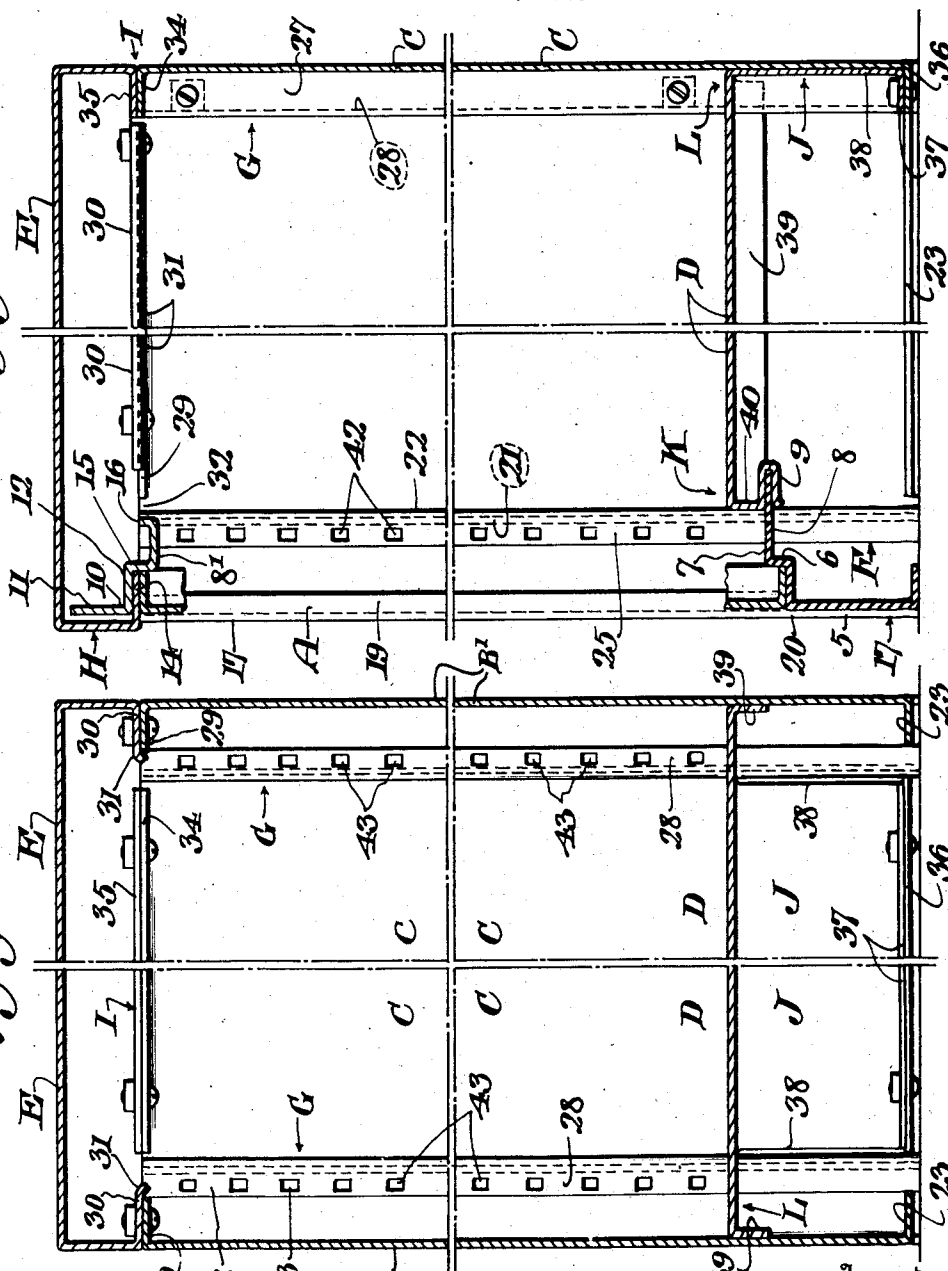


Fig. 4.

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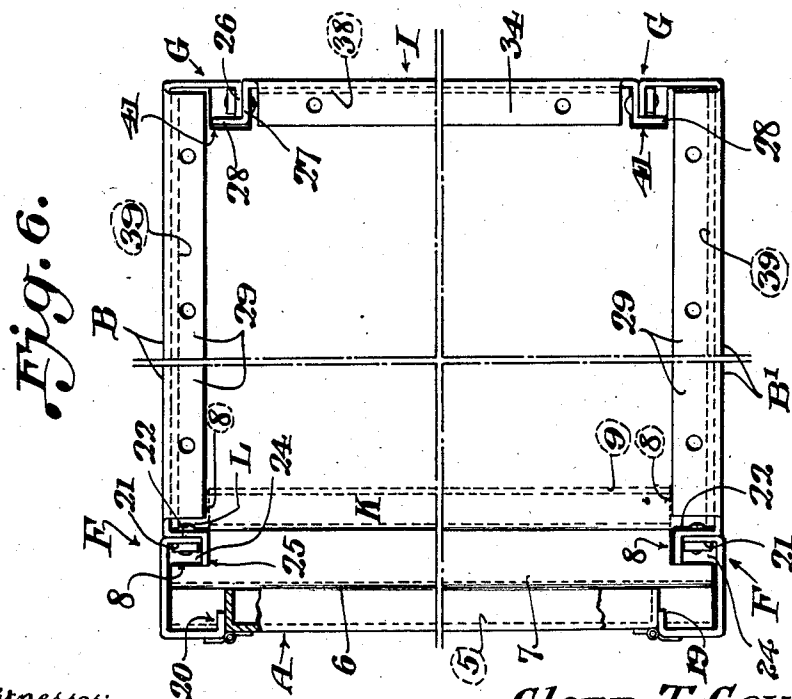
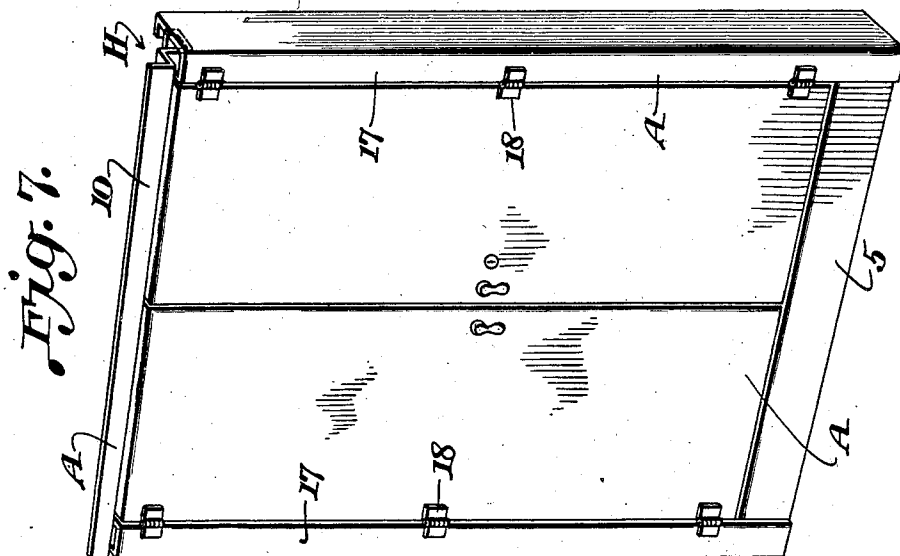
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KNOCKDOWN METAL CABINET

Filed July 12, 1926

5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

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KNOCKDOWN METAL CABINET

Application filed July 12, 1926. Serial No. 121,970.

This invention relates to an improved construction applicable generally to metal knock-down furniture and particularly to metal storage cabinets in which parts are designed to have of themselves certain strength and rigidity, are fashioned to facilitate assembly and are arranged to reinforce each other and the structure as a whole when fitted together as a completed article of manufacture.

As cabinets of this character are developed in metal of the lightest weight consistent with good service in use and yet must possess the maximum strength and rigidity, it has been found that parts which are closely associated, such as edge flanges and the like, may be developed into elements having the characteristics of columns and beams, and it is an object of the present invention to so associate such parts.

A further object of the invention is to develop the various parts used in a metal storage cabinet so that they may be produced in quantity, come from the press completely fabricated, and may be painted and have certain parts associated together and assembled for ease of handling by both the manufacturer and the consumer.

To this end my invention contemplates the association of parts, such as the door frame with the doors already attached, secured into a unit, flanges of the unit being disposed for association with flanges of the remaining elements of the cabinet, and the whole coacting to maintain strength and stiffness.

A special object of the invention is to provide a metal cabinet, preferably of the storage type, the various units of which may be completely fabricated at the factory and safely shipped in an unassembled knocked-down condition, thereby simplifying and cheapening the cost of manufacture and at the same time economizing valuable space both at the fabricating plant and in the store room until it is desired to assemble and unite the various units to build up the cabinet for actual use. Heretofore in metal cabinets of this kind it has not been practical nor feasible to handle them in this way because of

structural weakness in the individual units which would permit the same to warp or bend out of shape or otherwise easily become damaged if shipped in a knocked-down unassembled condition and afterwards assembled in the complete cabinet. Accordingly, it is a primary purpose of the present invention to have each unit of the cabinet of a strong reinforced construction and this is particularly true of the door frame which carries the doors. Accordingly, another special object of the invention is to provide a specially reinforced door frame having stability, strength and stiffness and which will hold its form and trueness in handling and shipping until actually incorporated in the cabinet structure; and this door frame is intended, according to the present invention, to be completely fabricated with the doors at the factory, including the formation for door seating and the flange construction for joining with the top, sides and bottom units.

Furthermore, an object of the invention is to provide a structure wherein all vertical joints add stiffness thereto and the flanges which stiffen also act as guides for assembling and also provides supports and necessary adjustment for shelves.

With the above and other objects in view which will appear as the description proceeds the invention resides in the combination and arrangement of parts, and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a perspective view of a storage cabinet embodying the essentials of the present invention, showing the same as completely assembled;

Figure 2 is a perspective view of the cabinet partly assembled, the sides, back and bottom being secured together awaiting their application to a unit assembly comprising the complete front of the cabinet;

Figure 3 is a skeleton perspective view

showing the side and back panels assembled and the rigid front door frame carried with the front edge portions of the side panels; the doors being omitted and the bottom plate being broken away to better expose the reinforced construction of the panels and of the door frame;

Figure 4 is a lateral cross-section of the cabinet looking toward the rear;

Figure 5 is a lateral cross-section illustrating the application of top and bottom elements to the unit;

Figure 6 is a plan of the cabinet with the top removed, the lintel being removed showing the application of the side and back elements to the unit;

Figure 7 is a perspective view of a unit assembly, in the illustration the unit comprising the sill, lintel and jambs with doors attached;

Figure 8 is a perspective view showing details of construction; and

Figure 9 is a fragmentary horizontal sectional view through an upright of the door frame, one of the side panels and a portion of the back panel, illustrating the mounting of a shelf in connection with the apertured flanges provided therefor.

Referring to the drawings in which like reference characters refer to like parts throughout the several figures, particular reference being had to Figures 1, 2, 3 and 7, the cabinet consists of a unit assembly or nucleus A, sides B and B', back C, bottom D, and top E.

The unit comprises an assembly of parts welded or otherwise securely joined, consisting of a sill member 5 extending from one side jamb to the other, a door-stop 6 and a flange 7 cut away at its ends as at 8 (see Figures 6 and 8) and extending to enter a slot defined by the bent portion 9 of the cabinet bottom member; a lintel 10 extending from jamb to jamb at the top of the unit comprising an upstanding portion 11, a portion 12 disposed to lie in a horizontal plane above the plane of the tops of the jambs and defining a slot adapted to receive the back-turned edge 14 of the cabinet top, a depending door-stop portion 15 and a rearwardly extending portion with an end cut-out 8' (see Fig. 8) and an edge flange 16; jambs comprising vertical members with front faces 17 adapted to embrace the ends of the sill, and to form a support to which the doors M may be securely hinged, as at 18, in-turned as at 19 as a door frame, cut away as at 20 to accommodate the sill, (see Figs. 1 and 8) and with in-turned flanges 21 adapted to meet and to be secured to the in-turned flanges 22 of the sides.

A vertical space 24 (Fig. 6) is defined between the edge of the flange 21, the cut-out 8, and the similarly positioned cut-out 8', within which the flanges 25 of the side mem-

bers are positioned, this space providing a convenient guide for positioning the front unit to abut the front flanged edges of the sides when the unit is placed thereagainst in assembling.

The side members are flanged as described where they associate with the flange of the jamb to form vertical columns F throughout the height of the sides, and are similarly flanged at their rear edges with an in-turned strip 26 adapted to abut the in-turned flange 27 of the back and to extend from the plane of the back to the flange 28 to form vertical columns G. The sides are additionally flanged at their bottom 23, and again along their top 29, the latter flanges acting as rails for the flanges 30 of the top, these latter flanges being lipped at 31 and the flanges 30 being cut away for a distance as at 32. This structure allows of the top being dropped down over the lintel and slid back until the edge or lip 14 seats in the defined slot previously described. Thus the assembled unit, the back, and the two sides, are bound together, the lintel and top coacting to form a frame and a door stop, as well as a laterally extending beam H across the top of the unit.

The back member is flanged as described where it is associated with the flanges on the rear edges of the side members, and is further flanged along the top at 34 to act with the flange 35 of the top member in a plate or web beam I, and flanged again at 36 to meet the flange 37 of the depending skirt portion 38 of the bottom member of the cabinet, forming a lateral beam J of deep section across the back of the assembly.

The bottom member of the cabinet is flanged as already described and extends from the back wall C forwardly to a plane established by the flanges 22, and from side to side of the cabinet. At the sides depending flanges 39 may be provided to suitably reinforce the edges. Along the front edge of the bottom member the bent portion 9, previously mentioned, is provided forming a slot for the reception of the flange 7, the three thicknesses of metal at this point combined with the riser 40 serving to mutually support and strengthen the associated ends of the sill and bottom as a laterally extending beam K. Where the vertical beams formed by the flanges 27 and 28 pass through, the bottom is cut away as at 41 and the portions of the bottom lying between these cutouts are adapted to fit snugly against the sides of the beams, thus disposing between the bottom and top of the cabinet and intermediate reinforcing plate L for the sides.

The top member E which serves to finish and complete the cabinet is of box-like construction, the bottom edges of the sides and back being turned in to form flanges 30 and 35 as described, and the bottom edge of the front being turned in to project as a tongue

14 the purpose of which has been previously pointed out.

The flanges 21 and 22, 26 and 27, 34 and 35, and 36 and 37 are apertured for the reception of suitable securing means as stove bolts, the taps being preferably located within the channel column or beam where possible, this being the usual arrangement to hold the tap while the bolt is turned. The flanges 25 may be apertured at 42, at levels corresponding with similar apertures 43 in flanges 28.

Suitable shelving 44 shown in Figure 9 may be positioned at appropriate heights between the bottom and top of the cabinet by pins carried by the shelving being inserted into these apertures. The shelving is cut away at the back corners at 45 to evade the vertical columns G, and extends from side to side of the cabinet and from the back member C to the plane of the flanges 22 and is underturned with curtain flanges to finish and strengthen the shelf edges. The side flanges 46 carry the shelf supporting pins 47. In hanging the shelves the front edge of the shelf is tipped up, and these pins are made to enter the apertures 43. The shelf is now swung downwardly to abut the flanges 22. The pins 48 are slidably mounted in a slot in the front curtain edge of the shelf and are moved to one side until a proper level of the shelf is attained; whereupon the pins are moved to enter the apertures 42 and are locked in engagement therewith by the thumb nut 49.

A cabinet made as described comprises but six elements, viz; two sides, back and bottom, front and top, together with such necessary means of holding the parts together, as stove bolts, or the like. These six elements may be assembled together with ease and precision, inasmuch as the elements are provided with suitable flanges to insure against bending and distortion which would otherwise make their assembly difficult, these flanges, moreover, being so dispositioned for interfitting that the elements are guided into proper position and stopped in such position to insure the precise alignment of abutting parts. These features will be clearly appreciated in following the preferred course taken in assembling this cabinet.

The parts being received disassembled, or knocked down, the operator first sets up the back and supports it with the flanges 28 directed toward him. The sides B and B' are successively placed to the left and right of the operator and the rear edges are drawn towards each other to position the flanges 26 against the flanges 27, the front edges of 26 resting against the rear of 28. Stove bolts are now passed through the abutting flanges 26 and 27 and tightened, the bolt taps being held against turning by their position within the channel formed between the flange 28 of the back C and the flange at the rear of the side B, the back and two sides being

now securely fastened together by their interengagement and interfitting flanges the bottom D may be placed in position with its flange 37 resting on the flange 36 of the back to be secured by stove bolts, or otherwise, and its flanges 39 abutting the inner walls of the sides B and B', the front edge of the bottom D being supported by advancing the unit door frame assembly A in position so that the plate 7 of the sill portion enters the slot above the flange 9. The bottom D may be assembled alternatively subsequent to the positioning of the unit A by tilting the bottom to one side, placing it in this tilted position back against the rear wall C and successively tilting the front edge down and aligning the slot with the plate 7 and then lowering the rear until the flanges 36 and 37 abut.

The unit A being now positioned adjacent the front edges of the side walls B and B', it will be apparent that flanges 21 are guided to position by flanges 25 and the movement of the whole unit is stopped by abutting the flanges 22 at the sides. The parts are now secured in this position by applying the stove bolts as indicated. It is apparent that access may be had to apply said bolts by swinging open the doors of the unit. The unit being assembled with the sill, jambs and lintel secured together, the whole to be applied to the previously assembled back and side walls, it is found convenient to cut away the sill and lintel at each end on each side, top and bottom, by the cut-outs 8 and 8' as shown in Figures 6 and 8 so that the tongue plate 7 may pass between the inner faces of the opposite upstanding side flanges 25.

The top E may be now readily applied to the cabinet walls by laying on top thereof in such manner that the flange 30 on each side rests upon the flange 29. The top is now moved toward the rear and is guided from lateral displacement by lips 31 as shown particularly in Figure 4. The flanges 30, as previously described, are cut away at one portion, this cut-away portion extending approximately from the rear edge of the flange 14 for a distance equal or greater than the front-to-rear depth of the lintel. This allows of the top being dropped down over the lintel and being pushed back, thus entering the tongue 14 into the slot defined between the portion 12 of the lintel and the top of the jambs and doors. Securing means, as stove bolts, may now be applied to secure together the flanges 34 and 35 of the back and top respectively. The shelving may now be applied as previously described.

This structure assures a cabinet which may be assembled with ease, and when assembled will possess the necessary strength and stiffness required in devices of this character, and while it will be appreciated that the form of my invention herein shown and described

is to be considered as a typical example, various changes in the shape and size and arrangement of associated parts may be resorted to without departing from the spirit of the invention or the scope of the sub-joined claims.

I claim:—

1. A knock-down metal cabinet, a back panel having vertically disposed marginal reinforcing side flanges inturned and having laterally bent edges and horizontally disposed marginal reinforcing top and bottom flanges; right and left side panels having vertically disposed marginal reinforcing side flanges and horizontal top and bottom flanges, the side rear flange being bent from the plane of the side and inturned in a plane spaced from the side to fittingly engage the side flange of the back, the side front flange being bent from the plane of the side to engage and fit flange on a door frame; a bottom panel with flanges to engage the lower marginal flanges on the back, on the sides, and on a door frame; a top panel with flanges to slidably engage the upper marginal flanges on the back, on the sides, and on a door frame; and a unit door frame with doors the door frame having flanges to fittingly engage the flanges on the sides, top and bottom panels.

2. In a metal knock-down cabinet comprising back, side, top and bottom panels provided with inset marginal flanges engaging and fitting adjacent flanges of said back, side, top and bottom panels to provide joints lying inside of the cabinet, a unit door frame including jamb members of channel form having inside flanges engaging the front edge flanges of the sides, a lintel member having flanges engaging the flanges of the top, and a sill member having flanges engaging the flanges of the bottom.

3. In a metal knock-down cabinet including side, back, bottom and top panels provided with inset marginal reinforcing flanges having inter-engaging and inter-fitting relation, fastenings for detachably securing said flanges together, a separate complete door frame unit having doors, the frame comprising vertical jamb members of channel form having the inside flanges thereof engaging the meeting flanges of the sides, a lintel member having flanges engaging and meeting the flanges of the top, and a sill member having flanges engaging and inter-fitting with the flanges of the bottom.

4. In a metal knock down cabinet construction, side, back, bottom and top panels provided with marginal reinforcing flanges of hollow angular formation adapted to inter-fit, fastenings for securing the flanges together, the side flanges of the back including forwardly extending portions and portions disposed parallel to the back, the latter having perforations, and the front flanges of the

side members including an inwardly extending portion disposed at right angles to the side and a forwardly extending portion parallel with the side and provided with openings, and a rigid rectangular door frame unit having side members adapted to be secured to the angularly disposed flanged portions of the sides, and also including lintel and sill members adapted to be connected to the top and bottom.

In testimony whereof I hereunto affix my signature.

GLENN T. GOURLEY.