

May 9, 1933.

D. E. HUNTER

1,907,969

METAL DESK CONSTRUCTION

Filed March 2, 1931

5 Sheets-Sheet 1

Fig. 1.

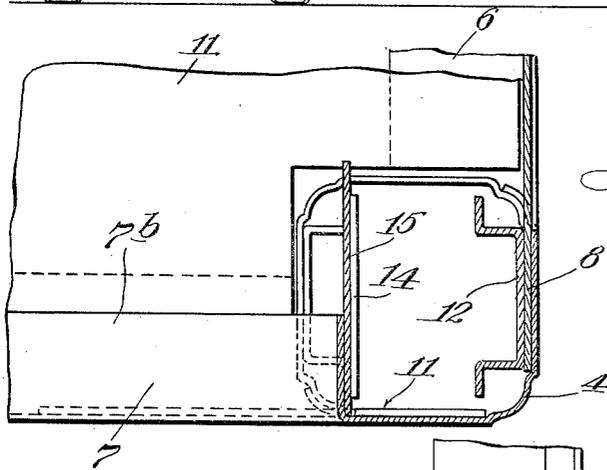
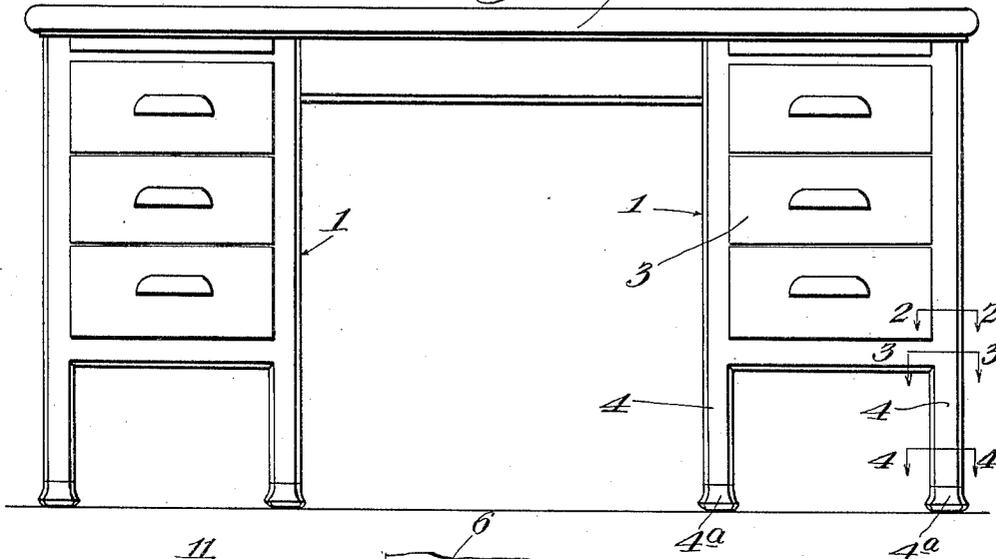


Fig. 2.

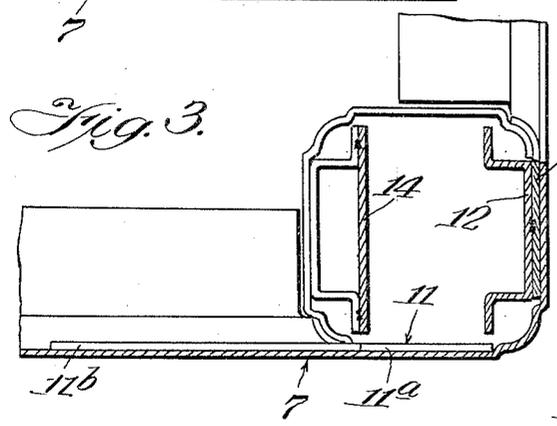


Fig. 3.

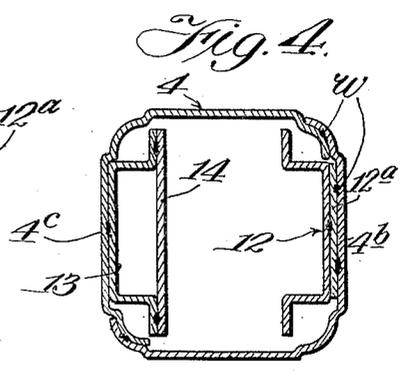


Fig. 4.

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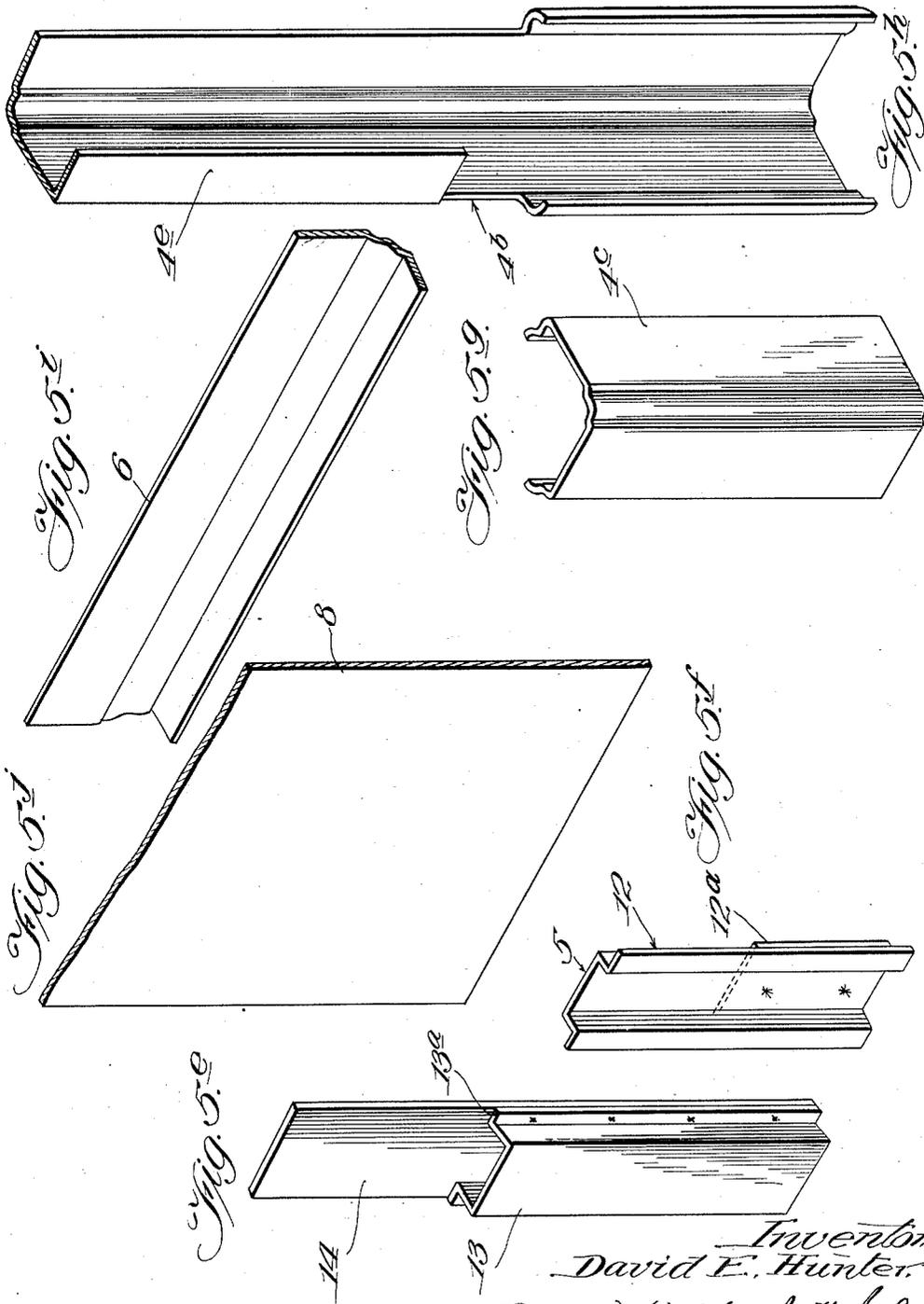
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METAL DESK CONSTRUCTION

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5 Sheets-Sheet 3



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METAL DESK CONSTRUCTION

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5 Sheets-Sheet 4

Fig. 6.

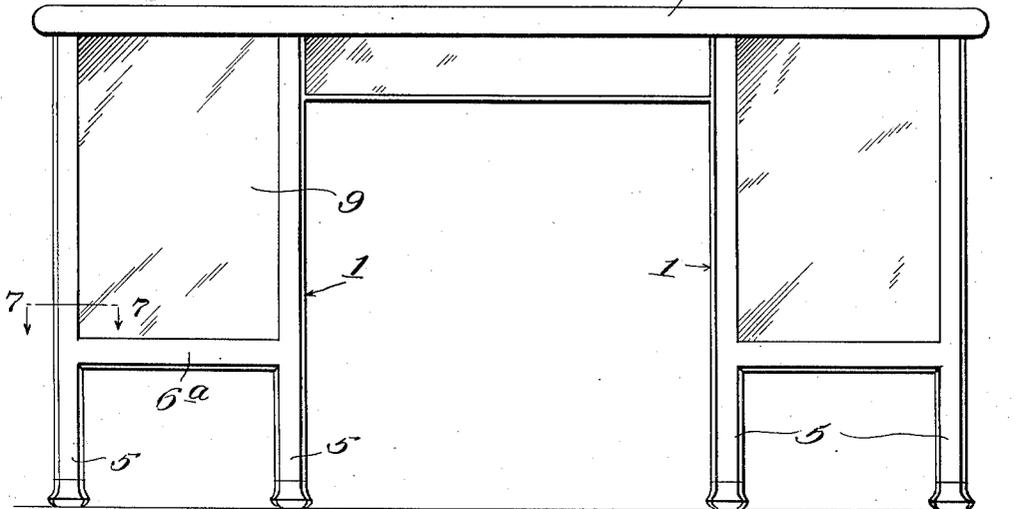
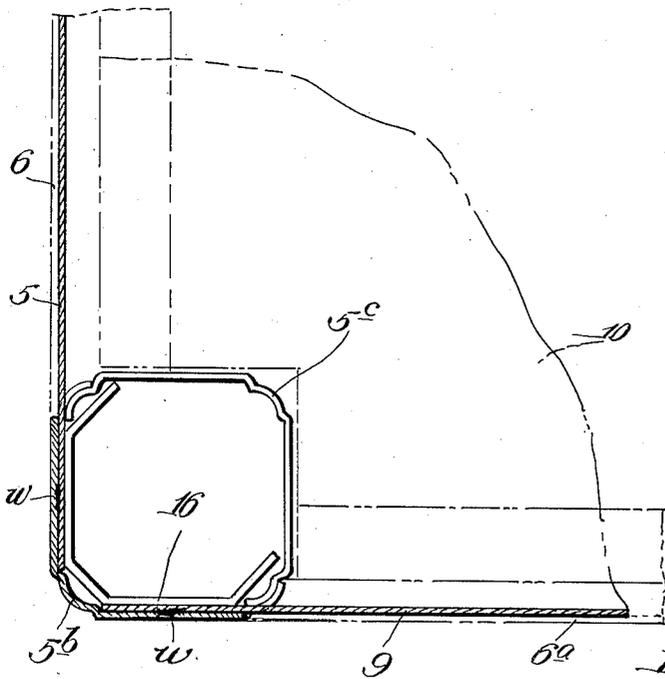


Fig. 7.



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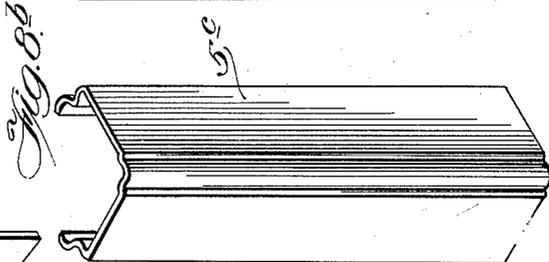
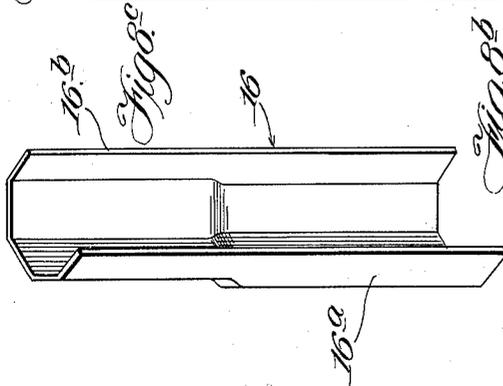
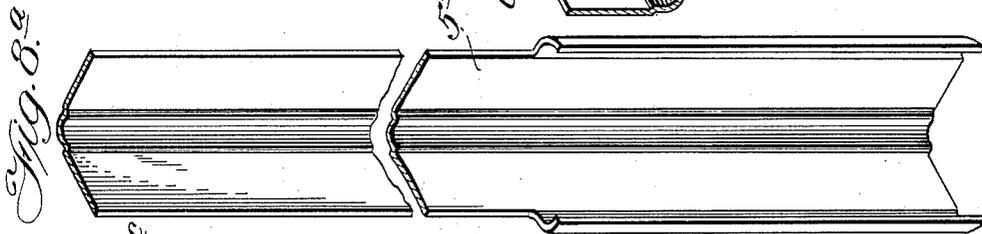
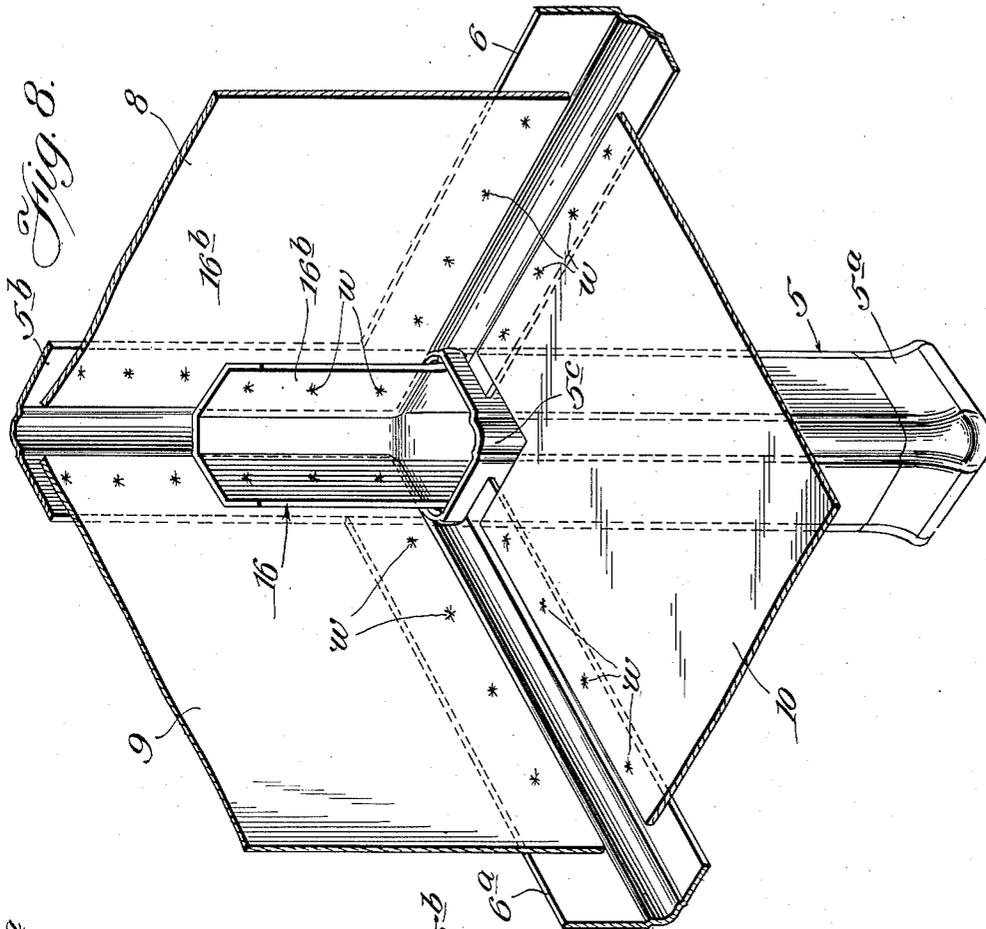
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METAL DESK CONSTRUCTION

Filed March 2, 1931

5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

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METAL DESK CONSTRUCTION

Application filed March 2, 1931. Serial No. 519,484.

This invention relates to improvements in metal furniture construction, and more particularly to novel and important structural details applicable to any sheet metal structure including a drawer holding pedestal or cabinet supported and elevated above the floor on legs, such as desks, tables, filing cabinets and other equipment for business or home use.

10 The object of the invention is to provide a substantial and practical method of construction for metal desks and furniture of the cabinet type, and especially in the assembly and reinforcement of the corner and legs.

15 The features of the invention are herein disclosed in connection with the design and construction of a flat top metal desk, illustrated in the accompanying drawings, in which:

20 Figure 1 is a view in front elevation of the metal desk embodying the novel features of construction.

25 Figures 2, 3 and 4 are enlarged detail views in cross section of the front corner leg construction as taken on lines 2—2, 3—3 and 4—4, respectively, of Figure 1.

30 Figure 5 is an enlarged detail view in perspective of the front lower corner construction of the desk as it appears from the inside of the desk.

35 Figures 5a to 5j, inclusive, are perspective views of the separate members entering into the front corner construction as shown in Figure 5.

40 Figure 6 is a view of the desk in rear elevation.

45 Figure 7 is an enlarged view in cross section through one of the rear corners of the desk as taken on line 7—7 of Figure 6.

50 Figure 8 is an enlarged perspective view of the lower rear corner construction as it appears from the inside of the desk.

55 Figures 8a, 8b and 8c are perspective views of the members that constitute the leg and corner sections of the construction shown in Figure 8.

60 Considering Figure 1 as illustrative of a metal desk as well as typical of any cabinet of metal construction, the same consists of a pedestal 1, 1 at each end and on opposite sides

of a central opening, and a top 2 extending over and attached to the pedestal. Considering each pedestal as a structural unit which in fact it is, the same consists of a drawer holding cabinet surrounded on three sides by walls with openings for sliding drawers 3 on the front or fourth side, and supported upon pairs of front and rear legs 4, 4 and 5, 5 at the corners. These legs are relatively short, measured from the bottom edge of the pedestal to the floor, but portions of the legs extend upwardly the full height of the pedestal to form the corner sections thereof, that is to say, the portion of the leg below the pedestal is tubular, whereas the remaining portion is a segment of the same tubular structure.

65 It is the general practice to construct metallic furniture from sheet metal which is first blanked out, and then shaped to form the various members which make up the assembled unit. Where a structural member consists of assembling of two or more parts, spot-welding is the most satisfactory method of joining the parts together, particularly where a permanent bond is wanted. Thus in the present construction, the pedestal is made up of vertical and transverse frame members, that is, the upright legs, top and bottom angle rails and side, side and bottom panels spot-welded to the angularly disposed webs of the vertical legs and horizontal rails, so as to form the rigid cabinet-like structure as it appears in Figures 1, 5 and 8.

75 As to the legs 4, there is some difference between the construction and reinforcement of those at the front and at the rear of the pedestal, due to the large opening in the front for the drawers, and the absence of a supporting panel or wall which necessitates additional and a somewhat different arrangement of internal reinforcing members at the front and rear leg and corners.

80 Referring to the general features of the leg or corner construction of the desk, it is to be noted that all of the legs of the pedestal 4 and 5 are square in cross section with an ornamental quarter-round mould or bead along the corner edges. The portions of the legs below the pedestal are completely tubular and at the lower ends are inserted and welded 100

ornamental feet 4a and 5a of cast metal. Portions of the legs, however, are carried upwardly the full height of the pedestal and form the corner sections or angles thereof.

5 Extending along the lower edges of each pedestal and lengthwise between the outer and inner pairs of front and rear legs 4 and 5 are rails 6 of angle (or L section) (Figures 5 and 8) and a similar rail 6a extends between the two rear legs 5, 5. Between the front legs, however, extends a rail 7 of channel shape, similar in section to the angle rails 6 and 6a but with the addition of an upper inwardly extending flange or web 7a which forms the lower edge of the rectangular front drawer opening (Figures 5 and 5c). The lower corner edges of the rails 6 and 7 have the quarter round mould 6a and 7a harmonizing with the mould along the corners of the legs.

The legs consist in general of two sections or parts stamped from sheet metal and joined together to form a tubular shell. Thus the front legs consist of a long section 4b and a short section 4c (Figures 5h and 5g respectively), the lower portion of the long section being a counterpart of the short section, namely, of right angular sectional contour with rounded marginal portions which fit together in overlapping engagement and welded as at *w* shown in Figure 4, and forming the legs proper into which the feet 4a are inserted. The upper portion of the longer section 4b is angular in section, but along one edge is a flange 4e which is the complement of the flange 7a of the lower rail 7, and provides the vertical sides of the drawer opening at the front of the pedestal (Figure 5).

40 The rear legs 5 are likewise formed in sections 5b and 5c (Figures 8a and 8b) practically identical in shape and dimensions as the front legs, except that the upper portion of the longer section 5b has no flange since no opening is provided in either the rear or side walls (Figure 8).

Thus the general structural scheme, assuming the legs have been assembled as rigid structural units, is to unite the ends of the rails 6 and 7 at their ends so that their horizontal webs abut against the tubular portions of the legs just below their upper extremities, with their vertical webs abutting edgewise and contacting with the edges of the upper angular portions of the leg sections 4b and 5b (Figures 5 and 8). At the front also the flange 7a of the rail 7 forms a miter joint with the vertical flange 4e on the leg section 4b to complete the frame for the drawer opening.

To complete the pedestal structure, end panels 8 of sheet metal are inserted inside the horizontal and vertical flanges of the rails 6 and corner sections of the leg members 4b and 5b and spot-welded as at *w* (Figures 5

and 8). In like manner a rear panel 9 is inserted and welded at the back of the pedestal (Figure 8) and finally a sheet steel bottom panel 10 with rectangular corner sections removed is laid upon the inwardly projecting webs of the rails 6 and 7 and welded as at *w*.

The foregoing description is not intended to set forth the process of assembly or method of manufacture, but merely to identify the relation between the several parts.

Referring now to Figure 5, the method of reinforcing the front leg and corner sections of the desk pedestal will now be considered. The first reinforcing member to be identified is a T-shaped gusset plate 11 (Figure 5a) which is located at the junction of the leg section and the front rail 7. This gusset plate has a wide portion 11a extending vertically against the inside surface of the front web of the leg section 4b and a narrower transverse portion 11b extending laterally against the vertical web of the rail 7. This gusset plate is spot-welded as at *w*, and thus strengthens or reinforces the structure at the lower corners of the front drawer opening.

The next reinforcing member to be identified is a flanged channel plate 12, that is, a strip of sheet metal bent to a shallow channel section with laterally extending marginal flanges. This plate extends vertically along the inside of the tubular leg portion and some distance upwardly above the bottom panel 10 with its flanged edges disposed inwardly and its intermediate portion bearing flatwise against the forward edge of the side panel 8 above the point where the tubular leg ends, while the portion extending below the bottom edge of the panel has a plate 12a welded flatwise across the face of the intermediate channel portion in order to compensate for the thickness of the panel 8 above (Figure 5f). These several parts are united into an integral structure by spot-welding indicated at *w*.

Immediately opposite the channel plate 12 is another plate 13 of the same cross-sectional contour, and symmetrically arranged to extend along the inner side of the tubular portion of the leg, but only a very short distance about its upper end as shown in Figure 5. To the faces of the marginal flanges 13a, 13a of this channel plate is welded a metal plate 14, extending the full length of the channel member and a considerable distance beyond its upper end and above the companion channel plate 13 on the opposite side.

Now, between the upper portion of the plate 14 and the flange 4e of the corner section 4b is inserted another plate 15 slightly wider than the first mentioned plate 14, and projecting into the space behind the leg parallel with the side panel 8, as shown in Figure 5. It will be understood that these overlapping or contacting plates, panels and flanges are welded wherever desired to pro-

duce a rigid structure, and thus completing the reinforcing of the front legs, whereby the structure is strengthened against failure by lateral forces which ordinarily would cause an excessive strain at the weakest point in the structure, namely, at the junction of the legs and the pedestal.

The rear leg and corner construction of the desk is substantially the same as that at the front corners, except, as already stated, the back of the pedestal is closed by a rear panel 9 (Figure 8) and hence the reinforcing of the leg is somewhat less complicated, consisting as it does of a single inner shoe 16 so shaped in cross-sectional contour as to provide two relatively wide webs which bear against the two outer side faces of the tubular portion of the leg, and three narrow diagonally disposed webs which bridge the intermediate and outlying corners of the leg sections, as clearly shown in Figure 7. The shoe 16 is therefore a five-sided channel-shaped member extending around one-half the inner surface of the leg throughout the outermost corner thereof. Moreover, the shoe varies in its sectional contour, the lower and longer portion 16a being expanded slightly, a matter of one thickness of the metal, and otherwise dimensioned to fit tightly in the tubular portion of the leg as shown in Figure 8. The remaining upper and shorter section 16b extends upwardly for a short distance above the tubular section of the leg and bears against the vertical margins of the side and rear panels 8 and 9 to which it is welded as at w.

The assembling of the various parts and sections which make up the pedestal is carried on with the aid of jigs and like appliances best suited for the purpose and according to a routine which need not be described in detail. This applies to the uniting of the pedestal and the mounting of the top 2 which is the subject matter of my Patent No. 1,873,932, which issued August 23, 1932.

Having set forth a preferred embodiment of my invention, I claim:

1. In a metal desk construction, the combination of angularly disposed wall panels, an angular corner section overlapping the adjacent edges of the wall panels and extended downwardly beyond to form a portion of the leg, a relatively short angular leg section having overlapping connection with the edges of the extended portion of the corner section to form a tubular leg, and an internal reinforcing member within said tubular leg and extending upwardly into the corner and having flatwise contact with said wall panels, said reinforcing member, wall panels and corner section being spot-welded at intervals through the length of said reinforcing member.

2. In a metal desk construction, the com-

ination of sheet metal wall panels, a substantially right angled corner section overlapping the adjacent marginal portions of said wall panels at each corner and extended below said panels to form the outer one-half section of a leg, a relatively short complementary leg section having overlapping connection with the extended leg portion of said corner section to form a tubular leg and a sheet metal reinforcing member shaped to fit within said tubular leg and to extend a substantial distance upwardly into flatwise contact with the marginal portions of the wall panels, the contacting and overlapping portions of said panels, corner section and reinforcing members being united by welding.

3. In a metal desk construction, the combination of sheet metal wall panels, a substantially right angled corner section overlapping the adjacent marginal portions of said wall panels at each corner and united therewith, said corner section being extended below said panels to form the outer one-half section of a leg, a relatively short complementary leg section having overlapping welded connection with the extended leg portion of said corner section to form a tubular leg and a sheet metal reinforcing member shaped to fit within said tubular leg and to extend a substantial distance upwardly into the corner angle of the desk body and in flatwise contact with the marginal portions of the wall panels underlying the corner section, the contacting and overlapping portions of said panels, corner section and reinforcing members being spot-welded.

4. In a metal desk construction, the combination of sheet metal side wall panels meeting at the corner, an angular corner section of sheet metal welded in overlapping contact with the adjacent edges of the angularly disposed side wall panels, said corner section having a portion extended below the bottom panel to form the outer half section of a tubular leg, an angular leg section adapted to be attached along its edges to the edges of the leg extension of said corner section through the medium of interlocking beaded edges, and sheet metal reinforcing members mounted within said leg and shaped to provide angularly disposed webs adapted to bear flatwise against the inner surface of said leg and projecting upwardly into the desk body and welded in flatwise contact with the overlapping portions of the side panels and corner section.

5. In a metal desk construction, the combination of sheet metal side and bottom wall panels meeting at the corner, horizontal rails of angular section welded in overlapping engagement with the adjacent marginal portions of said side and bottom panels, an angular corner section of sheet metal welded in overlapping contact with the adjacent edges

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of the angularly disposed side wall panels, said corner section having a portion extended below the bottom panel to form the outer half section of a tubular leg, an angular leg section adapted to be attached along its edges to the edges of the leg extension of said corner section through the medium of interlocking beaded edges, and sheet metal reinforcing members mounted within said leg and shaped to provide angularly disposed webs adapted to bear flatwise against the inner surface of said leg and projecting upwardly into the desk body and welded in flatwise contact with the overlapping portions of the side panels and corner section.

Signed at Muskegon, Mich., this 26th day of February, 1931.

DAVID E. HUNTER.

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