July 1, 1930. E. J. CARD 1,769,255

METAL FURNITURE

Filed March 29, 1927 2 Sheets-Sheet 1

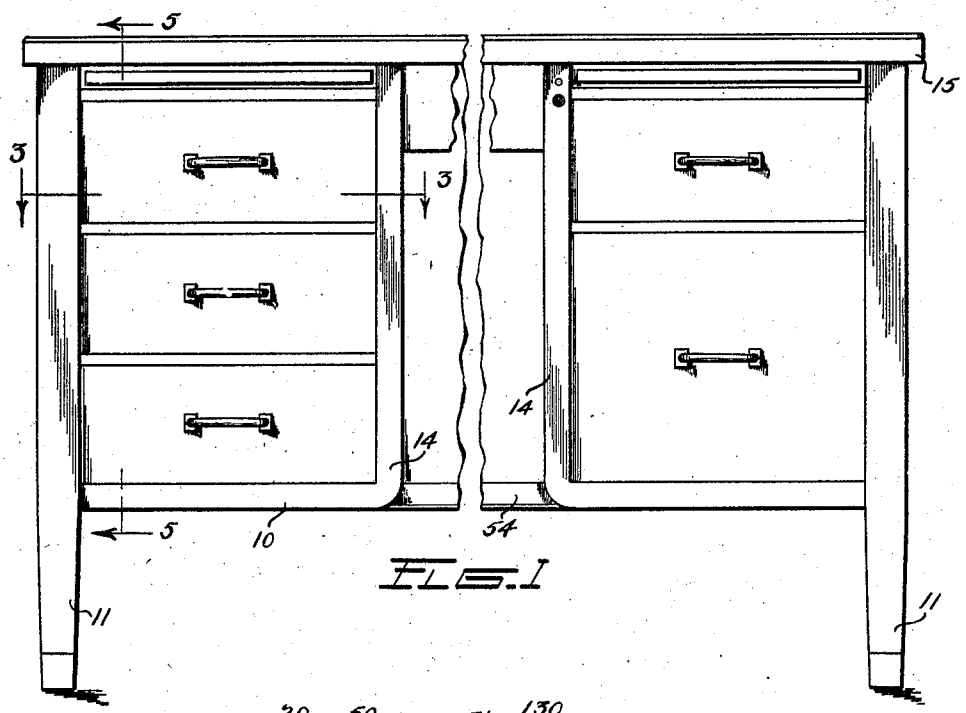



FIG. 1

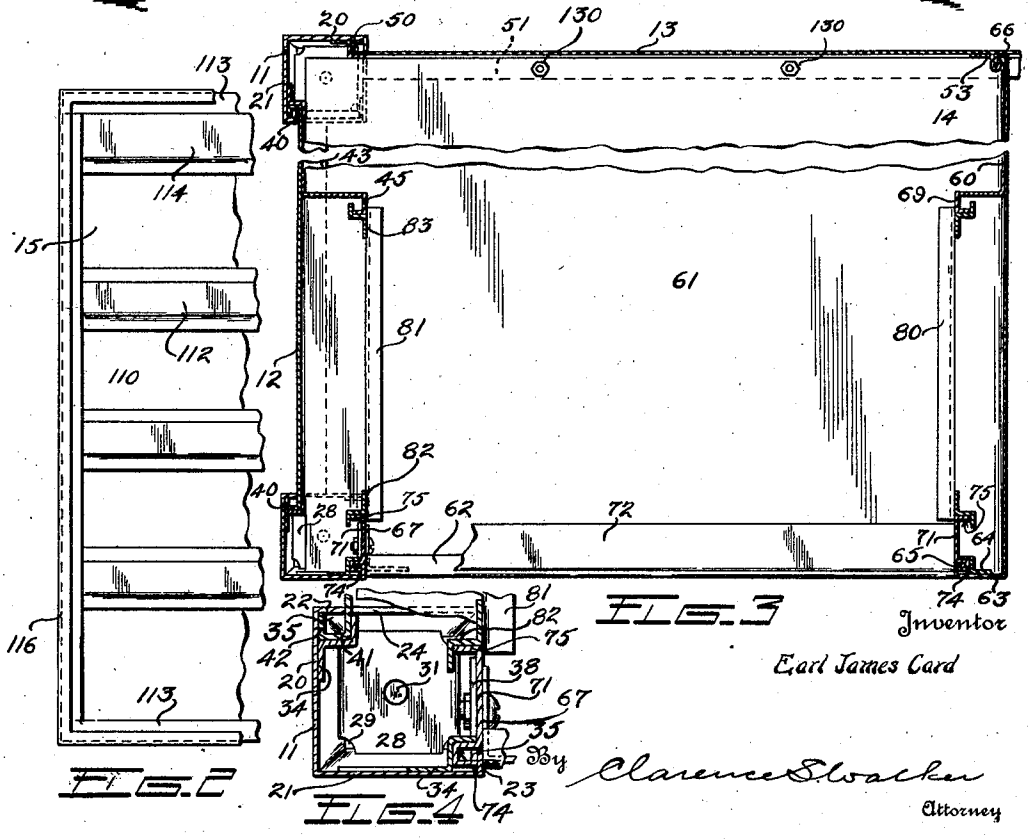



FIG. 3

FIG. 2

FIG. 4

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METAL FURNITURE

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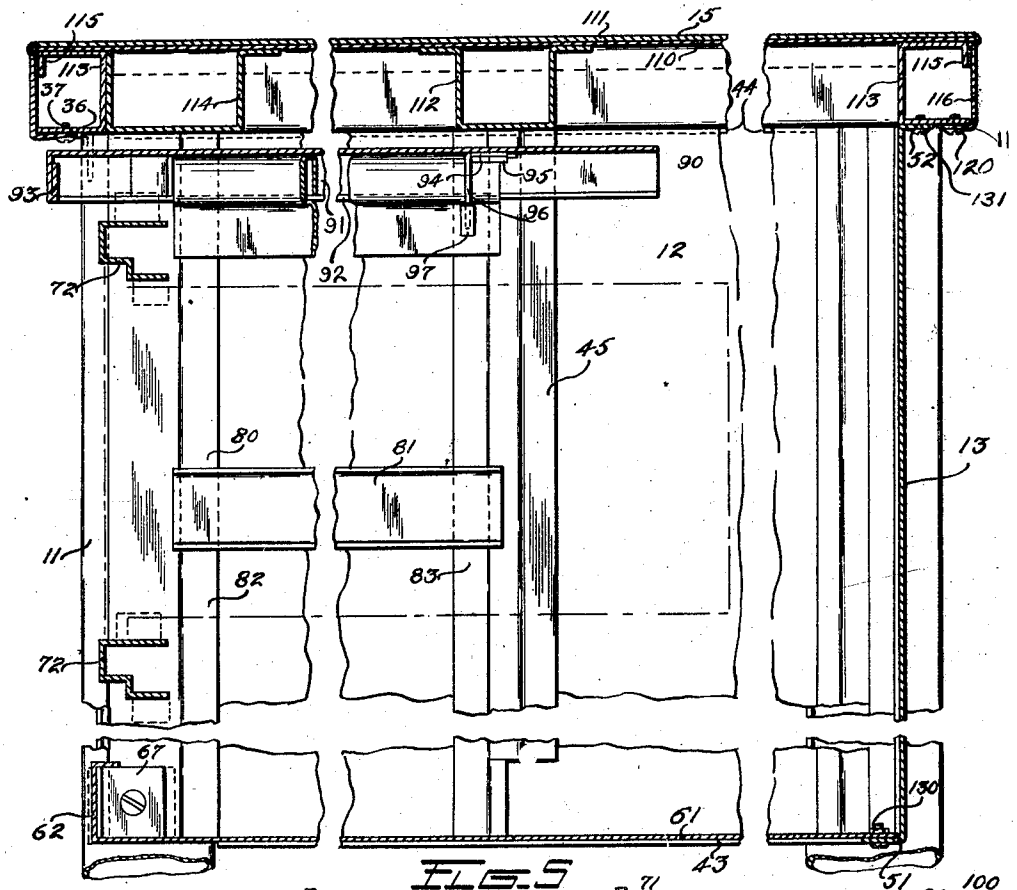


FIG. 5

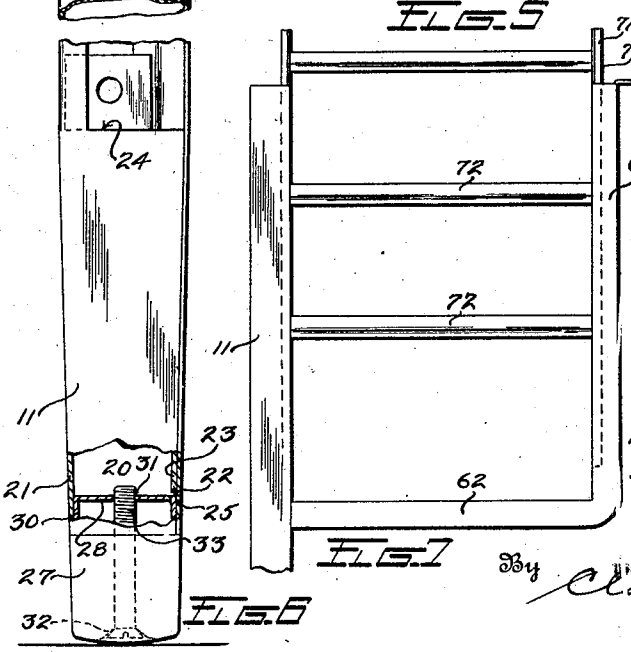


FIG. 6



FIG. 7

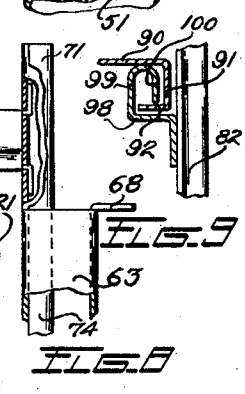


FIG. 8



FIG. 9

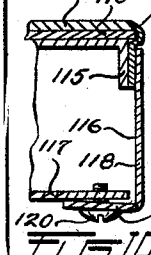


FIG. 10

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# UNITED STATES PATENT OFFICE

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## METAL FURNITURE

Application filed March 29, 1927. Serial No. 179,317.

This invention relates to an improvement in metal furniture and more particularly in the construction and formation of the parts thereof to facilitate assembly into the complete article without sacrificing the strength and rigidity thereof.

Metal furniture, and particularly metal desks, have heretofore been made and constructed chiefly with the view of making a substantial and yet attractive article. By means of the present invention, as will be seen from a consideration of the specification and drawings, a substantial and attractive piece of furniture is provided in which the parts entering into the assembled article are so formed that they may be fitted together with the least possible effort without sacrificing strength for ease of assemblage.

One object of this invention is to provide a piece of metal furniture which, due to its peculiar construction, is quickly and easily assembled with a minimum number of fastening screws.

Another object of this invention is to provide a piece of metal furniture quickly assembled and sufficiently strong to stand up under more than normal usage.

A further object of this invention is to provide a piece of metal furniture, the parts of which are constructed and completely finished before being assembled; and which may be repaired, if found imperfect in any respect, by removing the imperfect part and substituting a perfect part therefor without serious inconvenience either to the purchaser or manufacturer.

Other objects of this invention will appear from a consideration of the following specification taken in connection with the drawings which form a part thereof, and in which:

Figure 1 is a front elevation of a piece of metal furniture embodying this invention, a desk being selected for purpose of illustration;

Figure 2 is a fragmentary bottom plan view of the top of the desk;

Figure 3 is a sectional view of one pedestal of said desk taken on the line 3—3, Fig. 1;

Figure 4 is an enlarged cross sectional view of one of the legs illustrated in Fig. 3;

Figure 5 is an enlarged sectional view taken on the line 5—5 of Fig. 1;

Figure 6 is a side elevation of one of the legs;

Figure 7 is a fragmentary view showing a drawer stop frame partially assembled in a pedestal;

Figure 8 is an enlarged fragmentary view of Figure 7 showing the way in which the stops are supported in the side rails of the frame;

Figure 9 is a fragmentary view of a portion of a sliding leaf and its supporting and guiding means; and

Figure 10 is an enlarged sectional view of a corner of the top of the desk and shows a clamping means for holding the surface of the article in place.

Referring to the drawings, 10 represents the desk which was selected as an illustration of an article of metal furniture embodying this invention and which comprises legs 11, side walls 12, a rear wall 13, pedestals 14, and a top 15.

Each leg 11 comprises two outer walls 20 and 21 at right angles to each other and two inner walls 22 and 23 at right angles to said outer walls. From the upper end of the leg 11 on which the table top 15 is supported down to a ledge 24 upon which, as will be pointed out below, rests a corner of each pedestal 14, the inner walls 22 and 23 are cut away as shown in Figs. 4 and 6. Below the ledge 24, the walls 22 and 23 overlap at their adjoining edges 25 and form with the walls 20 and 21 complete legs tapered as shown in Fig. 6. The walls 20 and 21 are trimmed at their joinder and

the edges welded together at 26 in order to produce a proper taper to the leg.

The bases of the legs 11 carry shoes 27 secured thereto in the following manner. Within the leg 11 is a rectangular plate 28, each corner 29 being cut away and each side terminating in a flange 30. The plate 28 is placed in the leg 11 with the flanges 30 extending downwardly to the lower edges of the leg walls and is secured in that position by any suitable means as for example welding. Through the center of the plate 28 is tapped a hole 31. The tip 27 has a central vertical passage 32 which receives a bolt 33. The bolt 33 extends into the hole 31 with the wall of which it has threaded engagement and thus fixes the shoes 27 to the leg.

Secured to the inner faces of the walls 20 and 21 above the ledge are vertical flanges 34. These flanges correspond in length to the cut away section of the walls 22 and 23 and form therewith rectangular pockets 35 for a purpose to be described later. At the upper end of each outer wall 20 and 21 is fixed to the inner face an angle bracket 36, one arm 37 of which projects outwardly from the leg.

Upon the wall 21 is fixed at right angles a bracket 38 the lower edge of which is at the ledge 24. The bracket 38 projects inwardly from the wall 21 resting against the wall 23 and extending beyond the inner edge thereof. The flange 34 carried by the wall 21 is shorter than the other flange 34 by the height of the bracket 38 and terminates at the upper edge of the bracket 38.

The side walls 12 are of sheet material and have at each vertical end a flange 40. These flanges 40 are hook shaped and are formed by bending the vertical edge of the wall outwardly at right angles to itself at 41 and parallel to the main body of the wall 12 at 42. The flanges 40 correspond in dimension to the pockets 35 and the side walls are interlocked with the legs thereby when the desk is assembled. The wall 12 has in addition to the vertical flanges 40, a horizontal flange 43 projecting outwardly from its upper edge, and a vertical flange 45 projecting inwardly and substantially midway between and parallel to the flanges 40.

The rear wall 13 has vertical flanges 50 identical in construction with the flanges 40 of the wall 12, and these flanges 50 are inserted in the pockets 35, thus interlocking the rear wall 13 to the rear legs 11. The rear wall 13 also has a horizontal flange 51 projecting inwardly from its under edge, a horizontal flange 52 projecting outwardly from its upper edge and vertical flanges 53 which extend substantially the full length of the wall 13. Resting on the flange 51 between the flanges 53 is an angle bar 54 a space being left between the ends of the bar and the flanges 53.

Each pedestal 14 comprises a vertical wall 60, and an under wall 61 integral therewith. The walls 60 and 61 form in conjunction with a side wall 12 and the rear wall 13 a closed and dust proof compartment. The front edge 62 of the under wall 61 of the pedestal is flanged upwardly and inwardly at right angles thereto to give a finished appearance to the front of the pedestal which flange terminates short of the outer edge of the wall 61. The front edge 63 of the vertical wall 60 is flanged laterally and inwardly at right angles to form a corresponding finished face to the vertical wall of the pedestal. Referring particularly to Fig. 3 it will be noticed that a vertical double right angle flange 64 is secured to the inner face of the edge 63 providing therewith a pocket 65 which corresponds in shape and depth to the pocket 35 of the leg 11 and is substantially in line therewith. The rear edge 66 of the wall 60 is also flanged laterally and inwardly to engage the flange 53 on the wall 13. An angle bracket 67 is fixed in the flange 62 at the outer end thereof and a second angle bracket 68 is fixed at the upper edge of the wall 60 and projects outwardly therefrom. Fixed upon the inner face of the wall 60 midway its width is a vertical flange 69 which is opposite the flange 45 on the wall 12 and similar in construction thereto.

Fixed in each pedestal 14 is a drawer stop frame 70 comprising side rails 71 and stops 72, the ends of said stops being firmly secured to the side rails 71 as shown in Fig. 8. The side rails 71 at their forward edges have triple right angle flanges 74 which are slid into the pocket 35 in the leg 11 and pocket 65 of the pedestal 14, and at their rearward edges have outwardly extending flanges 75. Thus the drawer stop frame 70 is, as shown in Figs. 7 and 8, slidably mounted in the pedestal 14 between a front leg 11 and the vertical wall 60 of the pedestal. The flange 74 of the outer rail 71 of each frame 70 is terminated along the lower edge of the rail by the height of the bracket 38.

Two drawer slide frames 80 are provided in each pedestal and each comprises slides 81 mounted at each end upon vertical flange supports 82 and 83 (each Z-shaped in cross section). The forward support 82 of each frame engages the flange 75 of a rail 71 while the rearward support 83 of the left frame (Fig. 3) engages the vertical flange 45 on the side wall. The flange 83 of the right frame (Fig. 3) engages the flange 69 on the pedestal wall 60.

Above the upper drawer stop 72 of each frame 70 and below the top 15 is located a desk leaf 90. This leaf, as shown in Figs. 5 and 9, is of sheet metal and has flanges 91

and 92 extending longitudinally along each side. The outer end of the leaf 90 terminates in a vertical flange 93 which not only creates a finished appearance to the end of the leaf, but acts as the means for drawing out the leaf for use. A strap 94 secured to the under face near the inner end of the leaf is dished at 95 to provide a recess which receives an angle bracket 96. The bracket 96 when inserted in the recess of the plate 94 projects below the upper face of the upper stop 72 and thus prevents the involuntary removal of the leaf 90 from the desk. A rubber or other cushioning means 97 secured to the bracket 96 at its lower end cushions the contact of the bracket with the upper stop 70 when the leaf 90 is pulled out to its limit. This leaf is slidably supported upon tracks 98 secured to the supports 82 and 83 of the drawer guide frames 80. Each track 98 comprises a flange 99, the upper part 100 of which is curved back upon itself terminating short of the base of the flange as shown in Fig. 9. It will be noted that the leaf 90 is supported upon its track an appreciable distance below the desk top so that the leaf may be faced with glass or other covering without in any way interfering with the sliding action thereof.

Referring particularly to Fig. 9 it will be noticed that the curved portion 100 of the track takes the weight of the leaf 90 at all times during its sliding action. The flanges 92 extend into the space below that portion so that, when the leaf is withdrawn from the desk, any pressure tending to tilt it will be counteracted by the flanges 92 below the curved part 100 of the flange 99. The flanges 91 being at the sides of the part 100 limit the lateral play of the leaf. Thus it will be apparent that the inter-engagement of the leaf and tracks alone limits the play of the leaf and that the leaf at no time contacts with the top 15 of the desk. This manner of supporting a desk leaf gives to the leaf a smooth sliding action with substantially no vertical or lateral play and admits of more than normal pressure upon the leaf.

The desk top 15 is constructed as a unit and includes a backing plate 110 on which rests a sheet 111 of glass, linoleum, or any other finishing material. Channel members 112 are secured to the under surface of the backing plate 110 with the open side against the plate and extend longitudinally giving support and rigidity to said top. Secured to the under surface of the backing plate 110 along each edge are channel members 113 open at their outer sides. The channel member 112 nearest the front of the top is secured to the under face of the plate 110 directly in back of the member 113. This channel member, designated as 114, rests directly upon the front legs and from it the pedestals are suspended. Since it bridges the space between the front legs 11, it takes any load or pressure on the desk top between the legs and prevents it from being transmitted to the pedestals.

Along the upper edge of each open side of the channel members 113 is a downwardly projecting vertical flange 115. The open side is closed by an angle plate 116 carried by the lower wall 117 of the member 113 and extending past the flange 115. The angle plate 116 comprises a vertical member 118 and a horizontal member 119 at a slightly acute angle to each other. The horizontal member 119 is secured to the under face of the wall 117 by means of screws 120 (see Fig. 10). Between the member 118 and the flange 115 is a strip 121 which is formed at its upper edge to curve over and engage the edges of the backing plate 110 and the sheet 111 and thus securely hold the sheet 111 in place on the plate 110. Referring particularly to Fig. 10 it will be noticed that when the member 119 of the plate 116 is loosely assembled to the wall 117 the strip 121 may be located in the space between the member 118 and the flange 115. Upon tightening the screws 120, thereby drawing the member 119 and wall 117 together, the member 118 is forced upwardly engaging the curved shoulder of the strip 121 and forcing it over and against the edge of the sheet 111 thereby securely clamping it in place. This clamping action of the angle plate 116 upon the strip 121 provides a very simple and accessible means of securing and releasing the facing material so that it can be removed and replaced without difficulty when desired.

Before assembling the desk each element is completely finished separately including the steps of painting, enameling, etc. The lower portion of the desk is first assembled in the following order. The side walls 12 and the rear wall 13 are interlocked with the legs 11 by means of the flanges 40 and 50 and the pockets 35, their lower edges resting upon the ledges 24 which act to determine the position of said walls. The pedestals 14 are next set in place being interlocked with the rear wall 13 by the flanges 53 and the flanged edges 66. The under wall 61 of the pedestal rests upon the ledges 24 and upon the flanges 43 and 51 of the side and rear walls and is secured to the flanges by means of screws or bolts 130. The angle bar 54 fills the space between the pedestals. The drawer stop frame 70 is then inserted within each pedestal and interlocked with the pedestal and leg, the flanges 74 entering the pockets 35 and 65 (see Fig. 3). The rail 71 of the drawer stop frame 70 enters the space between the brackets 38 and 67 and is bolted to both brackets, thus securing the frame both to the leg and the

pedestal and preventing any relative shifting of said parts.

The drawer slide frames 80 are next slid into place being interlocked at their forward ends with the rearward flanges 75 of the side rails 71 and at their rearward ends with the flanges 45 and 83 respectively on the walls 12 and 60. The leaf 90 may be slid into place on the tracks 98, the bracket 96 being placed in the recess of the strap 94 after the strap has passed the stop 72.

The body of the desk being now assembled, the top 15 is placed thereon resting upon the tops of the legs 11. The top is secured to the legs 11, the side walls 12, the rear wall 13, and the pedestals 14 by means of screws or bolts 131 which pass through holes in the brackets 36, flanges 44, flange 52, and brackets 68, and enter the lower walls 117 of the channel members 113.

By reason of the construction thus described the necessity for any front center legs is eliminated, the pedestals being securely supported from the top and being interlocked and braced from the front legs by the drawer stop frames. Moreover, the channel member 114, as previously pointed out, acts with the front channel member 113 to resist any tendency of the top to yield and put any stress on the pedestals.

While this invention has been shown and described as applied to a desk, it is, of course, applicable to other forms of metal furniture; and although only one embodiment of this invention has been shown and described, applicant is not limited thereto since it is obvious that other embodiments can be made without departing from the spirit and scope of this invention as set forth in the following claims.

Having thus set forth my invention, what I claim as new and for which I desire protection by Letters Patent is:

1. A metal desk comprising a plurality of legs; side and rear walls, and channular slidable interlocking means for securing said side and rear walls to said legs; pedestals, drawer slide frames, drawer stop frames, top, and means for securing said pedestals, frames, and top to said legs, and said vertical walls.

2. A metal desk comprising a plurality of legs, side and rear walls interlocked thereto and against all horizontal movement therewith; pedestals interlocked to said rear wall, drawer slide frames, drawer stop frames; means for securing said drawer stop frames to said legs and said drawer slide frame, and a top secured to said walls and pedestals.

3. A metal desk comprising a plurality of flanged legs, side walls and rear wall, vertically flanged at their ends and interlocking throughout their length with the flanges on said legs; pedestals secured to said rear wall, drawer stop frames in said pedestals; drawer slide frames secured to said side walls and to said drawer stop frames, and a top secured to said walls and pedestals.

4. A metal desk comprising a plurality of legs, side and rear walls interlocked to said legs, flanges secured to said walls, pedestals flanged at their rear edges and interlocking with corresponding flanges on said rear wall, and secured to horizontal flanges on said side and rear walls; drawer slide frames, drawer stop frames, means for securing said frames to said legs, side walls and pedestals, and a top secured to said walls and pedestals.

5. A metal desk comprising a plurality of legs, side and rear walls interlocked to said legs, pedestals secured to said side and rear walls; drawer stop frames, flanges on said frames, pedestals and side walls; drawer slide frames provided with vertical flanges interlocked with the flanges on said side walls, drawer stop frames; means for securing said drawer stop frames to said legs, and pedestals, and a top secured to said walls and pedestals.

6. In a metal desk, a plurality of legs having inner and outer walls, flanges secured to the inside face of said outer walls, which flanges in conjunction with said inner walls form pockets; and side walls having flanges at their ends, said side wall flanges entering said pockets and interlocking said side walls to said legs.

7. In a metal desk, a plurality of legs, side and rear walls interlocked therewith, horizontal flanges, integral with said side and rear walls, and projecting inwardly from said walls, a vertical flange secured to the inside face of said rear wall intermediate said legs; a pedestal comprising a vertical wall and an under wall, said vertical wall being flanged at its rearward end engaging and interlocking with the vertical flange secured to said rear wall, and said under wall being supported upon the horizontal flanges of said side and rear walls and secured thereto.

8. In a metal desk, a leg, a flange secured to the inside face of one wall of said leg, a pedestal including a vertical wall, a flange secured to the inner front portion of said wall, and a drawer stop frame, said frame including vertical rails flanged at their forward and rearward edges and adapted to engage and interlock with the flange of said pedestal wall and with the flange in said leg.

9. In a metal desk, a plurality of legs having inner and outer walls, flanges secured to the inside face of said outer walls, which flanges in conjunction with said inner walls form pockets; a side wall flanged at

its ends and entering certain pockets in said legs, a vertical flange secured to said side wall, a drawer stop frame having a side rail, said rail being flanged at its forward and rearward edges, the flanged forward edge entering a pocket in one of said legs thus interlocking said rail to said leg; a drawer slide frame having forward and rearward flanged supports, the forward support engaging the rearward flange of said rail, and the rearward support engaging the flange secured to said side wall.

In testimony whereof I have affixed my signature.

EARL JAMES CARD.