

March 12, 1929.

E. J. CARD

1,705,151

DESK

Filed April 12, 1923

5 Sheets-Sheet 1

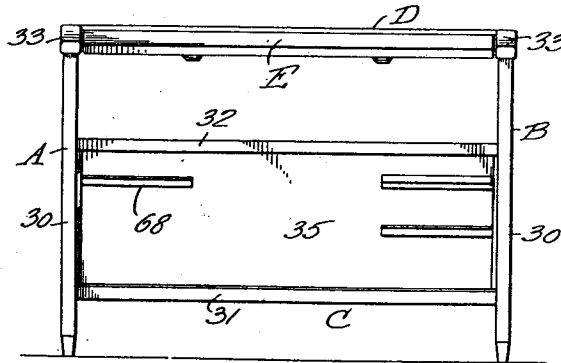


Fig. 1.

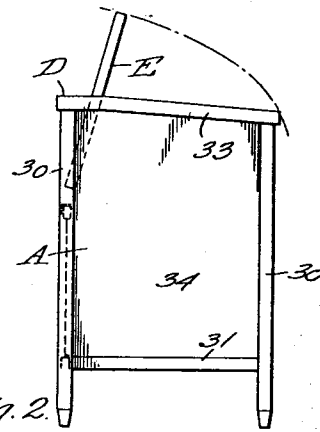


Fig. 2.

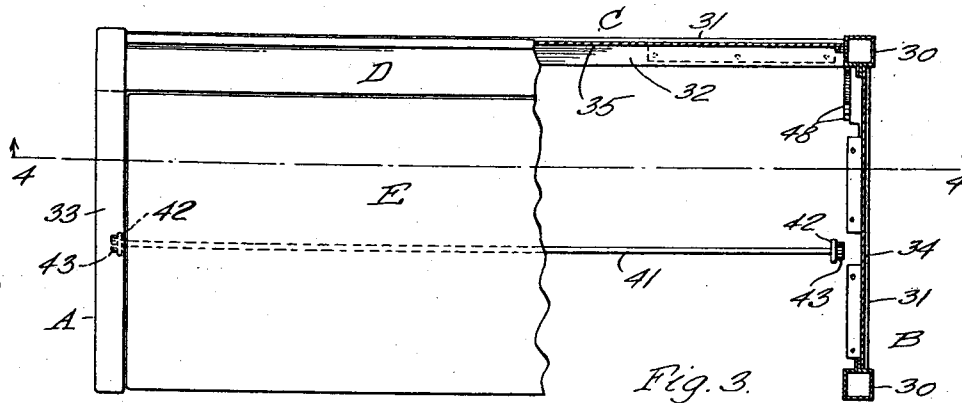


Fig. 3.

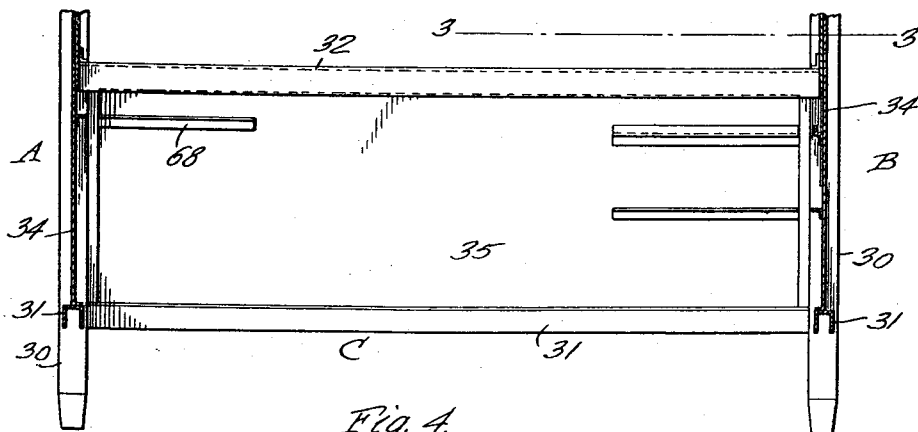


Fig. 4.

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5 Sheets-Sheet 2

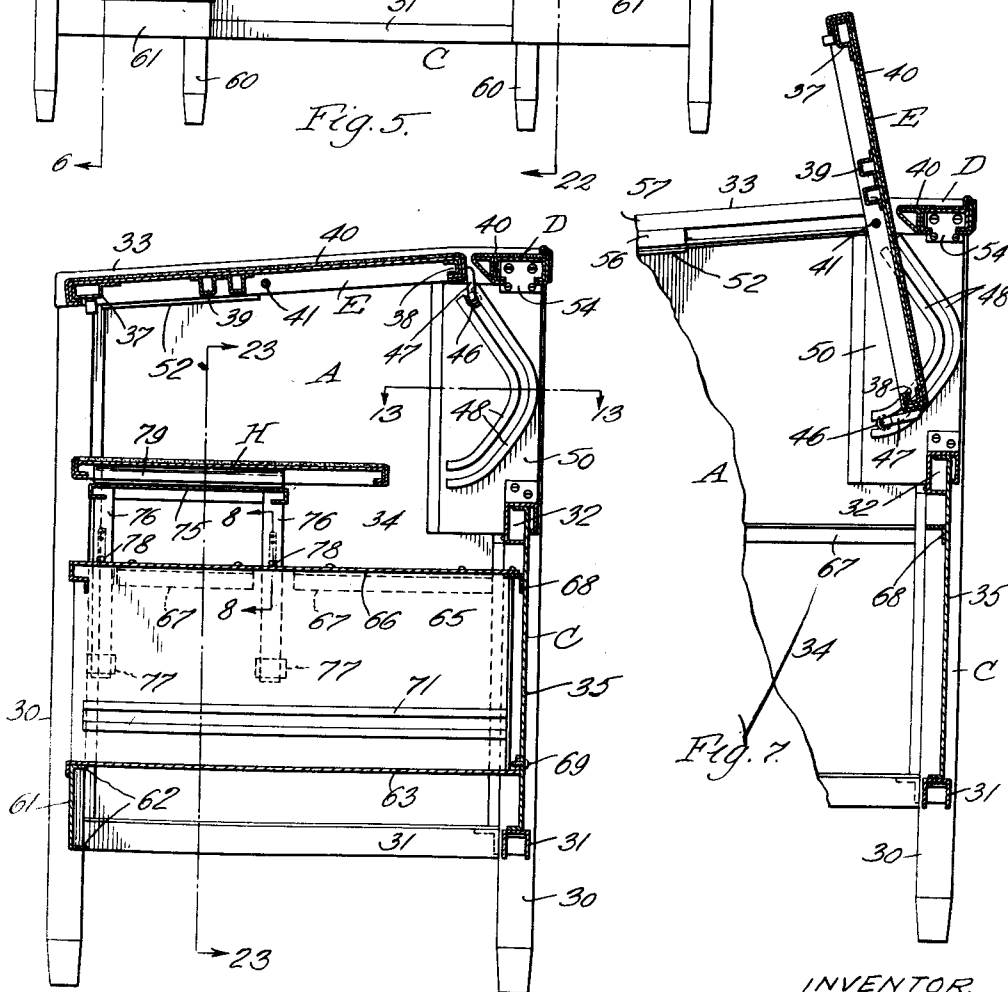
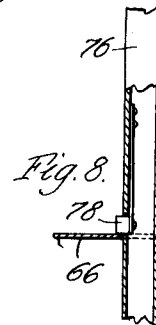
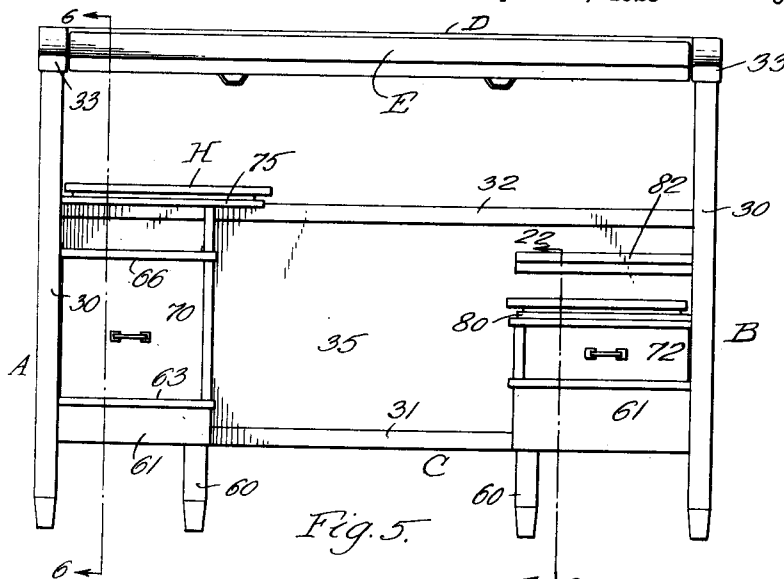


Fig. 6.

Fig. 7.

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5 Sheets-Sheet 3

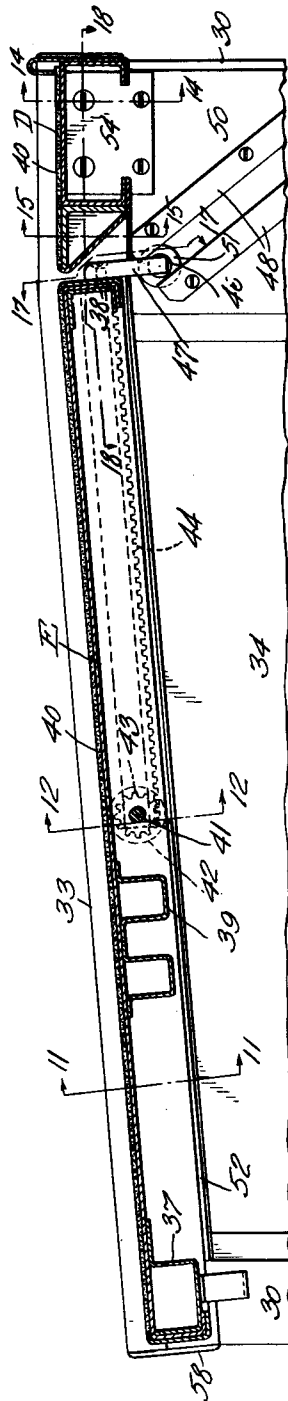


Fig. 9.

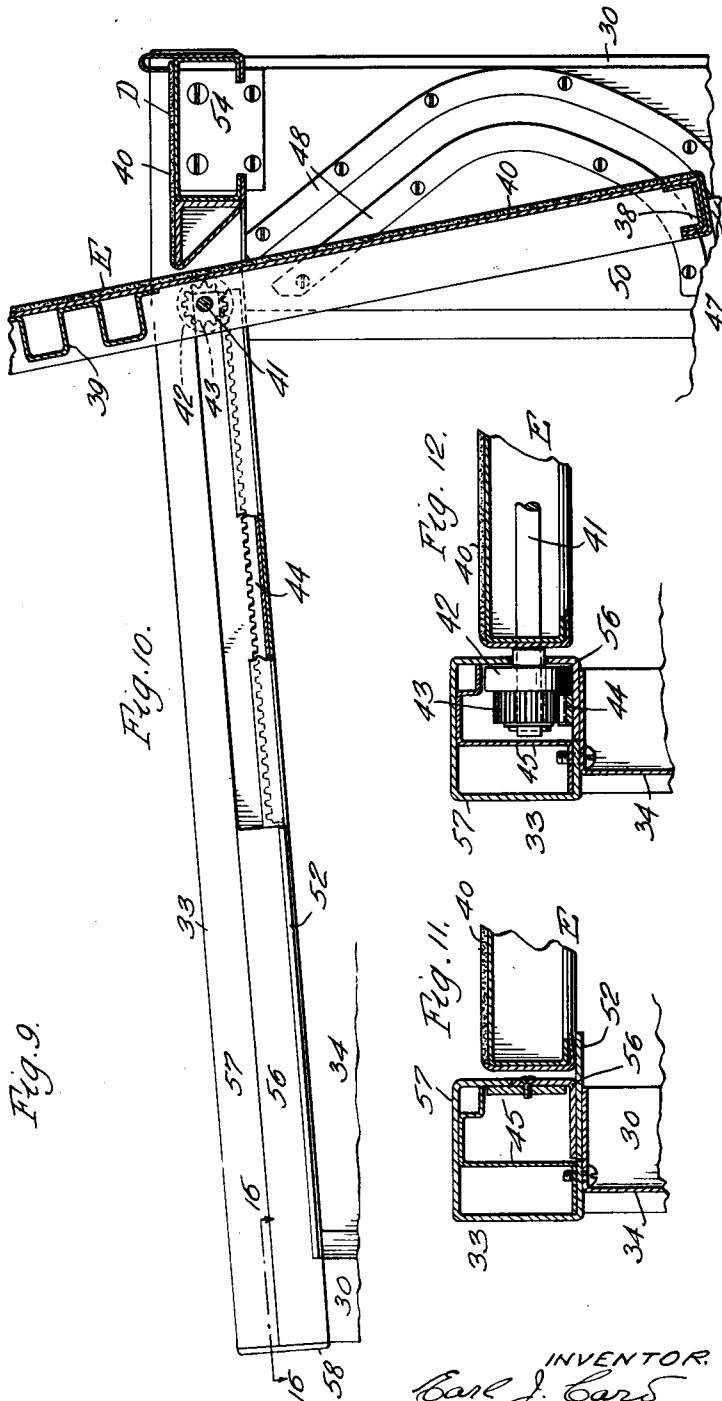
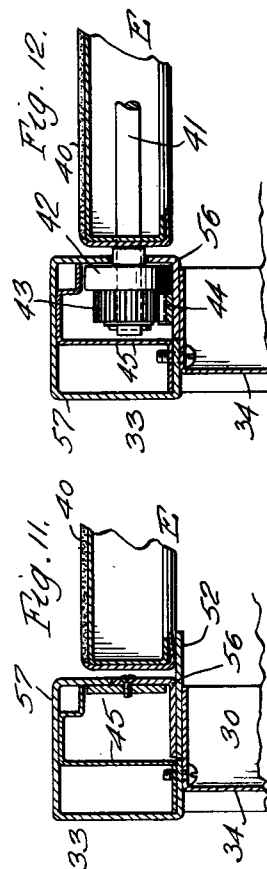


Fig. 10.



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5 Sheets-Sheet 4

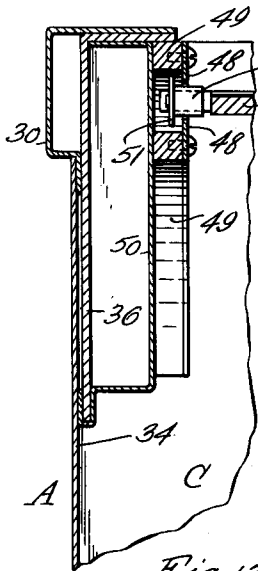


Fig. 13.

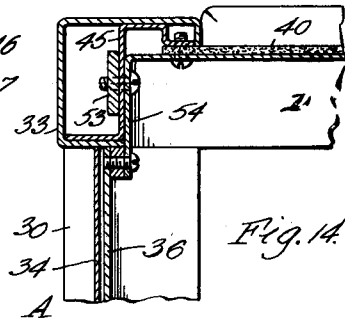


Fig. 14.

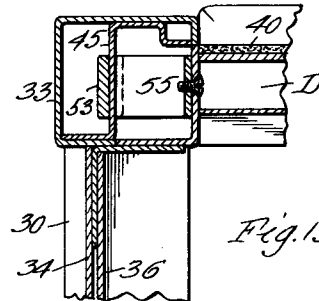


Fig. 15.

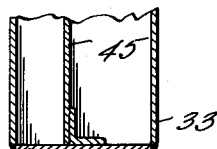


Fig. 16.

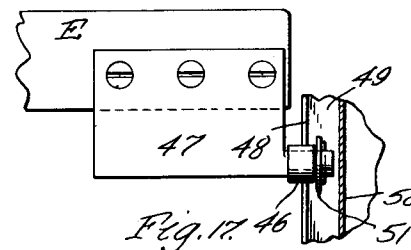


Fig. 17.

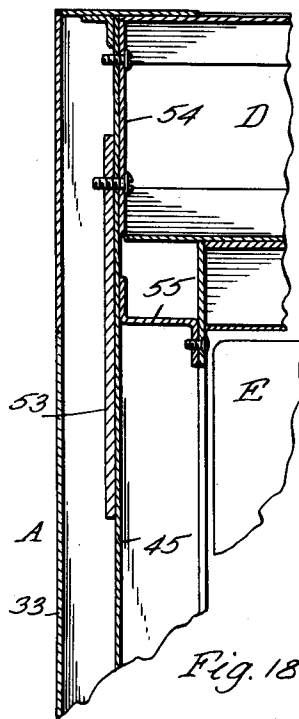


Fig. 18.

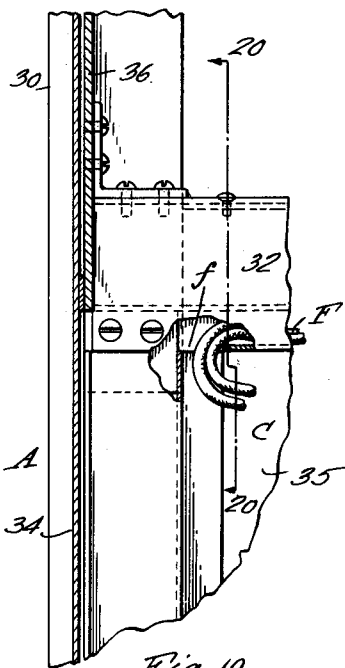


Fig. 19.

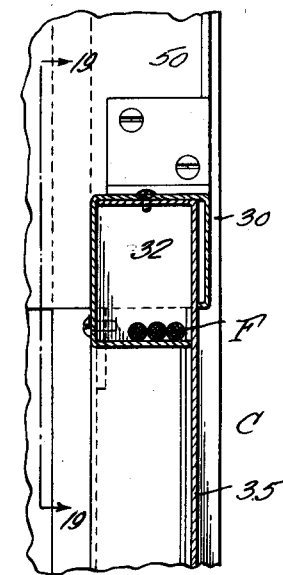


Fig. 20.

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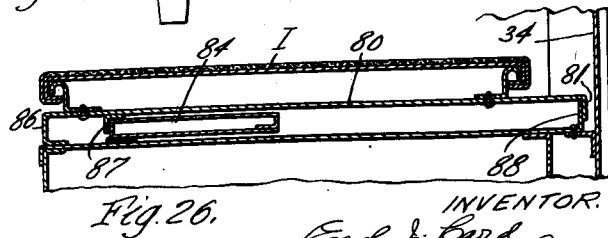
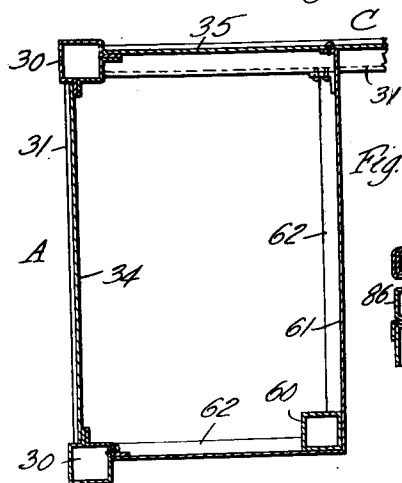
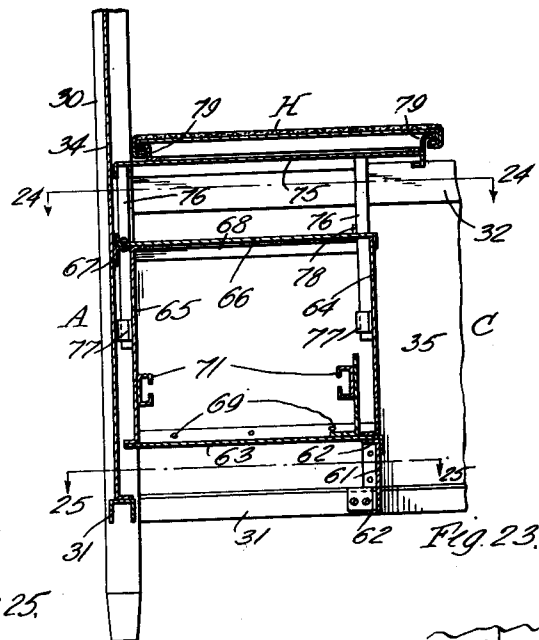
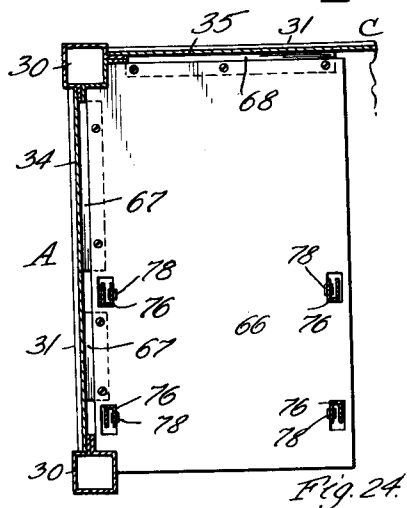
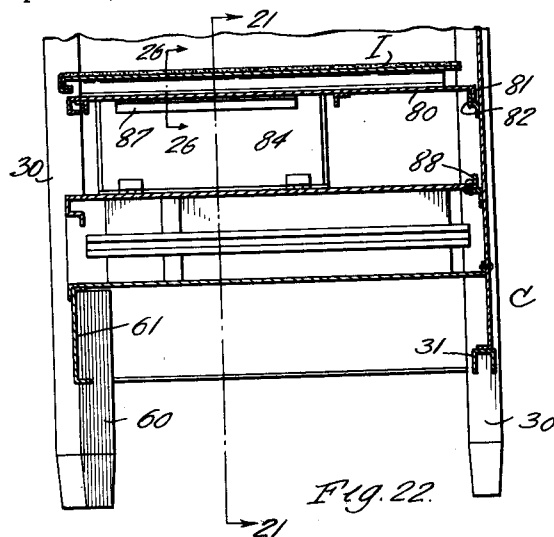
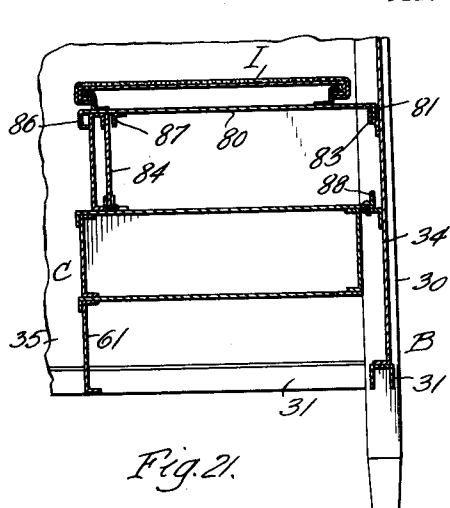
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DESK

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5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE.

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DESK.

Application filed April 12, 1923. Serial No. 631,713.

This invention relates to improvements in desks and more particularly in metal desks adapted for use for bookkeeping and posting work or the like, which are provided with
 5 a high desk top or supporting surface located at a suitable elevation for use by a person standing at the desk, and to permit a typewriting or analogous machine and one or more lower desk tops to be housed within
 10 the desk beneath said top which is adapted to be moved out of the way so as to uncover and permit the use of said machine and said lower desk top or tops, which is or are suitably positioned for use by a person while sitting or for supporting records or other objects in convenient position, said typewriting machine and lower desk top or tops with any
 15 objects thereon being adapted to remain in position undisturbed under the high desk top when the latter is in its operative position.

One of the objects of this invention is to produce a metallic desk of this kind, which is of practical, desirable, strong and durable construction, and can be readily manipulated
 25 or adjusted for its intended purposes. Other objects of the invention are to construct and arrange the high top so that it can be made in one rigid part and moved easily and freely with the minimum exertion to and from its
 30 operative or supporting position; also to mount said top on the desk so that it is adapted to move rearwardly and swing to an upstanding position at the rear of the desk, by means of rolling supports which are geared
 35 to toothed racks that cause the rollers at the opposite ends of the top to move in unison and always retain the top in parallelism with its supports and prevent possible binding or sticking of the top in its movements; also to
 40 construct the desk so that when said movable top is in its operative or supporting position, an opening is provided at the upper, rear portion of the desk which affords free ventilation and the escape of heat from the space
 45 covered by the top, while the top, in its upstanding inoperative position substantially closes said ventilating opening and cooperates with the back of the desk to form a high rear screen for the operator at the desk; also
 50 to provide within the desk below the movable high top, one or more lower desk tops or supporting surfaces which is or are adapted to be supported at different elevations most suitable for different purposes; also to construct the desk so that the main desk struc-

ture, comprising connected end and back members and the movable high top, can be made of one standard construction and can be provided with low desks or pedestals of one or another form, or furnished with drawers, shelves or other equipment as may be desired to suit different users, or purposes; also to improve metal desks in the other respects hereinafter described and set forth in the claims.

In the accompanying drawings:

Fig. 1 is a front elevation of the main frame or structure of a desk embodying the invention, the pedestals being removed and only the upright walls and movable, high top being
 70 shown.

Fig. 2 is a side elevation thereof, indicating the inoperative or upright position of the top.

Fig. 3 is a plan view thereof partly in section on an enlarged scale on line 3—3, Fig. 4.

Fig. 4 is a longitudinal, sectional elevation thereof on line 4—4, Fig. 3.

Fig. 5 is a front elevation of the desk showing two pedestals with low desk tops in place
 80 therein.

Fig. 6 is a transverse sectional elevation thereof, on a larger scale, on line 6—6, Fig. 5.

Fig. 7 is a fragmentary view, similar to Fig. 6, showing the high desk top moved to
 85 its upright position.

Fig. 8 is a section on line 8—8, Fig. 6, showing one of the adjustable supports for the low desk top of the left hand pedestal.

Fig. 9 is an enlarged, transverse section of the upper portion of the desk.

Fig. 10 is a similar view showing the upright, inoperative position of the top.

Figs. 11 and 12 are sections thereof on lines 11—11 and 12—12 respectively, Fig. 9.

Fig. 13 is a horizontal section of the desk on line 13—13, Fig. 6.

Figs. 14 and 15 are vertical sections on lines 14—14 and 15—15 respectively, Fig. 9.

Fig. 16 is a horizontal section on line 16—16, Fig. 10.

Fig. 17 is a vertical section on line 17—17, Fig. 9.

Fig. 18 is a horizontal section on line 18—18, Fig. 9.

Fig. 19 is a section on line 19—19, Fig. 20.

Fig. 20 is a section on line 20—20, Fig. 19.

Fig. 21 is a longitudinal vertical section on line 21—21, Fig. 22, of the right hand pedestal.

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Fig. 22 is a transverse vertical section of said pedestal on line 22—22, Fig. 5.

Fig. 23 is a longitudinal vertical section of the left hand pedestal, on line 23—23, Fig. 6.

Figs. 24 and 25 are horizontal sections thereof on lines 24—24 and 25—25 respectively, Fig. 23.

Fig. 26 is an enlarged, fragmentary longitudinal section of the right hand pedestal on line 26—26, Fig. 22, with its top lowered.

The main frame or body of the desk comprises two upright end members or walls A and B rigidly connected at their rear portions by an upright back member or wall C, and preferably also by a horizontal top bar D at the upper, rear portion of the desk. Extending from end to end of the desk at the upper portion of the main frame or body is a movable, high desk top E, which is adapted to be supported in the operative position shown in Figs. 6 and 9, in which it preferably slopes forwardly slightly, suitable for use by a person standing at the desk, and is arranged to slide and swing rearwardly and upwardly to the substantially upright or upstanding position at the rear of the desk, shown in Figs. 7 and 10.

The main frame or body of the desk is preferably constructed as follows:

30 indicates four hollow, square, metal, corner posts rigidly connected near their lower portions by horizontal rails or bars 31, preferably of inverted U-shape. The two rear corner posts 30 are connected at their upper ends by the horizontal top bar D and between their ends by an intermediate, horizontal frame bar 32, which is preferably of substantially square, hollow form. The two corner posts at each end of the desk are connected by a hollow top rail or bar 33 which extends from the front post at one end of the desk to the rear post at the same end. Sheet metal end plates or panels 34 extend vertically from the lower end bars 31 to the top end bars 33, being welded or otherwise suitably secured rigidly to the upper and lower bars and to the corner posts and forming the vertical end walls of the desk. A vertical, rear plate or panel 35 extends from end to end of the desk between the lower, rear bar 31 and the intermediate, rear bar 32, being suitably secured by welding or otherwise to these bars and to the corner posts. The upper edge of the sheet metal wall 35 preferably extends up within the intermediate bar 32 which forms a strong, rigid top finishing rail for the rear wall 35, and is made large enough to provide a convenient conduit for electrical conductors F, for lamps or other electrical devices on or about the desk. The conductors can enter or leave the conduit through openings therein at suitable points, as indicated for instance at f in Fig. 19.

The connections of the ends and back of the

frame are preferably additionally strengthened by heavy corner plates 36, see Figs. 13, 14 and 19, which extend vertically from the rear rail 32 to the top end rails 33 at the inner side of the end plates and into the corner posts 30, being suitably welded or secured to these parts.

The desk top E is preferably formed by a sheet metal plate having its edges bent downwardly and inwardly to form stiff front, end and rear edge flanges for the top. The front edge is preferably reinforced by a bent sheet metal strip 37 which extends within the front flange of the top plate and is brazed or otherwise suitably secured thereto, forming a hollow bar at the front edge of the top. The rear edge of the top is preferably reinforced by a metal channel strip 38 welded or otherwise secured within the rear flange of the top plate. Between its front and rear edges, the top is also preferably stiffened by means of a sheet metal piece 39 preferably of double channel shape, which is welded or otherwise secured to the under face of the top plate. The top E and the top bar D are also preferably covered with sheets of any usual or suitable covering material 40 secured by the usual edge finishing strips.

The top E is movably supported between the upright ends of the desk, preferably by a shaft or rod 41 which extends lengthwise of the top, intermediate of its front and rear edges, through the end flanges of the top into the hollow, top bars 33 of the ends of the desk. Secured on the opposite ends of this shaft 41 within the end top bars 33, are rollers 42 adapted to roll on the inner faces of the bottom of the end bars 33. Also secured on the ends of the shaft 41 are two pinions 43 adapted to mesh with toothed racks 44 secured in the end bars 33. The top E is thus adapted to tilt or swing about the axis of the shaft 41, and the rollers are adapted to roll on the end bars 33 as tracks, so that the top can be shoved rearwardly and tilted or swung upwardly from its operative position to an upstanding position, as shown most clearly in Figs. 7 and 10. The pinions 43 meshing with the racks 44 insure equal movement of the opposite ends of the shaft and top and always hold the shaft 41 parallel with itself in the forward and rearward movements of the top so that it is impossible for the top to be moved out of its intended position with its ends parallel with the ends of the desk, and thus the top is prevented from possible binding or sticking in its movements. The rollers 42 are confined between the inner side walls of the rails 33 and the toothed racks and being held from endwise movement on the shaft 41, the latter serves as a tie to hold the upper ends of the end walls in their intended relation. Flanged stiffening strips 45, see Figs. 11 and 12 are preferably secured in the hollow, top rails 33 and downwardly offset parts of the

upper flanges of these strips overhang the rollers 43, thereby preventing the pinions from being lifted out of engagement with their racks.

5 On the rear corners of the top E, two guide rollers 46 are journaled, as by brackets 47 secured to and depending from the top, and these rollers 46 extend into and are adapted to travel in curved guideways on the inner
10 sides of the end members of the desk beneath the top bar D. Each of these curved guideways is preferably formed by spaced, parallel, curved bars 48, see Fig. 13, secured on spacing strips 49 on a bent sheet metal filler
15 piece 50, secured on the end wall of the desk. The bars 48 preferably project towards each other beyond the adjacent edges of the spacing strips. Washers 51 secured to the journals for the rollers 46 at the outer ends of the
20 rollers are adapted to engage the overhanging edges of the guide bars 48 and thus prevent possible disengagement of the rollers from their guideways. In its normal or operative position, the ends of the top E are
25 adapted to rest at their front portions upon ledges or plates 52, Fig. 9-11, which project inwardly from the upper portions of the end walls of the desk, and the rollers 46 bear against the edges of the guide bars 48 at the
30 upper ends thereof. The top is thus held in its operative or forwardly sloping position, but by pushing rearwardly and upwardly on the front edge of the top, the rollers 46 will move downwardly in the curved guideways
35 48, and the rollers 42 will roll along their tracks in the end bars 33, thus permitting the top to be slid rearwardly and swung upwardly to the upstanding position shown in Figs. 7 and 10.

40 Preferably the connections of the rear ends of the end top rails 33 with the back bar D are reinforced and strengthened by bars 53, Figs. 14 and 18, suitably secured to the stiffening strips 45 in the end rails and to the
45 downbent ends 54 of the back bar D. 55 is a Z-shaped brace in the rear end of each rail 33 between its inner wall and the stiffening strip 45. The front portions of the hollow end rails are built up of separate sections 56,
50 57, Figs. 10 and 11, to facilitate the assembling of the rollers, racks, etc. in the rails, and after assembling the parts, the sections of the rails are welded or secured together and the front ends of the rails are closed by welded
55 end plates 58, Fig. 16.

The desk shown is provided within its opposite end portions in the angles formed by back and end members of the desk with two
60 pedestals which are separated by an open space to permit a stand carrying a typewriting or other machine to be placed between the pedestals beneath the high desk top E. These pedestals terminate below the movable
65 top E and support two low desk tops H and I, at suitable heights to be used for writing

purposes by a person sitting at the desk, or to serve as supports for books, trays, or other objects which it may be necessary to use with the desk. The pedestals may be alike or different, and provided with drawers or other
70 equipment, as may be desired. In the construction shown, the pedestals are different, the left hand one being taller than the right hand pedestal, and being provided with a
75 deeper drawer, but in each case the pedestal structure, which is separate from the main frame or body structure of the desk hereinbefore described, is secured at its outer side and rear end respectively to the upright end and
80 back members of the main frame, and the front corner of each pedestal is supported by an upright leg 60. In the construction shown, the left hand pedestal has an L-shaped base or sill 61 in the angle of which the pedestal leg 60 is secured. One portion of this sill
85 extends lengthwise to and is secured to the front corner post 30 of the desk, and the other portion of the sill extends rearwardly from the leg 60 and is secured to the horizontal bar 31 and wail 35 of the back of the desk. This
90 sill is preferably provided with inbent, upper and lower flanges 62, see Figs. 6 and 23, and secured on the upper edges of the two portions of the sill is a horizontal bottom plate 63. Rising from and secured to the opposite edges
95 of this bottom plate are two upright, side walls 64 and 65, see Fig. 23, which are connected at their upper edges by a top plate 66. These pedestal walls 63-66 form a compartment or chamber for the reception of a
100 drawer or for any other purpose. The top plate is attached by screws or other fastenings at its outer, forwardly extending edge to an angle bar 67 which is welded or otherwise secured on the adjacent
105 end wall of the desk, and the rear edge of the top plate is similarly attached to an angle bar 68 secured to the back wall of the desk. The rear end of the bottom plate 63 is also preferably attached by screws or other suitable
110 fastenings 69 to the back wall of the desk. The pedestal is thus rigidly secured in place to the upright end and back walls of the main frame or body of the desk so that the pedestal serves as a brace or corner stiffening member
115 for the back and end walls of the desk. The bottom and top plates 63 and 66 of the pedestal are bent at their front edges to provide finishing flanges for the front of the drawer compartment, and the drawer which is shown at
120 70, is adapted to slide in and out in the compartment on suitable guides, such for instance as shown at 71.

The other pedestal is of similar construction except that it is not as tall as the left
125 hand pedestal and it has a shallower drawer 72 and deeper sill 61. The pedestals, however, may be alike, or of any suitable different form, depending upon their intended use. Each of the desk tops or shelves H and I is
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preferably adjustably supported on its pedestal so that it can be stationarily supported at either of two different elevations suitable for different uses, and each of the tops or shelves H and I is also preferably slidably mounted so that it can be pulled out to extend forwardly beyond the pedestal, or can be shoved in to a position with its front edge substantially flush with the front face of the pedestal. For this purpose, in the construction shown, the desk top H is slidably mounted on a horizontal supporting member 75 which is rigidly secured to and connects the upper ends of four corner posts or legs 76. These posts extend through guide openings in the top 66 of the pedestal and through suitable guide brackets 77 on the side walls 64 and 65 of the pedestal, the posts 76 being adapted to slide up and down in these guides. The supporting member 75 can rest upon the top of the pedestal with its posts 76 extending down into the pedestal, or it can be lifted with the desk top H carried thereby and supported in the raised position shown in Fig. 6, by suitable catches on the posts 76, adapted to bear upon the top of the pedestal. Spring catches 78 are shown for this purpose, see Fig. 8, secured in posts 76, and having lugs at their lower ends adapted to project through holes in the posts for engagement with the pedestal top when the support 75 is raised. When it is desired to lower the top H to its lower position, the spring catches can be shoved inwardly out of engagement with the pedestal top 66, thereby permitting the desk top or shelf H to be lowered until its support 75 rests upon the top of the pedestal. In either position of the desk top H, it can be slid forwardly or rearwardly on its supporting member 75. For slidably connecting the desk top to the member 75, the latter is shown as provided near its opposite edges with parallel guide strips 79 having out-bent top flanges which extend into the in-bent edges of the desk top H. This forms an interlocking, sliding connection between the desk top or shelf and the supporting member 75, which permits the horizontal sliding movement of the desk top but prevents the same from being lifted off of the guides.

The other desk top I is slidably mounted in a similar manner upon a supporting plate or member 80 which is adjustably supported in the desk in the following manner.

At its rear and outer edges the plate 80 is provided with down-bent flanges 81 which are adapted to hook over bent supporting strips or cleats 82 and 83 on the rear and end walls of the desk above the top of the pedestal. The front and inner edges of the plate 80 are adapted to rest upon and be supported by a hinged leaf or support 84 which is hinged at one edge on top of the pedestal

and is adapted to swing from the horizontal position shown in Fig. 26 to the upright position shown in Figs. 21 and 22. In its upper position the plate 80 rests upon the upper edge of the hinged support 84, while its flanged rear and outer edges are engaged with the supporting cleats 82 and 83 on the end and back walls of the desk. The support 84 is preferably retained in its upright position between the down-bent inner edge 86 of the plate 80, and a bar or cleat 87 on the underside of the plate. To lower the desk top I from its elevated position to its lower position shown in Fig. 26, the plate is disengaged from the upper edge of the support 84 and the latter folded downwardly on the top of the pedestal. The outer and rear edges of the plate are then disengaged from the supporting cleats 82 and 83 and the plate with the sliding desk top I is lowered onto the top of the pedestal with the downbent flanges 81 of the plate in engagement with the upwardly projecting flanges 88 on the top of the pedestal. The plate 80 will be releasably held in position in this way on top of the pedestal, and when it is desired to raise the plate and desk top, they are lifted and engaged with the supporting cleats 82 and 83 and the hinged support 84 swung to its upright supporting position under the table.

By means of the described construction, the pedestals with their low desk tops or shelves II and I are built as independent units, separate from the main frame or desk structure, which comprises the connected upright end and back members and the movable high desk top E. Said main frame or structure therefore can be made of standard form and construction, and can be readily furnished with one or more pedestals, as may be desired, and the pedestal or pedestals can be made of one or another size and with one or another equipment, as may best suit the customer, or the particular purpose for which the desk is to be used. While the desk is thus made quite flexible as to equipment, and can be quickly and easily equipped as desired, nevertheless the desk as a whole will be of rigid, strong and practical construction.

I claim as my invention:

1. In a desk the combination of an upright back member, upright end members connected by and extending forwardly from said back member, the front portions of said members being disconnected, a separate desk pedestal unit arranged in the angle formed by one of said end members and said back member and comprising an upright supporting leg at its inner front corner, arranged to rest on the floor, an angular base supported at its angle by said leg and having arms extending from said angle and attached at their ends respectively to said end and back members, said pedestal unit having a top plate, fixed parts

on said end and back members on which said top plate rests, and means for attaching said top plate to said fixed parts.

2. In a desk the combination of an upright back member, upright end members connected by and extending forwardly from said back member, the front portions of said members being disconnected, horizontal attaching bars secured to said back member and to one of said end members, a desk pedestal unit arranged in the angle formed by said end member and said back member and having an upright supporting leg arranged at the front inner corner of said pedestal unit arranged to rest on the floor, and means for detachably securing the outer side and end of said pedestal unit respectively to said horizontal attaching bars on said end and back members.

3. In a sheet metal desk the combination of an upright back wall, upright end panels rigidly connected by and extending forwardly from said back wall, said end panels extending upwardly above said back wall, a horizontal top rail rigidly connecting the upper portions of said end members, an open space being left at the back of the desk between said back wall and said top rail, a desk top mounted to move from a supporting position between the upper portions of said end panels to a standing position at the rear of the desk in front of said open space, and a slidable connection between said desk top and said end panels for permitting such movement.

4. In a desk the combination of an upright back member, upright end members rigidly connected by and extending forwardly from said back member, the front portions of said end members being disconnected, a high desk top movable to and from an operative position between the upper portions of said end members, a sliding connection between said top and said end members for permitting such movement, pedestals arranged in the angles formed by said back and end members and attached to and bracing said members, a low desk top over each of said pedestals beneath said high top, vertical sliding posts and cooperating latches for supporting one of said low tops, and a hinged support and stationary parts on the desk for supporting said other low top.

5. In a desk the combination of an upright back member, upright end members rigidly connected by and extending forwardly from said back member, the front portions of said end members being disconnected, a high desk top movably arranged between the upper portions of said end members, pedestals arranged in the angles formed by said back and end members and attached to and bracing said members, a low desk top over each of said pedestals and disposed beneath said high desk top, a vertically adjustable support for supporting said low tops in different elevated positions relatively to said pedestals, and means

for operatively connecting and supporting said high desk top to said end members so as to permit said top to slide rearwardly and drop downwardly to assume an upright position back of said low desk tops to permit said low desk tops to be used.

6. In a sheet metal desk the combination of an upright back wall, upright end panels connected by and extending forwardly from said back member with their front portions disconnected, horizontal attaching bars fixed to said back wall and to one of said end panels, a desk pedestal unit arranged in the angle formed by said back wall and one of said end panels and comprising an L-shaped base attached at its ends respectively to said back and said end panels, a bottom plate secured on said base, a top plate, side plates detachably connecting said bottom and top plates and forming a drawer or the like compartment, and means for detachably securing the outer side and rear edges to said attaching bars on said back wall and end panel.

7. In a desk, the combination of an upright back member, upright end members rigidly connected by and extending forwardly from said back member, a pedestal arranged in the angle formed by said back member and one of said end members and attached to said members, a top support on said pedestal, means for adjusting said top support vertically to different elevations above said pedestal, a lower desk top mounted on said top support and movable therewith, a high desk top extending between the upper portions of said end members, means movably connecting said top with said end members for permitting said top to move from a recumbent position extending over said pedestal to a standing position in the rear portion of said desk, and said lower desk top being located in front of said high top when the latter is in its rear standing position.

8. In a desk, the combination of an upright back member, upright end members rigidly connected by and extending forwardly from said back member, a pedestal arranged in the angle formed by said back member and one of said end members and attached to said members, a top support on said pedestal which is disposed at the front of the latter in spaced relation to said back member, means for adjusting said top support vertically on said pedestal to different elevations above the latter, a lower desk top mounted on said top support and movable therewith, a high desk top extending between the upper portions of said end members, means movably connecting said top with said end members for permitting said top to move from a recumbent position extending over said pedestal to a standing position in the rear portion of said desk, and a sliding connection between said lower top and said support whereby said top can

slide forwardly and rearwardly, said sliding lower top being located in front of said high top when the latter is in its rear standing position.

- 5 9. In a desk the combination of an upright back member, upright end members rigidly connected by and extending forwardly from said back member, the front portions of said end members being disconnected, a high desk
10 top extending between the upper portions of said end members, means movably connecting said top with said end members for permitting said top to move to and from an operative position, a pedestal arranged in the angle
15 formed by said back member and one of said end members and which is attached to and braces said members, a top support, legs secured to said top support and having a vertical sliding connection on said pedestal for
20 raising and lowering said support, latches co-operating with said legs and adapted to hold

said top support in elevated positions, and a lower desk top supported by said top support.

10. In a metal desk the combination of an 25 upright back wall, upright end members rigidly connected by and extending forwardly from said back wall, a metal member secured to the upper edge of said back wall and forming a hollow top rail thereon and also 30 forming a conduit for electrical conductors, a desk top mounted on said end members, and means movably connecting said top to said members for permitting said top to move to and from a recumbent position extending 35 between the upper portions of said end members, said connecting means and said top also connecting and bracing said end members in front of said top rail when said top is in said recumbent position.

EARL J. CARD.