Jan. 2, 1934. C. F. WOLTERS 1,942,387

DESK

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Fig. 1

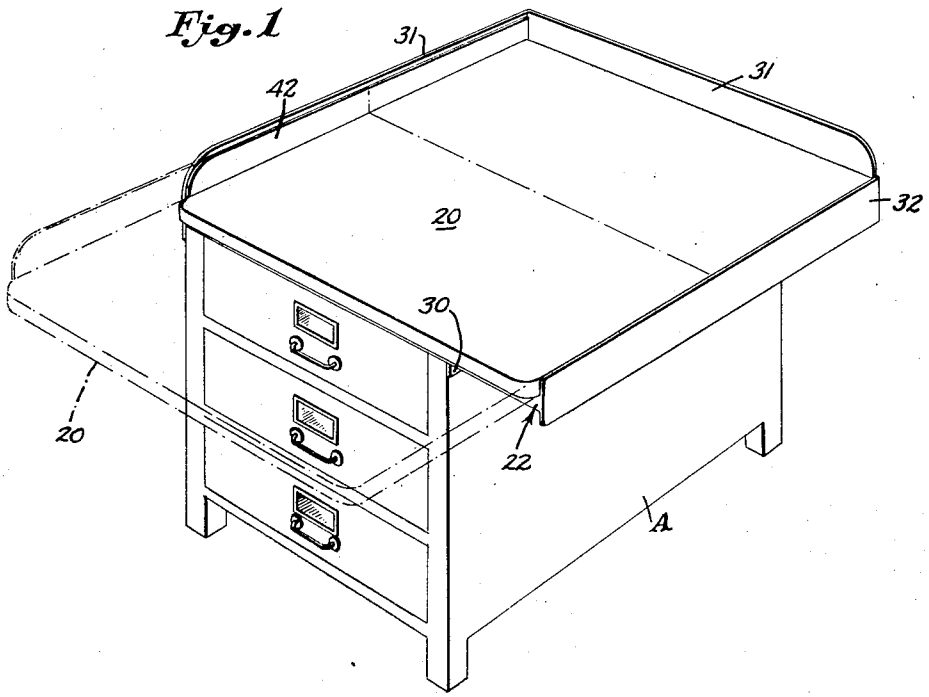


Fig. 5

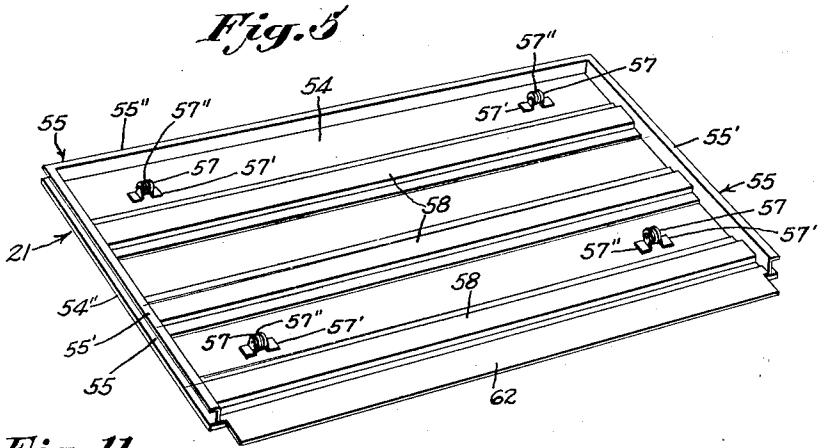
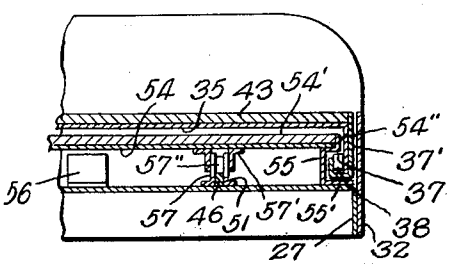


Fig. 11



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DESK

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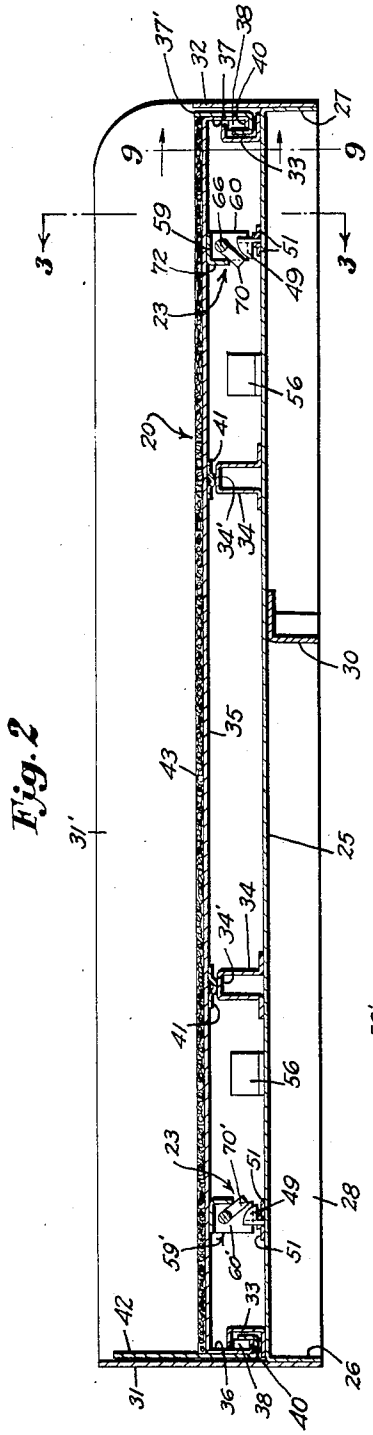


Fig. 2

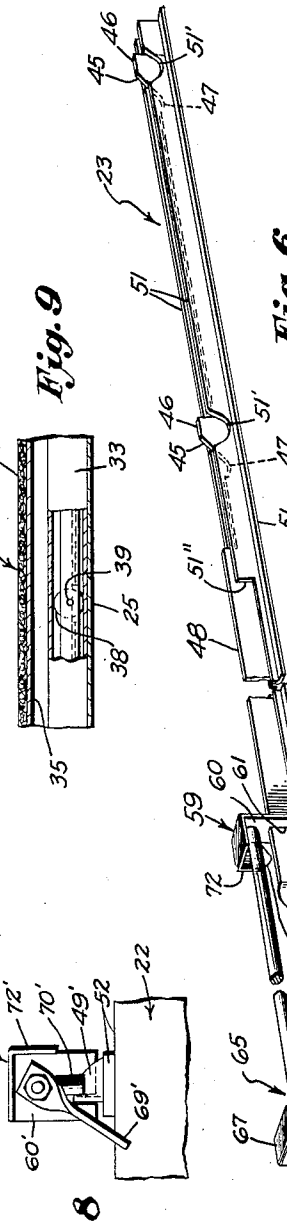


Fig. 6

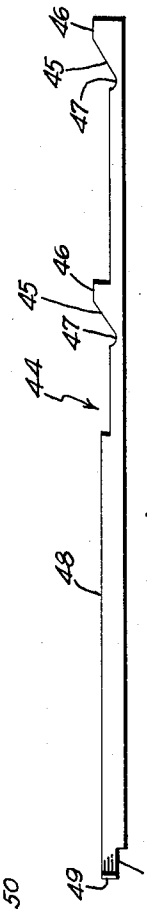


Fig. 7

Fig. 8

Fig. 9

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DESK

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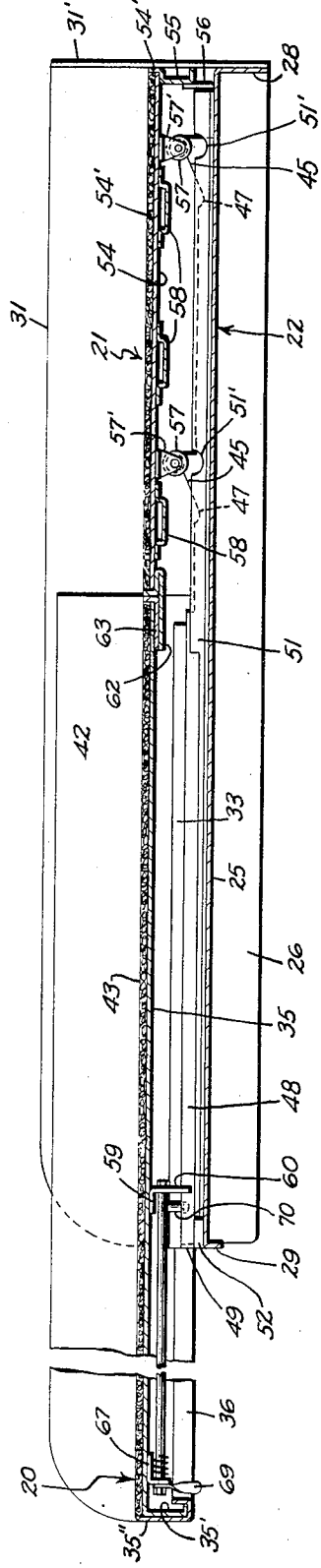


Fig. 4

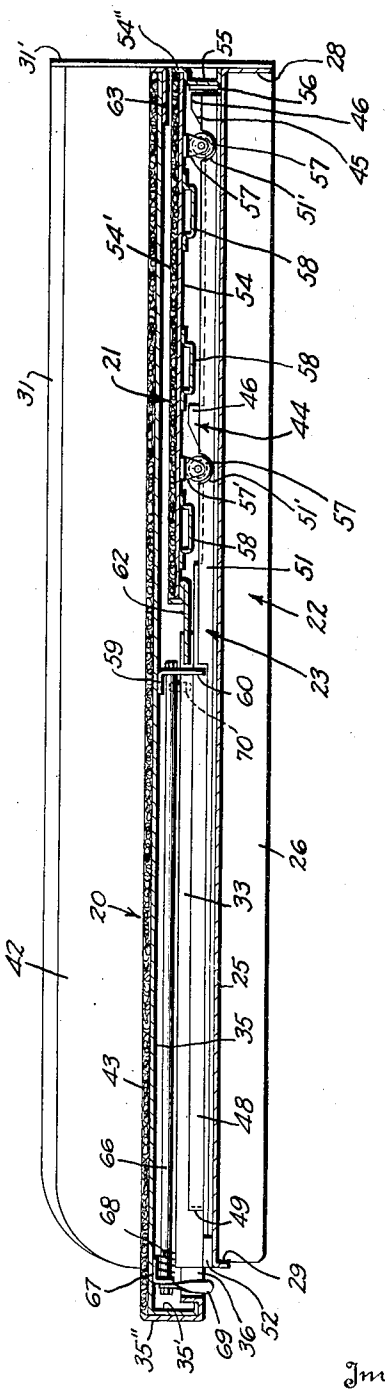


Fig. 3

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DESK

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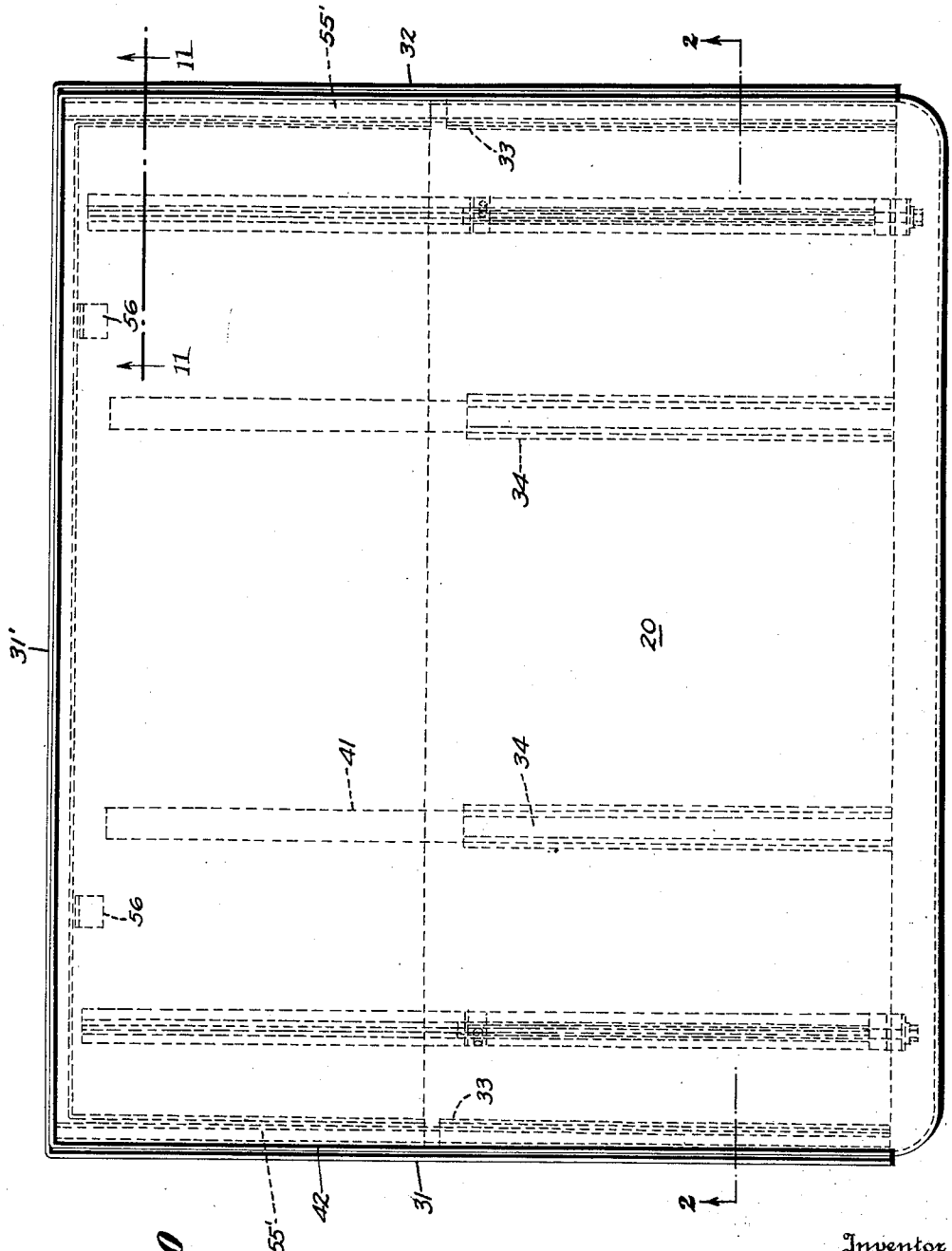


Fig. 10

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Patented Jan. 2, 1934 1,942,387

UNITED STATES PATENT OFFICE

1,942,387

DESK

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Application March 17, 1931. Serial No. 523,330

12 Claims. (Cl. 45—6)

This invention relates to desk top constructions, particularly of the type where the desk top area may be selectively extended or decreased in size.

Heretofore it has been proposed to provide expansible desk tops. In these devices however, the arrangement has been such that working surfaces were provided either lying in different planes, or with portions of the frame of the device left uncovered by the extension of a working surface; permitting papers, checks and the like to slide beneath the working surface out of view of the operator.

According to the present invention, there is provided an extensible working surface which when extended provides entire coverage for a desk attachment on which it is used by surfaces lying in a continuous plane, and provides mechanical means for automatically enlarging and contracting the surfaces in accordance with the requirements of the operator under manual impetus by the operator.

In the drawings:—

Fig. 1 is a perspective view showing the desk top unit applied to a filing cabinet. The dot and dash lines in this view show the extended position of the desk top members.

Fig. 2 is a transverse section on line 2—2 of Fig. 10.

Fig. 3 is a section on the line 3—3 of Fig. 2, the mounting angle 30 being omitted.

Fig. 4 is a sectional view, similar to Fig. 3, showing the section in extended relation.

Fig. 5 is a perspective view showing the rear section in inverted position.

Fig. 6 is a perspective view showing an operating unit and associated parts in extended position.

Fig. 7 is a side elevation of the elevating cam.

Fig. 8 is a front elevation of one of the operating units showing the operating pin in actuating position.

Fig. 9 is a fragmentary section on the line 9—9 of Fig. 2, portions of which are broken away to show the roller mounting.

Fig. 10 is a plan view of the assembled device with the sections in closed position.

Fig. 11 is a fragmentary cross section taken on line 11—11 of Fig. 10.

The invention comprehends an extensible top portion including a pair of relatively movable top members mounted in superimposed relation, the uppermost of the top members, the sliding member 20, being mounted for sliding movement to uncover the remaining or vertically movable member 21. Both of the members are mounted on a suitable base which is attachable to a filing cabinet, or the like. An elevating mechanism 23, also mounted on the base, is connected to the sliding member and is adapted to be operated by the movement thereof to raise the member 21 to the plane of the first top member to provide an enlarged continuous working surface. The actuation of the elevating mechanism occurs subsequent to the uncovering movement of the sliding member 20, and during the return or covering movement, the elevating mechanism is again actuated by the same sliding member to lower the member 21.

The base 22 comprises a base plate 25 which is provided with depending flange portions 26 and 27 on its side margins, a similar flange 28 on its back margin, and a flange portion 29 on its front margin. A mounting angle 30 is mounted on the underside of the base plate in spaced parallel relation to the flange portion 26. The upper surface of the base plate is enclosed on its sides and rear margin by a continuous wall structure forming side walls 31 and 32 and a back wall 31′ secured to the corresponding depending flange portions 26, 27 and 28.

The base is adapted to be mounted on a filing cabinet "A", or the like, by engaging the depending flange portions between the side wall flange 26 and the angle 30 over the cabinet as shown in Fig. 1. In this assembly, the flange portion 29 is intended to engage over the front of the filing cabinet at a location immediately above the top drawer.

The base plate is provided with means for slidably mounting the sliding member 20, such means constituting a guide track 33 mounted adjacent each side wall of the base plate. These members are preferably of channel shaped cross section and arranged to face outwardly. A pair of center supports, or supporting slides 34, are mounted on the base in spaced relation to each other and the guide tracks 33, and are each provided with a flat bearing surface 34′. The guide tracks and supporting slides extend rearwardly from the front of the base plate and terminate near the central portion thereof.

The sliding member 20 is adapted to be mounted upon the guide tracks and supporting slides of the base for parallel sliding movement relative the base plate and is preferably of sufficient area to entirely cover the base plate, (Fig. 1). This member comprises a top plate 35 having inturned roller attaching flanges 36 and 37 on its opposite side margins and a similar

flange 35' on its front margin. A plurality of rollers 38 are rotatably mounted on the inner side of the flanges 36 and 37 by the pins 39, (Fig. 9). The rollers extend downwardly through suitable slots in the horizontal leg 40 of the flanges and are adapted to be received on the bottom of the guide tracks 33 on the base plate 35. A pair of spaced slide members 41 are mounted on the lower side of the top plate and in assembly register with and have bearing on the bearing surface 34' of the support slides 34. An auxiliary side wall 42 is mounted on the left-hand side of the sliding member and is secured about the flange 36 thereof. This member extends the length of the sliding member and above the surface thereof. When the sliding member 20 is moved forward, the auxiliary wall 42 substantially continues the side wall 31 of the base 22. A layer of sound absorbing material 43 may be applied to the top plate 35 and be retained thereon by suitable flange members 35'' and 37' secured to flanges 35' and 37.

The elevating mechanism for the top member 21 includes cam members 44 which are mounted in spaced relation on the base for movement in the same direction as the movement of the sliding member 20. As shown in Figs. 6 and 7, the cam members are provided with spaced cam portions 45. The cam portions each terminate in a dwell portion 46 at its top extremity and an arcuate roller receiving portion 47 at its lower extremity. The forward end of each cam member is provided with a straight extension 48 which terminates in an angular lip portion 49 immediately beneath which the material is notched at 50. Each cam member is mounted for sliding movement on a suitable track means such as a spaced pair of opposed angle members 51 mounted on the base 22, (Fig. 6). Each pair of angle or guide members is provided with opposed clearance notches 51' registering with the portions 47 of the cam members. Each pair is also notched at 51'' at their front extremities. The forward sliding movement of the cam members between the angle members is limited by a stop block 52 secured to the base at a point adjacent the forward end of the angle members.

The top member 21 is devised to be received between the side walls 31 and 32 of the base in the proximity of the back wall 31'. This member comprises a base plate 54 having a continuous outwardly facing channel member 55 secured to its two side and rear margins, (Fig. 5). A layer 54' of sound absorbing material is applied to the base plate 54 and is secured at its edge portions by flanges 54'' which are preferably extensions of the channel member 55. The channel member 55 supports member 20 and the portions 55' of the channel member extend along the side margins and register with the rear extremities of the guide tracks 33. Thus, mounting flanges 37 and the rollers 38 of the sliding section 20 are provided with a guideway for the length of the base. The portion 55'' of the channel member is retained against the back wall 31' by a pair of guide members 56 secured to the base.

The member 21 is directly associated with the elevating means, and cam rollers 57 are provided on the member 21 for contact with the cam members 44. These members are rotatably mounted on the brackets 57' secured on the lower side of the base plate 54 (Fig. 5) and are provided with annular grooves 57'' engageable with the cam portions 45. With the member 21 in the position described, the rollers slightly clear both the portions 47 of the cam members and the notches 51' of the angles 51, (Fig. 3). Lateral reinforcing members 58 are also secured to the lower side of the base plate 54 and extend between the portions 55' of the channel member.

The sliding member 20 in an unextended position, (Figs. 3 and 10) covers the member 21 and is adapted for rolling movement on its rollers 38, certain of the rollers being received in the guide tracks 33 and the remainder of the rollers received in the co-extensive portions 55' of the channel members 55 of the section 21. When the sliding member is moved forward, the section 21 is exposed to view and subsequent to the exposing movement, the cam members are connected to the sliding section for operation by further movement of the same. A connecting member for such purpose is provided for each cam member. These members are of like shape with the exception that one is a reversal or opposite hand of the other. The right hand connecting member comprises a bracket 59 secured to the section 20, (Figs. 2 and 6), and having a depending leg 60 bifurcated by a slot 61. The leg 60 straddles the extension 48 of its respective cam member 44 and rides thereon during the exposing movement of the member 20. Further movement of the member 20 causes the contact of the leg 60 with the lip portion 49 of the cam member whereupon the members are connected for forward movement. Upon forward movement of the cam member 44, the cam portions 45 thereof engage the cam rollers 57 of the member 21 and cause parallel upward movement of the same until the rollers engage upon the dwell portions 46 of the cam member. Coincident with this engagement, the extremity of the notch 50 of the cam member impinges upon the stop block 52 on the base, preventing further forward movement of both of the cam members and the member 20.

In the above described position, top members 20 and 21 are in a common plane but are slightly spaced from each other. This space is closed by pushing the member 20 rearward to abut the rear margin thereof with the front margin of the member 21. A lip 62 is provided on the lower side of the base plate of the section 21 to close this space during the forward movement of the section 21. This member extends beneath and frictionally engages the lower side of the base plate of the section 20. A friction member 63 may be mounted under the base plate to frictionally receive the lip 62.

To return the members 20 and 21 to their unextended position, control means are utilized to connect the section 20 to the cam members for reverse operation of the same. The control units, preferably mounted on the section 20, are two in number, and are aligned with the connecting members 59 and 59'. These units, similar to the connecting members, are identical in operation and proportion with the exception that one is a reversal or opposite hand of the other.

The right-hand unit 65, (Figs. 3 and 6), comprises an operating rod 66 journalled, at one extremity, in a bracket 67 mounted adjacent the front flange of the section 20 and, at the opposite extremity, in the leg 60 of the connecting member 59. A portion of the rod 66 extends beyond the bracket 67 and a manually operable handle 69 is secured thereto. A spring 68 is mounted about the rod and its ends are secured to the rod 66 and the bracket 67. The spring is properly loaded so that it will urge movement of the rod in a clockwise direction. A radially extend-

ing pin 70 is secured to the rod adjacent to and spaced from the leg 60 of the connecting member. A stop flange 72, preferably formed out of the connecting member, is engaged by the pin 70, (Fig. 2), to limit the clockwise movement of the shaft.

In operation, when it is desired to return the extended top sections to their unextended position, the sliding section 20 is pulled forward to again expose the gap between the sections and to again contact the legs 60 and 60' of the connecting members with the lip portions 49 of the two cam members. The pins 70 and 70' of the control units are then in a position in front of the lips, (Fig. 8). The handles 69, 69' of the control units are then operated, one in a clockwise direction, and the other in a counter-clockwise direction, to place the pins 70, 70' in a depending or vertical position. The sliding top member is simultaneously pushed rearwardly, causing the pins 70, 70' to engage the outer faces of the lip portions 49 with the resulting rearward movement of the cam members 44 and lowering of the member 21 to its position of rest on the base, below the elevation of the sliding member 20. The levers 69, 69' may then be released and the rearward movement of the section 20 continued to entirely cover the section 21.

The device as above described portrays a preferred form of construction intended to disclose the principle of operation thereof; however, it is not intended to limit this disclosure to these specific details of construction, except as set forth in the following claims.

What is claimed is:—

1. An extensible desk top comprising a pair of top members, means supporting one of said top members for movement to and from an extended position, means supporting the remaining top member for movement to and from an operative position in the path of the first top member for supplementing the top surface thereof, said first top member when in its normal position being disposed in the path of the second top member, having parts thereof slidably interengaged with parts of the second top member, and obstructing movement of the second top member to its operative position, and means operable, subsequent to the extending movement of said first top member out of the path of the second top member, for moving said second top member to its operative position in the path of said first top member to supplement its top surface.

2. An extensible desk top comprising a base, a top member mounted on a portion of the base, track means secured to the top member, a second track means mounted on the base and coextensive with the first track means, a sliding top member, mounting means on the sliding top member slidably engaging in both track means and mounting said sliding top member for parallel sliding movement relative the base above the plane of the top member.

3. An extensible desk top comprising a base, a top member mounted on a portion of the base, track means secured to the top member, a second track means mounted on the base and coextensive with the first track means, a sliding top member, mounting means thereon slidably engaging in both track means and mounting said sliding top member for parallel sliding movement relative the base above the plane of the top member, elevating means on the base associated with the top member, means connecting said sliding top member to the elevating means when the top member is exposed by the sliding member, said elevating means being actuated by and during further movement of the sliding member to raise the first member to the plane thereof.

4. An extensible desk top comprising a base, a top member, means mounting said member for sliding movement in spaced relation on the base, a second top member mounted on the base below the plane of the first member, an elevating mechanism associated with the second top member, means movably mounting said elevating mechanism on the base, connecting means on the first member engaging said elevating mechanism, said elevating mechanism being operated by movement of the first member to raise the second member to the plane of the first member, and manually operable means connecting the extended first section to the elevating means for reverse operation upon retrograde movement of the first member to return the second member to its position on the base.

5. An extensible desk top, comprising a base, a top member slidably mounted on said base, a second top member mounted on the base below the first top member and movable into the plane of the first top member, means for elevating said second top member having spaced guide members on said base, a bar slidable between said guide members, cam means on said bar cooperating with parts on said second top member operable in sliding movement in one direction to elevate said second top member into the plane of the first top member, and in movement in an opposite direction to lower said second top below the plane of the first, and means for actuating said bar.

6. An extensible desk top comprising a base, a top member slidably mounted thereon, a second top member movably mounted on the base below the first top member, means for elevating the second top member into the plane of the first top member having spaced bars slidable on the lower edges on said base, cam and supporting means on the upper edges of said bars engaging cooperating parts on said second top member operable in the movement of said bars to raise and support said second top member in the plane of the first top member and to lower said second top member below the first top member, and means for actuating said bars simultaneously.

7. An extensible desk top, comprising a base, a top member slidably mounted thereon, a second top member movably supported on said base below the first top member, means for raising and lowering the second top member into and out of the plane of the first top member having spaced bars slidable on top of said base, cooperating relatively movable parts on said bars and the under side of said second top member operable in the movement of said bars in one direction to raise said second top member into the plane of said first top member, and in movement in an opposite direction to lower said second top member, means on said base for guiding said bars and said top member in movement relative thereto and limiting the sliding movement of said bars, and means operable by the first top member in the sliding movement thereof for operating said bars in unison.

8. An extensible desk top comprising a base, a top member slidably mounted thereon, a second top member movably supported on said base below the first top member, means for raising and lowering the second top member into and out of the plane of the first top member having spaced bars slidable on their lower edges on said base, in-

clined cam portions formed on the upper edges of said bars, cooperating parts on said second top member engaging the upper edges of said bars including said inclined cam portions, and means on the first top member for engaging with portions of said bars operable to move said bars on the base in one direction and cause said cam portions to engage said cooperating parts and raise said second top member into the plane of the first top member, said last-named means being also operable to move said bars in the opposite direction to lower said second top member, guiding means on said base for said bars and top members, and means for limiting the sliding movement of said bars.

9. An extensible desk top comprising a base, a top member slidably mounted thereon, a second top member movably supported on said base below the first top member, means for raising and lowering the second top member into and out of the plane of the first top member having spaced bars slidable on their lower edges on said base, cooperating parts on said second top member and said bars operable in the movement of said bars in one direction to elevate said second top member into the plane of the first top member and in movement of said bars in an opposite direction to lower said second top member, actuating members on said first top member operable to engage and operate said bars in either direction in the movement of said first top member in a similar direction, said actuating members being manually operable to disengage from said bars for selective control to move said bars in either direction in the corresponding directional movement of the first top member, and means on the base for guiding said bars and second top member and for limiting movement of said bars.

10. An extensible desk top comprising a sheet metal base plate, a top member of sheet metal having depending side flanges provided with portions engaging said base plate and slidably supporting said top member in spaced parallel relation on said base plate, means on the side margins of said base plate receiving and guiding said side flanges, said top member being substantially the same size and overlying the base plate in one position, said top member being slidable to another position with a substantial portion projecting beyond one side of the base member, a second top member housed between the first top member and said base plate in said one position and extending between the side flanges of said first top member, said second top member being movable into the plane of the first top member when the first top member is in the extended position, for increasing the size of the working surface of the desk top, means supported on said base plate and extending between said base plate and second top member having parts on said second top member cooperating with parts slidable on said base plate for operation in the sliding of the parts on the base plate to raise and lower said second top member into and out of the plane of the first top member and means on said first top member connected with and operable to actuate said slidable parts for raising and lowering said second top member from the plane of said first top member.

11. An extensible desk top comprising a sheet metal base plate, a top member of sheet metal having depending side flanges slidable on the base plate, a second top member on the base plate between said base plate and first top member in one position of said first top member on the base plate, said second top member having a sheet metal plate and outwardly facing channel members on the side edges of said plate for supporting said second top member on the base plate in spaced parallel relation in one position and also having guiding cooperation with the side flanges of said first top member in said position, said first top member being slidable into an extended position relative to said base plate to expose said second top member, and cooperating means having parts on said second top member cooperating with slidable parts supported on top of the base plate connected with parts on the first top member for elevating said second top member into the plane of the first top member in the sliding movement of the first top to the extended position.

12. An extensible desk top comprising a sheet metal base plate, a top member of sheet metal having depending side flanges slidable on the base plate, a second top member on the base plate between said base plate and first top member in one position of said first top member on the base plate, said second top member having a sheet metal plate and outwardly facing channel members on the side edges of said plate for supporting said second top member on the base plate in spaced parallel relation in one position and also having guiding cooperation with the side flanges of said first top member in said position, said first top member being slidable into an extended position relative to said base plate to expose said second top member, and cooperating means between the base plate and top members operable in the sliding movement of the first top member to an extended position relative to the base, to elevate said second top member into the plane of the first top member.

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