

Nov. 7, 1967

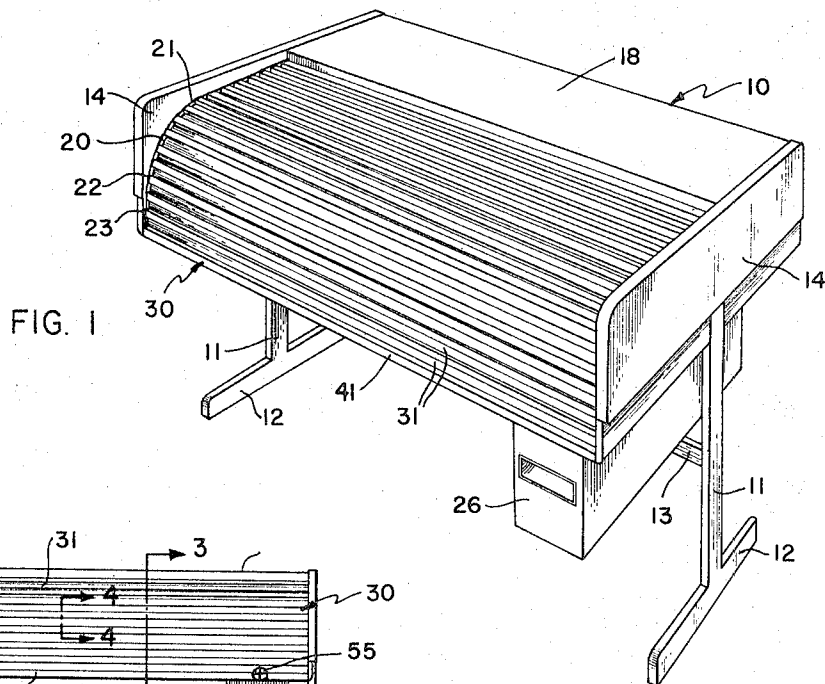
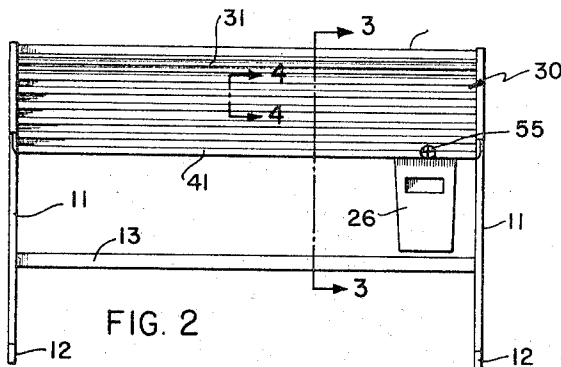
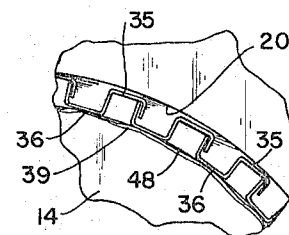
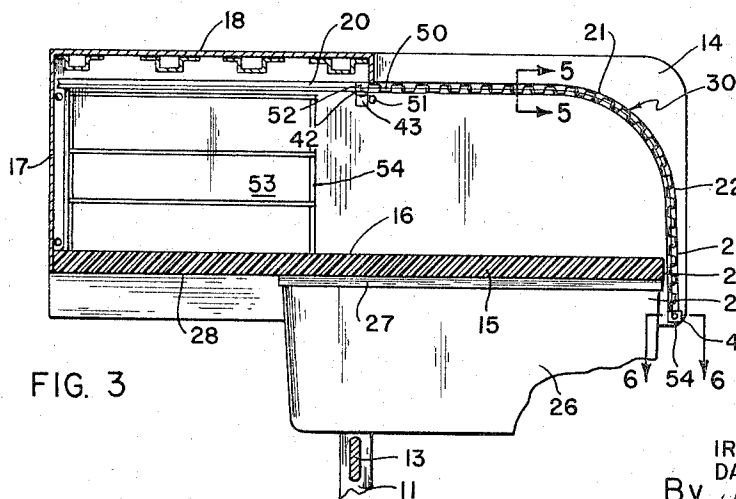
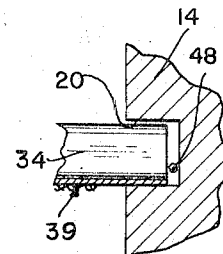
I. J. FERDINAND ETAL

3,351,405

DESK TOP

Filed April 25, 1966

2 Sheets-Sheet 1



INVENTORS
IRWIN J. FERDINAND
DALE R. LOPATKA
By *Harbaugh and Thomas*
ATTYS

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DESK TOP

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2 Sheets-Sheet 2

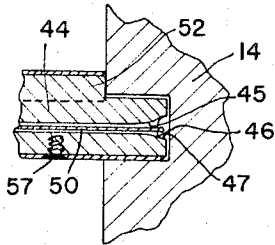


FIG. 6

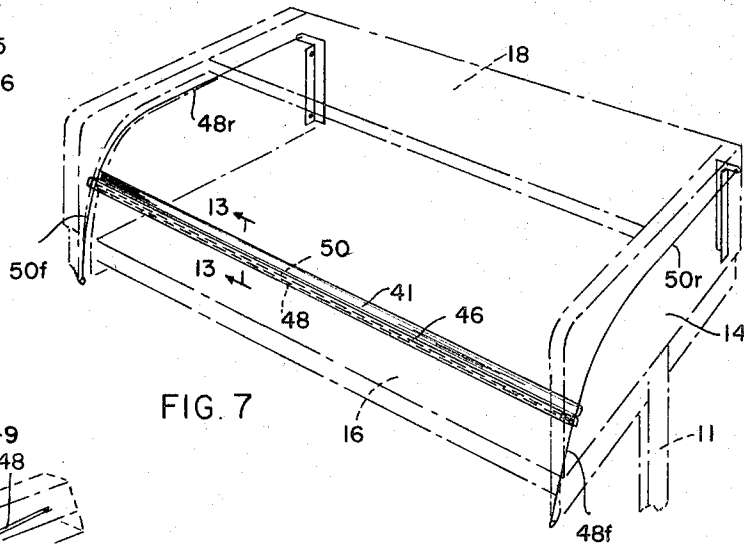


FIG. 7

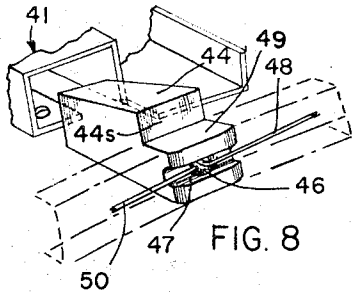


FIG. 8

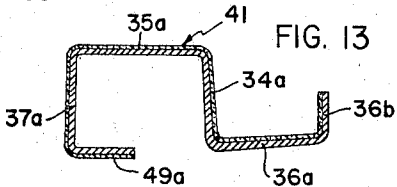


FIG. 13

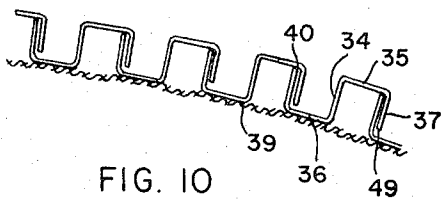


FIG. 10

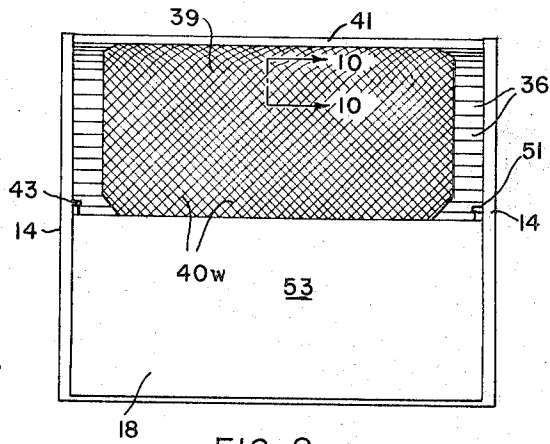


FIG. 9

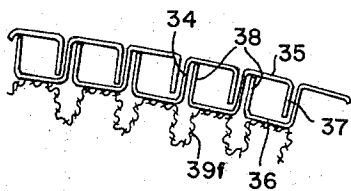


FIG. 11

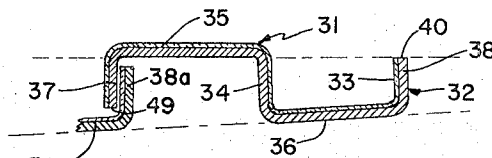


FIG. 12

INVENTORS

IRWIN J. FERDINAND

DALE R. LOPATKA

By *Harbaugh and Thomas*

ATTYS.

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3,351,405

DESK TOP

Irwin J. Ferdinand, Glencoe, and Dale R. Lopatka, Glenview, Ill., assignors to S. A. Hirsh Mfg. Co., Skokie, Ill., a corporation of Illinois

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13 Claims. (Cl. 312-297)

ABSTRACT OF THE DISCLOSURE

A slide top construction for a desk composed of interengaging S-shaped elements which collapse to approximately one-half their extended width and are held in parallel relation by diagonally disposed cross threads secured to the elements in their extended position as held square to side guideways by a rail element controlled for opposite ends thereof to move identical distances in the guideways when opening and closing the slide top.

The present invention relates to closures and covers for desk tops and working areas and more particularly to a retractible, sliding top made of connected collapsible decorative slats supported in curved guideways.

Heretofore, roll top desks have been popular to cover and tidy the appearance of a desk quickly and to safeguard spread out material and data upon which work is in progress without disturbing it overnight.

Furthermore, roll top desks protected pigeonhole storage shelves holding valuable papers for ready reference and performed a dual service as an organizer and file for a large amount of current miscellany and projects which would be immediately accessible to a work space the moment the top was opened. Even when the top was open, papers and data were protected from drafts and casual viewing.

However, the storage of the roll top closure equipment consumed valuable space and desks so equipped were generally quite high and curvaceous in order to provide the storage space that was demanded for a desk of that price and style. Such desks also were too tall to be located aesthetically any other place than against a wall, thereby limiting their accessibility and usefulness as a conference place.

While such desks were acceptable in a limited way in offices where desk work generally did not involve conferences, with at least not more than one other person, they were not exactly acceptable in a home environment with or without period furniture and their recognized advantages as a combination file, safeguarded work space and tidier were lost. They were not desired essentially because of ungainliness and difficulty in keeping the top dusted. The narrow cracks between the slats that had to articulate when closed could not be cleaned without difficulty. Some of these articles did find their way to laboratories, but because of the difficulty of keeping them clean if finished in white, the roll top effect was sacrificed in favor of solid, straight or cylindrical configurations which could be easily cleaned. Many husbands that had an old "roll top" in their homes weathered criticism or of necessity found inconspicuous places for their location. A few of these may still survive as antiques but a great need still remains for their functional advantages in a home.

Summary

The present invention contemplates a collapsible slide top guided by opposing guideways which when extended closes access to a desk top and when opened is moved into a flat collapsed position approximately one-half of its extended width and stored in a space saving position under a raised shelf on the desk. The cooperating top

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elements are interengaged essentially S-shaped elements held in parallel relationship by diagonally disposed crossed threads or filaments disposed substantially at 45° to the elements with the front rail element held square to the guideways against cocking preferably by cords extending through the rail element.

In the present invention the cumbersome appearance and their restriction as to location are eliminated. Moreover, wide open supports for ready floor cleaning and movement of air around and below the work space are provided and the collapsible top can be cleaned and stored quite easily with substantial saving in convenient storage space.

One of the objects of the invention is to provide a desk closure which simulates the appearance of a roll top closure but comprises a slidable top that is collapsed and stored in a space saving position beneath and coterminous with a raised shelf to provide a raised secondary or shelf working space and a full height compartment over the entire working or filing area therebelow.

Another object is to provide a desk having a decorative roll top appearance with an improved fluted construction which is easily dusted and kept clean over its entire area inside and out.

The invention is further characterized by laminated sheet metal slats cross-sectionally having substantially S-shaped configurations disposed in interlocking relationship with their ends loosely supported in guideway grooves for functional movement while being held parallel to one another without cocking or twisting in the grooves in either their movement or in their resting positions.

A further characteristic of this invention is a collapsible slide top of S-sectioned interlocking slats having adhered to their spaced faces a sleazy cloth for easy folding with a sheer effect in which the cross threads triangulate from slat to slat at an angle of 45° to retain them against relative endwise movement.

The invention is also characterized by S-sectional interlocking slidably collapsible slats supported against relative movement endwise in guideways and secured to a front rail that is held square to the guideways against cocking and firm against endwise movement throughout its operation to control and predicate the proper performance of the interlocking slats in the guideways.

A further object of the invention is to provide a fire resistant desk and slide top of metal and having a curve from a horizontal plane to a vertical plane which when closed preserves its protective status.

These being among the objects of the invention, other and further objects including ease of construction, and assembly as well as rugged elements or heavy use will be appreciated from the description which follows as related to the drawings in which:

FIG. 1 is a perspective view taken at eye level of an article embodying the invention as depicting a combination desk and table with a protective slide cover and work area shelf;

FIG. 2 is a front elevational view of the article shown in FIG. 1;

FIG. 3 is a cross-sectional view taken on line 3-3 of FIG. 2;

FIG. 4 is an enlarged limited sectional view taken on line 4-4 of FIG. 2;

FIG. 5 is an enlarged sectional view taken on line 5-5 of FIG. 3;

FIG. 6 is an enlarged sectional view taken on line 6-6 of FIG. 3;

FIG. 7 is a perspective view similar to FIG. 1 showing the slide cover partly open;

FIG. 8 is a perspective view of the elements shown in FIG. 6;

FIG. 9 is a bottom plan view of the slide top embodying the invention;

FIGS. 10 and 11 are enlarged sectional views of FIG. 4 with the slide top extended and collapsed respectively; and

FIG. 12 is an enlarged detail section of one slat and, a portion of an adjacent one interlocking therewith; and FIG. 13 is a section taken on line 13—13 of FIG. 7.

Referring now to the drawings in further detail, an embodiment of the invention is shown at 10 in FIGS. 1, 2 and 3 either as secured above and to the rear of a desk or work table top, preferably supported on legs 11 having feet 12 and rigidified by the cross brace 13. The legs can be provided as adjustable or of different height for stand-up or sit-down use of the device. Substantially rectangular sides 14 are secured upright against opposite ends of a top 15 to provide full working surface 16 therebetween. The rear of the top is closed by a wall member 17 and a shelf member 18 is secured at its ends and back edge to the tops of the sides 14 and the rear wall member 17 respectively to provide a storage compartment 53 therein. The shelf member as located over the rear of the work surface 16 provides a flat top of about one-half of the area of the work surface 16 upon which functional or decorative articles may be set or kept irrespective of the use made of the area of the work surface. When viewed from the rear embodiment 10 appears to be a high table top in the nature of a stand.

The sides 14 extend at their lower edges to a level below the top 15 and have facing grooves or guideways 20 in them starting directly below and parallel to the shelf in close clearance therewith and extending straight forwardly to approximately 21 where they curve downwardly and forwardly to approximately 22 below which another straight portion 23 extends preferably in front of and below the front edge 24 of the top 15 to a level below the top 25 of a depending drawer 26 slidably mounted on tracks 27 to the bottom 28 of the top 15. The curve can have as small a radius as three inches in the embodiment hereafter described.

Mounted in the guideways is an assembly which as a unit will be referred to as a slide top 30 and comprises a plurality of cross-sectionally S-shaped slats on elements 31 made from sheet metal blanks 32 laminated with a vinyl coating 33 depicting a wood finish and whose configuration is shown in FIG. 12. A central wall portion 34 can be described as vertically disposed for simplicity of description and at its upper and lower bends are provided with vertically spaced oppositely extending horizontal upper and lower walls 35 and 36, respectively, which terminate in vertically extending side walls or flanges 37 and 38 extending downwardly and upwardly, respectively. The flanges are of less height than the central wall and the upper edge 40 of upright flange 38 is substantially the plane of the upper wall 35 whereas the lower edge 41 of the depending flange 37 is well above the plane of the lower wall 36. Then when the slats or elements are received in the guideways 20 and slide on their lower walls 36 with adjacent edge flanges overlapping, the lower edges 41 of flanges 37 will not scratch or contact the upwardly exposed finished face of the lower walls 36 regardless of whether slide top is being collapsed or extended in the straight or curved portions of the guideways.

A front rail 41 is provided which is quite similar to the slat 31. As shown in FIG. 13, the central wall portion 34a and the depending flange 37a are approximately twice the height of the corresponding slat elements and preferably the lower edge 49a is turned inwardly to form a box shape. The box shaped portion is of a length clearing the facing surfaces of the sides 14 whereas the remainder of the rail 41 as at the wall and flange 36a and 36b is of the same length as the slats 31 and extend into said guideways 20. The flange 37 and 38a interlock as seen in FIG. 12.

The slide top includes a backing 39 which is applied along with the rail 41, with the side flanges 37 and 38 of

the slat elements 31 overlapping and the assembly positioned with the finish faces oriented downwardly. Although diagonal threading may be used, it is preferred to adhere a sheet of woven cloth 39 to the bottom walls 36, while they face upwardly, with the slat and rail elements fully extended. The cloth is cut to a rectangular shape as shown slightly short of the ends of the elements 31 with the warp and woof threads 40w crossing at right angles to one another disposed diagonally, preferably at an angle of 45° to the elements 31, whereby relative end movement between adjacent elements in both directions is prevented by a triangulated restraint; yet when the slide top is collapsed, as when raised, the cloth folds downwardly in its unsupported area as at 39f with an easy flexure inherent with biased woven cloth without interfering with the collapsing slat movement while still maintaining them against relative endwise movement.

The rails 41 and 42 have adequate but little clearance between their ends and the guideways. However, the slat elements are much shorter leaving substantial clearance at their ends. This clearance is preserved by the restraint imposed by the cloth 40 and is utilized in maintaining the front rail square at all times with the guideways. Thereby, the slat elements are centered and kept parallel at all times.

As seen in FIGS. 3, 6, 8 and 13, the rail 41 is a tubular element of rectangular cross-section with guide plugs 44 received in its ends. The plugs are preferably made of nylon having reduced end projections received in the guideways; an outwardly facing shoulder 44s slidable against the facing surfaces of the sides 14 without scratching or marring; and having longitudinal apertures 45 through them opening outwardly in a divergently rounded mouth 46 that terminates laterally in a groove 47.

The guide plugs 44 are secured in place by recessed flat headed machine screws 57 (FIG. 6) through holes 58 (FIG. 8) in the lower edge 49a. Two substantially inextensible cords 48 and 50 are threaded through the front rail and the apertures 45. The end 50r of one cord comes out of the right end of the front rail and is terminally fastened in the right hand one of the guideways 20 under the shelf member 18 as viewed when facing the front of the desk top in FIGS. 1 and 3. The left end 48r of the cord 48 is likewise fastened in the left hand one of the guideways 20. The other end 50f and 48f of each cord is secured at the front end of the guideways in the opposite ones of the guideways under mild tension holding the front rail square to the guideways 20. Then as the front rail is raised and lowered, the run of the cords through it will maintain the front rail square and along with it all the slat members square with the sides 14 and parallel with each other. The cords will be disposed invisibly in the guideways 20 and will lie in the clearance provided the shorter slat elements 31.

The rearmost slot moves back and forth in the straight portion of the guideways 20 being limited in its rear movement by the rear wall member 17 and in its forward movement by plugs 42 similar to plugs 44 secured in the rearmost slide element above the bottom wall 36 with the thicker part 52a extending downwardly. Stops 51 are applied to the sides 14 where they interfere with the depending enlarged portion 52a of the back rail.

Space 53 is provided below the shelf 18 (FIG. 3) which extends the full height above the working surface 16 over the entire area for the reception of any conventional box shaped storage device therein whether it be a lock box or "pigeon hole" shelf assembly 54, such as shown. Same can be removed for cleaning and ample room is also provided for ledgers and books.

Preferably, the overlapping portions of the slide top 30 and drawer 26 at the front are provided with a locking device 55 similar to those used for automobile near decks that interlock when closed and are released by the use of a key.

It will be observed that the horizontal spaces between

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the slat elements are wide enough to wipe out and keep clean when extended and that the enclosed, fully open working area can also be kept clean with very little effort.

Having thus described the preferred embodiment of the invention, it will be appreciated how the objects are attained and how various changes can be made including considerations of the variable length of the legs without departing from the spirit of the invention, the scope of which is commensurate with the appended claims.

What is claimed is:

1. A slide top for closing an access opening to a work space comprising a plurality of elongated sectionally S-shaped elements of sheet material or finished side which include a single vertical control wall having upper and lower horizontal walls connected thereto and extending substantially equal distances in opposite directions therefrom, two vertical edge walls of less height than said control wall extending in opposite directions from the remote edges of said horizontal walls the edge extending away from the finished side being of less height than the other edge wall, a pair of parallel cooperating guideways slidably receiving the ends of said slats side by side with their adjacent edge walls overlapping in interfitting relationship and in engagement with one another when the top is extended with all finished sides disposed on the same side of the slide top.

2. The combination called for in claim 1 including a rail attached to the leading element and having a passage therethrough, two cord elements extending through said passage each with one of its ends connected separately to the front end of one guideway and the other end connected to the opposite guideway remote from said front end.

3. The combination called for in claim 1 in which the central wall of the S-shaped configuration is engaged on its opposite sides by edge walls of the two elements adjacent thereto, said edge walls being appreciably of less height than said central wall, the edge wall extending outwardly having its outer edge substantially at the level of the outer surface of the upper wall to support the edge of the inwardly extending edge wall of an adjacent S-shaped element above the level of and out of contact with the finished surface of the lower wall of said adjacent S-shaped element.

4. The combination called for in claim 3 in which said guideways define a convex curve, and including a rail attached to the leading element and having a passage therethrough, two cord elements extending through said passage and terminally lying in said guideways with one of their ends connected separately to the front ends of one guideway and their other ends connected to the opposite guideway at points remote from said front ends.

5. The combination called for in claim 1 including an open top shelf above the rear one-half of the work space a distance approximately one-half its width, side members extending along the sides of said work space and shelf having said guideways facing each other with the guideways parallel to said shelf below the shelf and extended forwardly and curving downwardly in front of said work space.

6. A slide top for closing an access opening to a work space comprising a plurality of elongated sectionally S-shaped elements which include a vertical central wall having upper and lower horizontal walls connected thereto and extending in opposite directions therefrom, two vertical edge walls of less height than said central wall extending in opposite directions from the remote edges of said horizontal walls, a pair of parallel cooperating guideways slidably receiving the ends of said slats side by side with their adjacent edge walls overlapping in interfitting relationship and in engagement with one another when the top is extended, and flexible cross woven means secured substantially coextensively with and against the lower faces of the horizontal walls when the slide top is extended wherewith the direction of weave is disposed at

an acute angle to the length of the slats and material between the lower faces folds downwardly when the top is collapsed.

7. A slide top for closing an access opening to a work space comprising a plurality of elongated sectionally S-shaped elements which include a vertical central wall having upper and lower horizontal walls connected thereto and extending in opposite directions therefrom, two vertical edge walls of less height than said central wall extending in opposite directions from the remote edges of said horizontal walls, a pair of parallel cooperating guideways slidably receiving the ends of said slats side by side with their adjacent edge walls overlapping in interfitting relationship and in engagement with one another when the top is extended, flexible cross woven means secured substantially coextensively with and against the lower faces of the horizontal walls when the slide top is extended wherewith the direction of weave is disposed at an acute angle to the length of the slats and material between the lower faces folds downwardly when the top is collapsed, and a rail attached to the leading element and having a passage therethrough, two cord elements extending through said passage with one of their ends connected separately to the front ends of one guideway and their other ends connected to the opposite guideway remote from said front ends.

8. A slide top for closing the front and top of a desk comprising a plurality of side by side S-shaped elements each defining a central wall with upper and lower walls extending therefrom and terminating in marginal edge walls and disposed with their adjacent marginal edge walls overlapping interfitting relationship, parallel side members disposed perpendicular to the top of the desk at the side edges of the desk top and having symmetrical guideways slidably receiving the opposite ends of said elements and being straight and parallel where the elements are stored, said elements having their adjacent overlapping marginal edge walls engaging when the top is extended in its closed position and said marginal edge walls engaging opposite sides of the central wall portion of an intermediate S-shaped element when the top is collapsed in its open position, said marginal edge walls being appreciably of less height than said central wall, the marginal edge wall of one element extending outwardly from the desk having its outer edge substantially at the level of the inner surface of the upper wall of one adjacent element while the edge of the inwardly extending wall is above the level of and free from contact with the outer surface of the lower wall of the adjacent element, and a sheet of flexible cross woven material secured substantially coextensively with and against the inner faces of the lower walls when the top is extended wherewith the direction of the woven threads is disposed at an acute angle to the length of the slats and folds downwardly on the sheer when the top is contracted.

9. A slide top for closing the front and top of a desk comprising a plurality of side by side S-shaped elements each defining a central wall with upper and lower walls extending therefrom and terminating in marginal edge walls and disposed with their adjacent marginal edge walls overlapping in interfitting relationship, parallel side member disposed perpendicular to the top of the desk at the side edges of the desk top and having symmetrical guideways slidably receiving the opposite ends of said elements and being straight and parallel where the elements are stored, said elements having their adjacent overlapping marginal edge walls engaging when the top is extended in its closed position and said marginal edge walls engaging opposite sides of the central wall portion of an intermediate S-shaped element when the top is collapsed in its open position, said marginal edge walls being appreciably of less height than said central wall, the marginal edge wall of one element extending outwardly from the desk having its outer edge substantially at the level of the inner surface of the upper wall of one adjacent element while the edge of the inwardly extending wall is

above the level of and free from contact with the outer surface of the lower wall of the other adjacent element, a sheet of flexible cross woven material secured substantially coextensively with and against the inner faces of the lower walls when the top is extended wherewith the direction of the woven threads is disposed at an acute angle to the length of the slats and folds downwardly on the sheer when the top is contracted, and a rail attached to the leading element and having a passage therethrough, two cord elements extending through said passage with one of their ends connected separately to the front ends of one guideway and their other ends connected to the opposite guideway remote from said front ends.

10. A slide top for closing an access opening to a work space comprising a plurality of elongated sectionally S-shaped elements which include a vertical central wall having upper and lower horizontal walls connected thereto and extending in opposite directions therefrom, two vertical edge walls of less height than said central wall extending in opposite directions from the remote edges of said horizontal walls, a pair of parallel cooperating guideways slidably receiving the ends of said slats side by side with their adjacent edge walls overlapping in interfitting relationship and in engagement with one another when the top is extended, a rail attached to the leading element and having a passage therethrough, two cord elements extending through said passage and terminally lying in said guideways each with one of its ends connected separately to the front end of one guideway and the other end connected to the opposite guideway remote from said front end, said central wall and downwardly extending wall being of a height greater than the height of said guideways and plugs are received in the ends of the rail between the last two mentioned walls, said plugs having portions extending beyond said two mentioned walls of a vertical thickness to be received in guided relationship in said guideways with apertures therethrough receiving said cords collectively and end grooves for accommodating said cords in separate directions in the guideways.

11. A slide top for closing the front and top of a desk, comprising a plurality of side by side S-shaped elements each defining a central wall with upper and lower walls extending therefrom and terminating in marginal edge walls and disposed with their adjacent marginal edge walls overlapping in interfitting relationship, parallel side members disposed perpendicular to the top of the desk at the

side edges of the desk top and having symmetrical guideways slidably receiving the opposite ends of said elements and being straight and parallel where the elements are stored, said elements having their adjacent overlapping marginal edge walls engaging when the top is extended in its closed position and said marginal edge walls engaging opposite sides of the central wall portion of an intermediate S-shaped element when the top is collapsed in its open position, said marginal edge walls being appreciably of less height than said central wall, the marginal edge wall of one element extending outwardly from the desk having its outer edge substantially at the level of the inner surface of the upper wall of one adjacent element while the edge of the inwardly extending wall is above the level of and free from contact with the outer surface of the lower wall of the other adjacent element.

12. The combination called for in claim 11 in which said desk has a drawer below said working area, said guideways extending over and in front of said drawer for occupation by said top when the top is in closed position, said top including lock means comprising a rail attached to the leading one of the elements for obstructing the opening of said drawer.

13. The combination called for in claim 12 including a lock interconnecting said rail and drawer preventing the opening of the slide top when the drawer is in closed position and the slide top is closed.

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DAVID J. WILLIAMOWSKY, *Primary Examiner.*

45 JAMES T. MCCALL, *Examiner.*