July 3, 1962 H. RUDOW ETAL 3,042,468

METALLIC SLIDE ASSEMBLY FOR EXTENSION TABLES

Filed July 27, 1960 2 Sheets-Sheet 1

Fig. 1.

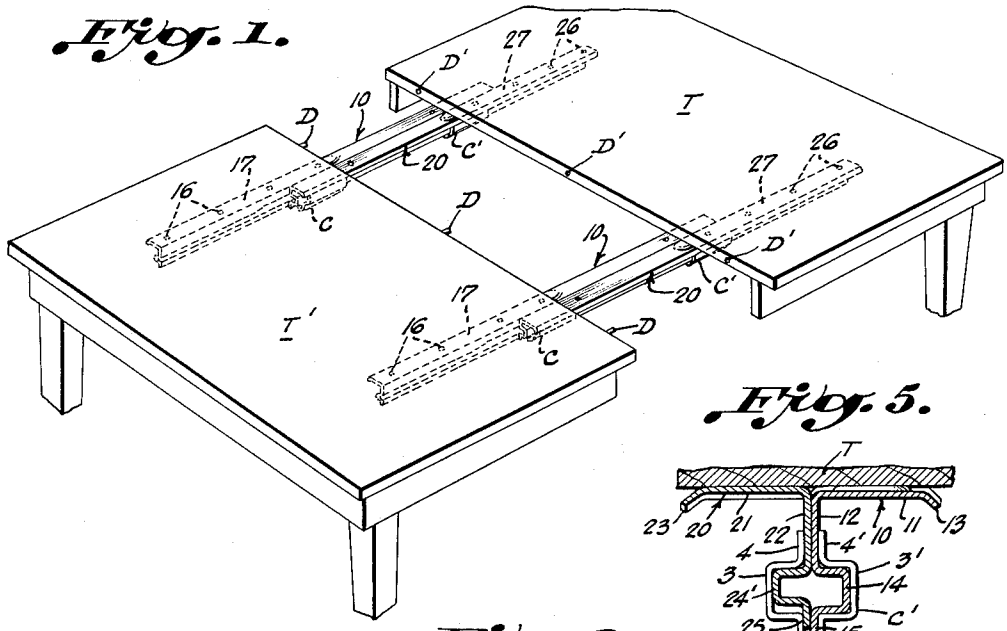



Fig. 5.




Fig. 2.

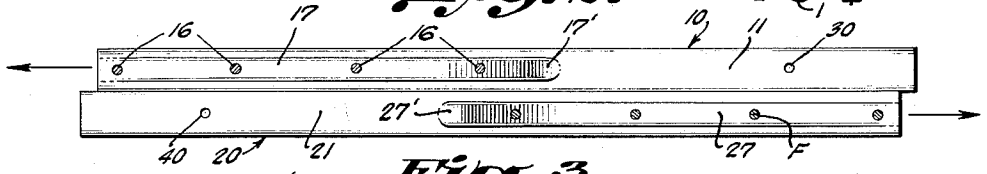



Fig. 3.

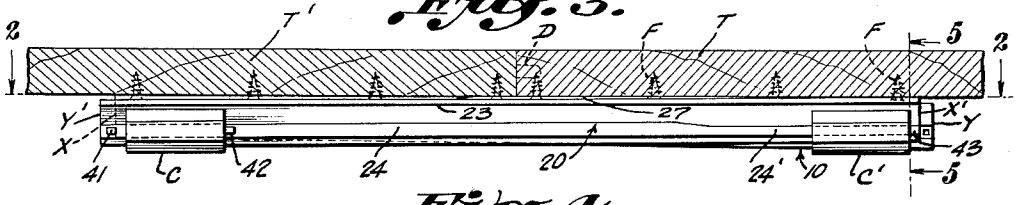
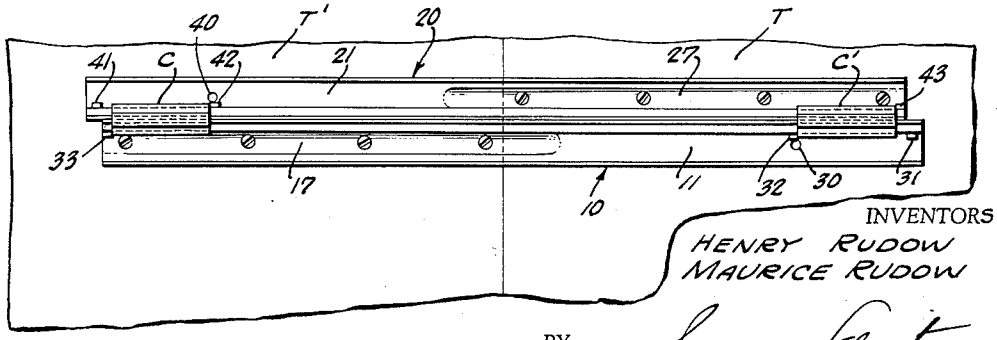



Fig. 4.




INVENTORS
HENRY RUDOW
MAURICE RUDOW

BY

ATTORNEY

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METALLIC SLIDE ASSEMBLY FOR EXTENSION TABLES

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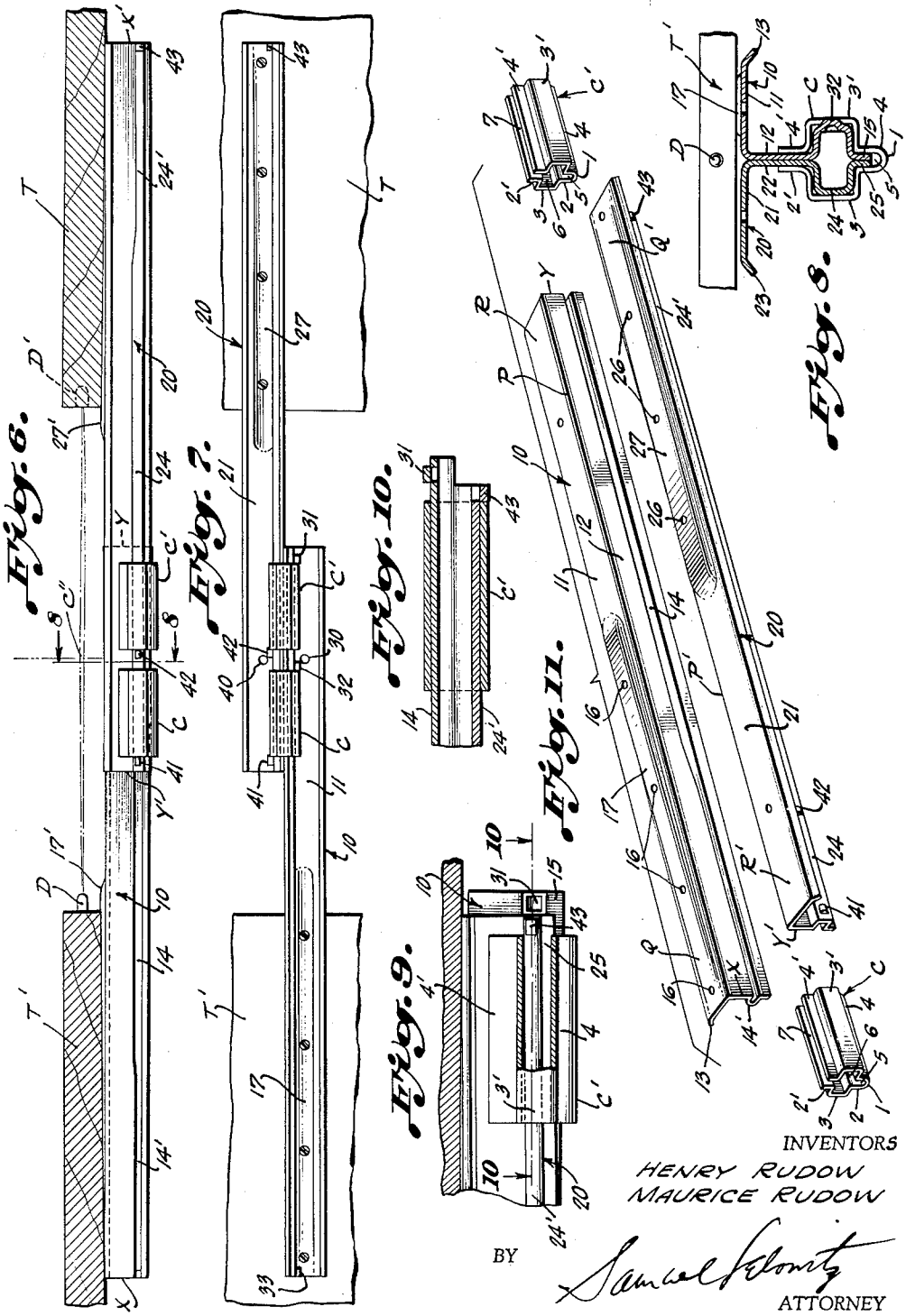


Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

INVENTORS
HENRY RUDOW
MAURICE RUDOW

BY Samuel Solomon
ATTORNEY

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# METALLIC SLIDE ASSEMBLY FOR EXTENSION TABLES

Henry Rudow and Maurice Rudow, Baltimore, Md., assignors to Lockfast Manufacturing Co., Inc., Baltimore, Md., a corporation of Maryland

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10 Claims. (Cl. 311—71)

This invention relates to a metallic slide assembly for extension tables.

It is the object of the present invention to provide a metallic slide assembly for extension tables which is rugged in construction and reliable in operation.

It is a further object of the invention to provide a slide assembly of sheet metal which may be fabricated of comparatively light gauges to obtain a secure support for the table leaves without sagging, and which makes possible the relative reciprocating movement of the slides without binding.

It is the object of the invention to provide a metallic slide assembly with continuous supporting ribs or protuberances on the horizontal supporting flanges of the metallic slides, which ribs increase in elevation from the ends of the slides towards the center of the table to compensate for the sag experienced by the table at the center thereof when one or more removable table leaves are inserted between the main fixed panels of the table for the purpose of extending the area thereof. These supporting ribs reenforce the supporting flanges and furthermore provide continuous support for the main panels and extend beyond the inner ends of these panels to afford support for the juxtaposed ends of the inserted table leaf or leaves so that the need for table eveners is eliminated.

It is another object of the invention to provide a metallic slide assembly of maximum strength in consequence of reenforcing channels extending outwardly from the vertical webs of the slides below the horizontal supporting flanges. These channels are disposed congruously in opposed relation in each juxtaposed pair of slides to form a composite channel of substantially closed cross-section, which serves to rigidify the entire assembly. Furthermore, the slides are interconnected for reciprocating movement by clips of corresponding contour embracing the bottom edges of the vertical webs, the reenforcing channels and portions of the vertical webs above the channels. The channels are lowered in depth adjacent to the ends thereof which are affixed to the table tops, thereby to lower the retaining clips in the closed position of the table, which automatically lower the unattached or free ends of the juxtaposed slides and thereby counteract the slope imparted to the main panels of the table by the inclined horizontal supporting ribs. Preferably stops are stamped from the lateral walls of the reenforcing channels which cooperate with the ends of the retaining clips to limit the extent of their movement relative to the slides.

An alternative mode of controlling the "crowning" of the table sections may be used in conjunction with or in exclusion to the "crowning" afforded by the inclined supporting ribs in the horizontal supporting flanges. This is attained by varying the heights of the vertical webs at the opposite ends thereof so that as the clips move with respect to the horizontal bottom edges of the slides, the free ends of the webs of the slides have imparted to them a vertical component of movement relative to the ends thereof affixed to the table-top sections.

Other objects and purposes will appear from the detailed description of the invention following hereinafter, taken in conjunction with the accompanying drawings, wherein



FIG. 1 is a perspective view of an extension table having mounted thereon two sets of the metallic slide assemblies in accordance with the present invention;

FIG. 2 is a plan view of the slide assembly in collapsed position;

FIG. 3 is a vertical sectional view of the table shown in FIG. 1 with the slides in the collapsed position;

FIG. 4 is a bottom view of FIG. 3;

FIG. 5 is a vertical sectional view along line 5—5 of FIG. 3;

FIG. 6 is a front elevation of the metallic slide assembly in extended position;

FIG. 7 is a bottom view of FIG. 6;

FIG. 8 is a vertical sectional view along line 8—8 of FIG. 6;

FIG. 9 is an enlarged view with certain parts broken away of the right end of the assembly shown in FIG. 3;

FIG. 10 is a horizontal view along line 10—10 of FIG. 9; and

FIG. 11 is a perspective view of the components of the slide assembly in their disconnected positions.

In the drawings is shown a table of any suitable construction having relatively movable table sections T, T', which are adapted to be opened relativey to each other for the accommodation of one or more leaves to enlarge the surface area of the table. Dowels D in the end of main panel or table section T' cooperate with aligned recesses D' in the end of main panel T to insure alignment between these panels or inserted table leaves, as is well known in the art.

As shown in FIG. 1, two sheet metal slide assemblies are affixed to the bottoms of the table leaves at laterally displaced points. These assemblies are identical, and the following description may apply to either.

The relatively movable sheet metal slides **10** and **20** are of identical construction, but are arranged in face-to-face or congruous relation to obtain a unit in which each of the slides is capable of relative reciprocal movement with respect to the other. The slide **10** is formed with a horizontal flange **11** which terminates along one edge thereof in a downwardly extending wing **13** and the vertical web **12** extends perpendicularly from the opposite edge of the flange **11**. The web **12** merges into a reenforcing channel **14**, which is shown of C-shaped cross-section, and from which extends the freely extending portion **15** of the web in the same plane as the upper part of the web **12**. The channel **14** terminates at its end which is affixed to the table top in terminal portion **14'**, which is lowered with respect to the horizontal flange **11**, for a purpose explained in greater detail below.

A plurality of openings **16** are disposed in the horizontal flange **11** for the reception of fasteners such as screws or bolts into the underside of the table section T'. A continuous reenforcing rib **17** is pressed outwardly from the top of the flange **11** to reenforce the flange and to assure a uniform and continuous juncture of the flange with the bottom face of the table top. A more secure mounting for the underside of the table top is afforded by the continuous rib **17**.

As is clearly evident from the views shown in FIGS. 6 and 11, the reenforcing rib **17** is inclined upwardly from its outer end towards its midportion or inner end **17'**. This serves to incline the table top portion T' in an upward direction when the slides are in extended position.

The companion slide **20** is formed similarly to slide **10** and consists of horizontal flange **21** terminating in downwardly disposed wing **23**, vertical web **22** merging into C-shaped reenforcing channel **24** and extending therefrom to a bottom portion of the web **25**. Like channel **14**, channel **24** terminates in a lowered portion **24'** at the end thereof which is affixed to the table top panel T (FIG. 3). Openings **26** are formed in the horizontal

flange **21** for the reception of fasteners F for affixation to the table top section T. These openings **26** are disposed in the continuous reenforcing rib or protuberance **27**, which is at the end of slide **20** remote from the rib **17** in slide **10**, as clearly shown in FIG. 2. The protuberance **27** is inclined from its outer end towards its inner end **27'** similarly to protuberance **17** so that, as shown in FIG. 6, in exaggerated scale, the sections T and T' are crowned upwardly as indicated at C'', so that when the one or more table leaves are inserted therebetween, the sag resulting from the weight thereof serves to dispose the table in substantially horizontal position. In practice, for a leaf of twelve inch width, the desired "crown" may amount to ⅛".

The inner ends of the protuberances **17'** and **27'** extend beyond the inner edges of the table top sections T' and T, respectively, in order to support the edges of the inserted table leaves, thereby eliminating the necessity for table eveners.

A pair of clips C, C' is provided, one at each end of the assembly, for the purpose of integrating the unit and confining the slides for relative reciprocable movement within desired limits. Each of the clips is identical and consists of a symmetrical member having a central bottom bight **1** with slightly displaced coplanar vertical walls **2**, **2'** and **4**, **4'** on each side of the bight **1**, separated by more widely displaced walls **3**, **3'**, which together form narrow passages **5** and **7** spaced by an intermediate larger passage **6**, as shown in FIG. 8. The passages **5** and **7** are sufficiently large to embrace the juxtaposed web portions **15** and **25** along the bottom edges of the slides, and the web portions **12** and **22** thereabove, while the enlarged portion **6** embraces the closed channel formed at the intermediate portions of the vertical webs. These clips may be pressed onto the vertical webs of the slides from a spread condition between the stops, described below, which are pressed from the channels **14** and **24**. The clips are applied preferably in the collapsed position of the slide assembly.

The pair of stops **31** and **32** are stamped from the channel **14** of slide **10** adjacent the free end thereof and another stop **33** is stamped from the channel **14'** at the opposite end thereof. The spacing between the stops **31** and **32** is slightly greater than the length of the clip C' in order to permit a "play" between the parts. Thus, if the length of the clip C' is 2½", the spacing between stop **31** and **32** may be 2¾". Thereby the clips serve as floating guides for the parts and minimize any binding therebetween in the course of their relative movements.

Similarly, stops **41** and **42** are stamped from channel **24** of slide **20** adjacent its unattached end with a displacement therebetween slightly longer than the length of the clip C, and another stop **43** is stamped from the channel **24'** at the opposite end of the slide. Thus, clip C is restrained and carried along by the movement of slide **20** while clip C' is restrained and carried along by the movement of slide **10** (FIGS. 6 and 7).

While the "play" between the slides in their extended position, as shown in FIGS. 6 and 7, permits the desired sagging of the assembly to take place to compensate for the "crowning" of the table top afforded by the inclined ribs **17** and **27** and thereby to level the entire table in a substantially horizontal position when the table is in extended position, the "crown" in the table top presents a problem when the slides are in the collapsed position as shown in FIGS. 2 and 4. In order to eliminate, or at least to minimize this effect, the reenforcing channel in each of the slides, by its lowering at portions **14'** and **24'** adjacent to the low end of the horizontal reenforcing ribs **17** and **27**, respectively, serves to bring down through the common connections afforded by clips C and C', the reenforcing channel of the opposite slide at its free or unconnected end of the slides. Thereby, the high points **17'** and **27'** of the ribs **17** and **27**, respectively, are lowered to reduce the "crown" effect which is produced thereby. Thus, in



FIG. 3, the channel **24** is lowered at portion **24'** adjacent to the low end of rib **27**, so that in the collapsed position of the slides, as shown in FIGS. 2 and 3, the clip C' will be forced downwardly to carry therewith the channel **14** disposed at a higher elevation (FIG. 5), which in turn will carry therewith the unattached end of the slide **10**, which, as indicated in FIGS. 3 and 9, serves to lower the right end of the slide **10** and the inner end **17'** of the inclined protuberance or rib **17**.

Similarly, the clip C on the left side of the assembly shown in FIG. 3, which is restrained longitudinally by stops **42** and **41** of slide **20**, is lowered by the reduced channel **14'** of slide **10** of reduced cross-section to lower therewith the channel **24** of slide **20**, and thereby to flex downwardly the free end of channel **20** and the highest portion **27'** of the inclined rib or protuberance **27**.

FIGS. 9 and 10 show, on an enlarged scale, the positioning of the parts shown in FIG. 3 and the action between the slides and the clips is such that, in effect, a snap-lock is produced thereby.

The lowered ends **14'** and **24'** of the reenforcing channels **14** and **24**, respectively, are of extended length in order to permit cutting of the slides to various lengths for the accommodation of table leaves of variable width. However, it is only necessary that the terminal portion of these reenforcing channels be lowered, in order to effect the desired lowering movements upon the unattached ends of the opposite slides.

The invention contemplates the incorporation of an additional structural feature to attain a "crowning" of the table top sections in the extended position of the slides. The "crowning" effect of this additional feature may supplement that afforded by the inclined reinforcing ribs **17** and **27** in the horizontal supporting flanges of the ribs, or may be used to the exclusion of the latter.

The alternative mode of "crowning" or "tipping" of the table top sections is obtained by varying the height of the opposite ends of the vertical webs of the slides so that as the bottom edges of the slides are extended in a horizontal plane in their constrained movement within the retaining clips C and C', the high ends thereof are positioned in the center of the table to afford the maximum elevation thereof for the purpose of supporting the inserted table leaf at the highest level. When the slides are in contracted position, the high ends of the slides are disposed inwardly of the edges of the table sections so that the "crowning" effect afforded thereby is minimized or nullified.

Specifically referring to the construction illustrated in the drawings, the slide **10** is fabricated so that the height of the vertical web at the end X thereof is less than the height of the vertical web at the end Y. This difference in elevation may be 1/16", or greater if a greater degree of "tipping" is desirable. This difference in elevation is easily attained by shaping the slide **10** so that the edge P, marking the boundary line between the horizontal supporting flange **11** and the vertical web **12**, is inclined to the longitudinal edges of the channel rather than parallel thereto. The fact that the horizontal flange **11**, at its end Q would consequently be wider than the horizontal flange at its end R, is immaterial, particularly so since some of this additional width is taken up by the stamping of the inclined rib **17** from the plane thereof.

Similarly, the end X' of the channel **20** is shallower than the end Y' thereof, resulting from the pressing of its edge P' at a slope relative to its longitudinal edges, giving rise to a greater width to the horizontal flange **21** at its end Q' than at its opposite end R'. With the slides affixed to the table top sections T' and T, so that the shallow ends thereof X and X', respectively, are disposed therebelow, the extension of the table top sections as shown in FIG. 6 results in the projection of the high ends Y and Y' of the vertical webs into the space for receiving the inserted table leaf which is at an increased elevation with respect to the horizontal plane.

The degree of inclination may be varied as desired by varying the inclination of the edges P and P', and the difference in height of the opposite ends of the vertical webs. This difference may run from 1/16" to 3/16", depending upon the number and weight of the inserted table leaves to control the "crowning" effect. If the "crowning" amounts to 1/8" in open position, it may be reduced to 1/16" in closed position.

Also, if this "crowning" is employed to supplement the action of the inclined ribs **17** and **27**, naturally the difference in height between the ends of the slides may be of small extent, as indicated in the drawings. If this "crowning" expedient is used to the exclusion of the inclined ribs **17** and **27**, the difference in heights at the opposite ends of the vertical webs may be increased accordingly. If fact, if the metal stamping machines for stamping the inclined ribs **17** and **27** are so set as to impart an unduly high degree of "tipping" to the table top sections, the heights of the ends of the vertical webs may be reversed so that the high ends thereof are affixed to the table top sections leaving the low ends in the center, so that as the slides are extended, the centers thereof are "tipped" to counteract the "crowning" effect resulting from the inclined ribs **17** and **27**.

As shown in FIGS. 2 and 3, the slides in the extreme position may overlap slightly one beyond the other. The slides are affixed to the table top while the slides are coextensive. However, should there be a slight gap between the sections T and T' of the table top when such mounting is made, the additional relative movement beyond their coextensive position, as indicated in FIGS. 3 and 4, permits the table tops to be brought close together, despite the small gap between them at the time of their mounting. This movement is permitted by the larger spacing between the stops **31**, **32** and **41**, **42** than the length of the clips C and C', respectively, which are restrained thereby.

A single aperture **30** is provided in horizontal flange **11** of slide **10** and a single aperture **40** is provided in horizontal flange **21** of slide **20** for the purpose of permitting the affixation of the table leaves during the shipment of the table. These apertures are not used following the assembly of the table top for utilization, and therefore they do not restrict the flexing of the unconnected ends of the slides to attain the results described above.

While reenforcing channels **14** and **24** are shown of C-shaped configuration, the geometrical outline thereof may be varied as long as the desired reenforcing effects are attained thereby. Thus, these channels may be of semicircular or semi-elliptical outline. The channels in the clips C and C' are shaped correspondingly to embrace as closely as possible the external outline of these reenforcing channels **14** and **24**.

While we have described our invention as embodied in a specific form and as operating in a specific manner for purposes of illustration, it should be understood that we do not limit our invention thereto, since various modifications will suggest themselves to those skilled in the art without departing from the spirit of our invention, the scope of which is set forth in the annexed claims.

We claim:

1. A metallic slide assembly for an extension table comprising a pair of juxtaposed sheet metal slides, each one of said slides having a horizontal flange with a plurality of openings along one end thereof for receiving fasteners to attach said slide to the bottom of a table section, with said openings in the respective slides at the remote ends of the pair thereof, a vertical web extending from each divergently directed horizontal flange for abutting contact below said horizontal flanges and adapted for relative reciprocable movement adjacent to each other, a slidable retainer clip at each end of the assembly embracing said vertical webs adjacent to the free edges thereof remote from said flanges, and a continuous raised protuberance on each horizontal flange along said one end thereof and extending beyond the series of openings therein to provide reenforcement for the flange and a smooth juncture plane between each slide and the table-top section affixed thereto, said protuberance being inclined upwardly from the outer end of the flange to the inner portion thereof to impart a "crown" to the table in compensation for the sag resulting from the insertion of a table leaf in the extension of the table.

2. A metallic slide assembly as set forth in claim 1 wherein the inner end of the raised protuberance in each of the slides extends beyond the table top section affixed thereto to provide support for the juxtaposed edges of the removable table top leaf adapted to be inserted between said table-top sections in the extended position of the table.

3. A metallic slide assembly for an extension table comprising a pair of juxtaposed sheet metal slides, each one of said slides having a horizontal flange with a plurality of openings along one end thereof for receiving fasteners to attach said slide to the bottom of a table section, with said openings in the respective slides at the remote ends of the pair thereof, a continuous raised protuberance in each horizontal flange increasing in elevation from the outer end thereof adjacent to said openings and towards the inner portion thereof and extending beyond said openings therein, a vertical web extending from each divergently directed horizontal flange for abutting contact below said horizontal flanges and adapted for relative reciprocable movement adjacent to each other, a C-shaped reenforcing channel bent from each vertical web below the respective horizontal flange to form a composite tubular channel of substantially rectangular cross-section, said reenforcing channel being at a lower level relative to the horizontal flange adjacent to the end of each slide below the protuberance at its minimum elevation, a stop pressed outwardly from said last-mentioned end of said reenforcing channel, a pair of stops pressed outwardly from the opposite end of each reenforcing channel, and a retainer clip at each end of the assembly of lesser length than the spacing between each pair of stops and conforming to the outer contours of said vertical webs and channels for constraining each end whereat said pair of stops is disposed to move downwardly in response to the lower level of the reenforcing channel in the adjacent slide when the slides are moved into collapsed position.

4. A metallic slide assembly as set forth in claim 3 wherein the end of each vertical web remote from the raised proturberance is higher than the opposite end of the respective web to supplement the "crowning" effect produced by the protuberances.

5. A metallic slide assembly for an extension table comprising a pair of juxtaposed sheet metal slides, each one of said slides having a horizontal flange for affixation at one end thereof to the bottom of a table-top section, with the affixed ends disposed remotely from each other, integral webs extending from said horizontal flanges interconnected by retaining means for confining said webs for relative rectilinear movement, and means controlled by said interconnecting means for imparting a vertical component of movement to the ends of the slides remote from those affixed to the table-top sections as the slides are moved into extended position.

6. A metallic slide assembly for an extension table comprising a pair of juxtaposed sheet metal slides, each one of said slides having a horizotal flange for affixation at one end thereof to the bottom of a table-top section, with the affixed ends disposed remotely from each other, integral webs extending from said horizontal flanges interconnected by retaining means for confining said webs for relative rectilinear movement, and means controlled by said interconnecting means for imparting an upward vertical component of movement to the ends of the slides remote from those affixed to the table-top sections as

the slides are moved into extended position to impart a crowning effect to the table-top sections.

7. A metallic slide assembly for an extension table comprising a pair of juxtaposed sheet metal slides, each one of said slides having a horizontal flange for affixation at one end thereof to the bottom of a table-top section, with the affixed ends disposed remotely from each other, integral vertical webs extending from said horizontal flanges, and retaining means embracing said webs for restraining said slides for relative rectilinear movement, said vertical webs being of shorter height adjacent the affixed ends thereof relative to the opposite free ends thereof, whereby the extension of the slides within said retaining means in a horizontal plane moves the free ends of the slides upwardly in position to support a table leaf thereon in raised position.

8. A metallic slide assembly for an extension table comprising a pair of juxtaposed sheet metal slides, each one of said slides having a horizontal flange with a plurality of openings along one end thereof for receiving fasteners to attach said slide to the bottom of a table section, with said openings in the respective slides at the remote ends of the pair thereof, a continuous raised protuberance in each horizontal flange increasing in elevation from the outer end thereof adpacent to said openings and towards the inner portion thereof and extending beyond said openings therein, a vertical web extending from each divergently directed horizontal flange for abutting contact below said horizontal flanges and adapted for relative reciprocable movement adjacent to each other, and retaining clips for confining said webs for relative horizontal rectilinear movement, each of said vertical webs being of different height at the opposite ends thereof to experience a vertical component of movement at the unattached ends thereof as the slides are moved into extended position.



9. A metallic slide assembly as set forth in claim 8 wherein the vertical webs at the unattached ends of the slides are of greater height than the opposite ends to supplement the "crowning" effect produced by said raised protuberances.

10. A metallic slide assembly as set forth in claim 8 wherein the vertical webs at the unattached ends of the slides are of lesser height than the opposite ends to counteract the "crowning" effect produced by said raised protuberances.

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