Sept. 2, 1952 W. A. POE 2,609,264

TOP TO FRAME CONNECTING STRUCTURE MECHANISM

Filed Dec. 19, 1949 2 SHEETS—SHEET 1

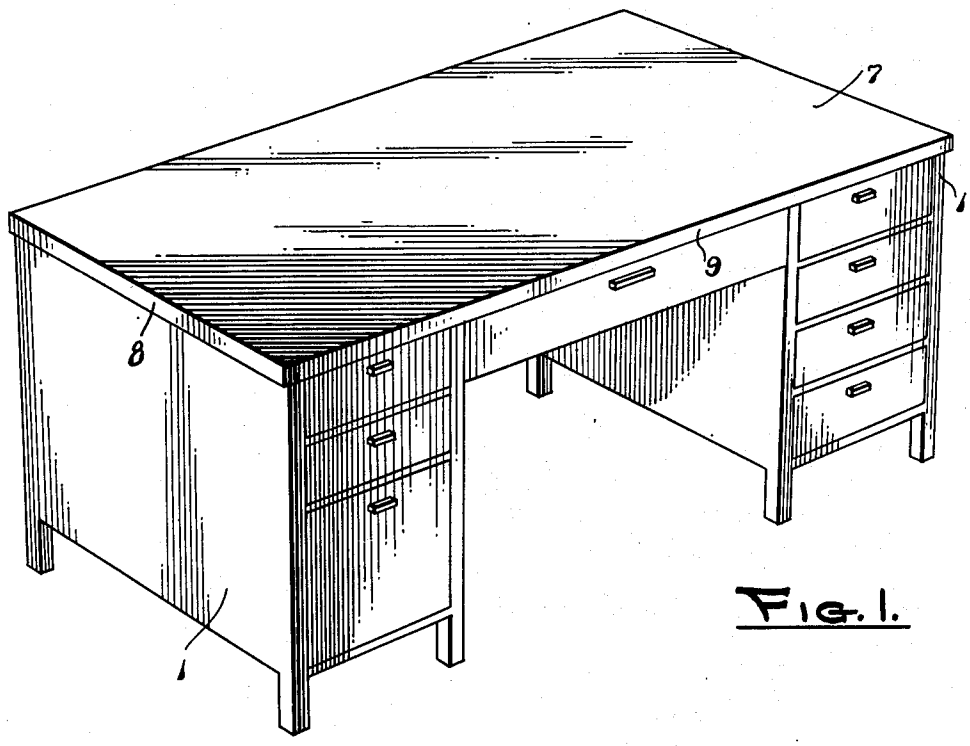


FIG. 1.

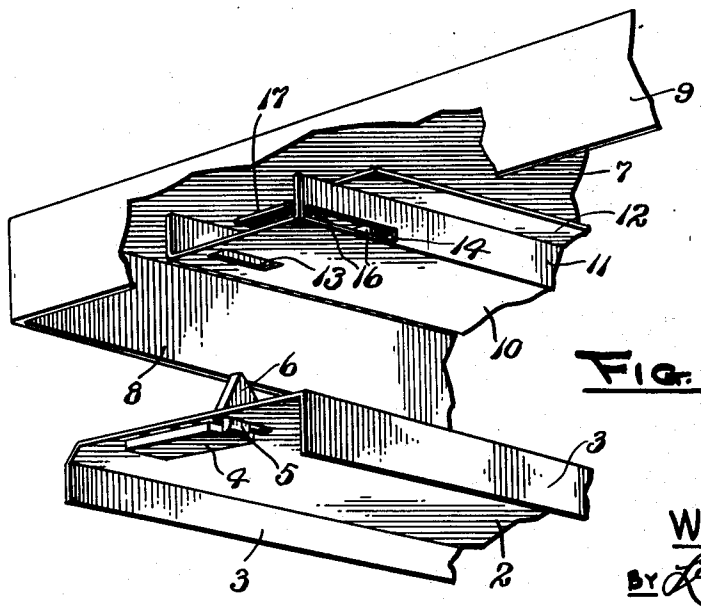


FIG. 2.

INVENTOR
WILLIAM A. POE
BY Lawrence and Van Antwerp
ATTORNEYS

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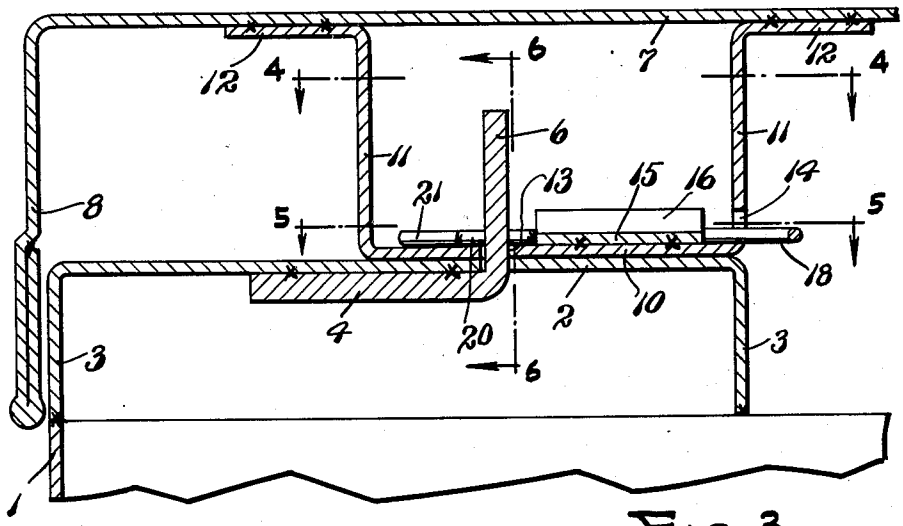


FIG. 3.

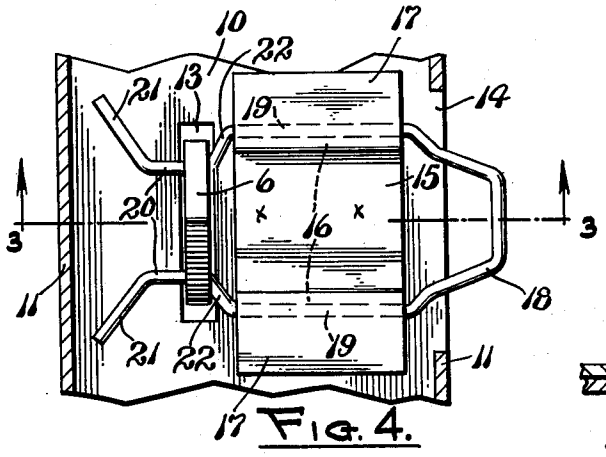


FIG. 4.

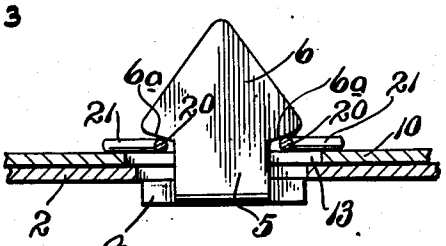


FIG. 6.

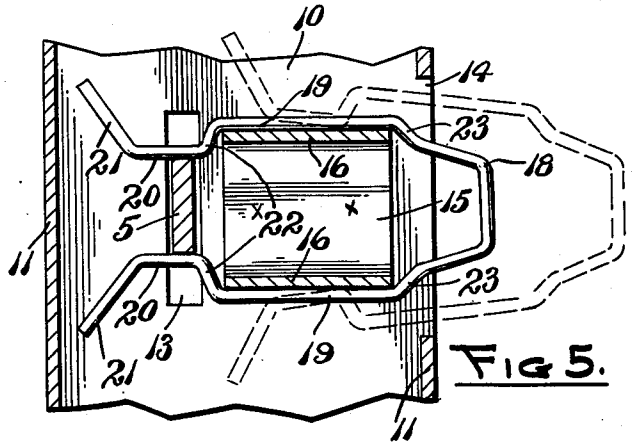


FIG 5.

INVENTOR
WILLIAM A. POE
BY Liverance and Van Antwerp
ATTORNEYS

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TOP TO FRAME CONNECTING STRUCTURE MECHANISM

William A. Poe, Muskegon Heights, Mich., assignor to Browne-Morse Company, Muskegon Heights, Mich., a corporation of Michigan

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7 Claims. (Cl. 311—108)

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This invention relates to a furniture connection, and is more particularly concerned with a novel structural connecting means which may be used between the top of the desk and its pedestals, or the top of a table and its under frame or in other analogous furniture articles which have tops and under supporting structures.

In the present invention a top of sheet metal is quickly and easily secured to its under supporting structure, such as the pedestals of a desk, and may be firmly yet releasably held in place. At the same time the means which is used can be and is used for a strengthening, supporting and bracing of the top transversely thereof at a number of spaced apart positions, which number may be varied if wanted. The structure is relatively simple and economical to produce, and by it, the attachment of a top to desk pedestals or the like is very expeditiously attained.

An understanding of the invention may be had from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a perspective view showing an article of furniture, a desk, with the top secured in place, the securing means being covered and out of sight.

Fig. 2 is a fragmentary enlarged perspective view, with parts broken away for better disclosure, illustrating the connecting means used, the lower part attached at the upper ends of desk pedestals and the upper cooperating part at the under side of the top.

Fig. 3 is a fragmentary enlarged longitudinal section at one end of the top and pedestal showing the top releasably secured in place, the plane of the section being substantially that indicated at line 3—3 of Fig. 4.

Figs. 4 and 5 are horizontal sections looking downwardly taken, respectively, on the planes of lines 4—4 and 5—5 of Fig. 3, and

Fig. 6 is a vertical section looking in the direction indicated, substantially on the plane of line 6—6 of Fig. 3.

Like reference characters refer to like parts in the different figures of the drawings.

The desk pedestals 1 which are shown as the under supports for the desk top may be of any conventional structure. With my invention at the upper end and outer side, and also if desired, at the inner side of each pedestal, a horizontal channel having a web 2 and vertical downwardly extending flanges 3 of metal, is secured which, preferably, will extend from front to rear the full length of the pedestal being welded or otherwise permanently secured in place. Adjacent each end of each channel (Fig. 2), a locking member is secured which includes a flat bar 4 of metal at the under side of the web 2 of the channel, welded thereto, which at one end is reduced in thickness to make a tongue 5 bent upwardly and extending through a slot in the web 2. Above the slot the tongue 5 terminates in a generally rectangular head 6 substantially like an arrowhead in shape, the under edges 6a of which converge downwardly toward each other at an angle to the horizontal as shown in Fig. 6.

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The top comprises a flat rectangular sheet of metal 7, having downturned end flanges 8 and front and rear downwardly extending flanges 9, the cross section of which, preferably, will be as shown in Fig. 3. The top is adapted to cover the upper ends of the pedestals 1 and the well between them, or any drawer which may be located in the upper portion of such well.

At the under side of the horizontal top plate 7, transversely thereof, inverted channels are secured in position, so that when the top is applied over the pedestals, one of said channels will be above and extend lengthwise of and rest against the web 2 of the cooperating channel below it. Each of the upper channels attached to the top having a lower horizontal web 10, spaced vertical sides 11 and outwardly extending flanges 12 which are spot welded to the top 7 (Fig. 3). In the lower web 10 near each end thereof, a slot 13 is cut. When the top is put in place, the heads 6 of the connecting members previously described pass through the slots 13. At each end of each upper channel and in one of its sides 11, a horizontal slot 14 is cut which is substantially longitudinally aligned with the locking member head 6 which passes through the adjacent slot 13.

On the upper side of the web 10 of each of said top attached channels, and at each end thereof, a guide formed from a plate of flat metal is permanently secured. Such guide has a flat side 15 welded to its associated web 10. At each edge it is bent upwardly in a short leg 16 and continued in a horizontal flange 17 above and parallel with the web 10 located below it.

The guides described are located, one in alignment with each of the side slots 14. Through the slots 14 releasable holding keys are inserted. Each of said keys is bent from a single length of spring wire rod into a generally U-shape, having a closed end 18 from which legs extend, spaced from each other. Each of the legs includes intermediate sections 19 between its ends. Such sections 19 in a key are spaced apart distances such that they may embrace the upwardly extending short legs 16 of the described guides.

Near the free ends of said legs are other parallel sections 20 spaced close together, which terminate in outwardly diverging ends 21. The connections between the sections 20 and 19, at 22, provide shoulders at the inner ends of the legs 16 of the guides, while the angularly disposed connecting sections 23 between the outer ends of the parallel sections 19 and the closed

end 18 of the guide provide shoulders to similarly engage against the outer ends of the guide legs 16.

When the top is put in place for connection with the supporting structure therebelow, pedestals in the cases of the desks, the heads 6 pass through the slots 13 and extend above the webs 10 of the several transverse inverted channels secured to the top. The keys are inserted through the slots 14. The flared ends 21 of the opposed legs of the keys ride upon the guides therefor which spring the sides or legs of the keys outwardly so that the keys may be moved to the position shown in Figs. 4 and 5, whereupon the sections 19 embrace the legs 16 of their associated guides and the sections 20 come underneath the downwardly converging lower edges 6a of the heads 6. This provides a wedging action which tends to pull the top attached channels downwardly to hold the webs 10 thereof in close contact engagement with the webs 2 of the pedestal connected channels. The top is therefore secured in position by inserting the several keys through the slots 14 and engaging them with their guides. Such keys are held against movement by reason of the shoulders at the ends of the sections 19 engaging opposite ends of the legs 16 of the guides therefor.

With the pedestal attached channels, one at each inner and outer side at the upper end of each pedestal, and with a like number of top attached channels to lie thereover, and with the slots 14 at one side of each of the top attached channel and at each end thereof there will be eight keys used. Of course the number of transverse channels which may be used is subject to variation if wanted. Also, if desired, only two channels on the top and their corresponding channels on the pedestals may be key locked together at each end in the manner stated, and other channels serving to support and strengthen and reinforce the top and hold it against downward departure from a horizontal plane. While the channels attached to the pedestal and those attached to the top extend the full length from front to rear of each, so far as the releasable connection is concerned, the intermediate portions of all of the channels could be removed and the releasable locking still operate in the same manner.

The structure described is practical, economical and is very useful. The attachment is a secure one and is performed rapidly. The keys may be removed by pulling on their closed ends 18 by a suitable implement if for any reason the top is to be removed. In a desk for example, the upper drawers in the pedestals and any slides in the way of reaching the keys may be withdrawn and the keys be rendered accessible for withdrawal by means of a screw driver, pliers or other suitable tool.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a structure as described, a furniture under supporting structure, horizontal metal channel members secured thereto, one adjacent each end thereof and extending from front to rear, said channel members having horizontal upper webs and downwardly extending flanges permanently secured to the under supporting structure, short bars permanently secured to the under sides of said webs of said channels adjacent each end thereof and extending upwardly through said webs of the channels and above the channels, terminating in upwardly extending heads wider than associated bars where connected thereto, a horizontal top of flat metal, channel members secured at the under side thereof, one adjacent each end thereof, and extending from front to rear having lower webs and upwardly extending flanges located to rest upon webs of the channel members secured to the supporting structure, said channels connected with the top having openings through their webs for the passage upwardly therethrough of said heads, and said channels, in a flange thereof, having slots aligned in the direction of the length of the top with the slots in the webs, and keys insertable through said slots in said flanges adapted to engage with said heads to prevent separation of the top and support channels from each other.

2. A structure as defined in claim 1, and guides secured at the upper sides of said top connected channels for guiding said keys into connection with said heads and for holding them against vertical movement with respect to their associated channels.

3. A structure as defined in claim 2, said keys having intermediate sections of their sides parallel to each other, and said guides having upwardly extending spaced apart sides along the outer sides of which said intermediate sections of the keys pass and said keys in each side thereof having additional parallel sections to pass under said heads.

4. A structure as defined in claim 3, the free ends of said sides of the keys diverging outwardly from each other and the intermediate and last mentioned parallel sections of the legs of said keys being integrally connected to provide shoulders, said shoulders engaging with the guides and normally preventing outward movement of the keys.

5. A structure as defined in claim 1, said keys being of resilient material and of a generally U-shape having spaced legs, sections of which pass underneath said heads at the widened portions thereof, said heads at their under sides and to each side of the bar to which connected having under edges converging downwardly toward each other.

6. In a furniture construction, a horizontal top, channel members secured to said top underneath it adjacent each end thereof, said channel members having openings in the web portion thereof, an under supporting structure for the top, additional channel members having upper horizontal webs and downwardly extending flanges permanently secured at the upper side of said under supporting structure and located in a position to be underneath the channel members connected with the top, upwardly extending headed members secured to the channel members attached to the under supporting structure and extending thereabove, said headed members having heads of a substantial triangular shape having bases at their lower sides and converging upwardly from said bases and having narrow portions extending from and below said heads to connect with the associated channel members, said heads being adapted to pass through the slots of the webs of the top connected channel members, keys insertable through a side of said top connected channel members, said keys each comprising a generally U-shaped member of resilient material, the spaced sides of which have diverging free ends adapted to pass one at each

side of the narrow portions connected to and extending below associated heads and underneath the bases of the heads, thereby releasably engaging with said heads and holding them in secure connection with the top holding channel members, and means on said top connected channel members for holding and guiding said keys.

7. A structure containing the elements in combination defined in claim 6, said key holding and guiding means comprising plates of sheet metal permanently secured at the upper sides of the webs of said top connected channel members, one at one side of each of the slots in the webs thereof, said plates at their edge portions having each an upwardly extending short leg terminating in a horizontal laterally extending flange spaced from

and parallel with the web to which attached, the sides of said U-shaped keys bearing against said legs and passing between the webs of said top connecting channels and said lateral flanges.

WILLIAM A. POE.

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