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W. H. SINCLAIR

2,156,404

PAPER CLAMPING DEVICE

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Fig. 1.

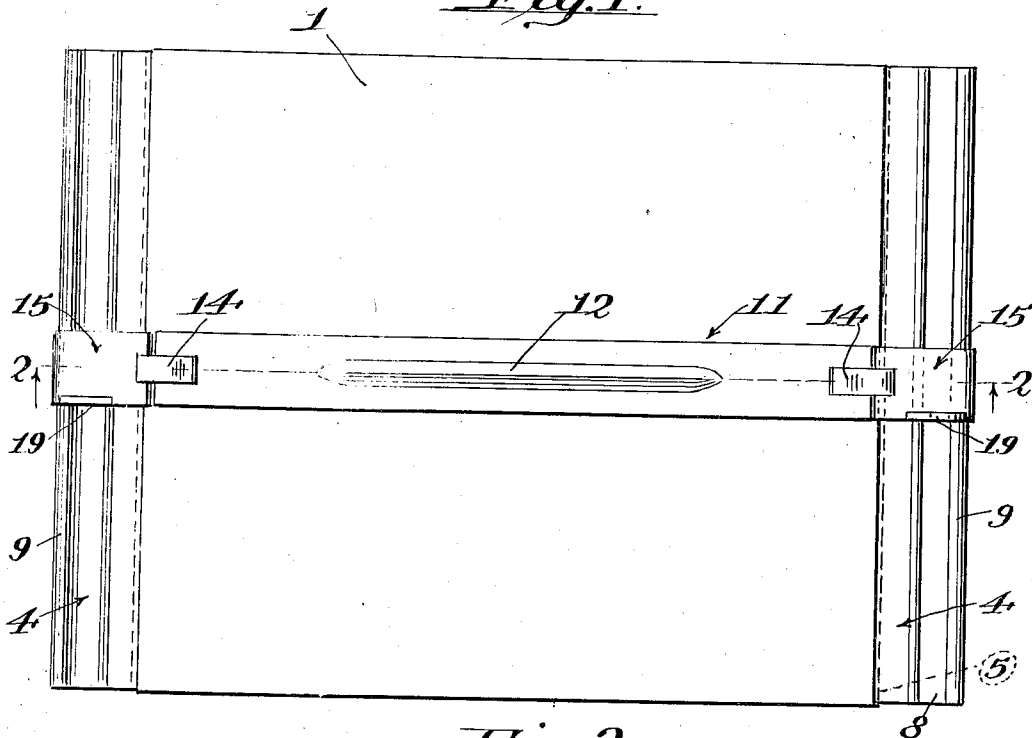


Fig. 2.

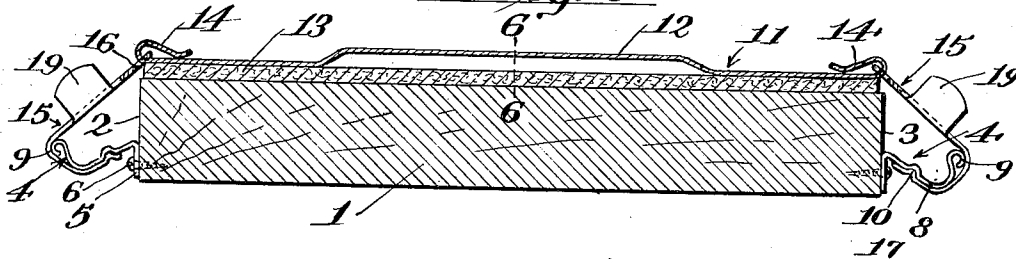


Fig 4.

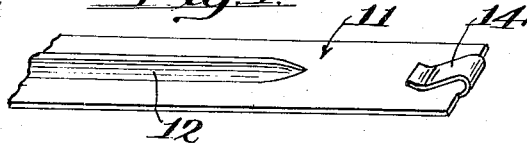


Fig. 5.

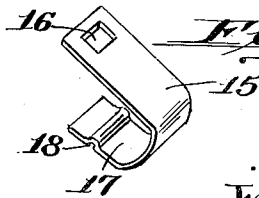
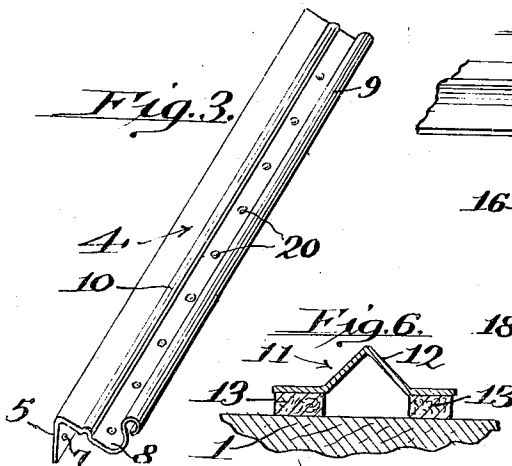


Fig. 6



Inventor
William H. Sinclair.
by Hazard and Miller
Attorneys.

UNITED STATES PATENT OFFICE

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PAPER CLAMPING DEVICE

William Horace Sinclair, Los Angeles, Calif.

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10 Claims. (Cl. 45—131)

My invention relates to drawing boards provided with means whereby a sheet of paper on the drawing board may be clamped in position by means of clamping members which slide on a pair of guide rails attached to the sides of the drawing board.

It is an object of this invention to provide simple and efficient means whereby an ordinary drafting board may be provided with means comprising a pair of clamping bars extending transversely across the board and which may be instantly adjusted by sliding them across the face of the board, the clamping bars having pivoted arms in slidable engagement with resilient guide rails, the arms and resilient guide rails being so constructed that a tension is exerted upon the clamping bar tending to press downwardly upon the paper, thus holding it securely in place.

With the above and other objects in view, which will appear as the description proceeds, my invention consists in the construction, arrangement and combination of parts hereinafter described.

In the accompanying drawing, which forms a part of the specification, I have illustrated a preferred embodiment of my invention, and in which:

Fig. 1 is a top plan view of a portion of a drafting board equipped with my invention.

Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

Fig. 3 is a perspective view of a section of the guide rail.

Fig. 4 is a fragmentary view in perspective of the clamping bar.

Fig. 5 is a perspective view of one of the clamping arms.

Fig. 6 is a detailed section on an enlarged scale taken on the line 6—6 of Fig. 2.

Referring to the drawing, 1 indicates a drawing board of conventional construction, preferably made of wood and provided with parallel, vertical sides 2 and 3. A guide rail 4 fastened to the sides 2 and 3 extends the total length of such sides. The guide rail 4 is preferably made of resilient sheet metal and comprises a vertical portion 5 which lies flat against the lower portion of sides 2 and 3 and is secured thereto by means of fastening member, such as wood screws 6 passing through perforations 7 of the vertical portion 5.

From the upper end of vertical portion 5 the sheet metal extends downwardly and outwardly to form a trough or channel 8, the free end of the sheet metal being turned upon itself as at

9, so as to provide a rounded edge. To strengthen the guide rail 4 and to add resiliency thereto I prefer to press into the sheet metal a longitudinal rib 10 located intermediate the vertical portion 5 and the bottom of the trough 8. It should be noted that the vertical portions 5 and the free end extending outwardly therefrom and forming the trough 8 lie between two horizontal planes, which confine a space between the bottom of the drawing board 1 and about one-third of the height of the sides of the drawing board.

A clamping bar 11 preferably made of sheet metal extends transversely and at right angles to the sides 2 and 3 of the drawing board. Intermediate its ends, disposed in the middle, is a longitudinal rib 12 which serves to add strength to the bar 11 and also tends to force the clamping bar downwardly upon the drawing board when any tension is exerted in opposite directions at the ends of the clamping bar 11.

The clamping bar 11 is preferably faced with felt 13. It should be observed here that as shown in Fig. 6 the felt does not extend clear across the clamping bar 11 immediately below the rib 12 but only along the flat portions laterally extending from the rib 12. This construction permits the rib 12 to expand slightly laterally, thus hugging the drawing board. If the felt 13 extended clear across underneath rib 12 such spreading action would be prevented.

The ends of the clamping bar 11 are reduced to form tongues at 14—14 turned inwardly on top of the clamping bar 11 and serve as hooks for the reception of clamping arms 15—15 which are provided at their inner ends with apertures 16 through which the tongues 14 hold arms 15 in pivotal relation to the bar 11 and permit the arms to swing in a vertical plane. The outer end of arms 15 is curved as at 17 and of a shape to engage the lower face of the trough 8 of the guide rails 4.

A longitudinal rib 18 on arm 15 corresponds in size and position to rib 10 in the guide rail and is in engagement therewith. To facilitate the sliding movement between arms 15 along the guide rails 4, lugs 19 are provided which extend vertically upward from arms 15 to form manual grips for the thumb and finger in moving the clamp along the guide rails 4.

Operation

The operation of the paper clamp is obvious from the foregoing description. A paper is placed on the drawing board 1 and by sliding the arms

15 and clamping bar 11 pivoted thereto the paper clamp is moved to the desired position. It will be understood that it may be desirable to use a pair of clamps on the same drawing board at opposite ends of the paper to be held in place. For smaller sheets, one clamp will ordinarily be sufficient. It should be noted that due to the resiliency of the guide rails 4 clamping bar 11 is yieldingly forced down upon the paper. The guide rails 4, due to the trough shaped configuration may serve also for the reception of pencils, drawing instruments, and the like, and in order to prevent such articles from sliding off the trough 8 if the board is in an inclined position, spaced portions 20 forming slight protuberances on the upper surface of the trough 8 may be provided to afford frictional resistance.

By providing the clamping member with a central clamping bar 11 and a pair of arms pivoted to the ends thereof, the cost of manufacture is reduced. It will be only necessary in order to accommodate drawing boards of different widths to provide clamping bars 11 of various lengths to accommodate the standard sizes of drawing boards, the guide rails 4 and arms 15 being of the same size for all drawing boards.

It should also be noted that a T-square may be used on the drawing board in the usual manner since the guide rail 4 is considerably below the plane of the head of the T-square. While the invention is primarily intended for use with drawing boards and tables, it is of general application and could be used for instance on tables used for cutting out of dress patterns in holding both the pattern and the dress goods clamped to the table. Therefore the term "drawing board" in the claims is intended to cover any plane surface having two parallel sides to which the guide rails may be attached.

Various changes in the construction and arrangement of parts of my improved paper clamping device may be made by those skilled in the art without departing from the spirit of my invention as claimed.

I claim:

1. The combination of a drawing board having parallel sides provided with guide rails, each guide rail being made of resilient sheet metal having a vertical, longitudinal portion fastened to the lower portion of the side, the sheet metal extending from the upper end of the vertical portion outwardly and downwardly to form a trough open at the top, a sheet metal bar extending transversely of the board, sheet metal arms pivoted to the ends of the clamp bar, said sheet metal arms being curved to correspond to the curvature of the guide rails and engaging the latter in slidable contact on the outer face of the trough.

2. The combination of a drawing board having parallel sides provided with guide rails, each guide rail being made of sheet metal having a longitudinal portion fastened to the lower portion of the side and extending downwardly and outwardly therefrom to form a trough, a sheet metal clamp bar extending transversely of the board and provided with a longitudinal, central rib extending upwardly therefrom, and arms made of resilient sheet metal pivoted to the ends of the clamp bar and being curved to correspond to the curvature of the trough and engaging the exterior face thereof in sliding relation, said arms being provided with upstanding lugs to form manual grips for moving the clamp bar and its arms longitudinally in relation to the drawing board.

3. A drawing board having a flat top working

surface and parallel side edges at right angles to the top, a resilient guide rail fastened directly to each side edge and each extending longitudinally of such edge, each complete guide rail being located below the top of the board to permit use of a T-square, a clamp extending transversely over the top of the board from side to side and detachable connecting means securing each end of the clamp to the adjacent guide rail, said attaching means and the clamp being slidable longitudinally of the board.

4. A drawing board as claimed in claim 3, each guide rail forming a trough open at the top adapted to receive drawing instruments, the clamp having a hook at each end, the attaching means of the clamp to the guide rails including resilient arms each attached to a hook and engaging each underneath a guide rail.

5. In a drawing board having a flat top working surface and parallel side edges at right angles thereto, a sheet metal guide rail secured to each side and having an outwardly extending portion, the outer portion being slightly bendable upwardly and the whole of each guide rail being below the top of the board whereby a T-square may be utilized on the board and have a head engaging an edge of the board, a clamping bar extending across the top of the board from edge to edge and having a hook on each end, a resilient clamping arm pivoted to each hook and having means to engage the outer portion of the adjacent sheet metal guide rail, each clamping arm being slidable longitudinally of the guide rail for shifting the clamping bar.

6. In a drawing board as claimed in claim 5, the outer portion of each sheet metal guide rail having an upwardly facing trough and a longitudinal rib extending upwardly between the trough portion and the edge of the drawing board, each clamping arm having a downwardly curved end to fit underneath the trough and having an upwardly extending rib to engage under the rib of the guide rail.

7. In a drawing board as claimed in claim 5, the clamping bar having an upwardly pressed, longitudinal rib, a felt between the under surface of the clamping bar and the drafting board, such felt having an opening underneath the rib whereby on a downward pull on the ends of the clamping bar due to the action of the clamping arms and the hooks the section of the clamping bar having the longitudinal rib may expand slightly laterally.

8. In a drawing board clamp, a clamping bar formed of sheet material of substantially constant thickness, the bar being comparatively narrow considered laterally compared with its length across the board, the major portion of the clamp being in a plane surface except the center portion of the clamping bar having an upwardly extending rib, such rib extending longitudinally of the clamping bar and positioned centrally as to its lateral edges, a felt engaging the under surface of the clamping bar and having an opening underneath the rib, and resilient means engaging the ends of the clamping bar to pull the bar towards the surface of the drafting board, the portion of the bar at the rib being adapted to expand slightly laterally.

9. In a drawing board having parallel sides, the combination of two guide rails each formed of a trough shaped resilient sheet of metal and each having attachments to the board extending longitudinally of the channels, the said channels forming a trough open at the top, a clamp bar

extending transversely of the board and having means for engaging the undersides of the channel shaped guide rails and slidable thereon for sliding the clamp longitudinally of the drawing board.

5 10. In a drawing board having a flat top and parallel sides, combined with a pair of guide rails on each side of the board and having attaching means to the board, said guide rails being resilient as to up and down movement from the at-

taching means, a clamp bar extending transversely of the board, resilient arms pivoted to the ends of the clamp bars by a horizontal pivot whereby the resilient arms swing on the pivots in vertical planes, each resilient arm having means to engage and attach to one of the resilient guide rails and thereby exert a downward pull on the clamping bar.

WILLIAM HORACE SINCLAIR.

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