June 29, 1937. F. FARRELL 2,085,304

DRAWING BOARD ATTACHMENT

Filed Aug. 28, 1935 2 Sheets-Sheet 1

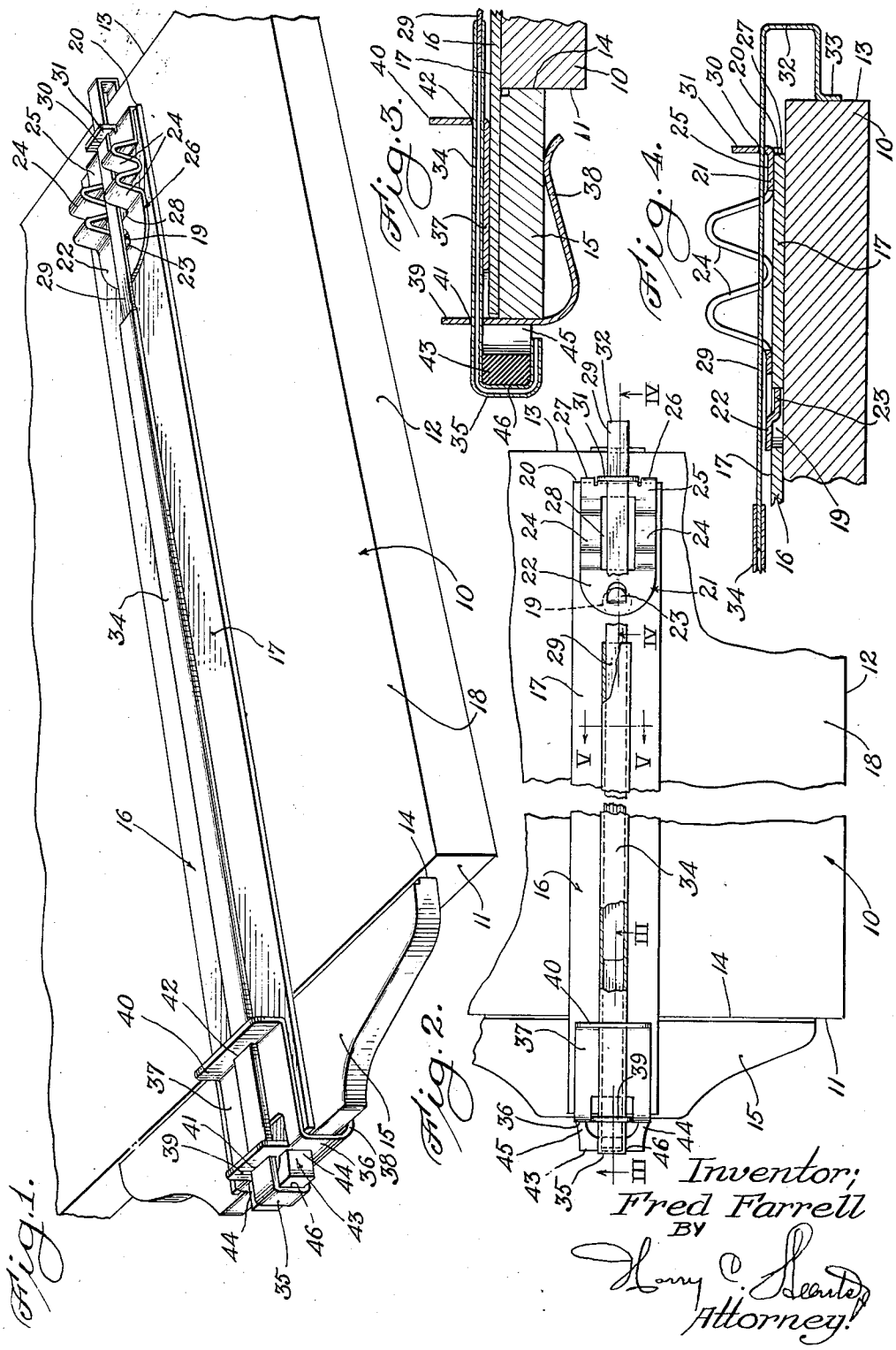


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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Fig. 5.

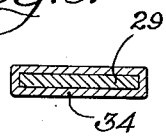


Fig. 6.

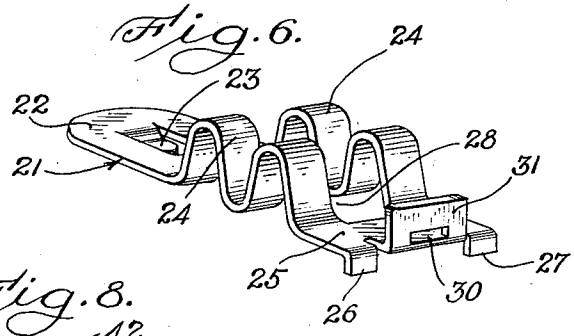


Fig. 7.

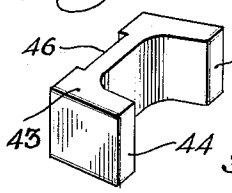


Fig. 8.

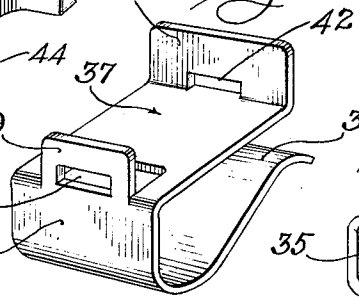


Fig. 9.

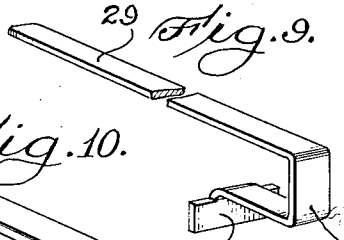


Fig. 10.

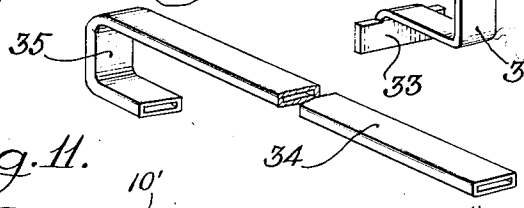
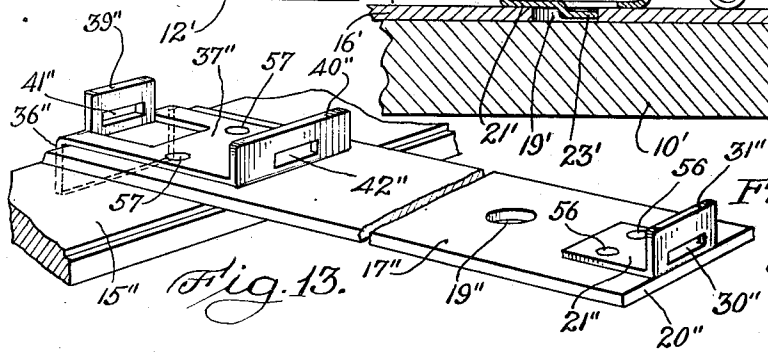


Fig. 11.

Fig. 12.

Fig. 13.



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DRAWING BOARD ATTACHMENT

Fred Farrell, Chicago, Ill.

Application August 28, 1935, Serial No. 38,228

10 Claims. (Cl. 33—80)

This invention relates to mechanical drawing attachments and more particularly to improvements in attachments for T-squares and the like.

It contemplates more especially the provision of simple, inexpensive, and improved drawing board attachments that can be utilized in conjunction with T-squares and drawing boards so as to maintain a predetermined relationship therebetween.

In preparing mechanical drawings, a drawing board or T-square is usually employed together with other implements that are well known to draftsmen. It is advantageous to place the T-square in operative association with the drawing board and to provide means for automatically maintaining a predetermined relationship so as to improve technic and expedite the drawing operations. Numerous expedients have heretofore been devised for this purpose, but these have not proven entirely satisfactory and are too expensive to warrant their general adoption.

One object of the present invention is to provide an improved drawing board attachment that enables a predetermined relationship between the T-square and drawing board utilized in conjunction with each other in the preparation of mechanical drawings.

Another object is to provide a simple, inexpensive, and effective T-square attachment for enabling a predetermined relationship with the drawing board.

Still another object is to provide a T-square having novel means in association therewith for enabling adjustable attachment to a drawing board.

A further object is to provide simple and improved attachments for detachable association with a T-square to render such adaptable to a drawing board in any predetermined adjusted position relative thereto.

A still further object is to provide means in conjunction with a T-square to render such adaptable to a drawing board and enable ready adjustment relative thereto without entailing any time or inconvenience.

Other objects and advantages will appear from the following description of an illustrative embodiment of the present invention.

In the drawings:

Figure 1 is a fragmentary perspective view of a drawing board and T-square having attachments embodying features of the present invention.

Figure 2 is a fragmentary plan view of a drawing board and T-square showing the attachments as illustrated in Figure 1.

Figure 3 is a sectional view taken substantially along line III—III of Figure 2.

Figure 4 is a sectional view taken substantially along line of IV—IV of Figure 2.

Figure 5 is a sectional view taken substantially along line V—V of Figure 2.

Figure 6 is a perspective view of the clip comprising one of the attachments shown in Figures 1, 2 and 4.

Figure 7 is a perspective view of a resilient member comprising one of the attachments shown in Figures 1 to 4 inclusive.

Figure 8 is a perspective view of another clip utilized in conjunction with the head of a T-square as shown in Figures 1, 2 and 3.

Figure 9 is a perspective view of a solid bar member utilized in conjunction with the tubular member shown in Figure 10.

Figure 10 is a perspective view of a tubular bar member utilized in conjunction with the tubular member shown in Figure 9.

Figure 11 is a fragmentary plan view of a modified attachment embodying features of the present invention.

Figure 12 is a sectional view taken substantially along lines XII—XII of Figure 11.

Figure 13 is a fragmentary perspective view of a still further modified embodiment of the present invention.

The structure selected for illustration comprises a drawing board 10 of standard or approved construction having the usual smooth finished edges 11, 12, and 13. A correspondingly smooth finished edge 14 comprising a part of the customary head 15 of a T-square 16, is displaced along the drawing board edge 11 or edges 12 and 13 so that its elongated flat blade 17 is disposed for displacement along the top surface of the drawing board 10. As shown, the elongated blade 17 is attached to head 15 to comprise what is commonly known as a T-square having the usual and customary aperture 19 provided proximate to the extremity 20 of the blade 17.

Practically all sources of supply for T-squares provide an aperture 19 in the T-square blade 17 at substantially a fixed distance from the extremity 20 of the T-square blade 17, and this is utilized in the present embodiment for attaching a clip 21 pressed or otherwise shaped from sheet material to present a flat portion 22 that has a depressed tongue 23 serving as a complement to the aperture 19 provided in the blade

17 of the T-square 16. The flat portion 22 of the spring clip 21 merges, in this instance, with a series of curves 24 having a sinusoidal contour stamped or otherwise impressed therein to impart the desired resiliency to the clip 21 and to afford the elongation thereof should such be necessary in attaching the clip 21 to a T-square blade 17 having the aperture 19 at a somewhat different distance from the blade extremity 20 than which is customary or standard in such devices.

The curved clip portion 24 terminates in the flat portion 25 having depending projections 26 and 27 adapted to engage the edge 20 of the T-square blade 17, thereby springing the clip 21 in association therewith between the aperture 19 and the blade extremity 20. It is worthy of note that the curved sinusoidal loops 24 are spaced from each other to provide a slot 28 therebetween to accommodate a flat bar member 29 that preferably extends through a guide slot 30 provided in an upstanding flange 31. The flange 31 is preferably though not essentially pressed from the body of the clip 21 to serve as a guide for the bar 29 that has, in this instance, a depending offset extremity 32 with a projecting lip 33 that confronts and engages the edge 13 of the drawing board 10 when the T-square 16 is in position with its head 15 in edge contact with one of the finished edges 11 of the drawing board 10.

The solid bar 29 is telescopically received within a tubular bar member 34 that serves as a complement thereof to render such extensible for enabling variations in the length thereof for reasons which will appear more fully hereinafter. The tubular member 34 terminates, in this instance, in a substantially L-shaped extremity 35 which confronts the surface edge 36 of a clip 37 which has an arcuate confronting extension or arm 38 that resiliently and yieldingly grasps the head 15 of the T-square 16 so as to be in detachable association therewith. Further, the clip 37 has upstanding flanges or projections 39 and 40 which are, in this instance, pressed from the top of the clip 37 to receive horizontally aligned slots 41 and 42 that serve as a guide member for the tubular member 34.

It is worthy of note that the telescopic association of the members 29 and 34 is maintained in a predetermined extensible position owing to the inherent friction therebetween. These complemental bar members 29—34 are, in this instance, disposed above the T-square blade 17 in surface contact therewith for guidance by the clips 21 and 37 that are detachably associated with the T-square blade extremity 20 and its head 15 to operatively serve as a unitary bar member which is normally urged in the direction of the T-square head 15 by any suitable resilient expedient such as a spring, rubber band, rubber insert or the like as commercial practice may dictate.

In the present embodiment, a rubber member or insert 43 is disposed within the L-shaped tubular bar extremity 35 and pressed against the edge surface 36 of the clip 37 so that the bar members 29—34 will be normally urged in the direction of the T-square head 15 to maintain the bar extremity 33 in frictional contact with the edge 13 of the drawing board 10. This maintains the T-square 16 in frictional association with the board 10 without any possible accidental displacement and without manual manipulation or holding for accomplishing that purpose.

To momentarily release the T-square 16 from frictional association or contact with the drawing board 10, the attendant grasps the flange 40 of the clip 37 with his thumb and presses the forefinger of the left hand against the L-shaped extremity 35 of the tubular bar member 34 to compress the rubber insert 43 and slightly displace the bar members 29—34 as a unit in the direction of the drawing board edge 13 to disengage the bar extremity 33 from frictional contact with the drawing board 10 and afford freedom of movement for the T-square 16. In this instance, the rubber insert 43 is substantially U-shaped to provide bearing portions 44 and 45 that are highly yieldable and affords greater compression than otherwise possible with a solid rubber insert. The L-shaped bar extremity 35 serves as a complement to a groove or trough 46 provided in the outer edge of the rubber insert 43.

With this arrangement of parts, it will be apparent that clips 21 and 37 are each readily detachable or attachable to a T-square 16 and the extensible bar members 29—34 placed in operative position with the rubber insert 35 or other suitable resilient member assembled so that frictional engagement with the drawing board 10 is effected at one point or another depending upon the desired contact between the T-square 16 and the drawing board 10. The extensible bar members 29—34 afford adjustment for use in connection with drawing boards 10 of varying lengths within the limits of the bars 29—34. Therefore, the parts thus far described may be standard for different sizes of boards and T-squares within predetermined limits and ranges.

In the modified embodiment shown in Figures 11 and 12, the clip 21′ is shaped similarly to the clip 21 described in connection with the first embodiment, (Figure 6), and is attached or sprung into position identically as heretofore described in connection therewith. The bar 29′ is similarly held in position and guided with the clip 21′ which, in this instance, has a flat portion 22′ provided with an upstanding flange 47 which is slotted as at 48 in alignment with the slot 30′ provided in the upstanding flange 31′, thereby providing double guide flanges 31′—47 at extremities of the clip 21′. The bar 29′ also terminates in an upstanding extension or offset 49, and a spring 50 is anchored between the bar 29′ and the flange 47′ to normally urge the bar 29′ toward the left (Figure 12), thereby keeping the bar extremity 33′ in frictional contact with the edge 13′ of the drawing board 10′ to accomplish a similar purpose of the foregoing structure with fewer parts.

To this end, the spring 50 has one extremity 51 anchored in an aperture 52 provided in an upstanding projection or bracket pressed from the bar 29′. The other extremity 54 of the spring 50 is anchored in the flange 47 that has apertures 55 provided therein for that purpose. As will be apparent, the upstanding flange or bracket 49 provided on the free extremity of the bar 29′ enables the manipulation of the latter and its displacement towards the right (Figure 12) against the urge of the spring 50 to release the bar extremity 33′ from frictional contact with the edge 13′ of the drawing board 10′ to afford the displacement of the T-square blade 16′ with its head 15′ in a manner similar to that described supra.

A still further modified embodiment of the invention is shown in Figure 13 wherein a bracket 26″ is permanently fastened to the T-

square blade 17'' by means of rivets or other suitable fasteners 56 to present a guide slot 30'' in an upstanding flange 31'' proximate to the extremity 20'' of the T-square blade 17''. Similarly, a bracket 37'' corresponding to the clip 37 of the first described embodiment (Figure 8), is permanently attached to the T-square blade 17'' proximate to the head 15'' by means of any suitable fasteners such as rivets 57. The bracket 37'' has spaced flanges 39'' and 40'' provided with slots 41'' and 42'' for the reception of the bar 29 and its tubular complement 34 (Figures 9 and 10) which function in a manner similar to the first described embodiment with the exception that the brackets 21'' and 37'' are permanently attached in this particular embodiment rather than rendered detachable as described and shown in connection with the first embodiment (Figures 1 to 10 inclusive).

It should be noted that the attachments described supra may be built in a T-square so that the extensible bars 29—34 constitute a single unit complemental to a groove formed along the T-square blade 17, and similarly the clips 21 and 37 may be formed in the body of the T-square 16 to be less obstructive should commercial practice so dictate.

Various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention or any features thereof, and nothing herein shall be construed as limitations upon the invention, its concept or structural embodiment as to the whole or any part thereof except as defined in the appended claims.

I claim:

1. In a device of the character described, the combination with a T-square, of means detachably associated with both ends of said T-square to engage opposite edges of a drawing board, extensible means between said edge engaging means, resilient means interposed between said T-square and said edge engaging means to frictionally hold said T-square in contact with the opposite edges of a drawing board, and means associated with the head of said T-square for releasing said edge engaging means against the normal urge of said spring means.

2. In a device of the character described, the combination with a T-square, of means detachably associated with both ends of said T-square to engage opposite edges of a drawing board, extensible means between said edge engaging means, resilient means interposed between said T-square and said edge engaging means to frictionally hold said T-square edge engaging means in edge contact with the drawing board, and means associated with the head of said T-square for releasing said edge engaging means against the normal urge of said spring means.

3. In a device of the character described, the combination with a T-square, of a spring clip attached to the free end of said T-square, a flange formed on said clip to serve as a bar guide, a bar slidably mounted for movement relative to said guide to engage an edge of a drawing board, resilient means for urging said bar toward the head of said T-square to frictionally engage the opposite edges of a drawing board when said T-square is positioned thereon, and means associated with the head of said T-square for releasing said edge engaging means against the normal urge of said spring means.

4. In a device of the character described, the combination with a T-square, of a spring clip attached to one end of said T-square, a flange formed on said clip, there being a slot in said flange to serve as a bar guide, a bar slidably mounted in said flange slot for movement relative to said guide to engage an edge of a drawing board, resilient means for urging said bar toward the head of said T-square to frictionally engage the opposite edges of a drawing board when said T-square is positioned thereon, and means associated with the head of said T-square for releasing said edge engaging means against the normal urge of said springs means.

5. In a device of the character described, the combination with a T-square, of a spring clip attached to one end of said T-square, a flange formed on said clip to serve as a bar guide, a drawing board edge engaging bar slidably mounted for movement relative to said guide to engage an edge of a drawing board, a spring clip on the other end of said T-square, a tubular member extending from said last named spring clip toward said first named spring clip for telescopic extensible association with said slidable bar, and resilient means for urging said bar in a direction to frictionally engage one edge of a drawing board edge when the head of said T-square engages an opposite edge of drawing board.

6. In a device of the character described, the combination with a T-square, of a spring clip detachably associated with one end of said T-square, a flange formed on said clip to serve as a bar guide, a drawing board edge engaging bar slidably mounted for movement relative to said guide to engage an edge of a drawing board, a spring clip detachably associated with the other end of said T-square, a tubular member extending from said last named spring clip toward said first named spring clip for telescopic extensible association with said slidable bar, and resilient means associated with said last named spring clip to urge said edge engaging bar in frictional engagement with one edge of a drawing board when the head of said T-square engages an opposite edge of a drawing board.

7. In a device of the character described, the combination with a T-square, of a spring clip attached to one end of said T-square, a flange formed on said clip to serve as a bar guide, a drawing board edge engaging bar slidably mounted for movement relative to said guide to engage an edge of a drawing board, a spring clip on the other end of said T-square, a tubular member extending from said last named spring clip toward said first named spring clip for telescopic extensible association with said slidable bar, and a resilient member interposed between said edge engaging bar and a spring clip to establish frictional engagement with one edge of a drawing board edge for maintaining said T-square in predetermined association therewith with its head engaging an opposite edge of a drawing board.

8. In a device of the character described, the combination with a T-square, of a spring clip attached to one end of said T-square, a flange formed on said clip to serve as a bar guide, a drawing board edge engaging bar slidably mounted for movement relative to said guide to engage an edge of a drawing board, a spring clip on the other end of said T-square, a tubular member extending from said last named spring clip toward said first named spring clip for tele-

scopic extensible association with said slidable bar, and a rubber member interposed between said tubular member and one of said spring clips to establish frictional engagement between said T-square and opposite edges of a drawing board.

9. In a device of the character described, the combination with a T-square, of a spring clip attached to one end of said T-square, a flange formed on said clip to serve as a bar guide, a drawing board edge engaging bar slidably mounted for movement relative to said guide to engage an edge of a drawing board, a spring clip on the other end of said T-square, a tubular member extending from said last named spring clip toward said first named spring clip for telescopic extensible association with said slidable bar, flanges formed from the material of said last named spring clip to slidably guide said tubular member, and a rubber member interposed between said tubular member and one of said spring clips to establish frictional engagement between said T-square and opposite edges of a drawing board.

10. In a device of the character described, the combination with a T-square, of a spring clip attached to one end of said T-square, a flange formed on said clip to serve as a bar guide, a drawing board edge engaging bar slidably mounted for movement relative to said guide to engage an edge of a drawing board, a spring clip on the other end of said T-square, a tubular member extending from said last named spring clip toward said first named spring clip for telescopic extensible association with said slidable bar, flanges formed from the material of said last named spring clip, there being slots in said flanges to slidably guide said tubular member, and a rubber member interposed between said tubular member and one of said spring clips to establish frictional engagement between said T-square and opposite edges of a drawing board.

FRED FARRELL.