June 26, 1951 I. V. STOVERN 2,558,468

DRAFTING EQUIPMENT

Filed Feb. 12, 1948

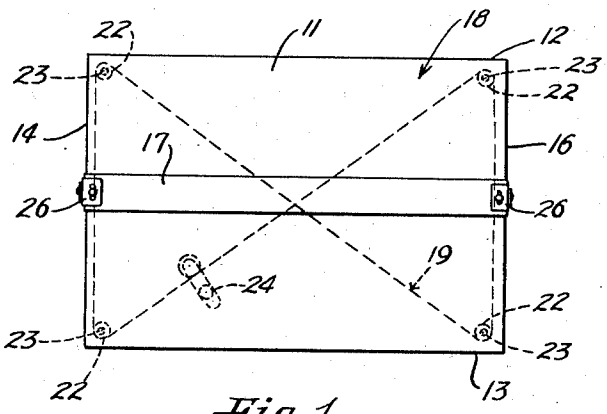


Fig. 1

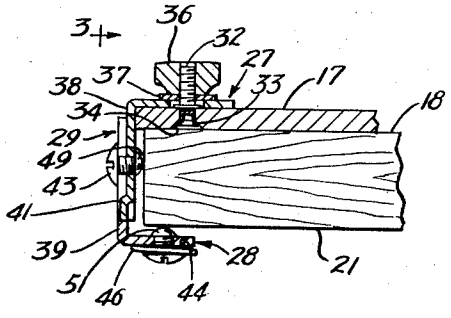


Fig. 2

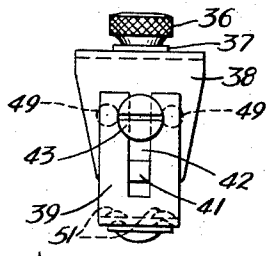


Fig. 3

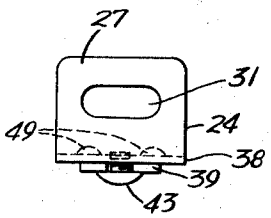


Fig. 4

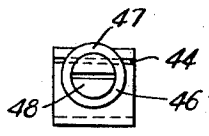


Fig. 5

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DRAFTING EQUIPMENT

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4 Claims. (Cl. 33—80)

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This invention relates to drafting equipment and more particularly to a combination drafting board and parallel ruling device and to a bracket structure for connecting a straight edge mounted on the front of the drafting board to a cable mounted on the back of the board.

An object of the invention is the provision of a novel bracket of the above character having adjustable clamping means for securing the bracket to the cable.

Another object of the invention is the provision in a bracket of the above character having spaced side portions of novel means for adjusting the spacing between the portions whereby the bracket is adjustable to the board to maintain a close working fit of the respective portions with the board.

Another object of the invention is the provision in a bracket of the above character of means acting between the drafting board and the bracket which minimizes friction between the respective parts as the straight edge is moved relative to the drafting board.

Another object of the invention is to provide a bracket of the above character which is simple in construction, which is sturdy and which is relatively inexpensive to manufacture.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of a drafting kit utilizing a bracket embodying the present invention;

Fig. 2 is an enlarged sectional view of the bracket;

Fig. 3 is a sectional view of the bracket alone taken substantially along the line 3—3 of Fig. 2;

Fig. 4 is a top view of the bracket in an unassembled position, and

Fig. 5 is a view taken substantially along the line 5—5 of Fig. 3.

Referring now to the drawings, the invention is shown embodied in a drafting board and straight edge assembly. In general the latter comprises a generally rectangular shaped drafting board 11 having top and bottom edges 12 and 13, respectively, and spaced substantially parallel side edges 14 and 16, respectively, a straight edge 17 extending transversely across a front 18 of the board 11 from one side to the other, and a cable 19 mounted on a back 21 of the board so that portions of the cable adjacent the side edges 14 and 16 respectively of the board 11 may be moved simultaneously at the

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same speed and in the same direction. As shown the cable 19 is supported and guided along each side of the board by spaced sheaves 22 mounted by suitable pins 23 adjacent the top edge 12 and bottom edge 13 of the board 11. To effect the desired movement of the cable 19 adjacent the side edges 14 and 16 the cable crosses over itself as shown in Figure 1. To take up slack in the cable 19 a tensioning device 24 mounted on the back 21 of the board engages the cable intermediate the side edges 14 and 16.

One phase of the invention is directed to a novel construction of brackets 26 for securing the ends of the straight edge 17 adjacent the side edges 14 and 16 respectively to the cable 19 in an assembled relation so that the straight edge is movable uniformly throughout its length between the top edge 12 and bottom edge 13 relative to a predetermined reference line. It is to be understood that two brackets 26, one on each end of the straight edge 17, are utilized to effect the foregoing. Since both brackets 26 are identical, only one of the brackets will be described in detail. As best shown in Fig. 2, each bracket 26 is in the form of a generally U-shaped structure having spaced side or leg portions 27 and 28 interconnected at one end by a bridging portion 29. The side portion 27 is shaped to overlie one end of the straight edge 17 on the front 18 of the board 11 and is secured thereto. As shown in Fig. 4, the side portion 27 is formed with an elongated slot 31 shaped to receive a stud 32 (see Fig. 2) rigidly secured to the straight edge 17 as by flaring a tubular end portion 33 of the stud 32 into engagement with the sides of a counterbored hole 34 formed in the straight edge 17. A nut 36, abutting against a washer 37 disposed on the stud, is screwed on the outer end of the stud 32 to secure the parts in a tightly assembled relation. By loosening the nut 36 it is to be understood that the position of the stud 32 relative to the slot 31 and in turn the position of the straight edge 17 relative to the bracket 26 may be limitedly adjusted as desired to aline the straight edge with the drawing. The above construction is advantageous in that the straight edge can be alined with a reference line on a drawing more quickly than the drawing can be shifted and moved to aline a reference line on the drawing with the straight edge.

The bridging portion 29 permits the spacing between the side portions 27 and 28 to be adjusted so that the bracket 26 is readily usable on drafting boards 11 of different thicknesses and

also to insure a tight working fit of the respective parts on the board with which it is used. To accomplish this in this instance, the bridging portion 29 is formed in two parts 38 and 39 mounted for relative movement with respect to each other. As shown in Figs. 2 and 3 the part 38 is formed by a depending flange integral with the side portion 27 and having a projection 41 formed thereon. The part 39 is formed as an upstanding flange integral with the side portion 28 and is formed with a slot 42 of substantially the same width as the projection 41. As the two parts 38 and 39 move relative to each other when the bracket 26 is adjusted the projection 41 moves in the slot 42 and serves to position and guide the respective parts. A screw 43 projection into the part 38 in spaced relation with the projection 41 and having its head overlying the member 39 adjacent the slot is utilized for positively securing the parts 38 and 39 in a tightly assembled relation. The head portion of the screw 43 also serves to support and position the respective parts 38 and 39 as they are moved relative to each other. An important advantage of the above adjustment feature is that paper, cardboard, or the like, of widely differing thicknesses, may be used on a single board and yet a snug fit be had as between the surface of the work and the underside of the straight edge.

The side portion 28 is shaped to overlie the back of the board 21 and is arranged for securing the bracket to the cable 19. For this purpose the surface of the side portion 28 away from the board 11 is formed with a groove 44 shaped to receive the cable 19. A washer or abutment 46 is positioned to have an edge portion 47 overlap the groove 44 and abut against the side of the cable away from groove 44 when it is positioned in the groove. The washer 46 is held in clamping relation by a screw 48 mounted on the side portion 28. The depth of the groove 44 is smaller than the diameter of the cable so that when the washer 46 is secured in position, sufficient pressure is exerted between the side portion 28 and the washer 46 to positively clamp the bracket 26 and the cable 19 in a tightly assembled relation. In the assembled position of the above construction it will be noted that a portion of the cable 19 is disposed in the groove 44 and the clamping pressure is applied over a relatively long length of the cable. This is advantageous in that the cable is not damaged appreciably or compressed to such a degree that the cable is weakened when the clamping parts are moved relative to the cable to engage another portion thereof as in making adjustments. Another advantage of this construction is that the ends of the cable 19 may be joined and held between the clamping members. Consequently the tension in the cable 19 may be adjusted by changing the position of the clamping members relative to the ends of the cable 19. As a result the tensioning device 24 may be eliminated.

Another important feature of the bracket 26 is the provision for minimizing friction between the bracket and the board 11 as the straight edge 17 is moved from one position to another. To this end the bridging portion 29 engageable with the side edges and the side portion 28 engageable with the back 21 of the board are provided with spaced rounded projections 49 and 51 respectively, preferably formed integral with the bridging portion 29 and side portion 28 by displacing the metal or the like at these points. With the bracket 26 in an assembled position these round surfaces constitute the only contact between the bracket and the board on the side edges and back respectively. Because of the small substantially point contact between the bracket and the board and the fact that the distance between the side portions 27 and 28 may be adjusted to accommodate different thicknesses of work on the board a much closer fit can be used between the parts, friction between the board and the bracket and consequently the tendency of the parts to bind is minimized and the brackets and straight edge slide freely along the edge of the board.

From the aforegoing it will be seen that the above construction of the bracket 26 is advantageous from the point of view that it is readily usable on any of a plurality of boards having different thicknesses and also on boards in which the paper thickness varies considerably. Thus, to use the bracket on boards having different thicknesses, or to effect adjustments on a given board it is only necessary to loosen the screw 43 and adjust the parts 38 and 39 relative to each other so that side portions 27 and 28 are spaced apart the desired distance. Tightening the screw 43 insures that the parts are positively retained in their desired adjusted position. Another important advantage arising from this bracket construction is the ease and facility with which the bracket can be attached to and adjusted upon the cable 19. To attach the bracket 26 to the cable 19 it is only necessary to loosen the screw 46 so that it is possible to insert the cable 19 in the groove 44. To positively secure the cable 19 and the bracket 26 in a tightly assembled relation the screw 48 is tightened so that the edge 47 of the washer 46 clamps against the cable 19. It will be seen that this construction is simple and can be readily made from stamped metal parts. Also, this bracket provides a construction wherein the friction and binding action between the moving parts is held to a minimum, and a construction which permits of eliminating a separate cable tensioning device.

I claim:

1. A bracket for connecting a straight edge on the front of a drafting board to a cable mounted on the back of the board, comprising a member having first and second spaced side portions and a bridging portion interconnecting said side portions, one of said side portions being shaped to be interconnected with one end of said straight edge, the second of said side portions being shaped to underlie the back of the board and to be secured to the cable, said bridging portion being formed by two overlapping parts connected respectively to the first and second side portions, one of said parts being bifurcated to form an elongated slot open at one end, and the other of said parts having screw means mounted thereon to be received in said slot and being formed with a projection shaped to be snugly received between the furcations defining said slot for positioning and guiding the respective parts, said projection being spaced from said screw means to be positioned in said slot in spaced relation from the screw means toward the closed end of the slot.

2. A bracket for connecting a straight edge on the front of a drafting board to a cable mounted on the back of the board, comprising a member having first and second spaced side portions and a bridging portion interconnecting said side portions, one of said side portions being shaped to

be interconnected with one end of said straight edge, the second of said side portions being shaped to underlie the back of the board and to be secured to the cable, said second side portion and said bridging portion being formed with integral rounded projections positioned to engage the back and side of the drafting board, respectively, upon mounting of the bracket thereon, whereby to minimize friction between the board and the respective parts as the straight edge moves relative to the board, said bridging portion being formed by two overlapping parts connected respectively to the first and second side portions, one of said parts being bifurcated to form an elongated slot open at one end, and the other of said parts having screw means mounted thereon to be received in said slot and being formed with a projection shaped to be snugly received between the furcations defining said slot for positioning and guiding the respective parts, said projection being spaced from said screw means to be positioned in said slot interiorly of the screw means toward the closed end of the slot.

3. A bracket for connecting a straight edge on the front of a drafting board to a cable mounted on the back of the board, comprising a first bracket member having an upper arm shaped to overlie the front of the board for attachment to the straight edge and a transverse depending flange for extending adjacent the side of the board, said depending flange being formed with a plurality of laterally spaced integral rounded projections positioned to engage the side of the board upon mounting of the bracket thereon, a second member comprising a lower arm shaped to underlie the back of the board for attachment to the cable and a transverse upstanding flange shaped to overlap the depending flange on the first bracket member, said lower arm of the second bracket member being formed with at least one integral rounded projection positioned to engage the back of the board upon mounting of the bracket thereon, said upstanding flange on the second bracket member being formed with an elongated slot open at its upper end and closed at its lower end, and the depending flange of the first bracket member being formed with a lateral projection shaped to be snugly received between the furcations defining said slot on the upstanding flange of the second bracket member for positioning and guiding the overlapping portions of the bracket members, said depending flange also having mounted thereon screw means to be positioned in said slot above said lateral projection.

4. A bracket for connecting a straight edge on the front of a drafting board to a cable mounted on the back of the board, comprising a first bracket member having an upper arm shaped to overlie the front of the board for attachment to the straight edge and a transverse depending flange for extending adjacent the side of the board, said upper arm being formed with a slot positioned to extend in the direction of movement of the straight edge for adjustable connection of the first bracket member to the straight edge, said depending flange being formed with a plurality of laterally spaced integral rounded projections positioned to engage the side of the board upon mounting of the bracket thereon, a second member comprising a lower arm shaped to underlie the back of the board for attachment to the cable and a transverse upstanding flange shaped to overlap the depending flange on the first bracket member, said lower arm of the second member being formed with a least one integral rounded projection positioned to engage the back of the board upon mounting of the bracket thereon, said upstanding flange on the second bracket member being formed with an elongated slot open at its upper end and closed at its lower end, and the depending flange of the first bracket member being formed with a lateral projection shaped to be snugly received between the furcations defining said slot on the upstanding flange of the second bracket member for positioning and guiding the overlapping portions of the bracket members, said depending flange also having mounted thereon screw means to be positioned in said slot above said lateral projection.

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