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LOCKING DEVICE FOR STRAIGHTEDGES

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FIG. 1

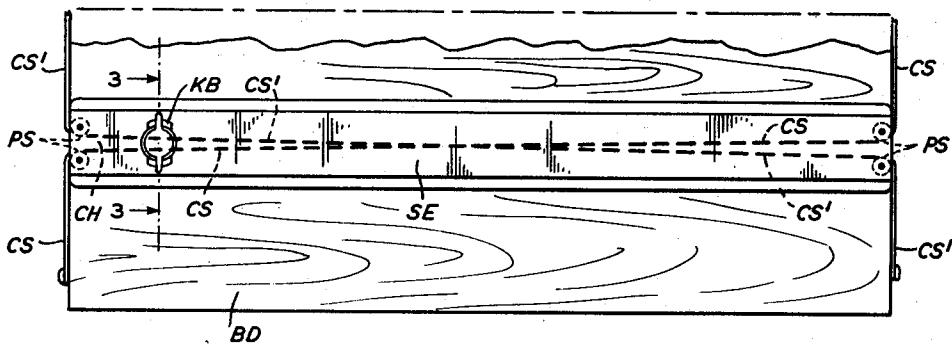


FIG. 2

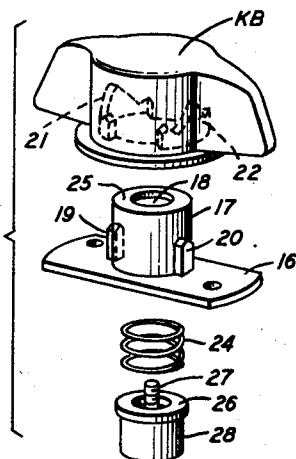


FIG. 3

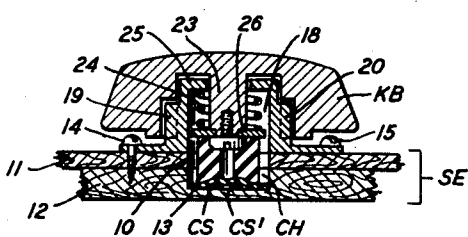
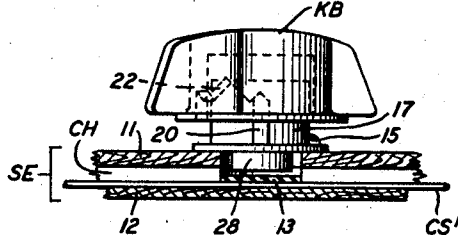


FIG. 4



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LOCKING DEVICE FOR STRAIGHTEDGES

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1 Claim. (Cl. 33—80)

This invention relates to straightedges and more particularly to a locking device for straightedges which are maintained in juxtaposition with respect to the drawing board by means of flexible cords or cables which are fixed to the board and are operatively associated with the straightedge.

One object of this invention is to provide means for locking the straightedge in a fixed position with respect to the drafting board or table irrespective of the angle of inclination thereof.

Another object of the invention is to provide a locking means for straightedges which is unobtrusive, convenient to manipulate, and will not interfere with the normal use thereof.

The straightedge locking device of this invention is primarily concerned with those straightedges which are maintained in fixed alignment with respect to the drafting board or table by means of flexible cables or cords secured to the board and which pass through a channel which extends longitudinally the entire length of the straightedge, cross over each other, and emerge from openings in the ends of the straightedge which communicate with the channel. The flexible cords, as they emerge from the openings in the ends of the straightedge, diverge, extend in opposite directions, and are secured in their respective positions at the top and bottom of the drafting board or table.

Located on the straightedge and manually operable is a locking device which is adapted to simultaneously grip the cords and prevent relative movement with respect to each other, thereby maintaining the straightedge in a definite fixed position and preventing displacement thereof irrespective of the angle of the board or table and also preventing accidental movement thereof.

Fig. 1 is a fragmentary plan view of a drafting board with a straightedge adjustably mounted thereon which incorporates the locking device of this invention;

Fig. 2 is an exploded view in perspective of the component parts of the locking mechanism;

Fig. 3 is a fragmentary cross-sectional view, taken along section line 3—3 of Fig. 1, of the locking mechanism installed on a straightedge and discloses the component parts thereof in their locked position with the cords firmly gripped; and

Fig. 4 is a fragmentary longitudinal view, partly in section, of the locking mechanism installed on a straightedge and discloses the component parts thereof in their normal or unlocked position with the cords free to move.

As shown in Fig. 1, the device of my invention is intended for use with a straightedge SE which is slidably mounted on a table or board BD and maintained in substantial alignment therewith by means of suitable flexible cords or cables CS and CS' in the well-known and accepted manner. As the straightedge SE is moved either toward or away from the operator, the cords CS and CS', confined in the channel CH in the straightedge SE, will slide over the pulleys PS, and pass each other in opposite directions. As the straightedge SE is moved away or up,

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the cord CS will lengthen on the left and foreshorten on the right, while the cord CS' will lengthen on the right and foreshorten on the left. Thus, as the straightedge moves, it will remain substantially parallel with respect to the bottom and top edges of the drafting table or board BD.

In those instances wherein the board or table is tilted or is set at an angle, it is difficult to maintain the straightedge in a fixed position without holding it by hand. This is not only inconvenient but means that a draftsman, when manipulating a triangle, ruling pen or some other implement, must also hold the straightedge against movement which in some instances can become disastrous if the straightedge should slide downwardly over some lines or other data which have recently been inked in and where the ink is not yet dry.

It is to overcome the aforementioned difficulties and to provide a straightedge that will remain in position on a board or table irrespective of the angle thereof and to prevent accidental movement thereof, that I have devised a simple, easily manipulated locking device which, at the will of the operator, will securely hold the straightedge in position on the board by preventing respective movement between the cords CS and CS' as they cross over and pass each other in the channel CH of the straightedge SE.

In accordance with a preferred embodiment of my invention, I provide an aperture 10 in the upper portion 11 of the laminated straightedge SE which comprises the thin strip 11 and the thicker base member 12. The aperture 10 may be located in any suitable position along the straightedge in juxtaposition with respect to the channel CH which confines the cords CS and CS' and communicating therewith, but for convenience I have found that it should be preferably located adjacent the left end of the straightedge as shown for a right-handed person, but may be located at the right-hand end for a left-handed person. Located in the recessed portion of the base member 12 and overlying the cords CS and CS' is a thin disc 13 of resilient material, for example rubber.

Mounted on the upper portion 11 of the straightedge SE, over the aperture 10 and secured in position by means of the screws 14 and 15, is the plate member 16. Integral with and extending vertically from the member 16 is a sleeve 17, the central bore 18 of which is in alignment with the aperture 10 and the aligned recess in the base member 12. Located on the outer surface of the sleeve 17 and diametrically opposed are the bosses 19 and 20, the upper portions of which are provided with angular surfaces.

Rotatably positioned over the sleeve 17 and slidably mounted thereon is the knob KB, the inner bore of which is provided with inclined and notched recesses 21 and 22 which are adapted to register with and engage the bosses 19 and 20 when the knob KB is positioned over the sleeve 17, as shown in Figs. 3 and 4, with the central protuberance 23 positioned in the bore 18.

Located in the bore 18 of the sleeve 17 and positioned around the protuberance 23 is the coil spring 24, the upper portion of which bears against the intumed or flanged portion 25 of the sleeve 17, while the lower portion bears against the upper face of the washer 26 which in turn is secured to the protuberance 23 by means of the screw 27, thereby confining the spring 24 between the flange 25 on the sleeve 17 and the washer 26, thus causing the spring to exert a downward force on the washer 26. The washer 26 has secured to its bottom surface a resilient member 28 which is adapted to engage the upper surface of the disc 13 under the influence of the spring 24 and force it into firm contact with the cords CS and CS' which underlie the disc 13 to prevent movement of the cords, as shown in Fig. 3.

When the knob KB is in its normal or unlocked posi-

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tion as shown in Fig. 4, which may be to the extreme right or left, the bosses 19 and 20 will register with the shallow portions of the recesses 21 and 22 thereby maintaining the knob in a slightly raised position with the spring 24 under compression and the member 28 out of engagement with the disc 13 thereby relieving the pressure on the cords CS and CS' and permitting the free movement thereof.

When the knob KB is rotated from either of its normal or unlocked positions in a clockwise or counterclockwise direction, the bosses will ride on the inclined surfaces of the recesses 21 and 22 and seat in the deep portions thereof thereby permitting the knob KB to travel downwardly under the influence of the spring 24 and force the member 28, secured thereto, into firm contact with the disc 13 and the subsequent braking and locking of the cords CS and CS'.

Thus it will be readily observed that due to the novel construction of my device, I can readily lock a straightedge in any desired position by simply manipulating the knob of the device either in a clockwise or counterclockwise direction which causes the cords to be firmly gripped, thereby preventing relative movement therebetween and the subsequent displacement of the straightedge.

While I have shown and described the preferred embodiment of my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention.

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What is claimed is:

In combination, a board, a straightedge slidably mounted thereon, cords secured to said board and passing through said straightedge, a bracket having a vertically extending sleeve having a central longitudinal bore therein and having oppositely disposed bosses on its outer surface, said bosses having angular configurations to provide cam surfaces on their upper edges, a manually rotatable knob having angular recesses therein, mounted on said sleeve and having said recesses in register with said bosses, a coaxial protuberance integral with said knob and extending into the central bore of said sleeve, a coiled spring positioned around said protuberance confined between the upper portion of said sleeve and a shoulder on the bottom of said protuberance for exerting a downward force thereon, means on the free end of said protuberance for frictionally engaging a resilient member positioned over said cords when said knob is rotated.

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