May 30, 1939. B. H. WILLIAMS 2,160,186

DRAFTING MECHANISM

Filed Nov. 14, 1938

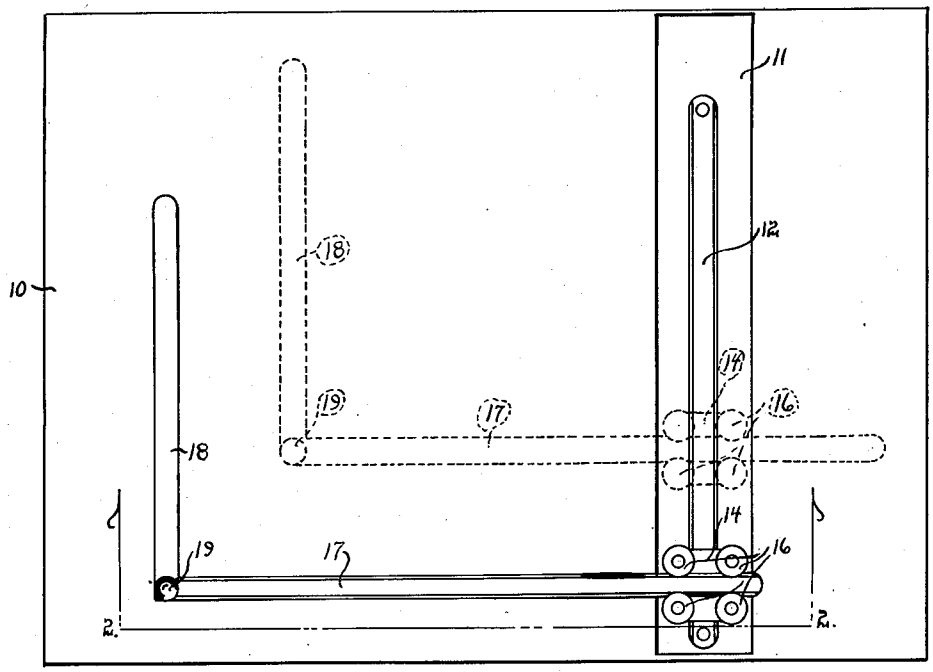


Fig. 1.

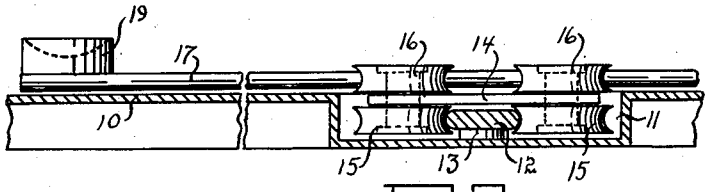


Fig. 2.

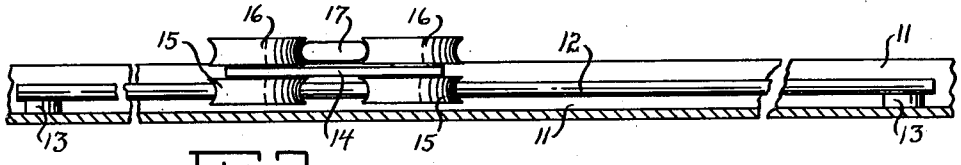


Fig. 3.

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DRAFTING MECHANISM

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2 Claims. (Cl. 33—76)

The principal object of this invention is to provide a drafting mechanism wherein the drafting guide can be moved freely in all directions assuring parallel lines and easy manipulation by the operator of the drafting guide.

A further object of my invention is to provide a drafting mechanism having a minimum of complicated parts and being so constructed that the machine is self-contained and of compact structure.

A still further object of my invention is to provide a drafting mechanism that is economical in manufacture and durable in use.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawing, in which:

Fig. 1 is a top plan view of my drafting mechanism ready for use.

Fig. 2 is an enlarged side sectional view of my drafting mechanism taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged end sectional view of my drafting mechanism more fully illustrating its structure.

There are many types of drafting mechanisms on the market. However, these devices are complicated, require a great amount of space, and are generally difficult to use. These mechanisms resort to bulky and troublesome mechanisms and are not suitable for small boards due to their extreme complications. Furthermore, the mechanisms on the market are hard to operate, and are not adaptable to interchangeable drafting guides. I have overcome such objections as will be appreciated and as will hereinafter be more fully set forth.

Referring to the drawing, I have used the numeral 10 to designate the base portion of my device which acts as a drawing surface. The numeral 11 indicates a recess formed in this base 10 as shown in the drawing. It is to such a base that I attach my drafting mechanism which I will now describe.

The numeral 12 designates a track bar positioned within the recess 11 parallel with its longitudinal center and which may have its longer marginal edges rounded to serve as a track. This member 12 is secured to the base and spaced therefrom by the use of the spacer elements 13 as shown in the drawing. I have used the numeral 14 to indicate a plate element having rotatably mounted on its lower surface the four roller elements 15. These roller elements 15 have their peripheral edges concave and operatively engage the rounded marginal edges of the bar 12. Thus the plate 14 can be easily moved along the track bar 12. The numeral 16 designates rollers rotatably mounted on and above the plate 14. I have used the numeral 17 to designate the horizontal arm of a drafting guide capable of being operatively engaged by the rollers 16 which also have their peripheral edges concave for firmly engaging the longer marginal edges of the horizontal arm 17. The numeral 18 designates a vertical arm of the drafting guide as shown in the drawing. At the intersection of the horizontal and vertical arms 18, I have provided my mechanism with a finger control cup or handle member 19 for permitting the easy manipulation of the device in use.

The practical operation of my device is as follows: The plate 14 will move freely along the track bar 12 through the medium of the rollers 15. This provides the vertical movement of the drafting guide 17. Similarly, the arm 17 can be moved horizontally within the rollers 16 to provide free movement in both directions for the arm 17. Obviously, the arm 17 may be moved diagonally upwardly or downwardly and the rollers 14 will move on the track 12 simultaneously with the movement of the arm 17 through the rollers 16 providing universal control of direction of movement of the drafting guide assembly. It will here be noted that in cases where a drafting guide was of such size, a similar roller assembly and track bar could be employed for the other arm of the drafting guide in order to aid in the rigidity of the device. It is also obvious that the arm 18 could be adjustably secured to the arm 17 in cases where angular lines are desired and if need be, a number of drafting guide assemblies could be used of different shapes and sizes for certain types of work. The operation of the device would be the same however, and universal movement of the drafting mechanism would be obtained through the use of multiple roller and plate assemblies as shown. By providing the finger cup 19, it is merely necessary for the operator to place the point of his index finger in the cup and move the entire drafting guide assembly to any position desired within the drafting area of the base member 10. The movement of the rollers permits the device to function smoothly and provides sufficient bearing surface between their central axes to prevent inaccuracy and

changes in the attitude of the mechanism. Thus it will be seen that I have provided a drafting mechanism which has fulfilled all of my objects and further provides a rigid and compact means of obtaining universal movement of the drafting guide assuring that all lines of the drafting guide will be parallel.

Some changes may be made in the construction and arrangement of my improved drafting mechanism without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a drafting mechanism, a base portion, an elongated recess formed in said base portion, a track bar member rigidly secured to and spaced from said base portion within said recess, a plate member, roller elements rotatably mounted on the lower side of said plate member capable of operatively engaging said track bar, roller elements rotatably secured to the upper side of said plate member and directly above said first mentioned roller elements, and a drafting guide designed to be operatively engaged by said second mentioned rollers at times; said drafting guide having a bar formed on one of its end portions extending at right angles to said drafting guide and capable of being moved in any direction through the operation of said roller elements on said drafting guide and said track bar.

2. In a drafting mechanism, a base portion, an elongated recess formed in said base portion, a track bar member rigidly secured to and spaced from said base portion within said recess, a plate member, roller elements rotatably mounted on the lower side of said plate member capable of operatively engaging said track bar, roller elements rotatably secured to the upper side of said plate member and directly above said first mentioned roller elements, a drafting guide designed to be operatively engaged by said second mentioned rollers at times; said drafting guide having a bar formed on one of its end portions extending at right angles to said drafting guide and capable of being moved in any direction through the operation of said roller elements on said drafting guide and said track bar, and a finger control cup secured to said drafting guide adjacent the finger of said drafting guide with said vertical bar.

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