Jan. 24, 1967 C. L. SPRING 3,299,513

DRAFTING BOARD

Filed May 18, 1964

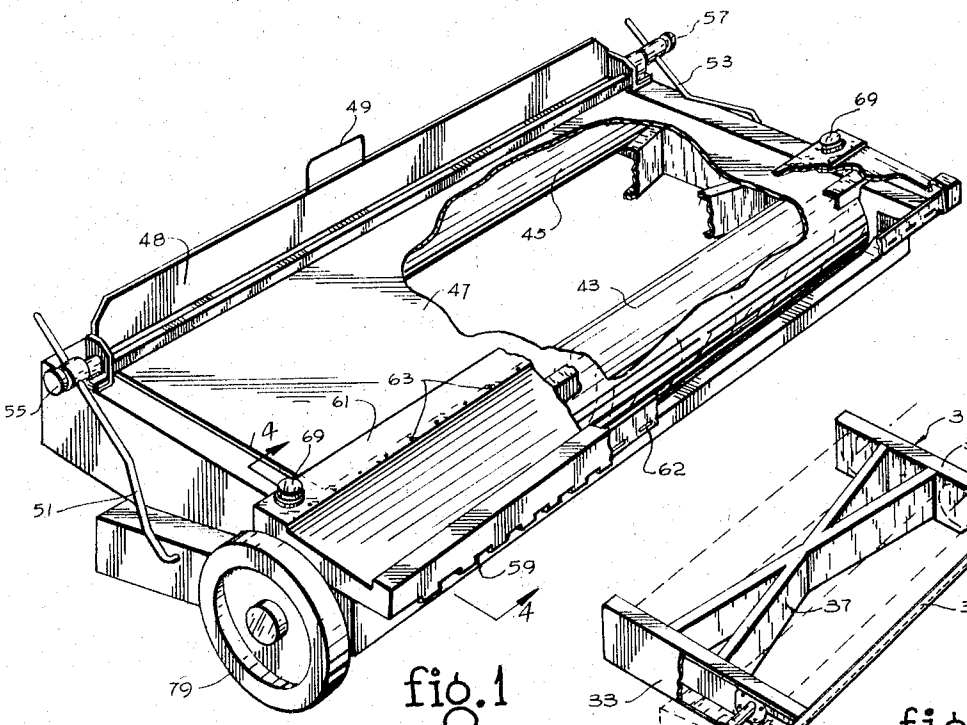


fig. 1

fig. 3

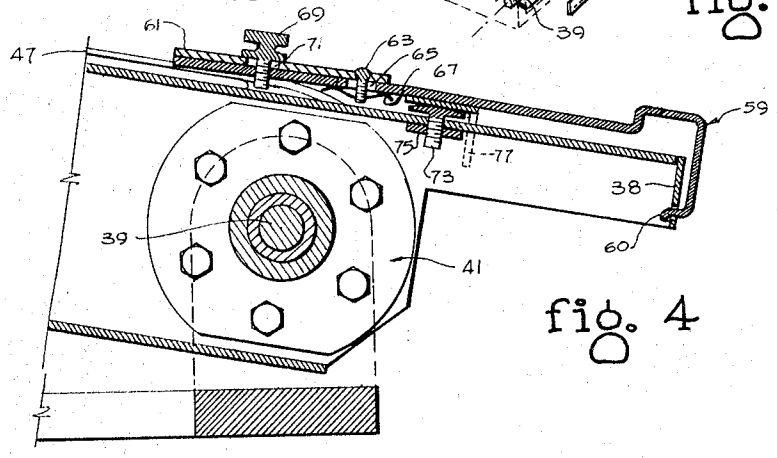


fig. 4

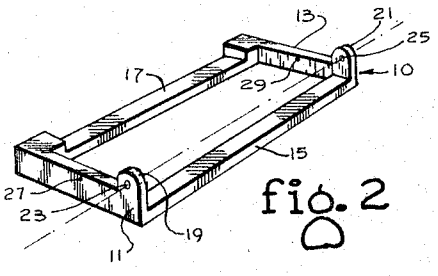


fig. 2

INVENTOR
CLAUDE L. SPRING
BY Duck & Zarley
ATTORNEYS

United States Patent Office

3,299,513

Patented Jan. 24, 1967

3,299,513

DRAFTING BOARD

Claude L. Spring, 907 31st St.,
Des Moines, Iowa 50317

Filed May 18, 1964, Ser. No. 367,933
7 Claims. (Cl. 33—76)

This invention relates to a drafting board and more particularly to a drafting board having a continuous belt means mounted thereon.

Draftsmen have for some time utilized drafting boards wherein continuous belts have been mounted thereon. These drafting boards are especially useful when large sheets of drawings are being made. The large sheets of drawing paper are simply taped to the continuous belts. As the drawing is being prepared, the continuous belt is simply rotated to provide additional drawing space. Quite frequently the drawing is removed from the continuous belt before it is finished. When the drawing is to be finished, it is usually retaped on the continuous belt. A difficulty arises in this step in that it is very difficult to realign the original drawings in the position that they formally occupied. Unless the drawings occupy the exact original position, the utilization of T-squares and triangles in engagement with the drawing board will not be possible.

A further disadvantage in the devices heretofore described is that they require a great deal of floor space and are extremely cumbersome.

Therefore, a principal object of this invention is to provide a drafting board which facilitates the technique of positioning the drawings under the straight edge means rather than positioning the straight edge means over the drawings.

A further object of this invention is to provide a drafting board which is small, compact and easy to use.

A still further object of this invention is to provide a drafting board which has a straight edge means hingedly and adjustably secured thereto.

A still further object of this invention is to provide a drafting board which does not require the necessity of the drawings being perfectly repositioned on the continuous belt if they are subsequently replaced thereon.

A still further object of this invention is to provide a drafting board which is economical in manufacture, durable in use and refined in appearance.

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

This invention consists in the construction, arrangements, and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in the claims, and illustrated in the accompanying drawings, in which:

FIG. 1 is a perspective view of the device with portions thereof cut away to more fully illustrate the invention;

FIG. 2 is a perspective view of the lower frame portion of the device;

FIG. 3 is a perspective view of the upper frame portion of the device; and

FIG. 4 is a sectional view of the device as seen on line 4—4 of FIG. 1, at an enlarged view.

The numeral 10 generally designates a lower frame having side members 11 and 13 spaced apart by forward and rearward end members 15 and 17 respectively, extending therebetween. The forward ends of side members 11 and 13 have ears 19 and 21 extending upwardly

therefrom respectively. Ears 19 and 21 have holes 23 and 25 extending therethrough respectively. Side members 11 and 13 also have holes 27 and 29 extending therethrough respectively, intermediate their lengths.

The numeral 31 generally designates an upper frame having side members 33 and 35 spaced apart by an X-shaped frame member 37 and bar 38. A roller shaft 39 is rotatably secured to the forward ends of side members 33 and 35 by means of trunnion bearings 41 and has its outer ends adapted to be received by holes 23 and 25 in ears 19 and 21 respectively thereby pivotally connecting the forward ends of upper frame 31 and lower frame 10 together. An elongated roller 43 embraces roller shaft 39 between side members 33 and 35 and is maintained thereon by means of set screws or other convenient means. An elongated roller 45 is rotatably secured to upper frame 31 and extends between the rearward ends of side members 33 and 35. A continuous belt 47 extends around rollers 43 and 45.

A back support 48 is secured to the upper surface of side members 33 and 35 adjacent their rearward ends and extends therebetween. A lifting bar 49 is secured to back support 48 intermediate its length. Upper frame 31 is maintained in various positions of its pivotal movement with respect to lower frame 10 by means of rods 51 and 53. Rods 51 and 53 have their lower ends inserted into holes 27 and 29 of lower frame 10 respectively. The upper ends of rods 51 and 53 are embraced by detent elements 55 and 57 respectively, which are secured to opposite ends of back support 48 as illustrated in FIG. 1.

The numeral 59 generally designates a tray means having its lower forward end hingedly secured to bar 38 as illustrated in FIG. 4 by means of arms 60 extending through slits 62. A transparent straight edge means 61 is yieldably movably secured to the upper surface of tray means 59 adjacent its rearward end. A plurality of screws 63 extend downwardly through straight edge means 61, thence through slot 65 and tray means 59. Screws 63 are positioned along length of tray means 59 and are maintained therein by means of spring nuts 67. Slots 65 are arranged substantially parallel to the forward end of tray means 59. A thumb screw 69 extends downwardly through slot 71 and straight edge means 61 into tray means 59 at opposite ends thereof.

A height adjusting screw 73 threadably extends downwardly through the upper surface of side members 33 and 35 at a point below tray means 59 and have lock nuts 75 on their lower ends. An elongated L-shaped bracket 77 is secured to the bottom side of tray means 59 and is adapted to engage the upper end of height adjusting screw 73 as illustrated in FIG. 4. A hand wheel 79 is mounted on one end of roller shaft 39 for the rotation of continuous belt 47.

The normal method of operation is as follows: A sheet of drawing paper is taped to continuous belt 47 in any suitable manner. The drawing paper is rotated to its desired position beneath straight edge means 61 on continuous belt 47 by means of hand wheel 79. Straight edge means 61 will have been previously aligned in the manner to be described later. Straight edge means 61 is used to draw lines which would be at right angles to the direction of movement of belt 47 and also as a base support for triangles or the like. In the process of drafting, belt 47 is simply rotated directionally to properly position the drawing paper below the straight edge means 61 by means of hand wheel 79.

The relative spacing between the lower bottom edge of straight edge means 61 and the upper surface of belt 47 is readily adjustable. The rearward end of tray means 59 is simply hingedly moved forwardly and upwardly to expose vertical height adjusting screw 73. It can be appreciated from the description previously given and from FIG. 4 that a raising or lowering of height adjusting screw 73 will also cause the rearward end of straight edge means 61 to be raised or lowered due to the engagement between the screw and bracket 77. If it is desired to lower the rearward end of straight edge means 61, height adjusting screw 73 would be simply threadably turned downwardly. If the rearward end of straight edge means 61 was desired to be raised with respect to continuous belt 47, height adjusting screw 73 would be simply threadably moved upwardly.

If the drawing paper is removed from the continuous belt 47 and then subsequently replaced, the straight edge portion of straight edge means 61 would possibly not correspond to the previously drawn lines due to difficulty in replacing the paper in the exact alignment as it was before. The straight edge portion of straight edge means 61 may be moved to correspond to the previously drawn lines by simply loosening thumb screws 69. The plurality of screws 63 yieldably maintain straight edge means 61 in a stable position due to the spring lock on the lower end. The tension exerted by the springs on the lower side of tray means 59 yieldably holds straight edge means 61 in a fixed position. However, the straight edge means 61 may be moved by simply overcoming the resistance offered by the spring nuts. It is obvious from FIG. 4 that screws 63 have a certain amount of play in slots 65. This play permits straight edge means 61 to be positioned to correspond with a previously drawn line on the drawing paper. When straight edge means 61 has been so aligned thumb screws 69 are again tightened. It is also obvious from FIG. 4 that slots 71 permit straight edge means 61 to be moved about the stem portion of thumb screws 69. If the straight edge 61 moves too easily when thumb screws 69 are loosened, it is simply necessary to tighten screws 63 to increase the tension of spring nuts 65 on the bottom side of tray means 59.

Thus it can be seen that the adjustable straight edge means 61 permits a rapid adjustment to align the straight edge means and the drawings. This adjustment eliminates the necessity of perfect subsequent re-alignment once a drawing has been removed from belt 47 and then is later replaced thereon.

When it is desired to tilt the upper frame 31 with respect to lower frame 10, it is simply necessary to loosen detent members 55 and 57. Upper frame 31 may then be moved to its desired position and detents 55 and 57 are once again tightened on rods 51 and 53 to maintain this position.

It is readily apparent that the device herein described is a small and compact unit which is extremely easy to operate. Thus it can be seen from the foregoing that the invention accomplishes at least all of its stated objectives.

Some changes may be made in the construction and arrangement of my Drafting Board 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 board,
a lower frame having rearward and forward ends,
an upper frame having rearward and forward ends pivotally secured at its forward end to the forward end of said lower frame and adapted to assume a folded position on top of said lower frame at times,
a first elongated roller rotatably secured to said upper frame adjacent its forward end,
a second elongated roller rotatably secured to said upper frame adjacent its rearward end,

a continuous belt means mounted on said first and second rollers,
the forward end of said upper frame being at substantially a right angle to the direction of movement of said continuous belt means,
a tray means having rearward and forward ends hingedly secured at its forward end to the forward end of said upper frame and adapted to assume a folded position on top of a portion of said upper frame,
an elongated straight edge means movably mounted on the rearward end of said tray means, and
adjusting means on said straight edge means to adjust the angle between the longitudinal axis of said straight edge means and the direction of movement of said continuous belt.

2. The device of claim 1 wherein said tray means has a plurality of slots therein extending parallel to the forward end of said frame; a plurality of screws extending downwardly through said straight edge means and said plurality of slots and having a spring nut secured to their lower end.

3. The device of claim 1 wherein said straight edge means has locking means on its opposite ends to maintain said straight edge means in a fixed relative position with respect to said tray means.

4. The device of claim 1 wherein said upper frame has secured thereto adjusting means engaging the bottom surface of said tray means to raise and lower the rearward end of said tray means with respect to said continuous belt.

5. The device of claim 1 wherein said upper and lower frames have means connected thereto to maintain said upper frame in various positions of its pivotal movement with respect to said lower frame.

6. The device of claim 1 wherein said straight edge means is transparent.

7. In a drafting board,
a lower frame having rearward and forward ends,
an upper frame having rearward and forward ends pivotally secured at its forward end to the forward end of said lower frame and adapted to assume a folded position on top of said lower frame at times,
a first elongated roller rotatably secured to said upper frame adjacent its forward end,
a second elongated roller rotatably secured to said upper frame adjacent its rearward end,
said first and second rollers having their longitudinal axes parallel to the forward end of said upper frame,
a continuous belt means mounted on said first and second rollers,
a tray means having rearward and forward ends hingedly secured at its forward end to the forward end of said upper frame and adapted to assume a folded position on top of a portion of said upper frame,
said tray means having a plurality of slots therein extending parallel to the forward end of said upper frame,
a straight edge means yieldably movably mounted on the rearward end of said tray means,
a plurality of screws extending downwardly through said straight edge means and said plurality of slots and having a spring nut threadably secured to their lower end,
locking means on opposite ends of said straight edge means to maintain said straight edge means in a fixed relative position with respect to said tray means,
adjusting means on said upper frame engaging the bottom surfaces of said tray means to raise and lower the rearward end of said tray means with respect to said continuous belt,
and means connecting said upper and lower frames to maintain said upper frame in various positions of its pivotal movement with respect to said lower frame.

5

References Cited by the Examiner

UNITED STATES PATENTS

835,892	11/1906	Schipke	33—80 X
2,312,154	2/1943	Fischer	33—80
2,558,468	6/1951	Stovern	33—80
2,894,355	7/1959	Huff	33—80 X
2,896,366	7/1959	Van Derbys	33—80 X

6

FOREIGN PATENTS

838,415	6/1960	Great Britain.

LEONARD FORMAN, *Primary Examiner.*

ISAAC LISANN, *Examiner.*

H. N. HAROIAN, *Assistant Examiner.*