Feb. 5, 1946. C. R. HOWARD 2,394,452

DOUBLE POINT DRAFTING DEVICE

Filed Oct. 24, 1944 2 Sheets-Sheet 1

Fig. 1.

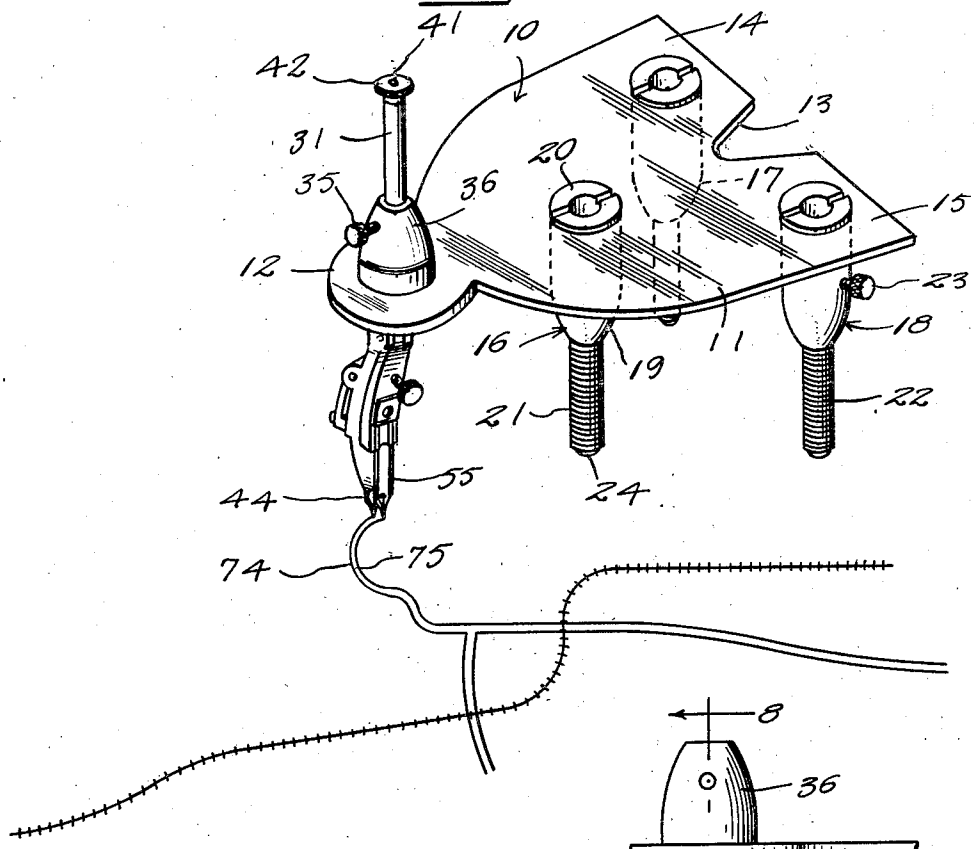
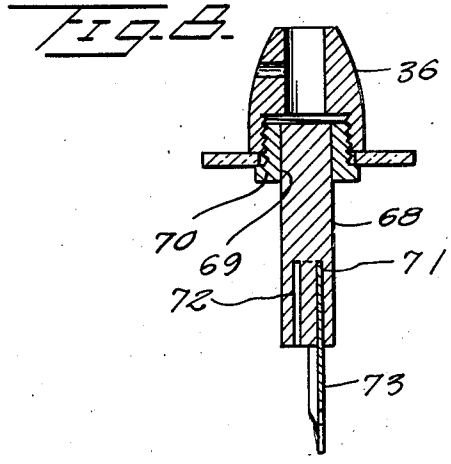


Fig. 8.



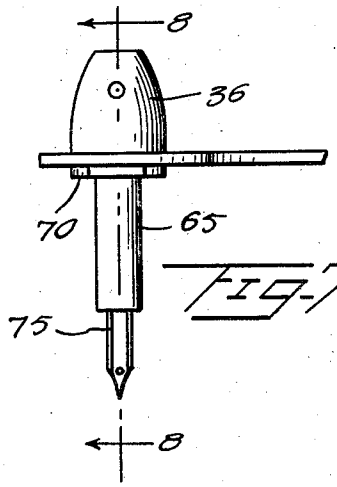


Fig. 7.

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DOUBLE POINT DRAFTING DEVICE

Filed Oct. 24, 1944 2 Sheets-Sheet 2

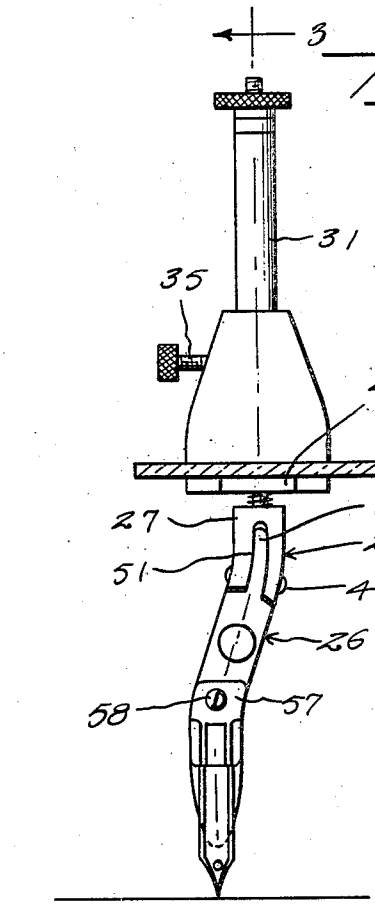


Fig. 2.

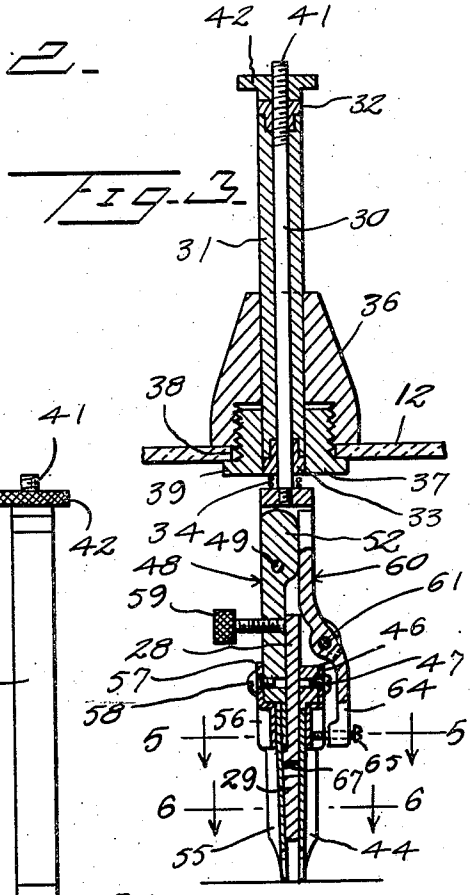


Fig. 3.

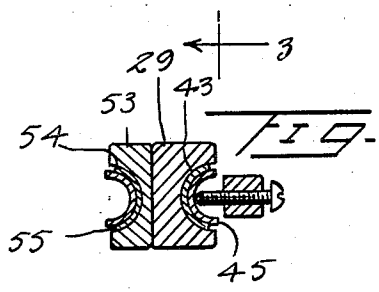


Fig. 5.

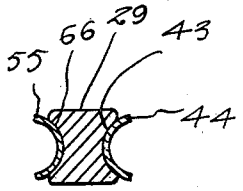


Fig. 6.

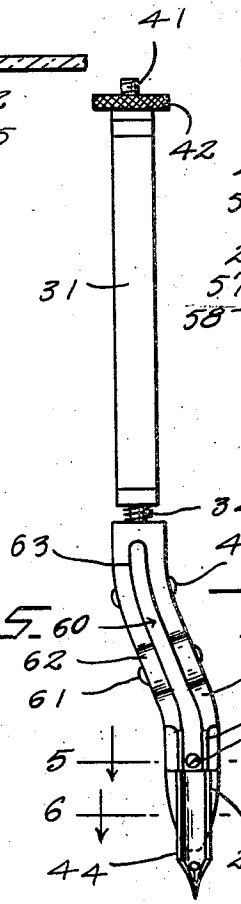


Fig. 4.

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UNITED STATES PATENT OFFICE

2,394,452

DOUBLE POINT DRAFTING DEVICE

Charles R. Howard, Greenbelt, Md.

Application October 24, 1944, Serial No. 560,152

5 Claims. (Cl. 120—109.5)

This invention relates to ruling pens and more particularly to double line ruling pens.

An object of this invention is to provide an improved double line pen structure embodying the use of conventional pen points which are secured to a holder swivelly carried by a movable support.

Another object of this invention is to provide an improved double line pen structure wherein the space between the two pens can be readily varied to form double lines of selected distance apart.

A further object of this invention is to provide an improved pen holder for a pen structure of this kind embodying an improved three-point support which is readily adjustable as to height, the support also including a base which has a degree of flexibility so that the pens may be maintained in contact with the paper, the holder also being cushioned with respect to the support so as to cushion the pressure exerted on the support.

To the foregoing objects, and others which may hereinafter more fully appear, the invention consists of the novel construction, combination and arrangement of parts, as will be more specifically referred to and illustrated in the accompanying drawings, but it is to be understood that changes, variations, and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a perspective view of a drawing instrument constructed according to an embodiment of this invention.

Figure 2 is a detail side elevation partly in section of the inking structure.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a detail side elevation of the pen assembly on the side opposite from Figure 2.

Figure 5 is a sectional view taken on the line 5—5 of Figure 3 or 4.

Figure 6 is a sectional view taken on the line 6—6 of Figure 3 or 4.

Figure 7 is a fragmentary side elevation of a modified form of this invention.

Figure 8 is a sectional view taken on the line 8—8 of Figure 7.

Referring to the drawings, the numeral 10 designates generally a plate constituting a base which is preferably of transparent material and is formed of a body 11 having a rounded extension 12 at its forward end and a V-shaped cutout 13 at its rear end, thereby forming a pair of spaced apart rear arms 14 and 15. The plate 10 has secured to and extending downwardly therefrom three supporting legs 16, 17 and 18. The supporting legs are of like construction and each includes a downwardly extending body 19, which is secured to the body 11 by means of a nut 20. The body 19 is formed with a longitudinal bore in which an extensible leg 21 slidably engages. The extensible leg 21 is provided in the periphery thereof with a longitudinal channel 22 within which a setscrew 23, threaded through the body 19, is adapted to engage for holding the extensible leg 21 in adjusted position. Each leg 21 at the lower end thereof has rotatably mounted therein a ball 24 for facilitating the movement of the device over the surface of the paper.

A ruling pen structure generally designated as 25 is swivelly carried by the extension 12. The pen 25 includes a body 26 formed with an upper part 27, an intermediate part 28 extending downwardly and obtusely therefrom, and a vertical lower body 29 parallel with the upper body part 27.

An elongated shaft 30 is threaded at its lower end in the upper body part 27 and is rotatably mounted in a sleeve 31. The sleeve 31 has mounted in the upper and lower ends thereof metal bearing plugs 32 and 33 through which the shaft 30 rotatably engages, and a cushioning spring 34 is interposed between the lower bearing 33 and the upper end of body portion 27. The sleeve 31, which may be formed of composition material, is held stationary with respect to the extension 12 and the plate 10, by means of a set screw 35 which is threaded through a nut member 36 disposed on the upper side of extension 12. A clamping member 37 is threaded into the nut member 36 from the lower side of extension 12, engaging through an opening 38 formed in the extension 12.

The clamping member 37 is formed with a flange 39 bearing against the lower side of extension 12 and preferably the flange 39 is formed with oppositely disposed flat portions 40 by means of which a tool may be engaged with the clamping member 37, so as to tightly secure the nut or shaft supporting member 36 with respect to extension 12.

The upper end of shaft 30 is threaded as at 41 and a nut 42 is threaded on to the upper end of shaft 30 and provides a means whereby spring 34 may be tensioned to the desired degree.

A lower body portion 29 is provided with a longitudinally extending concave pen seat 43 within

which the convex side of a pen 44 is adapted to engage. The pen 44 is clamped on seat 43 by means of a transversely arcuate clamping plate 45, which is formed with a base 46 secured by means of a fastening member 47 to intermediate body 28. The body portion 29, as shown in Figure 3, is a tapered construction with the small end lowermost and seat 43 is also inclined so that pen point 44 will be inclined to the vertical. A second pen holder structure generally designated as 48 is pivotally carried by a pivot 49 extending through the upper body portion 27. Body portion 27 is formed with an elongated slot 50 within which a reduced upper end portion 52 of the holder 48 is adapted to rockably engage.

The pen holder structure 48 also includes a lower body 53 which is formed with a concave pen point seat 54 on which a pen point 55 is adapted to engage. The pen point 55 is tightly clamped on seat 54 by means of a clamping plate 56, having a base 57 secured by means of a fastening member or screw 58 to the intermediate portion of the holder 48.

In order to provide a means whereby pen point 55 may be adjusted with respect to pen point 44, I have provided an adjusting screw 59 which is threaded through the pen structure 48 and engages the intermediate body 28. Pen structure 48 is yieldably held in adjustable position by means of an elongated resilient bar 60 pivotally mounted on a pivot 61 engaging through a pair of ears 62 carried by body 28. The elongated resilient bar 60 engages in an elongated slot 63 formed in the upper body portion 27 and resiliently bears against the adjacent portion of the extension 52 of holder 48. The resilient bar 60 is bent longitudinally, as shown in Figure 3, having an outwardly offset lower portion 64 through which a threaded adjusting screw 65 engages. The adjusting screw 65 is adapted to bear against the concave side of clamping member 45, so that adjustment of screw 65 will provide the desired tension on the upwardly extending part 52 of holder 48. The body portion 29 on the side thereof confronting pen point 55 is formed with a concave seat 66 within which pen point 55 is adapted to engage when the two pen points are at their innermost or closest positions.

In order to provide a means whereby the pen structure may be formed into a fountain pen, I have provided a well 67, which is formed transversely through the lower body portion 29 and which is adapted to receive ink for engagement with either one or both of the points 44 and 55.

Referring now to Figures 7 and 8, there is disclosed a modified form of pen structure wherein either one or two pen points may be used with the points non-adjustable as to their space apart. A pen holder body 68 is fixed within a bore 69 formed in a threaded member 70 which is adapted to engage through the extension 12, and is threaded into the lower end of nut member 36. The holder 68 is formed with a pair of pen point sockets 71 and 72 for receiving one or more points 73. The points in the socket 71 and 72 are not adjustable relative to each other, whereas the structure embodied in Figures 1 to 6, inclusive, includes an adjustable pen point structure wherein the two pen points may be adjusted towards or away from each other.

In the use of this inking means, the legs 21 are adjusted as to height so that the two pen points 44 and 55 will readily slide over and contact with the surface of the paper. The transparent body 10 may be formed of plastic material which has a degree of resiliency so that extension 12 may be bent downwardly in order to maintain the pen points in inking contact with the paper. The pen points may be adjusted relative to each other by the adjusting screw 59 and the points may then be inked in any suitable manner whereupon the balls 24 of the legs 21 are engaged with the surface of the paper. The points 44 and 55 will make a pair of spaced apart lines 74 and 75, respectively, on the surface of the paper, and due to the rotatable mounting of the holder 25 the frictional contact of the points 44 and 55 with the paper is such that the two spaced lines 74 and 75 can be made on any desired curvature or in a straight line, the holder 25 swivelling in the mounting therefor as base 10 is moved about the paper surface. Due to the transparency of base 10, the user of this device can readily view the paper which is being inked through the base, so that the spaced lines 74 and 75 can be made on the paper at the proper positions. This device may be used for map making where double lines are used to indicate roads and for other purposes for which two evenly spaced lines on a sheet of paper are desirable.

What I claim is:

1. A drafting instrument comprising a plate, a plurality of supporting legs carried by said plate, a pen holder, means swivelly mounting said pen holder on said plate and a resilient cushioning member correlated with said mounting means.

2. A drafting instrument comprising a plate, a plurality of supporting legs for said plate, and a pen structure rotatably carried by said plate, said pen structure comprising an elongated body, a shaft extending from one end of said body, a tubular bearing for said shaft, means supporting said shaft relative to said plate, a pair of pen point holders carried by said body, means pivotally mounting one of said holders on said body, means for adjusting said one holder relative to the other holder and a spring about said shaft disposed between said bearing and said body for cushioning said pen structure relative to said plate.

3. A drafting instrument as set forth in claim 2 wherein said plate is formed of substantially resilient transparent material.

4. A drafting instrument as set forth in claim 2 including tensionable means constantly urging said one holder toward the other holder.

5. A drafting instrument comprising a relatively flexible plate, a plurality of supporting legs carried by said plate, a pen holder depending from said plate, and means pivotally securing said pen holder to said plate.

CHARLES R. HOWARD.