Jan. 23, 1951 C. J. O'ROURKE 2,539,097

BEAM TRAMMEL

Filed July 7, 1944 2 Sheets-Sheet 1

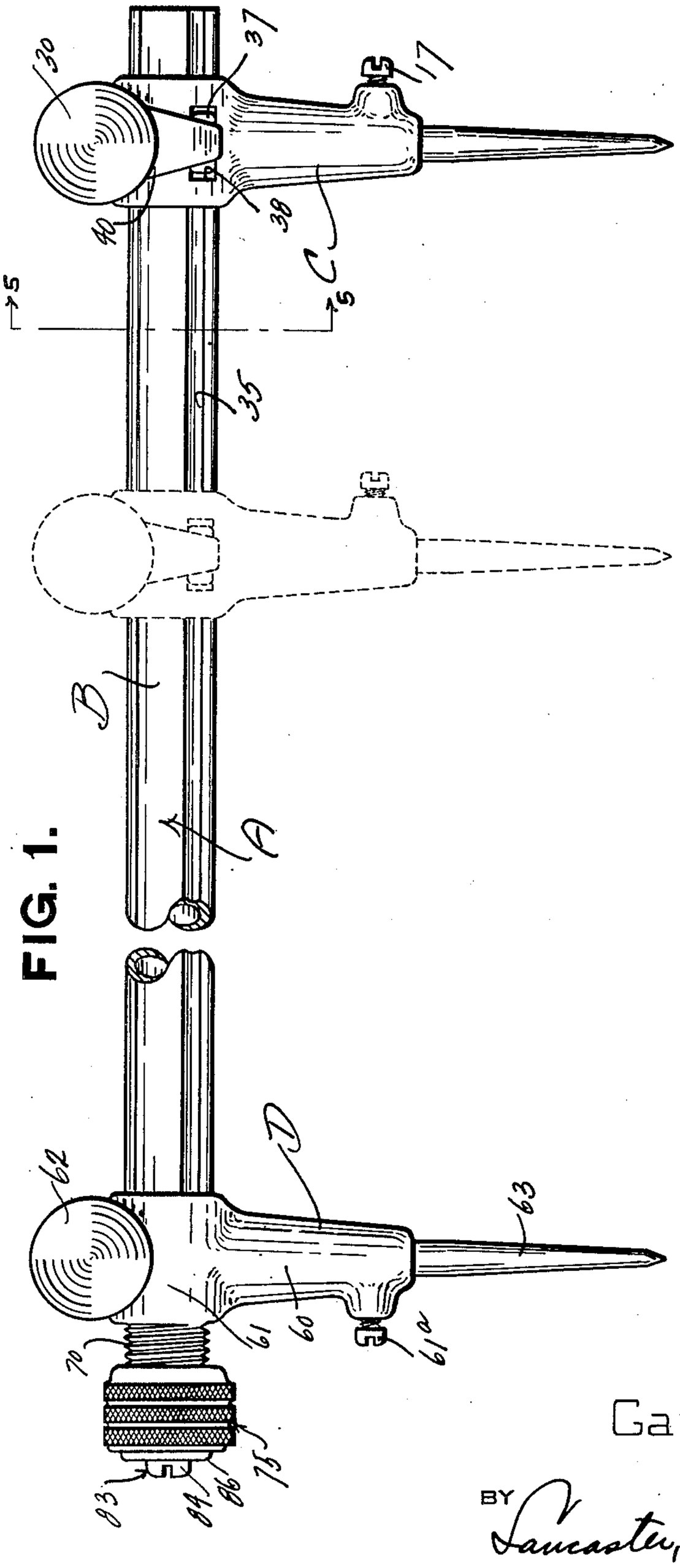

FIG. 1.

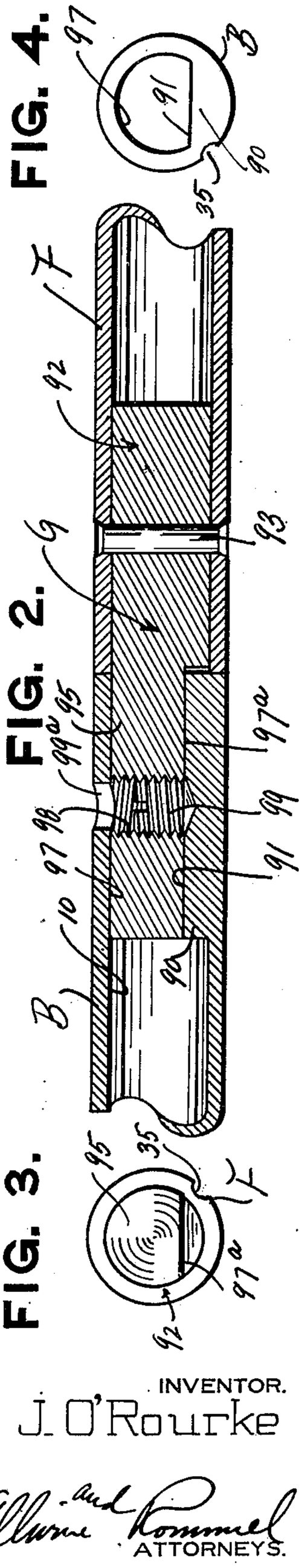

FIG. 4.

FIG. 2.

FIG. 3.

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FIG. 5.

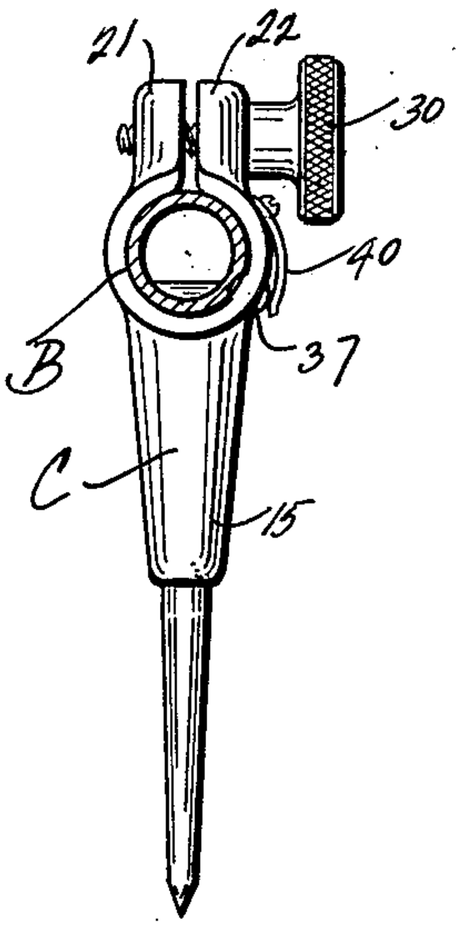


FIG. 6.

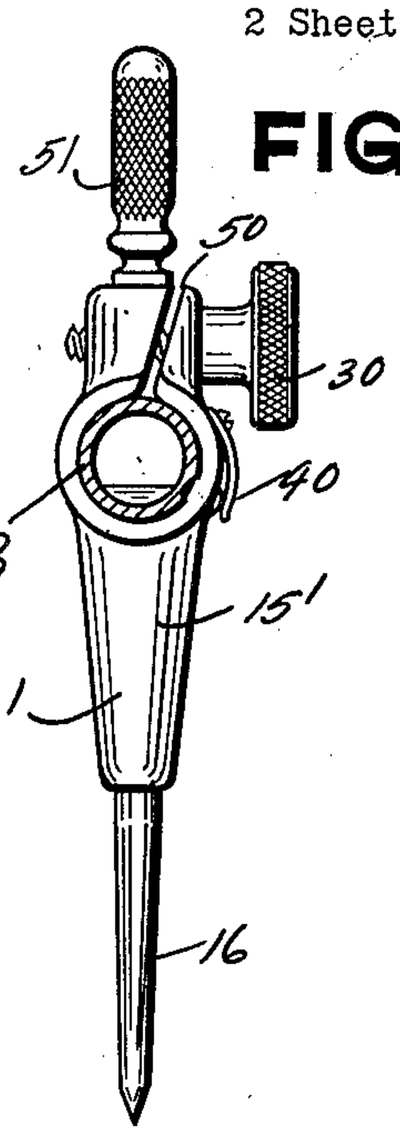


FIG. 7.

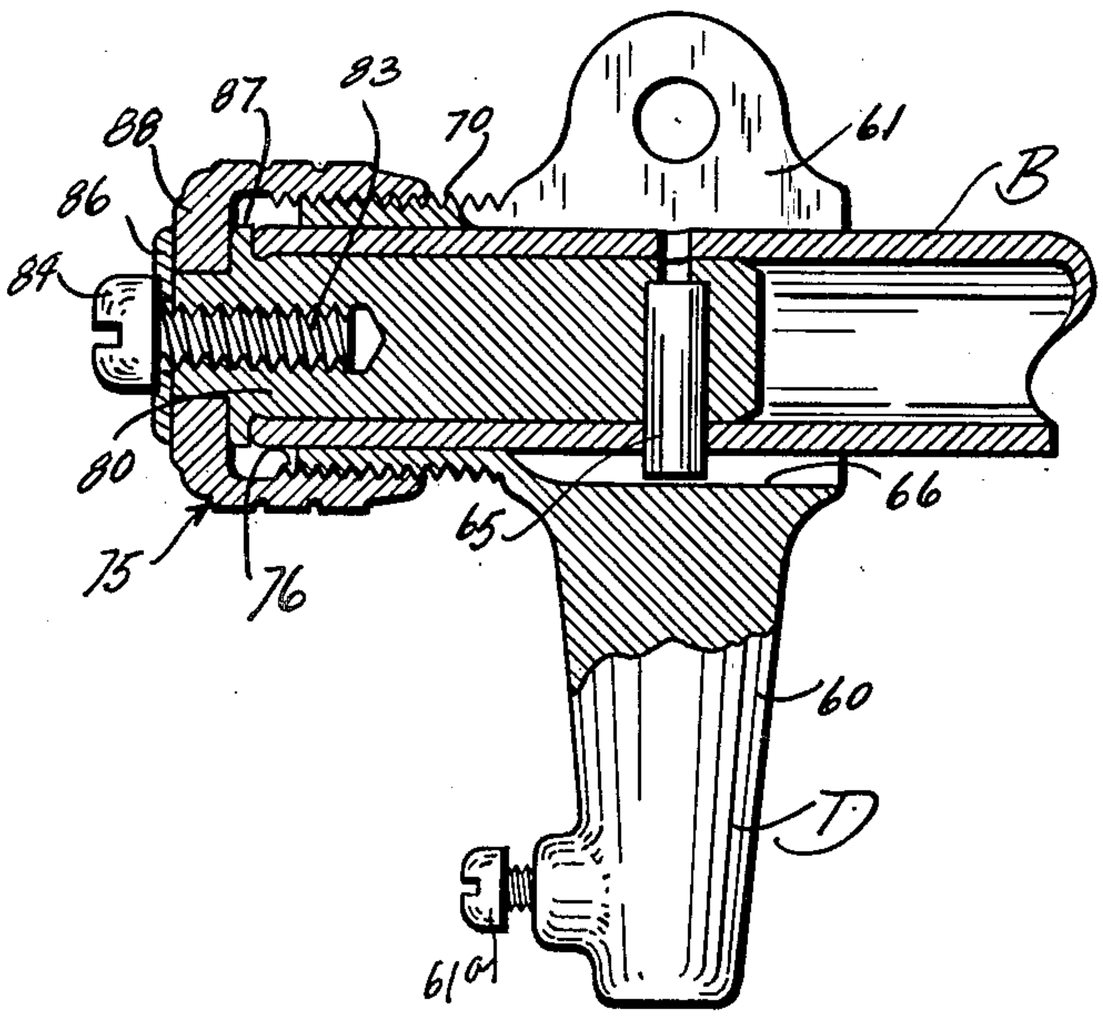
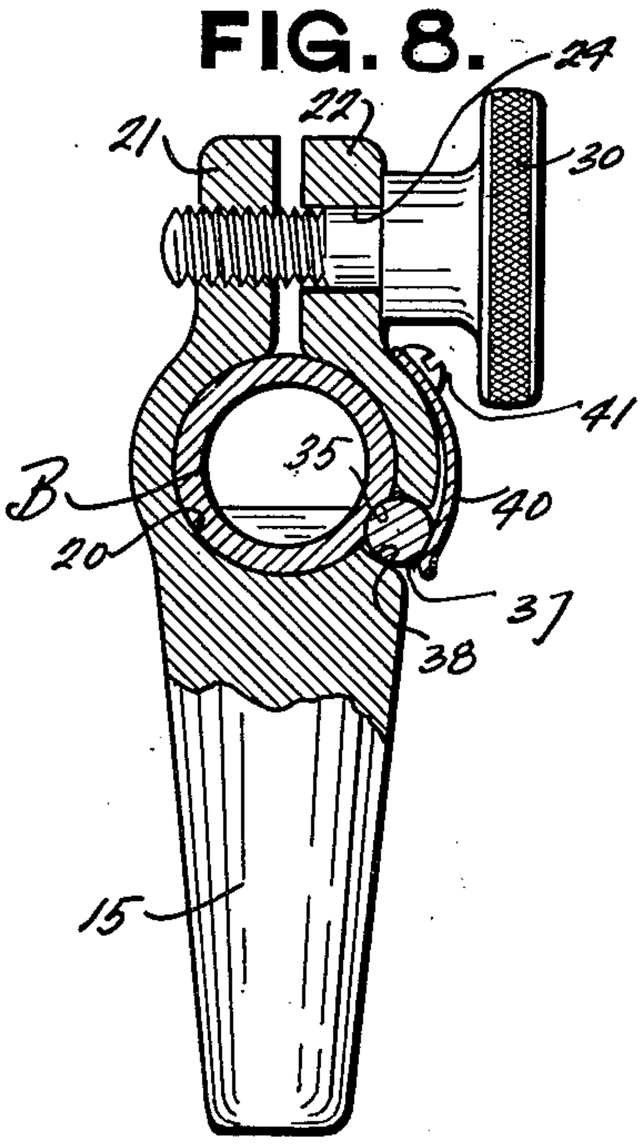


FIG. 8.



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BEAM TRAMMEL

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1 Claim. (Cl. 33—158)

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This invention relates to improvements in trammels.

The primary object of this invention is the provision of a trammel embodying an improved beam construction and improved means for adjustably and efficiently mounting point carrying fixtures thereon.

A further object of the invention is the provision of an improved trammel which is relatively light in weight, yet which is strong and durable, has a neat appearance, and one which has a wide range of adjustment of the point carrying appliances upon the supporting beam.

A further object of this invention is the provision of improved means for adjustably mounting point carrying appliances upon the beams of trammels, beam compasses and other like devices.

A further object of this invention is the provision of improved means for mounting an extension beam upon a trammel.

Other objects and advantages of the invention will be apparent during the course of the following detailed description.

In the accompanying drawings, forming a part of this specification and wherein similar reference characters designate corresponding parts thruout the several views,

Fig. 1 is a side elevation of the improved trammel.

Fig. 2 is a fragmentary cross sectional view showing improved means for mounting an extension beam upon the main beam of a trammel or beam compass.

Fig. 3 is an end view showing the end structure of the extension beam.

Fig. 4 is an end view showing the structure of the end of the main beam which receives the extension beam.

Fig. 5 is a cross sectional view taken substantially on the line 5—5 of Fig. 1 and showing an improved construction of a point carrying fixture or appliance.

Fig. 6 is a cross sectional view similar to Fig. 5, but showing a modified form of point carrying fixture or appliance.

Fig. 7 is a fragmentary cross sectional view showing the construction by means of which a point carrying fixture or appliance is mounted upon a beam, for fine adjustment.

Fig. 8 is a cross sectional view showing the manner in which a point carrying fixture or appliance may be mounted for efficient quick sliding adjustment upon a beam.

In the drawings, wherein for the purpose of illustration are shown preferred and modified

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forms of the invention, the letter A may generally designate the improved trammel. It may include a main beam B adapted to receive an improved point carrying fixture or appliance C for coarse adjustment thereon, and a point carrying fixture or appliance D for fine adjustment thereon. An extension beam F may be provided for attachment by improved means G to the main beam B. In lieu of the coarse adjustment point carrying fixture or appliance C, I may employ a modified form C^1 shown in Fig. 6.

It is the principal purpose of this invention to provide a relatively light, durable and economical beam construction. To that end the main beam B is preferably tubular and of metal or other suitable material. In cross section it is preferably circular. The wall thickness is just sufficient to preserve the desired rigidity thereof and its passageway may extend from end to end. Other features of this main beam will be set forth in describing the application thereon of the point carrying legs or fixtures C and D.

Referring to the point carrying fixture or leg C, the same is best shown in Figs. 1, 5 and 8 of the drawings. It includes a tapered body portion 15 having a suitable socket (not shown) at its lower end for receiving a point 16. Broadly the term "point" may designate a steel pointer, pencil, pen or any other device usually associated with trammels, beam compasses and the like. The point 16 is, of course, removable and may be held in place by any approved means such as a set screw 17.

At its upper end the body portion 15 is bifurcated to provide upwardly extending portions 21 and 22 suitably spaced to provide a socket 20 for detachably receiving the beam B. The portion 21 may have a screw threaded opening 23 therethru and the other portion 22 is provided with an aligning passageway 24. A lock screw 30 may be provided, rotatably mounted freely in the opening 24 and screw threaded in the opening 23, as shown in Fig. 8. The knurled head of the screw 30 is provided for grasping in the hand of the user in order to tighten the point carrying legs C in fixed position upon the beam. The point carrying fixture or leg C has a coarse adjustment upon the beam, since the adjustment is effected merely by loosening the screw 30 and sliding the fixture along the beam. To prevent turning movement of the point carrying fixture C upon the beam, as it is adjusted therealong, and to maintain it in true alignment with the other fine adjusting fixture D, I preferably provide a shallow groove 35 along the beam, in any

suitable position thereon, preferably along one or the other of the sides. In cross section it is arcuate. The groove 35 receives a roller-shaped key 37 suitably positioned for rotation in a socket 38 provided in a side of the body 15, as shown in Fig. 8. The socket 38 may be elongated if desired. A leaf spring 40 is anchored at 41 upon one of the bifurcations of the body 15, having its free end engaging the roller or key 37 for the purpose of urging the same into the groove 35. The socket 38 is peened over at its inner end to prevent pushing of the detent roller 37 out of the socket should the point carrying fixture be removed from the beam B. This provides a very strong and durable construction and one in which the spring action is such as to insure the maintenance of the roller key in the groove. The key 37 may assume a ball shape if so desired, and it is immaterial whether the same is placed upon the head side of the screw 30 or opposite thereto. The slot 35 extends from the point of application of the point carrying leg or fixture D to the extreme other end of the main beam B, whence it continues along the beam extension F, if the latter is used.

In the modified form of point carrying leg C', the slot 50 defining the bifurcations at the top of the body 15' may be placed at an acute angle to the vertical. Thus the leg may receive a finger engaging handle 51, as shown in Fig. 6. Otherwise the structure is identical with that above described.

Referring to the point carrying fixture or leg construction D, for fine adjustment, the same includes a body portion 60 having at its lower end a set screw 61*a* for clamping a suitable point 63 in the body 60. Of course the point 63 may be a steel needle, pencil or pen or any other point usually associated with trammels.

At its upper end the body 60 is bifurcated, providing leg portions 61 one of which is transversely apertured and the other screw threaded for receiving a lock screw 62, shown in Fig. 1, in the identical manner provided for the point carrying fixture C. The body 60 is socketed to receive therein the end of the main beam B, and the screw 62 is merely used for the purpose of tightly clamping the fixture D in place upon the main beam.

The point carrying fixture D has a very fine sliding adjustment along the beam B. To prevent turning movement of the appliance D upon the beam, I provide a key pin 65, which is driven into the beam B. It has an end radially and slidably projecting into a groove 66 provided in the body 60. This mounting of the pin 65 prevents turning movement of the leg or body 60 upon the beam, as is quite obvious. The body 60 furthermore includes an externally screw threaded sleeve portion 70, which is not split; the slot providing the bifurcations 61 terminating short thereof. The externally screw threaded sleeve 70 is of a size to comfortably and slidably receive the beam B. It may be of any length desired and in this respect it is to be noted that it provides a very long bearing mounting of the fixture D upon the beam.

In order to insure fine adjustment of the leg D upon the beam, I provide a rotatable adjusting sleeve or nut 75 mounted by means to be subsequently described upon an end of the beam. It is internally screw threaded at 76 for receiving the threads of the sleeve extension 70. The adjusting nut 75 is rotatably mounted against longitudinal movement upon the beam B by

means of a plug 80 which is force driven into an end of the beam B and held therein against turning by the pin 65 above described. This plug 80 has an end extending beyond the end of the beam provided with an axial screw threaded opening 83 adapted to receive the threaded shank of a screw 84. The latter has an enlarged head and receives a washer 86. Spaced from the washer 86 is an annular flange 87 formed integral with the plug 80. The space between the flange 87 and washer 86 is sufficient to receive therein the head portion 88 of the adjusting nut 75, so as to permit the free rotation of the nut upon the plug 80 without binding action, and without any end play of the adjusting nut 75. With this construction it is obvious that upon rotation of the nut 75 the point carrying fixture D will be moved along the beam in either direction desired to effect a fine adjustment of the pointer D upon the beam. The nut 75 may be externally knurled.

Referring to the improved means for mounting an extension beam F upon the main beam B, the latter at its end opposite the fixture D is open and provided with a short integral segment 90, best shown in Figures 2 and 4 of the drawings. This defines a flat surface 91.

The extension beam F is tubular and has a mounting plug 92 force fitted or held by means of a diametrically disposed pin 93 in an end thereof. The plug 92 beyond the extreme end margin of the extension beam F has an extension 95 of segmental cross section, and of a nature to fit in the opening 97 in the end of the beam B. This segmental extension 95 is provided with a flat surface 97a adapted to contact the flat surface 91 of the main beam B. With this construction it is obvious that the beams B and F may be connected so as to prevent relative rotation. In order to secure the beams in close abutting relation, and to hold such position, extension portion 95 of the plug 92 is provided with a transverse screw threaded socket 98 adapted to receive a set screw 99. The latter is rather shallow and bites into the segment 90 to secure the beams B and F in proper alignment. The beam B is provided with a suitable opening 99a to permit of the extension of a screw driver or like tool into the screw threaded passageway 98 for access to the set screw 99.

From the foregoing it is apparent that an improved trammel has been provided which is light and durable in construction and one in which the point carrying fixtures are efficiently mounted for ease and fineness of adjustment. In particular the ball and groove connection of the fixture C enables a smooth and efficient action of this fixture upon the beam and of course the spring will prevent any play or looseness of mounting of the fixture C upon the beam, while at the same time permitting free and efficient coarse adjustment of the same upon the beam. It is to be understood that features of this invention may be used in connection with any type of trammel, such as a beam compass, ellipsograph or the like.

Various changes in the shape, size and arrangement of parts may be made to the form of invention herein shown and described without departing from the spirit of the invention or scope of the following claim.

I claim:

In a trammel structure the combination of an elongated beam having a straight groove inwardly of the external surface thereof extending com-

pletely along the beam from end to end; a point carrying fixture slidable upon said beam, means for clamping said point carrying fixture against movement along the beam, and resiliently urged means carried by said point carrying fixture slidably extended into frictional engagement with the beam within the groove and preventing turning movement of the point carrying fixture upon said beam, a second point carrying fixture slidably mounted upon the beam adjacent one end thereof, means carried by the beam and second point carrying fixture to prevent turning movement of the second point carrying fixture upon the beam and permitting limited sliding movement of the second mentioned fixture along the beam, said second mentioned fixture having an externally screw threaded sleeve thereon projecting in the direction of the adjacent end of the beam and surrounding the beam, and a nut rotatably carried by said beam at said end against movement therealong threaded upon the screw threads of said sleeve for movement of the second mentioned fixture along the beam upon rotation of said nut.

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