

Nov. 17, 1953

C. O. ROTHWEILER

2,659,149

INDEX CLAMP

Filed Aug. 20, 1951

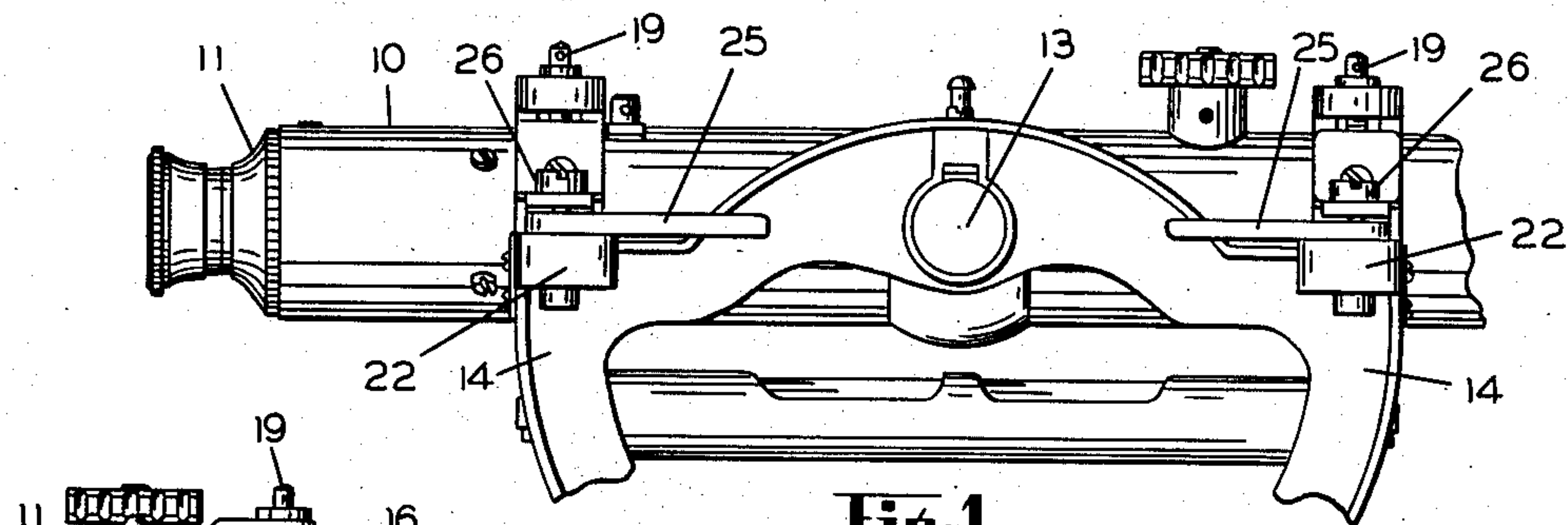


Fig. 1

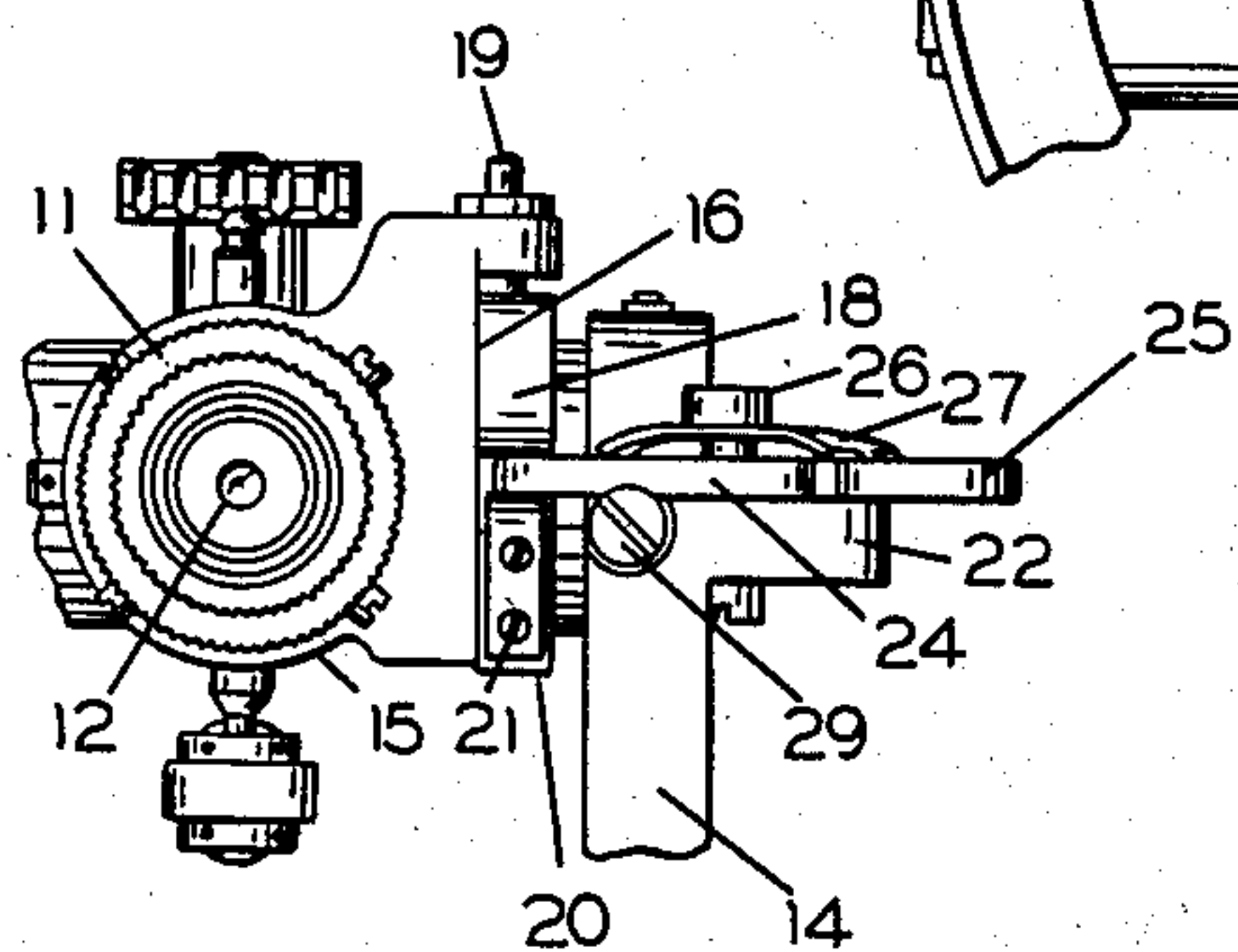


Fig. 2

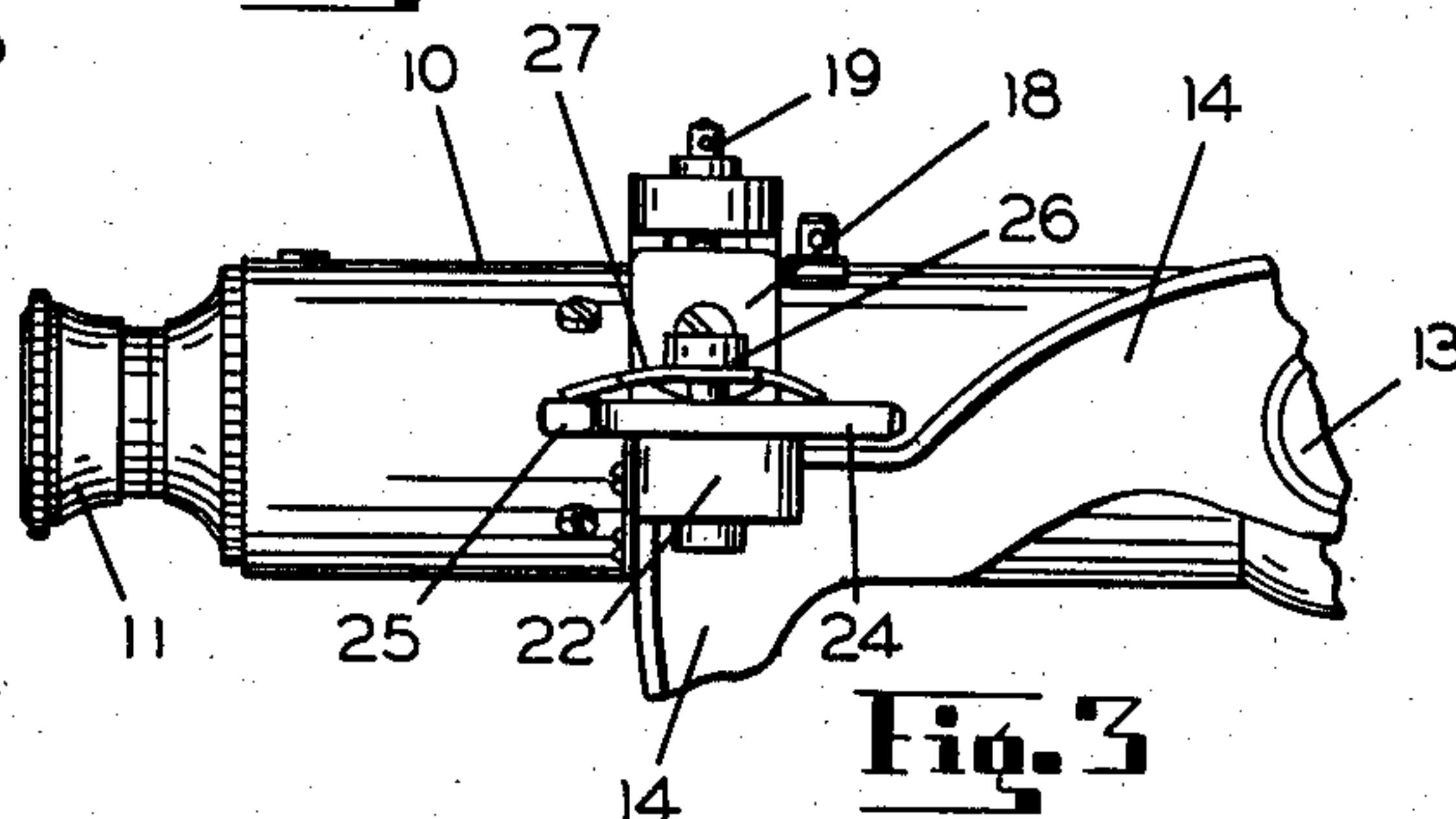


Fig. 3

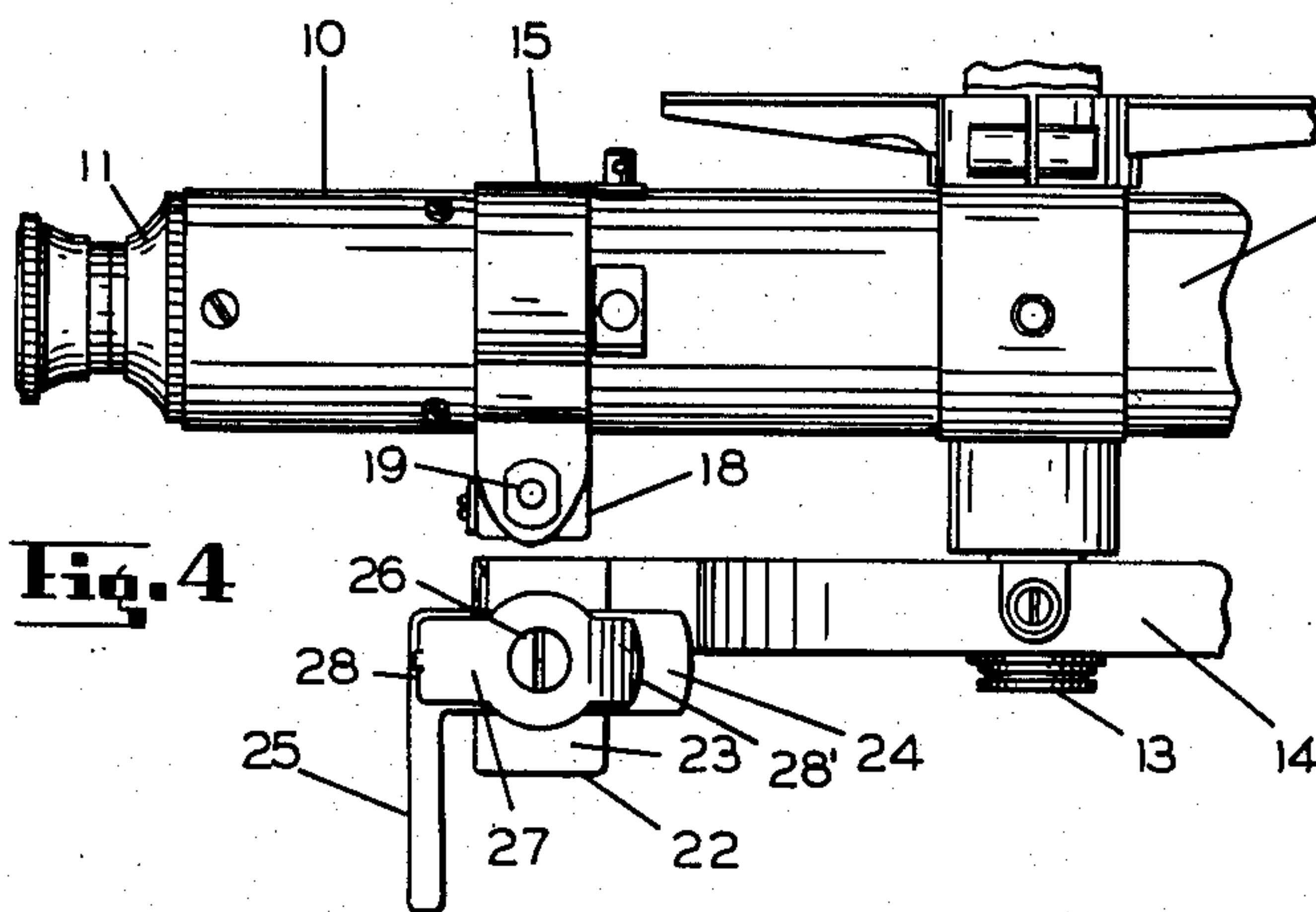


Fig. 4

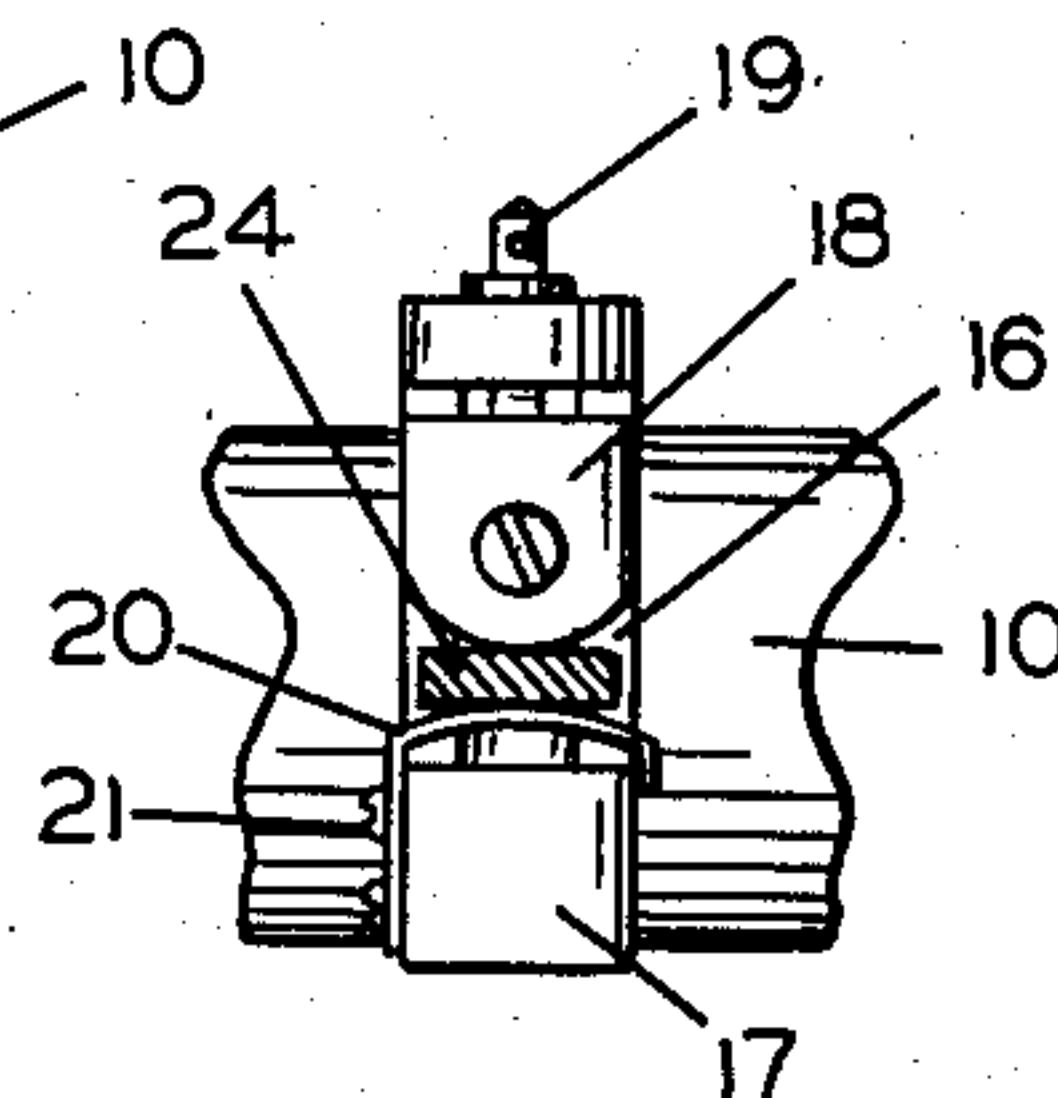


Fig. 5

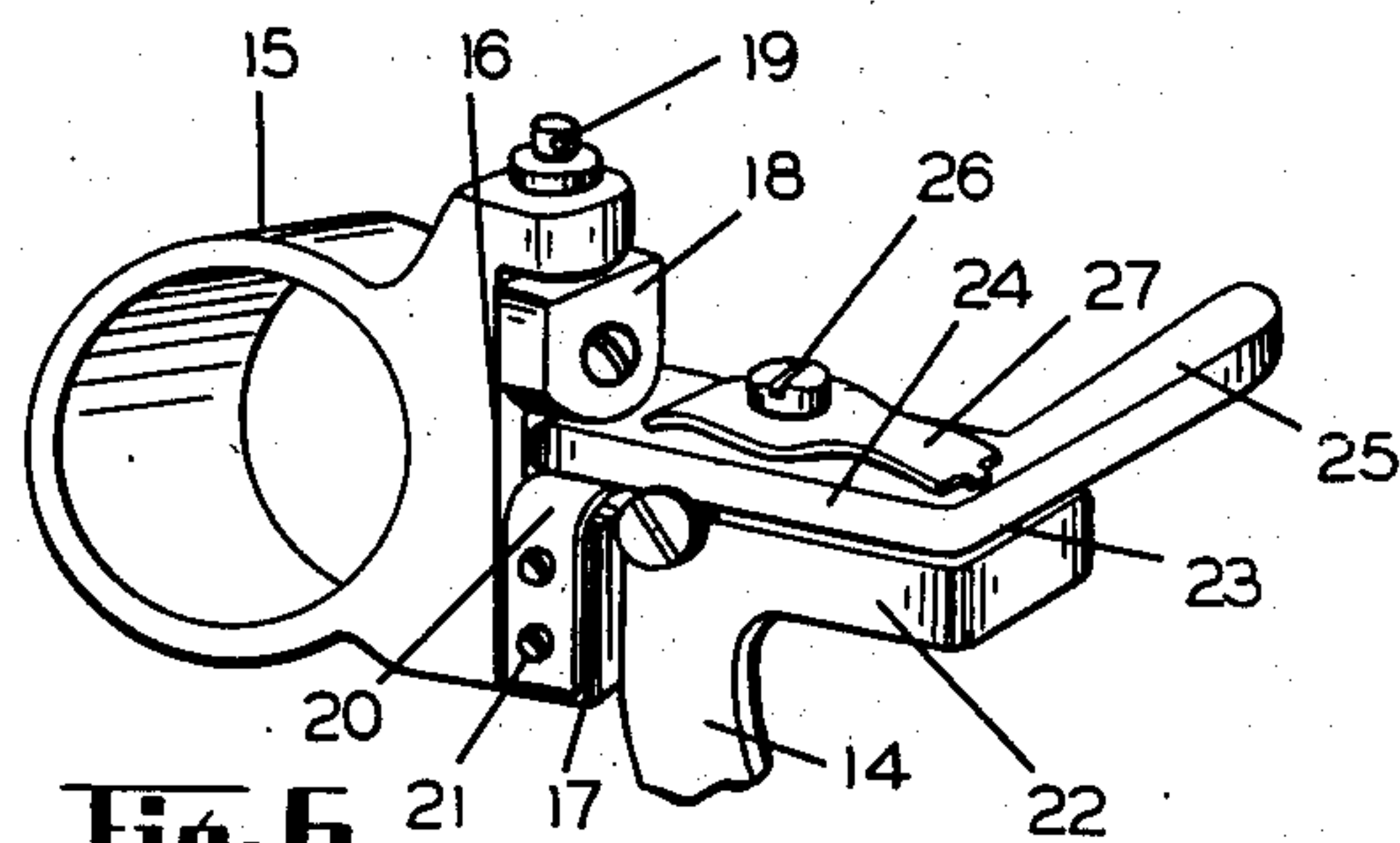


Fig. 6

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2,659,149

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Application August 20, 1951, Serial No. 242,768

1 Claim. (Cl. 33—46)

1

My invention relates to a clamp structure, and more particularly to a type of clamp employed in the construction of transits equipped with a telescope.

An object of my invention is to provide an arrangement that will clamp a telescope in a fixed position on the frame of a transit.

Another object of my invention is to provide a means for supporting the clamping member into close slidable contact with the mounting surface on the frame.

In the construction of transits in which the telescope is pivotally mounted at its center to a frame, it is imperative that a rigid clamp arrangement be employed to retain the scope in a level position in relation to the graduated scale while the instrument is being adjusted.

The device as illustrated, specified and claimed herein presents a means of retaining the clamp in close frictional relation to a surface on the frame to compensate for wear or the like in relation to the clamping member on the frame.

My invention is applicable to structures as described and claimed in my co-pending application, Serial No. 20,781, dated April 13, 1948, now Patent No. 2,620,564, issued December 9, 1952. It is simple in construction, positive in its performance, and fills a definite need for stability in transit construction.

The invention is fully described in the following specification of which the accompanying drawings are a part, and in which the separate parts of my improvements are designated by suitable reference characters in each of the views and in which:

Figure 1 is a fragmentary side view of a telescope pivotally mounted within the stationary frame showing a pair of clamps in a locked position.

Figure 2 is a fragmentary view of the clamp arrangement taken from the eye piece end of the telescope.

Figure 3 is a fragmentary side view of a portion of the scope and mounting, showing the clamp in an open position.

Figure 4 is a fragmentary top view of the device as shown in Figure 1 with one of the clamp members in an open position.

Figure 5 is a detailed view of the blocks on a fragmentary portion of the scope, showing the clamp member in cross section, and

Figure 6 is a perspective view of the clamp in engagement with the blocks which form a support for the scope.

Similar characters of reference indicate cor-

2

responding parts throughout the several views and referring now to the same, the character 10 shows a telescope which may be of any conventional design to fit a specific type of transit. The scope consists of an eye piece 11 into which a lens 12 is mounted, and the entire scope assembly is pivotally mounted at 13 to a frame 14 forming a part of the transit. There is a collar 15 encircling the scope 10, and this collar is provided with a flat face shown as 16, and a pair of blocks are mounted on the face. The lower block is shown as 17 and the upper block as 18. In the drawing, the block 18 is shown adjustably mounted within a groove in the face 16 and actuated by means of the adjusting screw 19. However, the blocks may be stationary or adjustable according to the specific construction of the transit. I also show a leaf spring 20 covering the face of the lower block 17. This leaf spring is attached by means of screws shown as 21.

The frame 14 is provided with an outwardly extending member shown as 22 which has a flat surface 23 disposed at the top thereof, and a clamp member 24, which has a lever 25 projecting therefrom, is pivotally mounted on the flat surface 23 of the outwardly extending member 22 by means of a pivot screw 26. Screw 26 also serves to stress arcuate spring 27 which biases clamp member 24 against the flat surface 23. This spring member 27 is shown higher at the center, and has two contact points shown as 28 and 28' which contact the top surface of the clamp member 24 when the pivot screw 26 is screwed down against the top of the leaf spring 27. There is also shown an adjustable stop screw 29 on the side of the outwardly extending member 22 forming a part of the frame 14. This screw is adjustable so that it will limit the pivotal action of the clamp member 24 on the flat face 23.

The spring 27 biases clamp member 24 into engagement with the flat surface 23 to accurately reference the clamp member with respect to surface 23 while permitting of some slight movement of the clamp 24 relative to a flat surface 23 to compensate for errors in machining the flat surface 23 for the underside of clamp 24. Leaf spring 20 mounted on lower block 17 is adapted to yieldingly receive the operative end of clamp 24 and urge the clamp into snug engagement with the bottom of the upper block 18 to thus accurately locate the top of clamp 24 with respect to the bottom of the upper block 18. Assuming both clamping mechanisms are properly adjusted the telescope will be accurate-

3

ly positioned with respect to the frame. This has been effected without requiring extremely fine and necessarily expensive machining of the cooperating parts of the clamp mechanism.

While I have herein disclosed with considerable particularity a single embodiment of my invention, it will be manifest to persons skilled in the art that many changes in the general arrangement and form and configuration of the structure may be made and parts thereof may be varied within the scope of the appended claim.

Having thus described my invention, what I claim and desire to secure by Letters Patent in the United States is:

A telescope clamp for combination level transits, comprising, a frame, a telescope pivotally mounted within the frame, a collar mounted on the telescope and provided with a pair of opposed blocks having facing arcuate surfaces adapted to receive a clamp member therebetween, the arcuate face of one of said blocks being comprised of an arcuate leaf spring mounted on the block and yieldable with respect thereto, said frame having a flat surface, a pivot substantially normal to said surface, a clamp pivotally mounted on said pivot, and a leaf spring

4

acting on said clamp and stressed by said pivot to hold the clamp against said flat surface to insure movement of the clamp in parallelism with the flat surface, said clamp being adapted to move between the arcuate surfaces on said block when in its operative position.

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