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P. M. ROCH
MICROMETRIC HEAD
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2,963,792

Fig. 2.

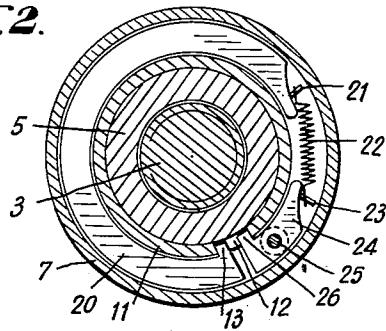
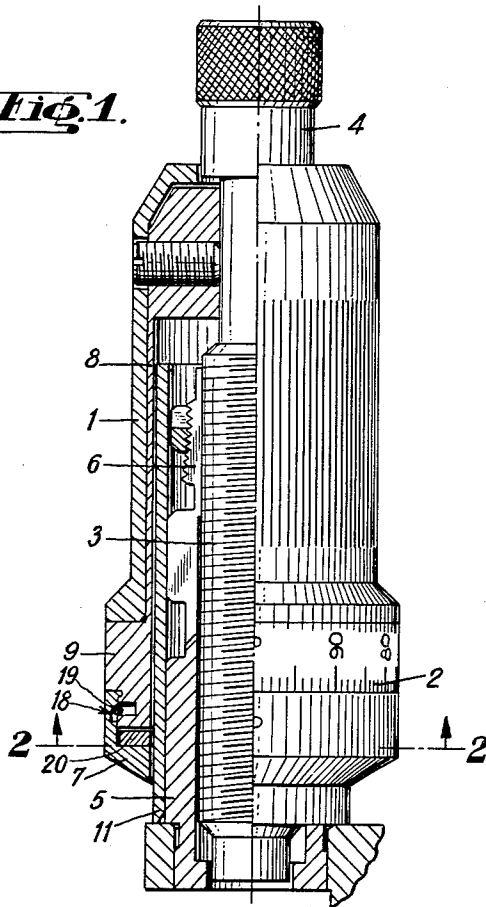


Fig. 1.



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MICROMETRIC HEAD

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1 Claim. (Cl. 33—164)

This invention relates to micrometric heads. Micrometric heads are known which comprises a sleeve bearing, at least one datum mark and a drum secured to a micrometric screw and bearing a graduation facing the said datum mark, the micrometric screw being mounted in a nut secured to a fixed part of the micrometric head. In one known construction, the sleeve is prevented from rotating by a key arranged in a longitudinal groove of the drum, the key being drawn along this groove by the sleeve when the drum rotates. This construction makes it difficult to adjust the key in its groove and has the defect of a rapid wear of these components, the consequence of which is a loss of precision of the micrometric head owing to the angular play which arises between the key and the edges of the groove.

Other known micrometric heads comprise a drum which is graduated at one of its extremities and is secured to a micrometric screw engaged in a nut formed by the body of the micrometric head, and a sleeve a part of which is engaged with the drum and another part of which bears at least one datum mark in front of which the graduation of the drum moves. Springs act axially as well as angularly on the sleeve.

In order to secure the sleeve to the drum axially, and to maintain a key in contact with one side of a longitudinal guiding groove, one of these elements is carried by the sleeve and the other by a part which is secured to the body of the micrometric head. This construction has the disadvantage that when the apparatus is being used the contact pressure of the key along the groove and the contact pressure between the sleeve and the drum both vary considerably resulting in a variation of the sensitivity and precision of the apparatus.

The purpose of the present invention is to provide a micrometric head comprising springs which take up little space and insure a constant measuring pressure, whatever the position of the micrometric screw may be.

The micrometric head constituting the object of the present invention, is characterized in that it comprises a graduated drum, a body provided with a groove which is parallel to the axis of the drum, a micrometric screw secured to the drum and mounted in a nut secured to the body, a sleeve having at least one datum mark in front of which the graduation of the drum can move, a first key secured to the sleeve and mounted to move along the said groove, a segment capable of an angular displacement in a recess provided in the sleeve, a second key mounted at one extremity of this segment and capable of moving in the said groove, a first spring arranged to secure the drum to the sleeve axially, and a second spring secured to the sleeve and to the other extremity of the segment and arranged so that the keys are each elastically applied against one side of the groove, in such a manner that the sleeve may move along the groove without angular play.

The accompanying drawing illustrates, by way of an example, a micrometric head according to the invention.

In the drawings:

Figure 1 is a partially cross-sectional view of a preferred embodiment.

Figure 2 is a cross-section along the line 2—2 of Fig. 1.

The micrometric head illustrated comprises a drum 1 secured to a micrometric screw 3 and to a milled driver 4. The portion 5 of the body of the micrometric head forms at 6 a nut in which the screw 3 is engaged.

The micrometric head comprises in addition a sleeve 7 mounted on the extremity 9 of a cylindrical portion 8 which is engaged in the drum 1. The extremity 9, the diameter of which is equal to that of the adjacent part of the drum, carries a graduation 2 which cooperates with a vernier, which has not been shown, carried by the sleeve 7. An adjusting sleeve 11 is frictionally mounted on the portion 5 of the body and constitutes a grooved portion of this body.

The sleeve 7 is provided internally with a conical cam surface 18 on which rests a spring 19 in the shape of a circular segment which acts axially on the sleeve 7 to maintain it in contact with the extremity 9 of the cylindrical part 8. The sleeve 7 carries a crown 20 capable of rotating in the sleeve 7 and around the adjusting sleeve 11. This crown carries a pin 21 to which is anchored one extremity of a helical traction spring 22 the other extremity of which is anchored to a pin 23 carried by a part 24 secured to the sleeve 7 by a shaft 25. The adjusting sleeve 11 is provided with a longitudinal groove 12 one edge of which engages with a key 26 formed by the part 24. The crown 20 carries a key 13 which is lodged in the groove 12 of the adjusting sleeve 11. The groove 12 is sufficiently wide to accommodate the two keys 13 and 26 while leaving a certain space between them. The key 26 can be in contact with one edge only of the groove 12, either directly, or through the key 13 of the crown 20.

In use, the body portion 11 is turned relative to the frictionally engaged portion 5 to set the index.

The described micrometric head offers the advantage of having resilient means taking up only a small space. In addition, these means can be mounted easily, separately from the body of the micrometric head. Another advantage is that the resilient means acting axially and angularly on the sleeve insure a constant measuring pressure, whatever the position of the micrometric screw may be.

What I claim is:

A micrometric head comprising a graduated drum, a body provided with a groove which is parallel to the axis of the drum, a nut on said body, a micrometric screw secured to the drum and mounted in said nut, a sleeve having at least one datum mark in front of which the graduation of the drum can move, a first key secured to the sleeve and mounted to move along the said groove, a segment capable of an angular displacement in a recess provided in the sleeve, a second key mounted at one extremity of this segment and capable of moving in the said groove, a first spring arranged to secure the drum to the sleeve axially, and a second spring secured to the sleeve and to the other extremity of the segment and arranged so that the keys are each elastically applied against one side of the groove so that the sleeve can move along the groove free from angular play.

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