

P. LAYMAN.
GAGE.

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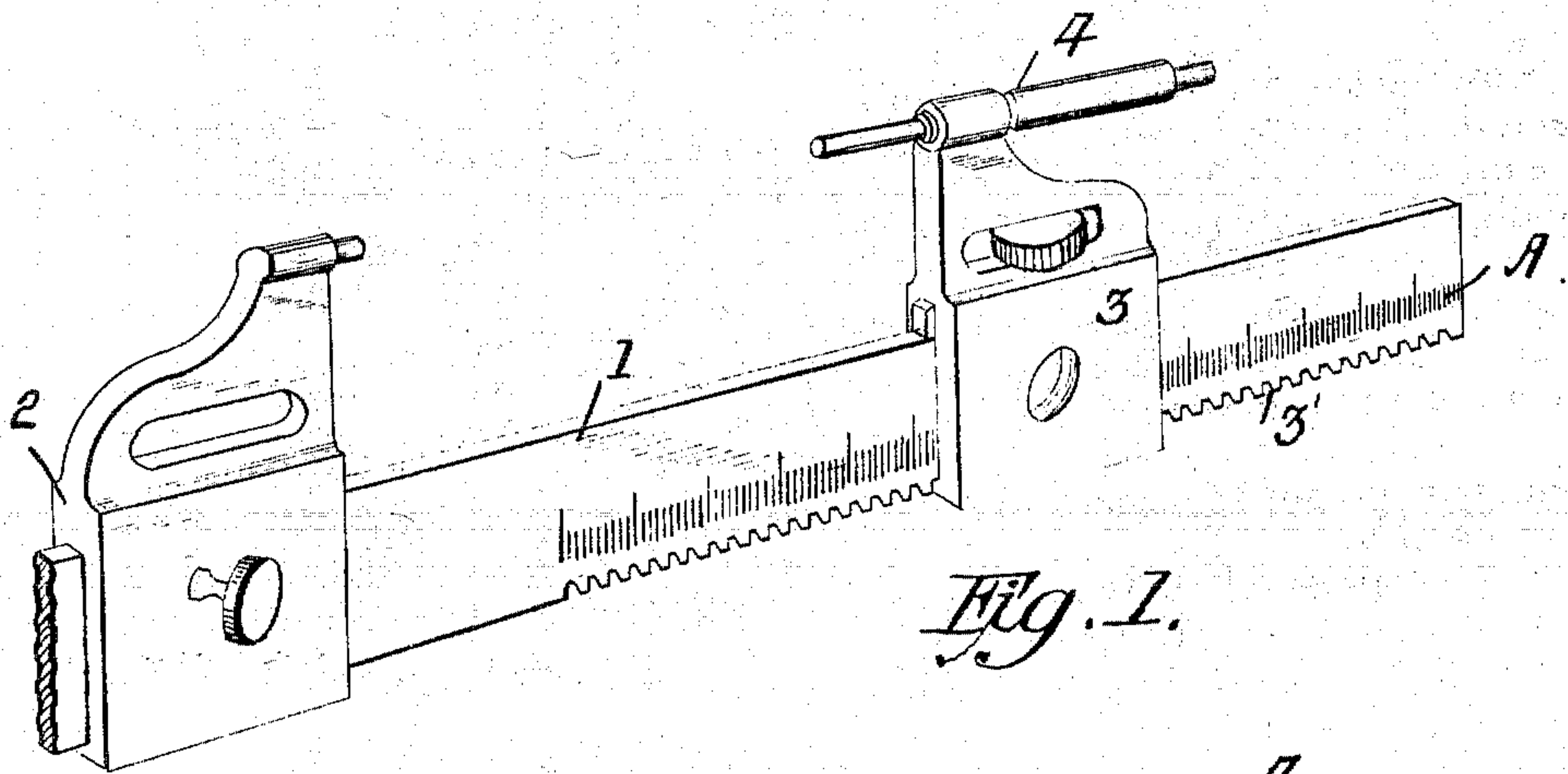


Fig. 1.

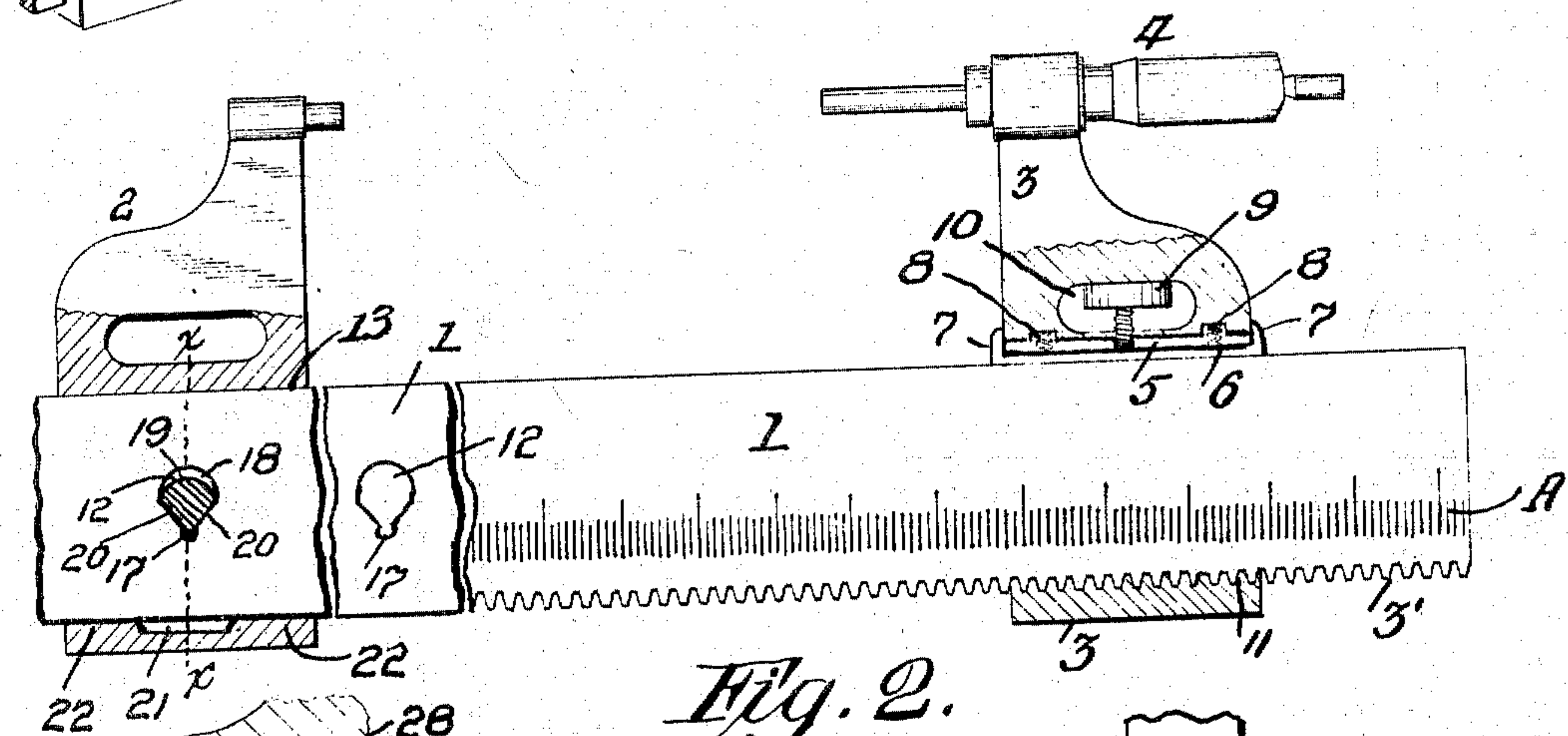


Fig. 2.

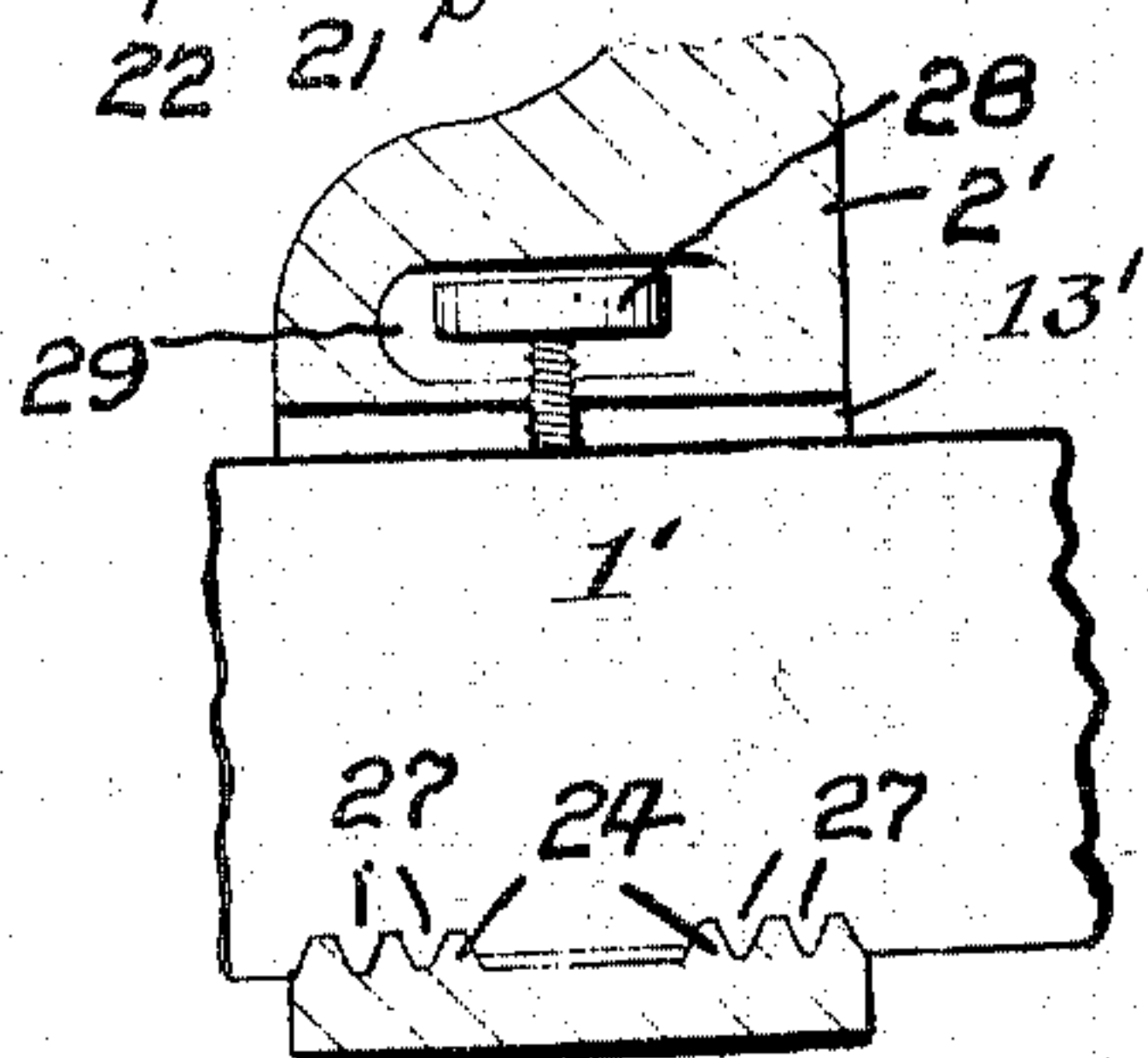


Fig. 3.

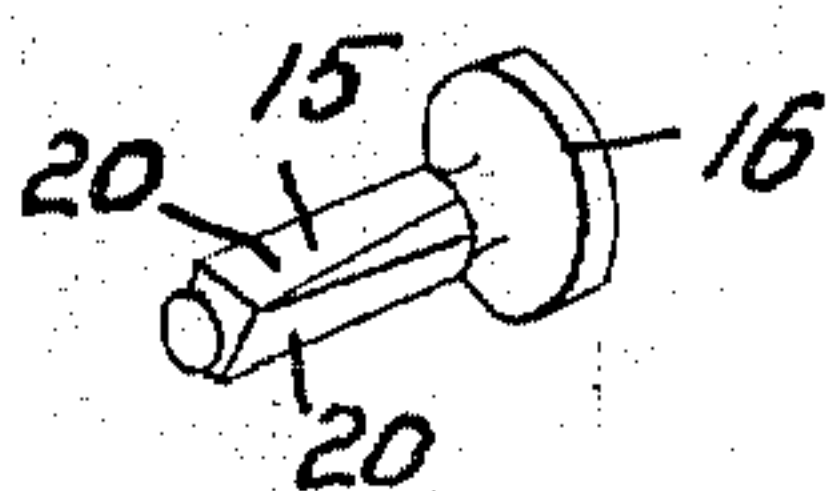


Fig. 4.

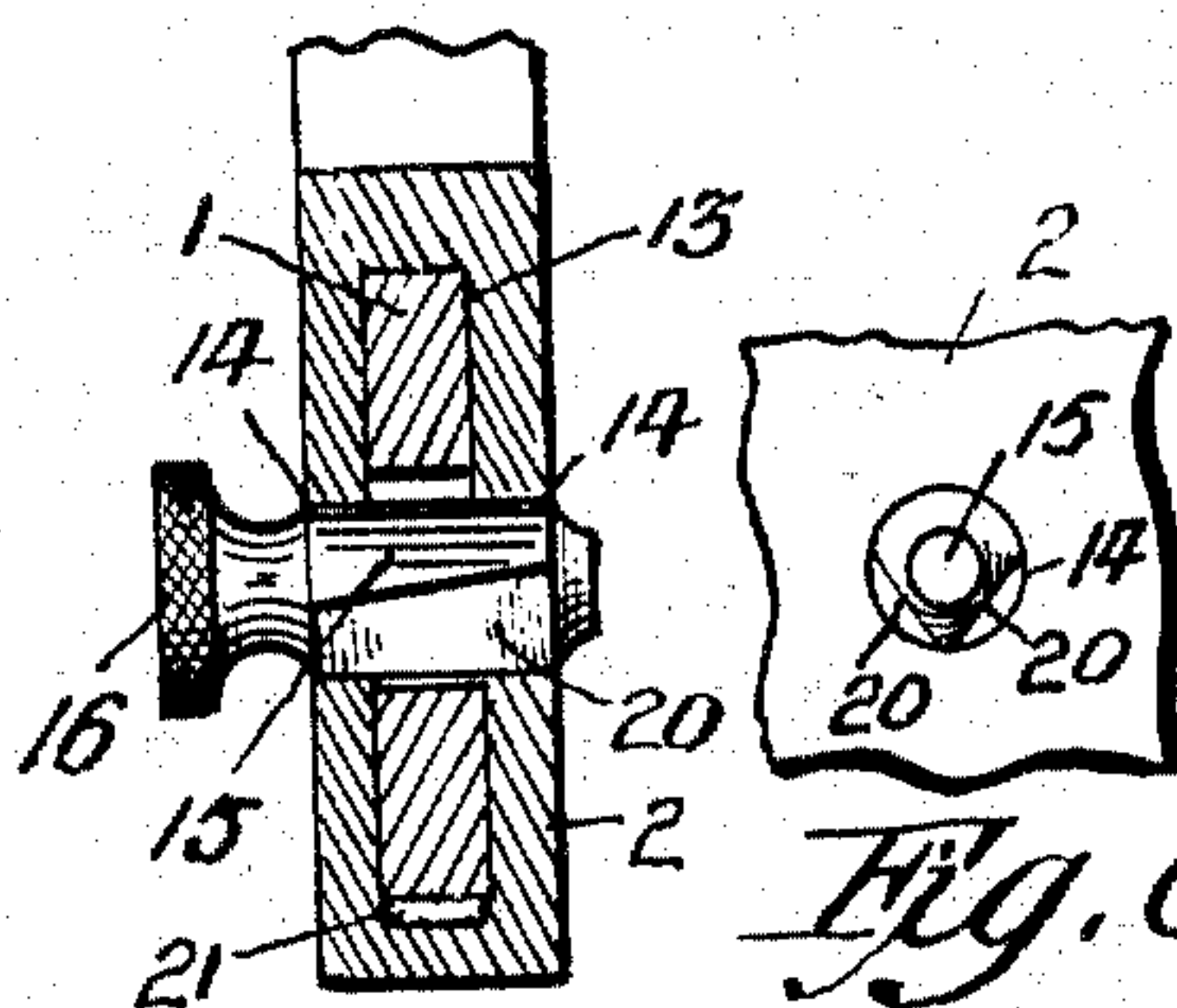


Fig. 5.

Fig. 6.

Witnesses.
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UNITED STATES PATENT OFFICE.

PETER LAYMAN, OF AKRON, OHIO.

GAGE.

No. 817,492.

Specification of Letters Patent.

Patented April 10, 1906.

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To all whom it may concern:

Be it known that I, PETER LAYMAN, a citizen of the United States of America, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Gages, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to gages, and relates more particularly to beam-gages—that is, to gages in which two heads are mounted upon a beam, one of the heads being usually adjustable and preferably formed with a micrometer, whereby minute measurements may be secured.

My invention has for its object to improve the construction of this class of instruments, and in carrying my invention into effect I provide a beam with two heads, both of which are movable on the beam, one being adapted to be moved along the beam and rigidly fixed at positions, say, a foot apart and the other head being movable along the beam and adapted to be fixed at positions, say, one-tenth of an inch apart or any other desired subdivision of a foot.

In the accompanying drawings, illustrating my improvement, like characters of reference designate corresponding parts in the several views, in which—

Figure 1 is a perspective view showing a beam having two heads mounted thereon. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical sectional view of a modified form of movable head mounted on a part of a beam of modified construction. Fig. 4 is a perspective view of a securing-pin that is employed in connection with one of the heads shown in Fig. 1. Fig. 5 is a vertical transverse sectional view on the line $x x$ of Fig. 2. Fig. 6 is a fragmentary view of part of the beam, showing the pin illustrated in Fig. 4 in position therein.

The beam 1 is a long straight flat piece of metal, preferably steel, and this beam carries two heads 2 and 3, both of which are longitudinally movable on the beam, the head 3 being provided with a micrometer attachment 4, which is of the usual and well-known construction and need not be particularly described.

The beam 1 is provided with a number of teeth 3' on one edge at one end thereof, and these teeth are located any desired distance apart, the distance between the points of the

teeth, however, being the subdivisions of a foot or subdivisions of any other desired unit of measurement.

The beam 1 passes through an opening 5 in the head 3, and in this opening 5 is located a plate 6, having upturned ends 7 7, this plate bearing on the upper edge of the beam and being pressed lightly thereon by means of springs 8 8. A thumb-screw 9 is located in a slot 10 in the head 3, and this thumb-screw bears upon the plate 6 and serves to force the plate firmly into contact with the beam when it is desired to lock the head 3 thereon. The lower wall of the opening 5 is formed with teeth 11, corresponding to the teeth 3' on the lower edge of the beam, these teeth 11 being normally in engagement with the teeth 3' on the beam and locked in mesh by the screw 9 when the head 3 has been located at the desired position.

The end of the beam 1 opposite the end which is furnished with the teeth 3' and upon which the head 2 is mounted is provided with a plurality of transverse openings 12 12, these openings being of any desired number, depending on the length of the beam, and located a foot from one another, if the foot is the unit of measurement adopted or a distance apart equal to whatever other unit of measurement may be adopted. The head 2 is formed with an opening 13, through which the beam passes, and with openings 14 14 in its side walls adapted to receive a pin 15, which pin is formed with a head 16, the function of this pin being to lock the head 2 upon the beam, the pin 15 passing through one of the openings 12 when the head 2 is at the desired position of adjustment. The openings 12 in the beam are semicircular at their upper portions and V-shaped at their lower portions, the apex of the lower portion being formed with a small notch 17, as shown in Fig. 2, and while these openings register substantially with the openings 14 in the head 2 the openings 12 are of such height that a clearance-space 18 will be left above the top of the pin 15 when the latter is passed through the openings 14 and one of the openings 12. The pin 15 is slightly tapered, as are also the openings 14 14 and the openings 12, and the pin in cross-section corresponds substantially in shape to the openings 12, being formed with a semicircular upper side 19 and two flat sides 20 20, the pin being of the peculiar form shown in order to cause the same to center exactly in the opening 12 in the beam and

with the openings 14 14 in the head 2 and so as to cause the head 2 to seat at an exact point on the beam. The lower wall of the opening 13 in the head 2 is preferably cut away, as shown at 21 in Fig. 2, so as to afford two bearing-surfaces 22 22 for the lower edge of the beam, and in the modified form shown in Fig. 3 of the drawings the head 2', which is substituted for the head 2, has teeth 24 on the lower wall of the opening 13', through which the beam 1', which is substituted for the beam 1, passes, these teeth meshing with two sets of teeth 27 27, formed on the beam 1', the sets of teeth 27 27 being repeated at intervals of a foot apart, so that the head 2' can be located on the beam at points a foot apart. The head 2' is locked on the beam at its adjusted positions by means of a thumb-screw 28, the head of which works in a slot 29 in the head 2'. The beam 1 is provided with a scale A, which is subdivided to correspond to the distance between the points of the teeth 3', the scale assisting in the location of the head 3 at the desired points.

The device constructed in the above-described manner operates as follows: Let it be supposed, for instance, that it is desired to gage an object that is three feet two and one-tenth inches in length, the scale A being, it is supposed, subdivided into tenths. The head 2 is moved to a position where the openings 14 14 will coincide with the third hole to the left of the inner end of the teeth 3'. The pin 15 is then inserted in the openings 14 14, and passing through the opening 12 in the beam the flat sides of the pin bear on the flat sides of the V-shaped portion of the opening 12, and the pin being tapered the beam will be pressed firmly down upon the bearing-surface 22 and locked in position. The thumb-screw 9 of the head 3 being loosened, this head is moved a distance of two and one-tenth inches from the inner end of the scale A and then locked in position by turning the thumb-screw 9. The article to be gaged is inserted between the heads and the minute subdivisions of an inch are ascertained by means of the micrometer 4 in the usual manner. Where the modified form shown in Fig. 3 is employed, the head 2' 2 is moved along the beam by first loosening the thumb-screw 28 until the teeth 24 are out of mesh with the teeth 27 and then sliding the head along the

beam until it is opposite the set of teeth at the desired distance from the teeth 3', and the head 3 is then adjusted in the manner above described, the screw 28 being of course tightened up and locking the head 2' when it has been located at the desired point.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a gage, the combination of a beam having teeth on its edge, a head sliding on the beam and having teeth adapted to engage the teeth on the beam, a spring-pressed plate mounted in the opening in the head through which the beam passes, a thumb-screw carried by the head and bearing on said plate, a micrometer carried by said head, a second head mounted on the beam and having openings in its side walls, the beam being provided with openings located at a fixed distance apart, said openings being V-shaped on one side, and a tapering pin adapted to pass through the openings in the last-named head and the openings in the beam, said pin having sides corresponding in angle to the V-shaped sides of the openings in the beam.

2. In a device of the character described, the combination of a beam having teeth on one edge, a head having an opening therein to receive the beam and having teeth meshing with the teeth on the beam, means for locking the teeth in the opening in mesh with the teeth on the beam, a second head slidably mounted on the beam, and a tapering pin having angular sides adapted to pass through openings formed in said head and through openings corresponding in shape to said pin located at regular distances apart in the beam.

3. In a gage, the combination of a beam having teeth on its edge, a head having an opening to receive the beam and sliding on the beam and having teeth on the lower wall of said opening adapted to engage the teeth of the beam, a spring-pressed plate mounted in the opening in the head through which the beam passes and a thumb-screw carried by the head and bearing on said plate.

In testimony whereof I affix my signature in the presence of two witnesses.

PETER LAYMAN.

Witnesses:

IRA L. NASH,
J. M. COBB.