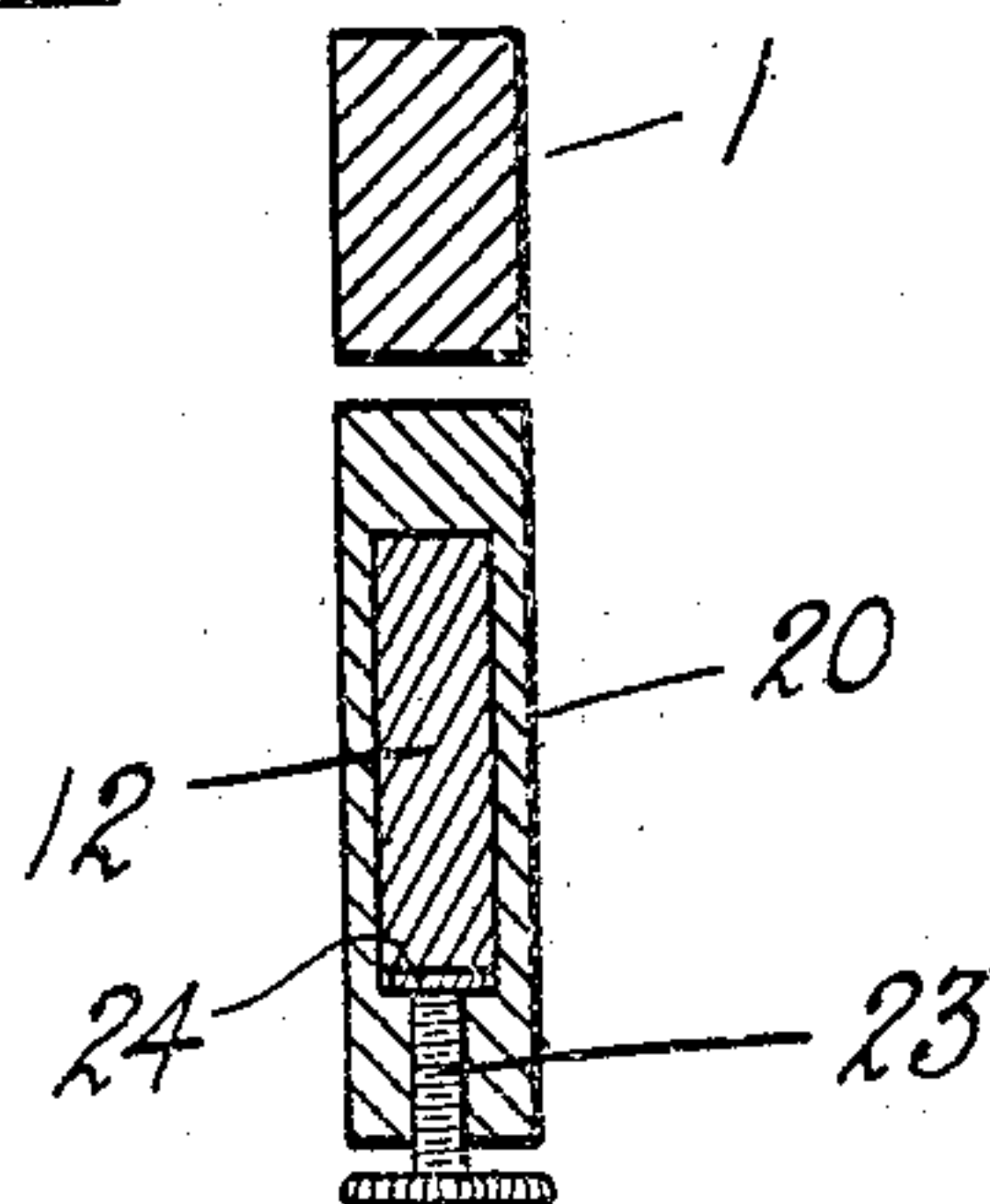
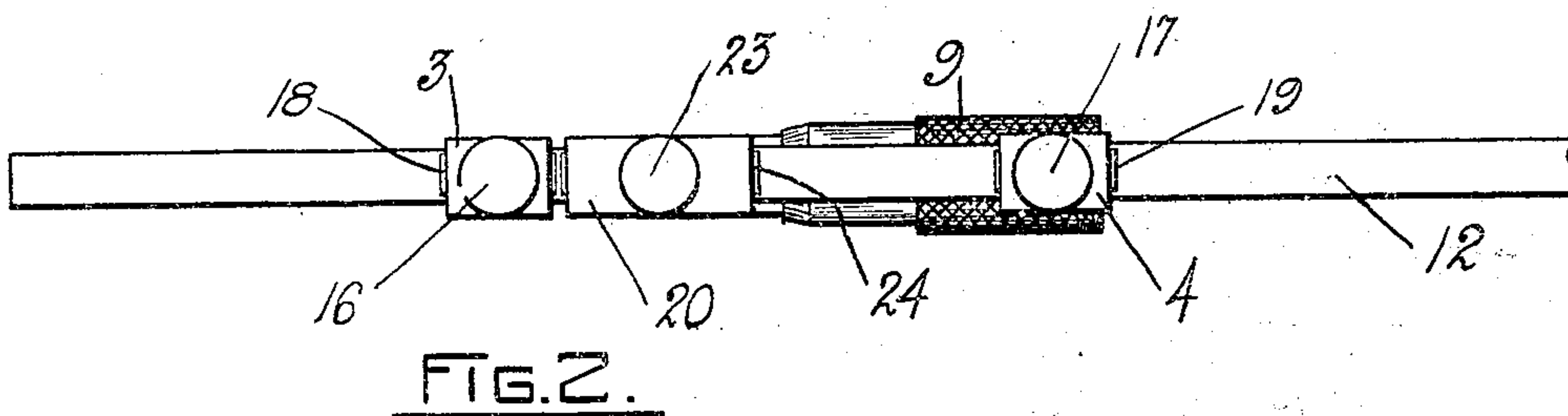
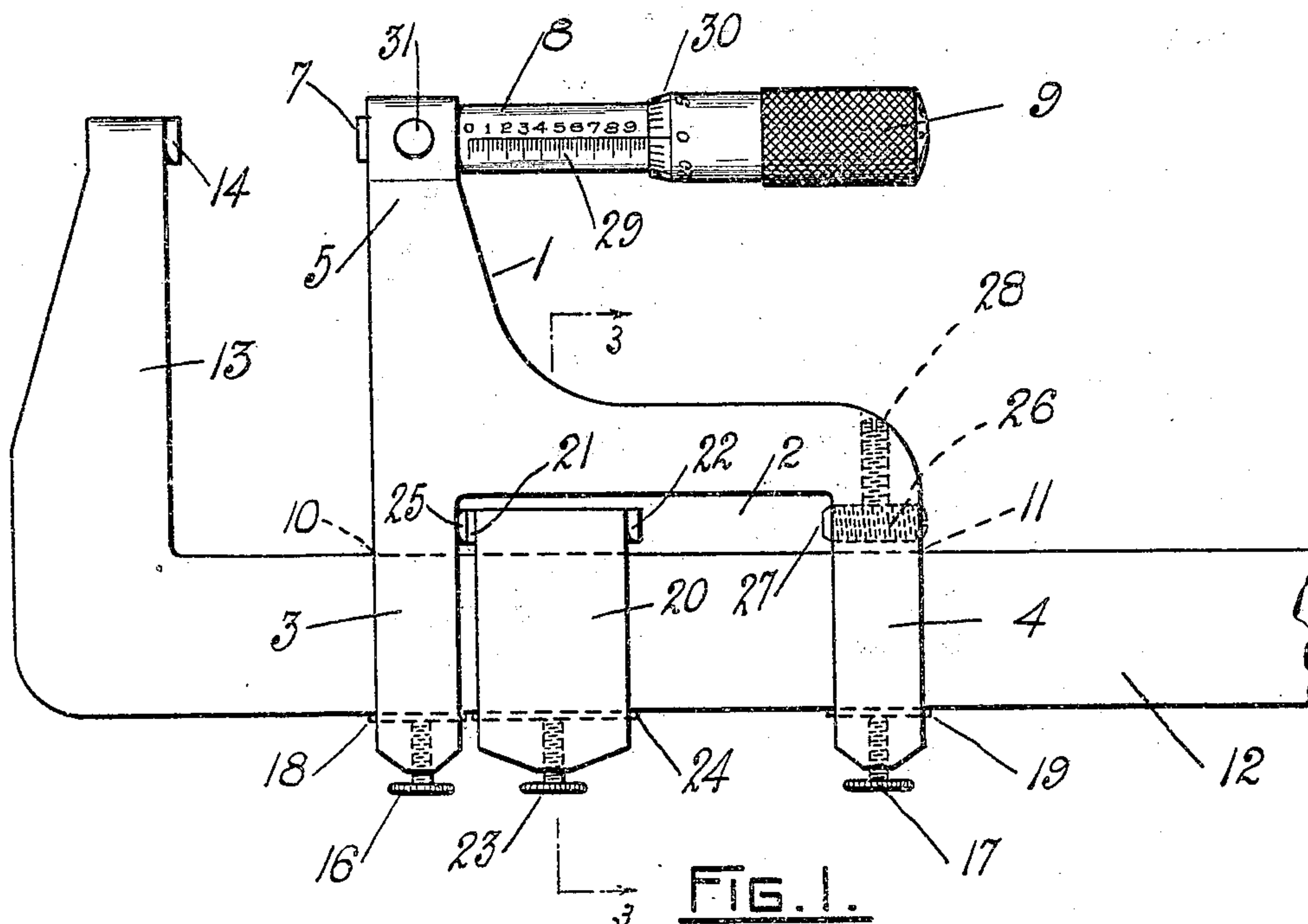


Z. R. TUCKER.
MICROMETER CALIPERS.
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959,974.

Patented May 31, 1910.



WITNESSES.

Albert G. Piepenhovek.
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FIG. 3.

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ZECHARIAH R. TUCKER, OF PROVIDENCE, RHODE ISLAND.

MICROMETER-CALIPERS.

959,974.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed May 12, 1909. Serial No. 495,461.

To all whom it may concern:

Be it known that I, ZECHARIAH R. TUCKER, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Micrometer-Calipers, of which the following is a specification.

My invention relates to novel improvements in measuring devices and attachments such as micrometer gages, calipers and similar mechanisms and has for its objects the ends commonly sought in this class of structures, but more particularly to provide in a single instrument means for taking such measurements as have heretofore necessitated the employment of a plurality of instruments; to minimize the danger of false readings and wear of the parts; and to insure accuracy of results.

My invention consists in the application of principles hereinafter set forth, and includes such novelty as is embraced in the claims at the end of the specification.

In the drawings which form a part of this specification, Figure 1 is a side elevation of a pair of micrometer calipers embodying my invention, a portion being broken away, Fig. 2, a bottom plan view of the same, and Fig. 3, a section on line 3—3 of Fig. 1.

Like characters of reference indicate like parts throughout the views.

In its present form of embodiment my measuring instrument comprises a frame 1 whose lower portion is cut away as at 2 to form integral parallel arms 3 and 4 upon its forward and rear ends respectively. The forward part of the frame is upwardly extended in alinement with the arm 3 to form a fixed jaw portion 5. Extending through the end of the portion 5 of the frame is the measuring spindle 7 of an ordinary pair of micrometer calipers whose graduated barrel 8 is fixed to the portion 5 and is disposed longitudinally of the frame, carrying the usual milled sleeve or thimble 9. Slidably mounted in openings 10 and 11 of the arms 3 and 4 respectively and longitudinally of the frame is a bar 12 provided upon its end with a jaw portion 13 extending at right angles to the bar and preferably provided at its end with the usual anvil 14 in alinement with the spindle 7. In the lower extremities of the arms 3 and 4 are screws 16 and 17 respectively which are in clamping

engagement with the bar 12 or with gibs or bearing plates 18 and 19 resting against the bar 12 in openings 10 and 11. Slidably mounted upon the rod 12 intermediate the arms 3 and 4 is a member 20, in the present instance a block, provided upon opposite sides of its upper portion with hardened bearing points 21 and 22, and having mounted in its lower portion a clamping screw 23 adapted to engage the bar 12 or a gib or bearing plate 24 resting against the bar. The leg 3 is, if desired, provided with a bearing point 25 in the path of the point 21, and the arm 4 has in its upper portion in the path of point 22 a screw 26 having a hardened end 27, the whole constituting an adjustable contact point. The screw 26 is locked in position by a screw 28 in the frame. The barrel 8 and thimble 9 are respectively provided with the usual reading line 29 and scale 30.

The space intermediate the points 25 and 27 less the distance between the faces of the points 21 and 22 is exactly equal to the full traverse of the spindle 7 as indicated on the barrel 8, in this instance one inch.

While the points 21, 22, 25, and 27 are convenient for preventing wear, and the member 26 for taking up wear, these parts are not essential.

In the present instance the bar 12 carries a jaw 13, but it is obvious that the jaw portion may be removably connected with the bar, or may be of proper contour or dimensions to form a base, or the bar may carry any other attachment usual or convenient for facilitating the taking of measurements, and the structure may be used as a height or depth gage, or as a substitute for a vernier caliper.

To use my device the thimble 9 is screwed back its full limit of one inch or other unit of measurement, in the present instance one inch. If desired, the spindle 7 may now be clamped by a set screw 31 in the frame or by any other convenient means for preventing accidental turning of the spindle. The screws 16, 17, and 23 are then loosened, and both the frame and block 20 are moved along the bar 12 until the faces of the spindle 7 and anvil 14 contact with each other. One or both of screws 16, 17 are tightened and the block 20 moved until its point 22 abuts against the point 27, whereupon the screw 23 is tightened to temporarily prevent the

movement of block 20. Next screws 16 and 17 are again loosened and the frame longitudinally advanced until the point 25 abuts against the point 21, bringing the parts into the position shown in Fig. 1, and thereby opening a space between the anvil and spindle the distance of the measuring unit. Again the frame is clamped, and the block advanced the limit of its travel and clamped, and the frame moved up into contact therewith. This adds a second unit to the space between the anvil and spindle. The described steps may be repeated an indefinite number of times thereby increasing the measuring capacity of the instrument many fold beyond the measuring limit of the spindle. Measurements of fractions of a unit are obtained in the usual manner by turning the thimble 9.

20 In this structure will be noted the absence of graduated scales or lines other than those on the barrel and sleeve, thereby avoiding the errors arising from inaccurate readings and wear involved in the use of instruments of the vernier type which involve a comparison of lines.

What I claim is,—

1. In a measuring instrument, the combination with a frame, of a micrometer mounted upon the frame, arms upon the frame, a bar slidably mounted in the arms, a jaw upon the bar in coöperative relation to the micrometer, and a slidable member adjustably mounted upon the bar intermediate the arms and movable upon the bar a distance equal to the measuring capacity of the micrometer.

2. In a measuring instrument, the combination with a frame, of a micrometer mounted on the frame, arms upon the frame, a bar slidably mounted in the arms, a jaw upon the bar in coöperative relation to the micrometer, clamping members in the arms, a slidable member upon the bar intermediate the arms, and a clamping member upon the slidable member.

In testimony whereof I have affixed my signature in presence of two witnesses.

ZÉCHARIAH R. TUCKER.

Witnesses:

LEONARD W. HORTON,
HORATIO E. BELLOWS.