Nov. 23, 1926. 1,607,862

J. BATH

ADJUSTABLE INTERNAL GAUGE

Filed Oct. 18, 1922

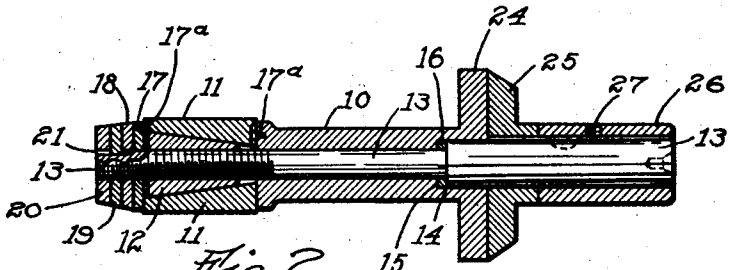


Fig. 2.

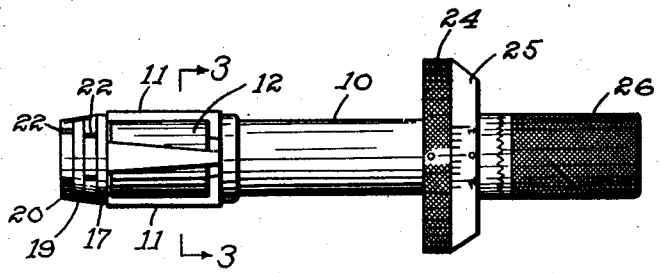


Fig. 1

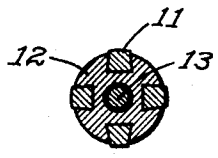


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN BATH, OF WORCESTER, MASSACHUSETTS.

ADJUSTABLE INTERNAL GAUGE.

Application filed October 18, 1922. Serial No. 595,427.

This invention relates to an adjustable internal gauge of the general type in which a plurality of gauge bars are held from angular or longitudinal movement but are movable radially by longitudinal movement of a member in which the bars are slidably mounted, the engaging surfaces of said bars and said member being slightly inclined relatively to the axis of the gauge.

One object of my invention is to improve this type of gauge by providing a pilot device by which the gauge may be more easily entered in the work.

Another object is to provide improved indexing or indicating devices by which the diameter of the gauge may be easily read.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings in which—

Fig. 1 is a plan view of my improved gauge;

Fig. 2 is a longitudinal sectional elevation thereof; and

Fig. 3 is a transverse sectional elevation, taken along the line 3—3 in Fig. 1.

Referring to the drawings, I have shown an adjustable internal gauge comprising a body 10 and a plurality of gauge bars 11. The bars 11 are mounted for radial movement at the end of the body 10 and are preferably of dove-tailed cross-section as indicated in Fig. 3. The inner bearing surfaces of the bars 11 are inclined relatively to the axis of the gauge and the bars are mounted with a close sliding fit in a threaded adjusting member 12.

The member 12 is threaded on a rod or shaft 13 rotatable in the body 10 and having a shoulder 14 adjacent a corresponding shoulder 15 in the body 10. A hardened steel washer 16 is preferably interposed between the shoulders 14 and 15.

A collar 17 is rotatably mounted on the shaft 13 at the outer ends of the bars 11 and keys 17^a prevent relative angular movement of the body, bars and collar. A lock nut 18, washer 19 and check nut 20 are provided on the shaft 13 by which the collar 17 may be held in close engagement with the ends of the bars 11, the nuts at the same time drawing the shoulder 14 closely against the washer 16 and shoulder 15. All loose end play of the parts may thus be effectively eliminated.

For greater security, the threaded end of the shaft 13 is preferably provided with a keyway 21 and the washer 19 has a projection fitting the key-way and preventing rotation of the washer with the nuts 18 and 20. The nuts are preferably provided with slots 22 for a spanner wrench by means of which they may be accurately adjusted.

The outer surfaces of the nut 18, washer 19 and nut 20 are preferably tapered and of such relative sizes that they collectively constitute a conical pilot of slightly less diameter than the smallest working diameter of the gauge. This conical pilot permits a workman to more easily enter the gauge in the work and considerably increases the speed with which successive readings may be taken.

The body 10 is shown as provided with an enlarged annular flange 24 co-operating with a collar 25 rotatable on the enlarged end portion of the shaft 13. The flange 24 and collar 25 are provided with graduations by means of which the diameter of the gauge may be easily read.

A sleeve 26 is keyed to the outer end of the shaft 13 as indicated in Fig. 2 and may be secured thereto by a set screw 27. The adjacent ends of the collar 25 and sleeve 26 are provided with serrations by which they may be held in adjusted relation.

The gauge may be easily standardized by expanding the gauge to a known diameter, and then loosening the screw 27 and withdrawing the sleeve 26 sufficiently so that the collar 25 may be turned to show a reading corresponding to the known diameter at which the gauge is set. The sleeve 26 may then be returned to its normal position and when secured in this position by the set screw 27 will hold the parts in the desired relation until a different adjustment is required.

Certain broad features of my invention are not claimed herein, as they form the subject matter of Patent No. 1,476,681, granted to me Dec. 11, 1923.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed otherwise than as set forth in the claims, but what I claim is:—

1. An adjustable internal gauge having,

in combination, an elongated body, a plurality of gauge bars mounted at the end of said body having inner bearing surfaces inclined relative to the axis of said body, a threaded member having correspondingly inclined guide-ways in which said bars are fitted to slide and by which simultaneous radial movement of said bars is produced, a shaft threaded in said member and rotatable in said body, and a slightly tapered pilot on said shaft beyond the ends of said gauge bars by which entry of the gauge in the work is facilitated, said pilot being secured to said shaft and rotatable therewith.

2. An adjustable internal gauge having, in combination, an elongated body, a plurality of gauge bars mounted at the end of said body and having inner bearing surfaces inclined relative to the axis of said body, a threaded member having correspondingly inclined guideways in which said bars are fitted to slide and by which simultaneous radial movement of said bars is produced, a shaft threaded in said member and rotatable in said body, and means to hold said body, bars and shaft from relative longitudinal movement, said means comprising a collar at the outer end of said bars loose on said shaft and adjusting devices on said shaft adjacent said collar and effective to take up lost motion between said parts, said adjusting devices having tapered peripheral surfaces and collectively constituting a conical pilot of slightly less diameter than the smallest working diameter of said gauge.

In testimony whereof I have hereunto affixed my signature.

JOHN BATH.