

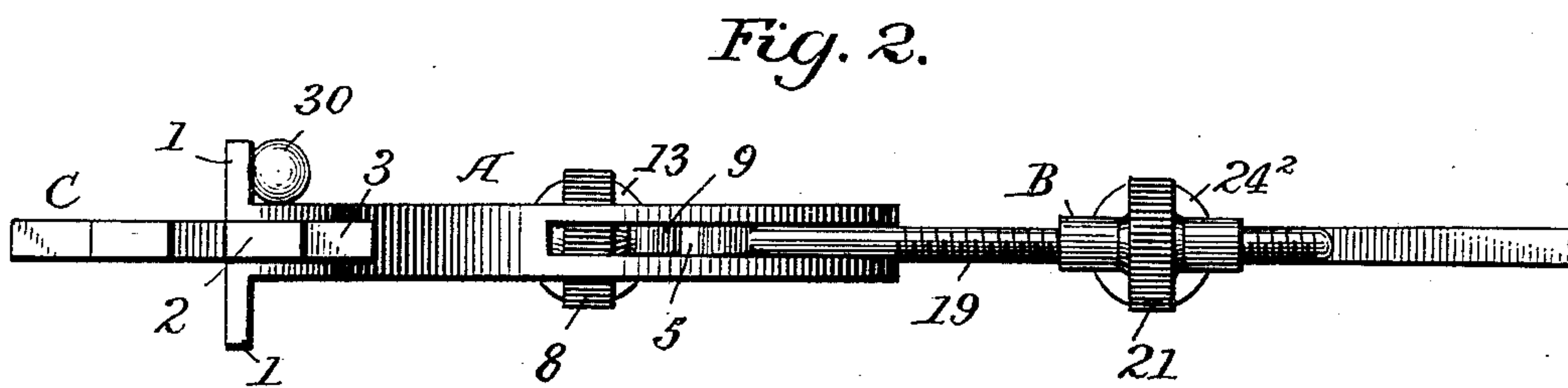
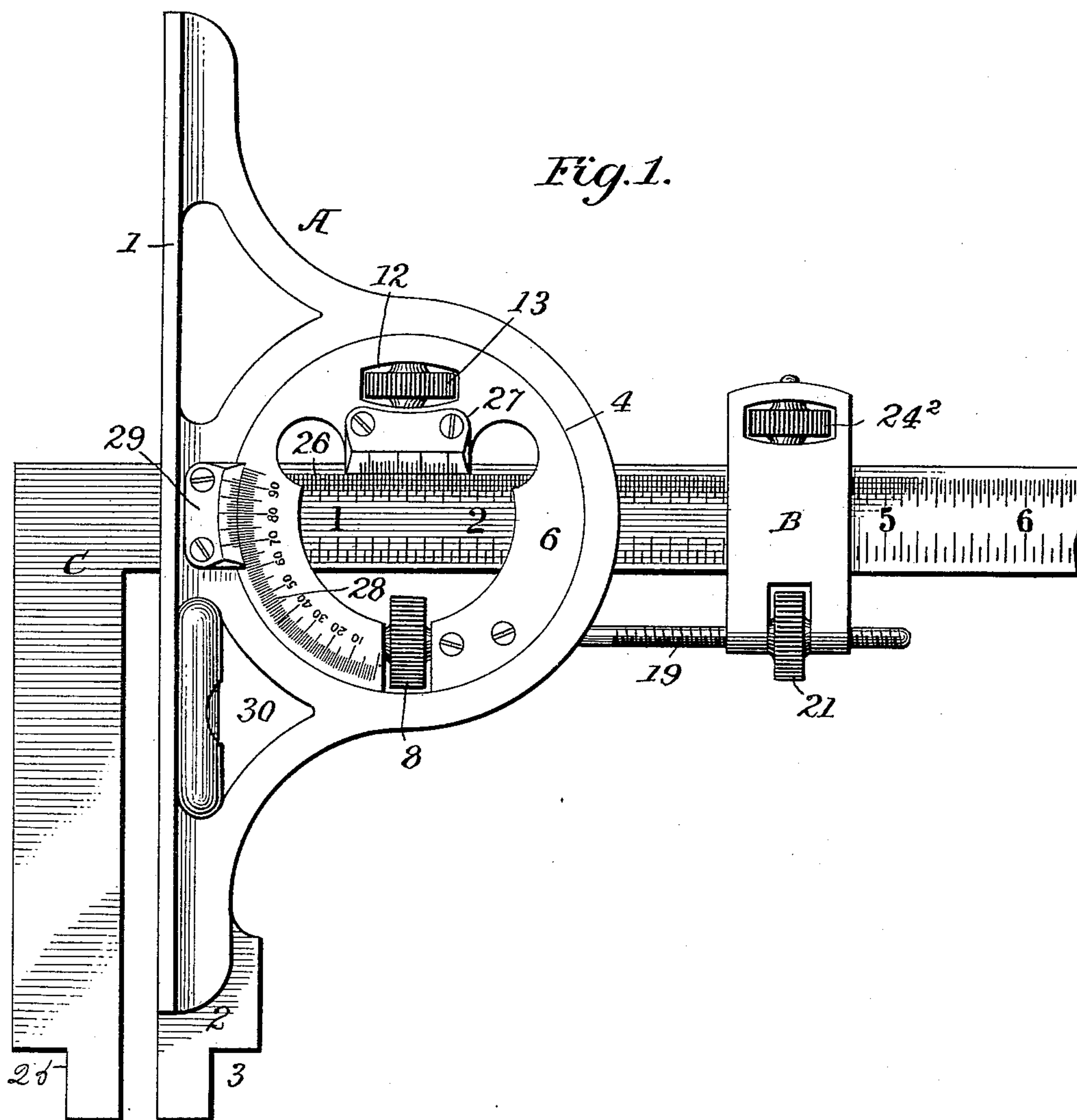
(No Model.)

2 Sheets—Sheet 1.

G. M. ROCKEY & C. H. STRAIN.
COMBINATION TOOL.

No. 602,524.

Patented Apr. 19, 1898.



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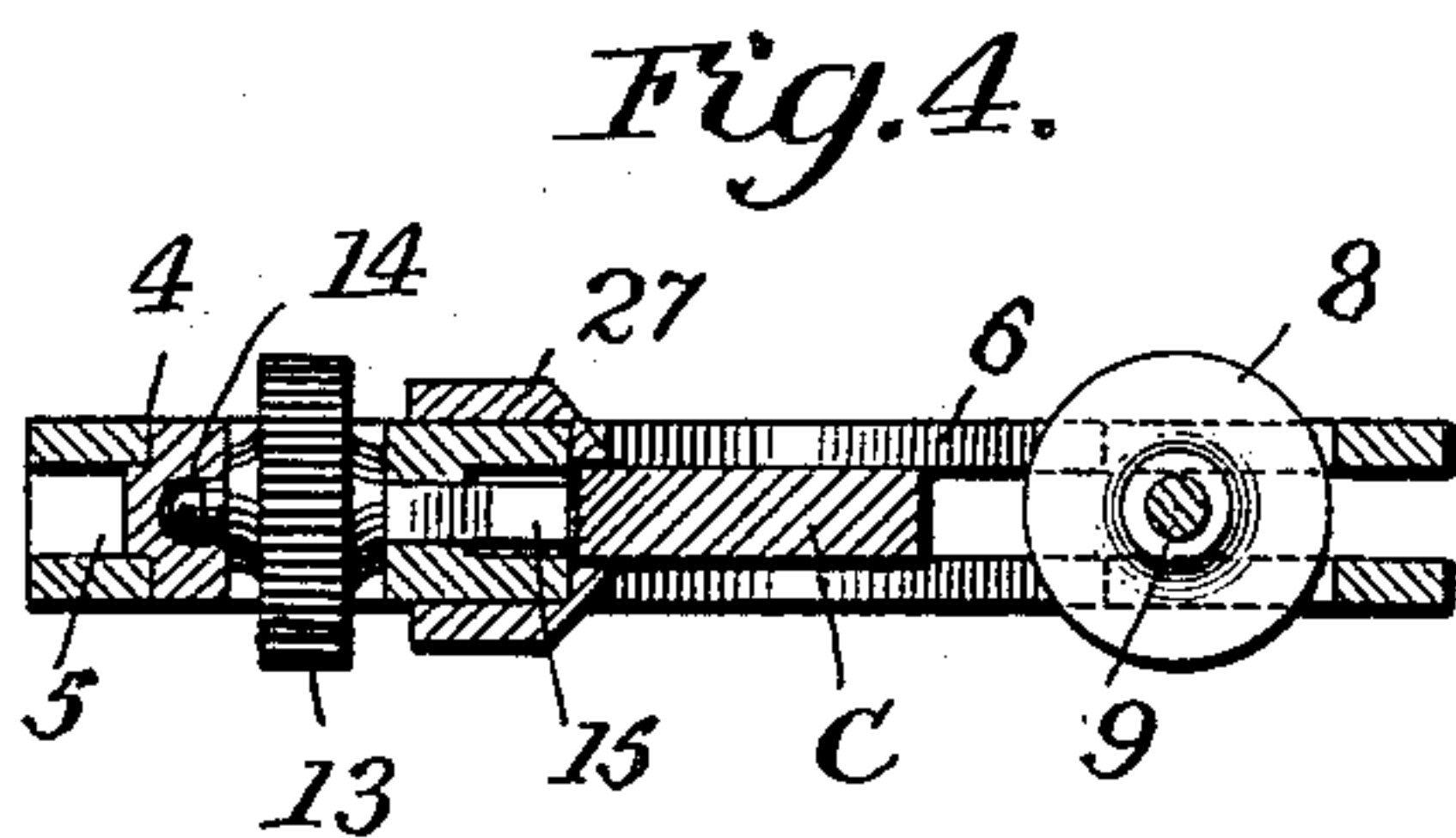
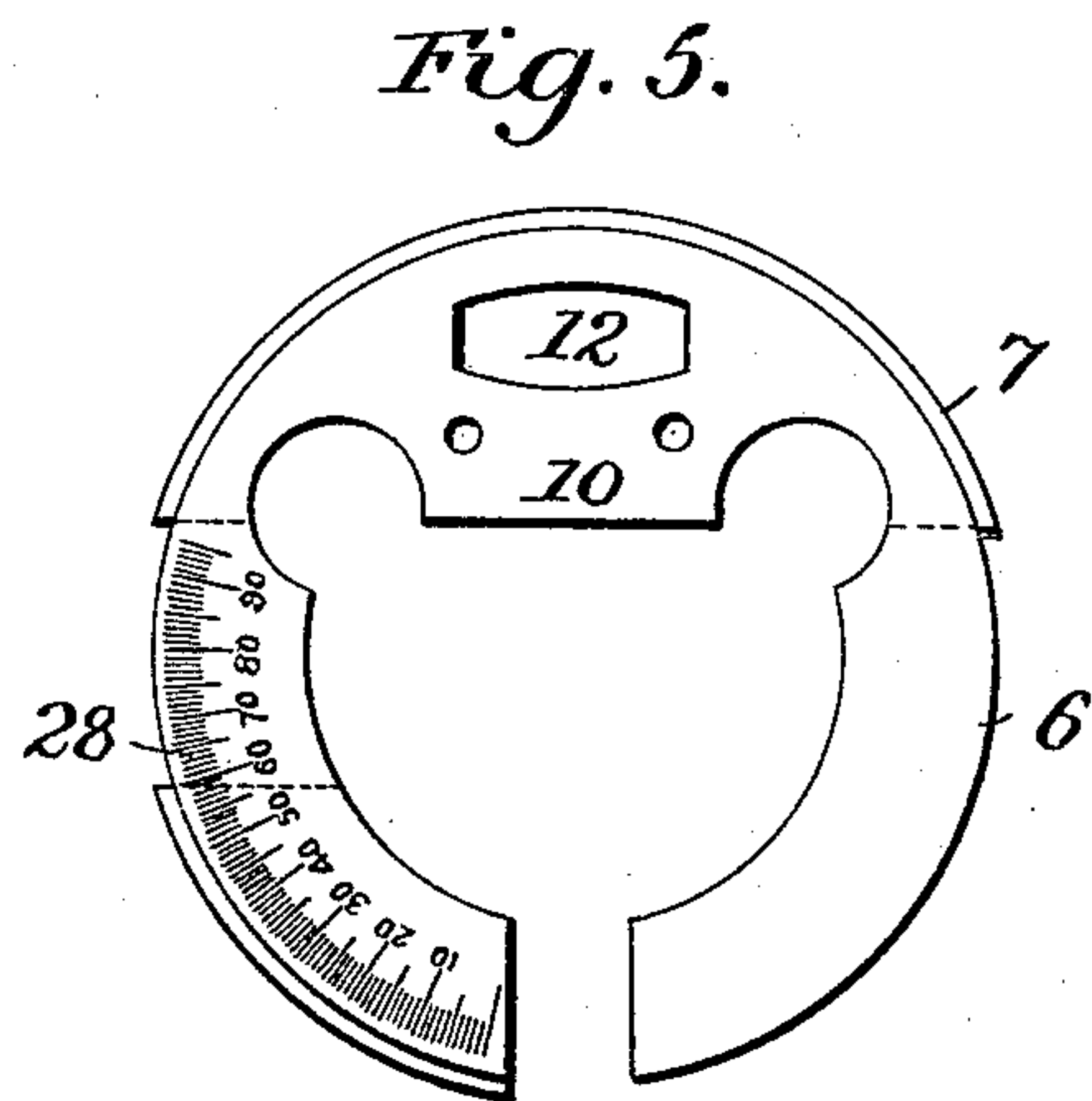
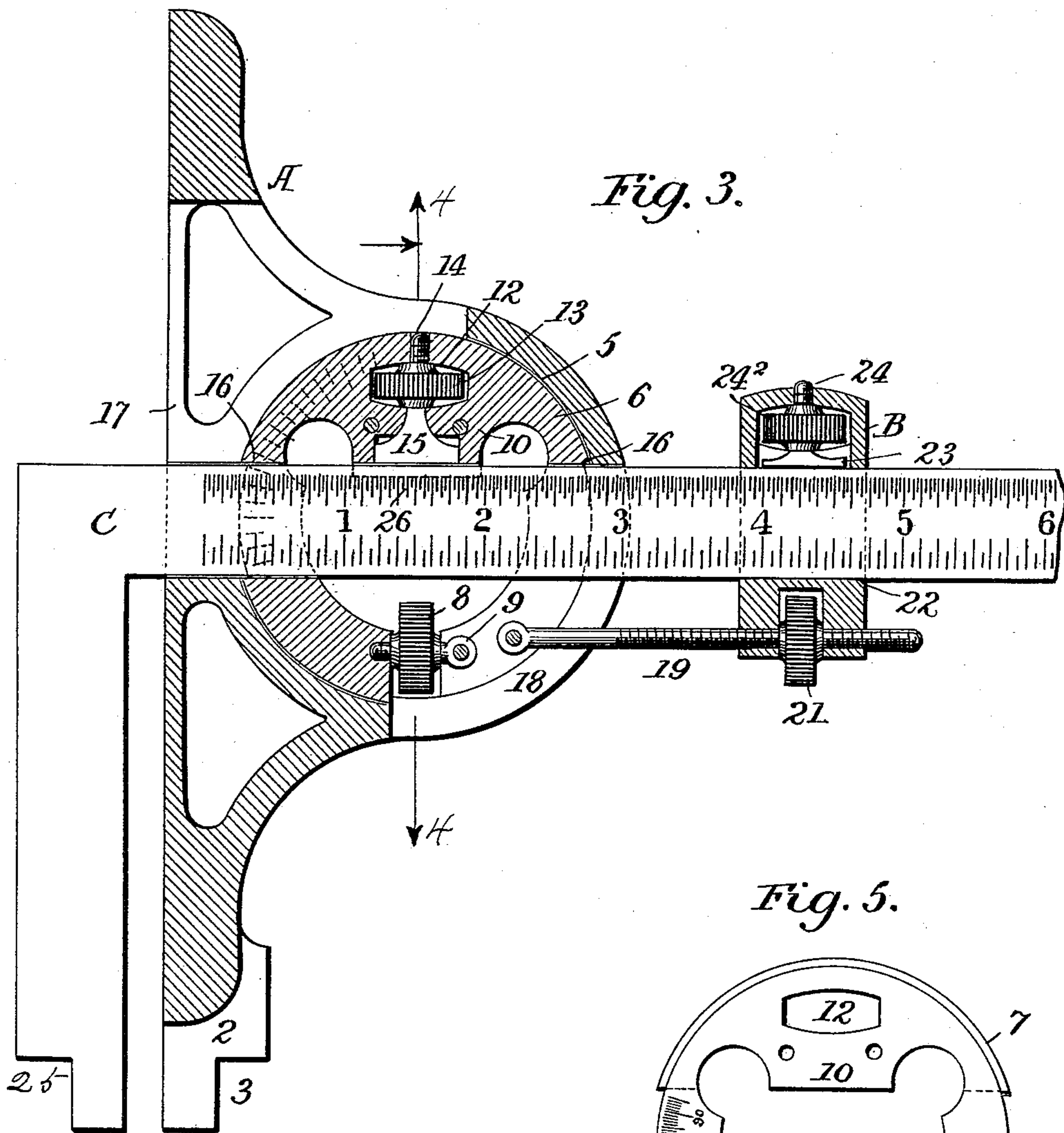
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2 Sheets—Sheet 2.

G. M. ROCKEY & C. H. STRAIN.
COMBINATION TOOL.

No. 602,524.

Patented Apr. 19, 1898.



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UNITED STATES PATENT OFFICE.

GLENDON M. ROCKEY AND CHARLEY H. STRAIN, OF DAYTON, OHIO.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 602,524, dated April 19, 1898.

Application filed June 14, 1897. Serial No. 640,638. (No model.)

To all whom it may concern:

Be it known that we, GLENDON M. ROCKEY and CHARLEY H. STRAIN, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in a Combination-Tool, of which the following is a specification.

This invention relates to certain new and useful improvements in combination measuring instruments, having for its objects to improve and simplify the construction of such instruments and adapting them for use as a parallel square, height and depth gage, inside and outside calipers, universal level, level, T-square, bevel, and for various other purposes.

With these objects in view the invention consists in the novel combination, construction, and arrangement of parts hereinafter more fully described.

In the accompanying drawings, Figure 1 is a plan view of the invention. Fig. 2 is a side view thereof. Fig. 3 is a longitudinal sectional elevation. Fig. 4 is a sectional view on the line 4 4, Fig. 3; and Fig. 5 is a detail plan view of the reciprocating disk.

Referring to the drawings, A designates the stock of any desired configuration, having one straight edge, at which upon opposite sides of the stock are flanges 1, and projecting beyond these flanges at one end is an extension 2, having a shoulder 3. Formed centrally of the length of the stock is a circular opening 4, provided in its edge with an annular channel or groove 5. Supported within the opening 4 is an expansible ring 6, provided upon its exterior edge with a flange 7, which extends into the channel 5 and holds the ring against lateral displacement from the circular opening 4. The ends of the expansible ring are separated to receive a thumb-nut 8, through which passes a screw 9, pivotally secured in a recess in one end of the ring and extending into a corresponding recess in the opposite end of the ring. By turning the thumb-nut 8 in the proper direction the ring 6 may be expanded to cause its edge to frictionally engage the edge of the circular opening and hold the ring against movement, or the ends of the said ring may be drawn together to lessen the friction of the

ring upon the edge of the opening 4, thereby permitting it to freely rotate therein.

Extending across the opening of the ring is an arm 10, having its lower face straight and channeled. Above this arm is a recess 12 for reception of a thumb-nut 13, through which extends a screw 14, in turn extending through the arm and connected to a clamping-shoe 15 within a recess at the under face of the said arm.

At diametrically opposite points in the ring 6 and in transverse alinement with each other are openings 16, which extend through the ring from its inner to its outer edge, and the lower channeled face of the arm 10 is in alinement with one end of said openings. Upon opposite sides of the expansible ring the stock is provided with recesses 17 18, which likewise register with the openings 16 in said ring, thereby forming a continuous and unobstructed passage from the flanged edge of the stock to the opposite edge thereof. Pivotally connected to the ring 6 is an adjusting-screw 19, which passes through the recess 18 of the stock and extends through the arms of the bifurcated end of a clamping-post B to receive a thumb-nut 21, located between said arms, and by properly turning this nut the ring 6 and L-square C may be caused to turn in the opening of the stock in the desired direction.

An opening 22 passes through the clamping-post B, in alinement with the openings 16 of the expansible ring and the recesses 17 and 18 of the stock, and the upper edge of this opening is provided with a recess for the reception of a clamping-shoe 23, from which extends a screw 24, upon which and working in an opening in the clamping-post is a thumb-nut 24².

In connection with the stock above described may be employed a straight-edged graduated bar formed, preferably, wholly of metal, but a bar made of other material with metal edges may be substituted. It is preferred, however, to employ an ordinary L-square C, as shown, as it permits of a more extensive use of the instrument. The long arm of this square passes through the recesses 17 18 of the stock, the openings 16 of the ring 6, and the opening 22 of the clamping-post B, while the edges of the short arm of the square extend parallel

with the flanged edge of the stock, said arm being coextensive with the extension 2 and is likewise formed at its end with a shoulder 25. One edge of the long arm of the square is provided with a scale to inches and subdivisions thereof, while at its opposite edge it is provided with a vernier-scale 26, and secured to the face of the ring is a scale-plate 27, overlying the side of the long arm of the square, with its scale parallel to the vernier-scale.

Upon each face of the expansible ring, at the edge thereof, is a segmental degree-scale 28, with which scale-plates 29, secured to the faces of the stock, register. It will be obvious that as the L-square passes through openings of the expansible ring it will be moved with the ring independent of the stock when the ring is shifted in the circular opening of the stock, thereby changing the angular relation of the arms of the square and the flanged edge of the stock, the degree of such angle being accurately indicated by the degree-scale 28.

Supported upon one of the flanges 1 of the stock is a spirit-glass 30, which, together with the stock, constitutes a spirit-level, and in using the instrument as such the L-square may be disconnected from the stock or the square may be left connected thereto. The manner of employing the instrument as a level is thought to be too obvious to need explanation herein.

In the employment of the instrument as inside calipers the thumb-screws 13 24² of the ring 6 and the clamping-post B are adjusted to loosen the clamping-shoes 15 23 of said ring and post, respectively, and the stock and clamping-post are moved along the long arm of the L-square. The short arm of said square and the extension 2 of the stock are inserted into the object whose inner diameter is to be recorded, and their shoulders 3 25 are brought to rest upon the edge of the object and their parallel sides to make contact with the inner surface of the object. When this has been done, the stock and clamping-post are clamped against movement upon the square in the manner previously described. In its use as outside calipers the parts are adjusted as in using the instrument as inside calipers, except that the short arm of the square and the extension 2 of the stock are caused to straddle the object to be measured and their opposing edges are brought into contact with the surface of said object and then secured.

In the use of the device as a T-square the long arm of the square C is adjusted to project upon the flanged edge of the stock and securely clamped. The arm may then be disposed to overlie a drawing-board and the flange of the stock brought into engagement with the side edges of the board.

The various uses to which the instrument may be applied, some of which have been

enumerated, and the manner of such application will readily suggest themselves to those skilled in the use of such instruments, and it is not deemed necessary to describe them more in detail.

Without limiting ourselves to the precise construction and arrangement of the parts shown and described, since such construction and arrangement may be varied without departing from the scope of the invention and some features of the invention may be used without others.

What we claim is—

1. In a measuring instrument, the combination with a stock provided with a circular opening, of an expansible ring adapted to rotate in said opening, means for clamping the ring against movement, and an arm or bar secured to the expansible ring, substantially as described.

2. In a measuring instrument, the combination with a stock provided with a circular opening, of an expansible ring adapted to rotate in said opening, means for clamping the ring against movement, an arm or bar secured to the expansible ring and adapted to move longitudinally with respect thereto, and devices for holding the arm against such movement, substantially as described.

3. In a measuring instrument, the combination with a stock, of a part adapted to rotate thereon and means for holding said part against rotation, an arm or bar connected to the rotating part, a clamping-post mounted upon the arm, and adjustable connections between the clamping-post and rotating part, substantially as described.

4. In a measuring instrument, the combination with a stock having graduations, of a part rotatively mounted thereon and provided at its edge with a segmental degree-scale, the graduations of which register with those of the stock, devices for rotatively adjusting the rotating part, and an arm connected to said part, substantially as described.

5. In a measuring instrument, the combination with a stock having a circular opening, the edge of which is channeled, of an expansible ring having separated ends mounted in said opening and provided with an exterior flange for engagement with the channel in the edge of the opening, a screw connected to one end of the ring, a thumb-nut between the ends of the ring through which the screw passes, and an arm or bar secured to the expansible ring, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GLENDON M. ROCKEY.
CHARLEY H. STRAIN.

Witnesses:

WILLIAM BOUSMAN,
WILLIAM L. MAY.