

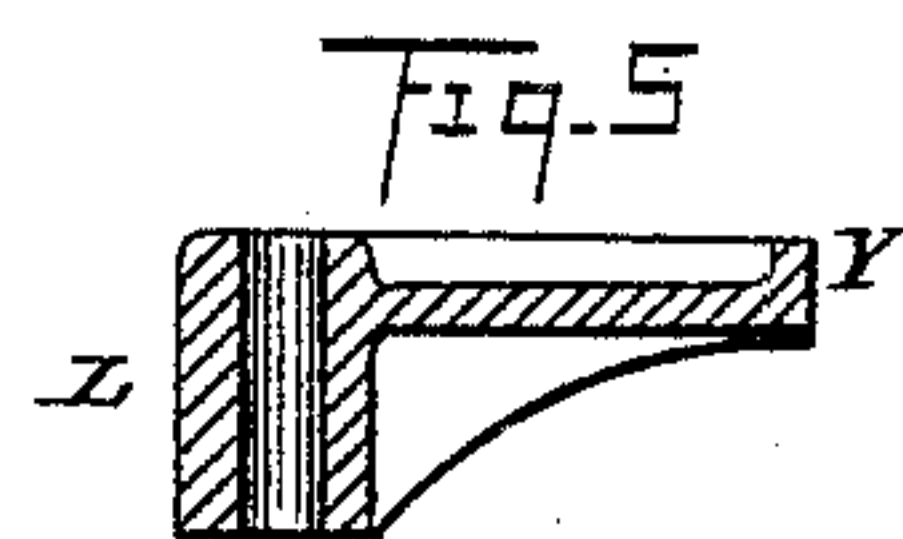
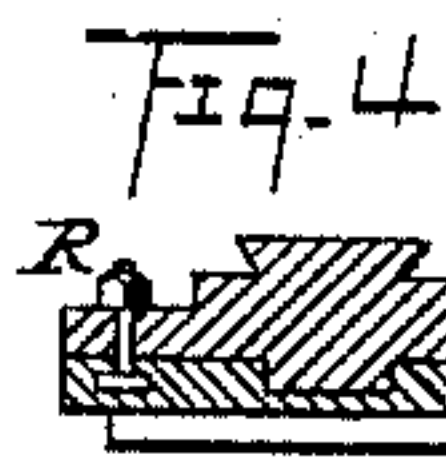
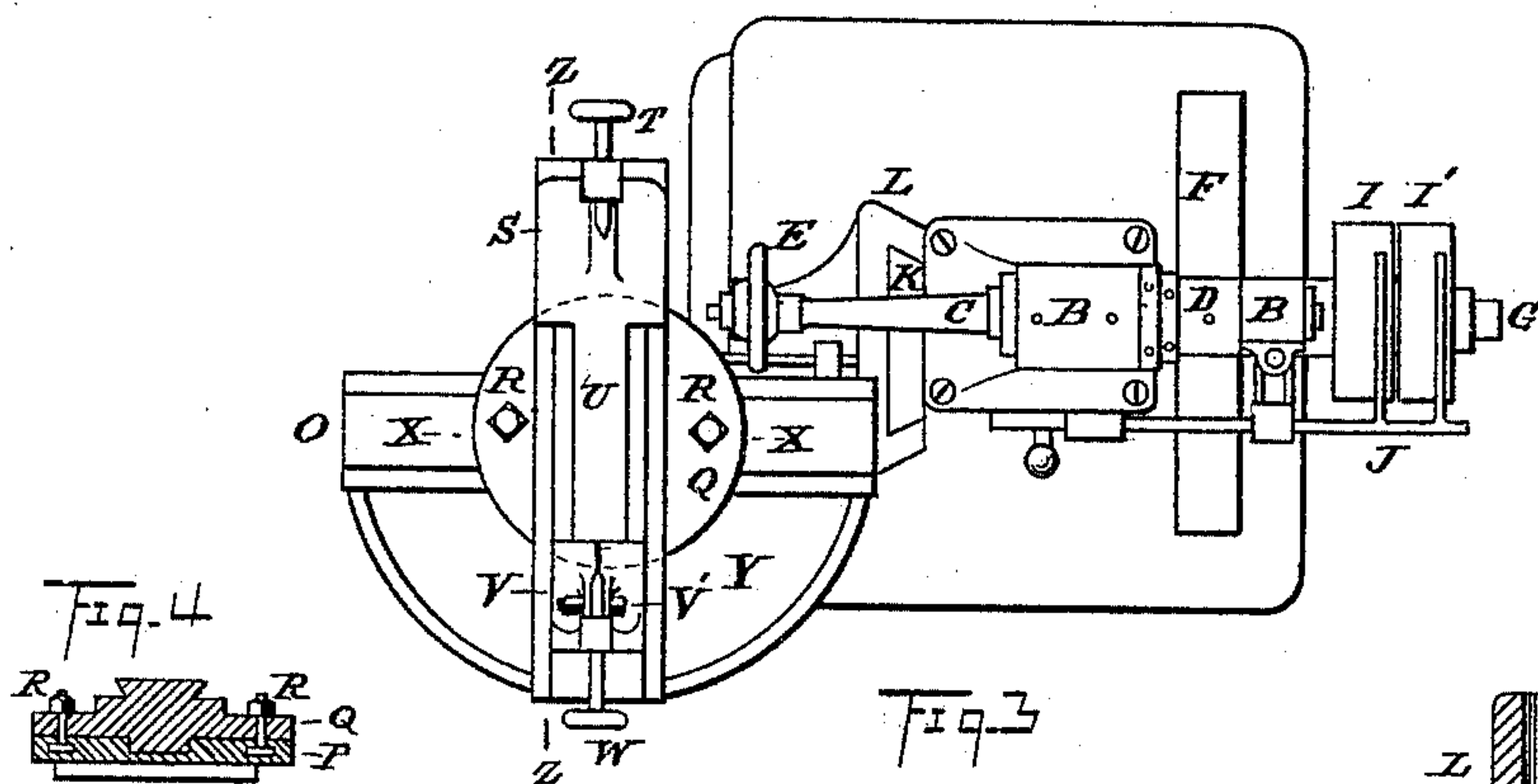
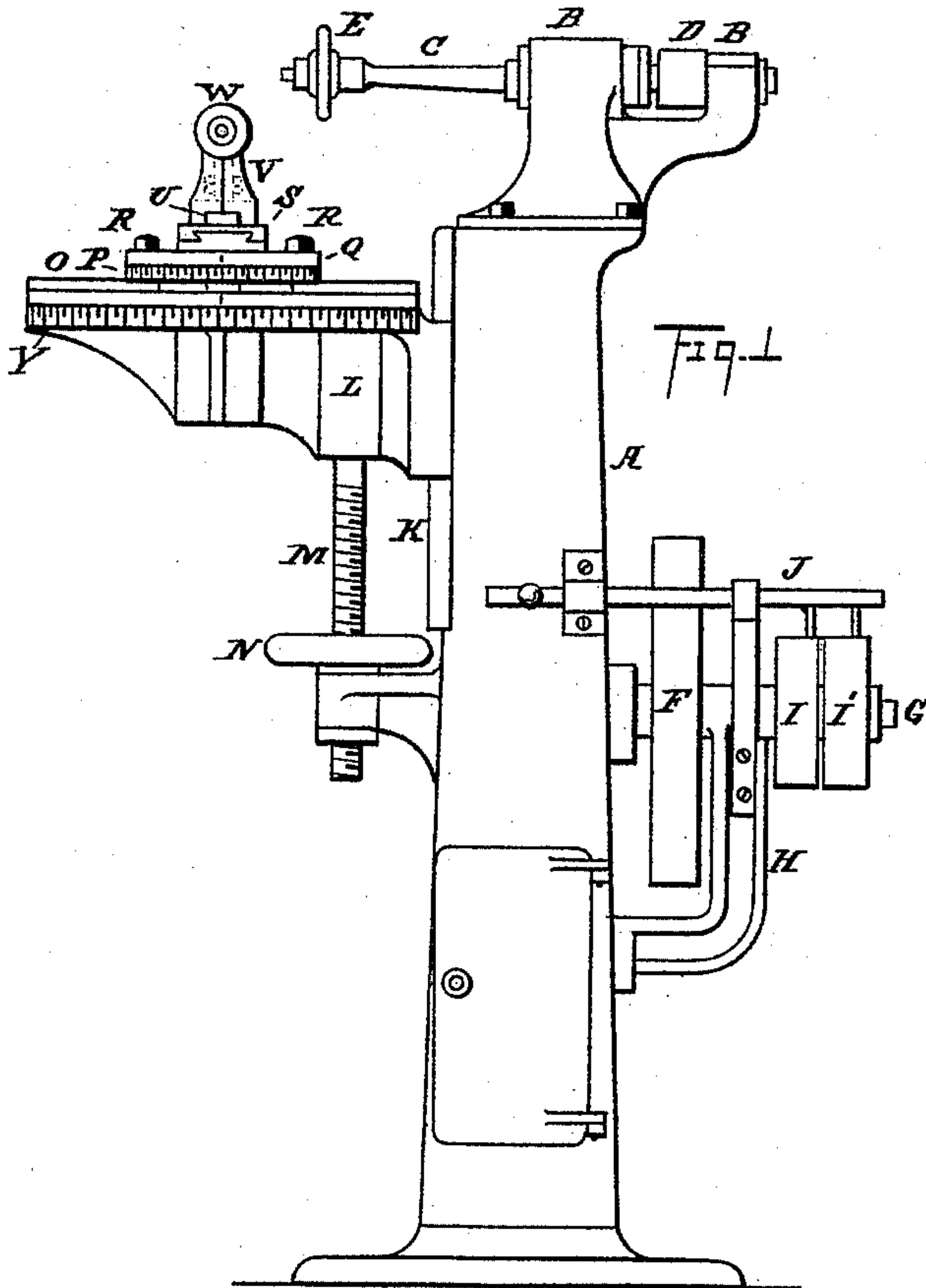
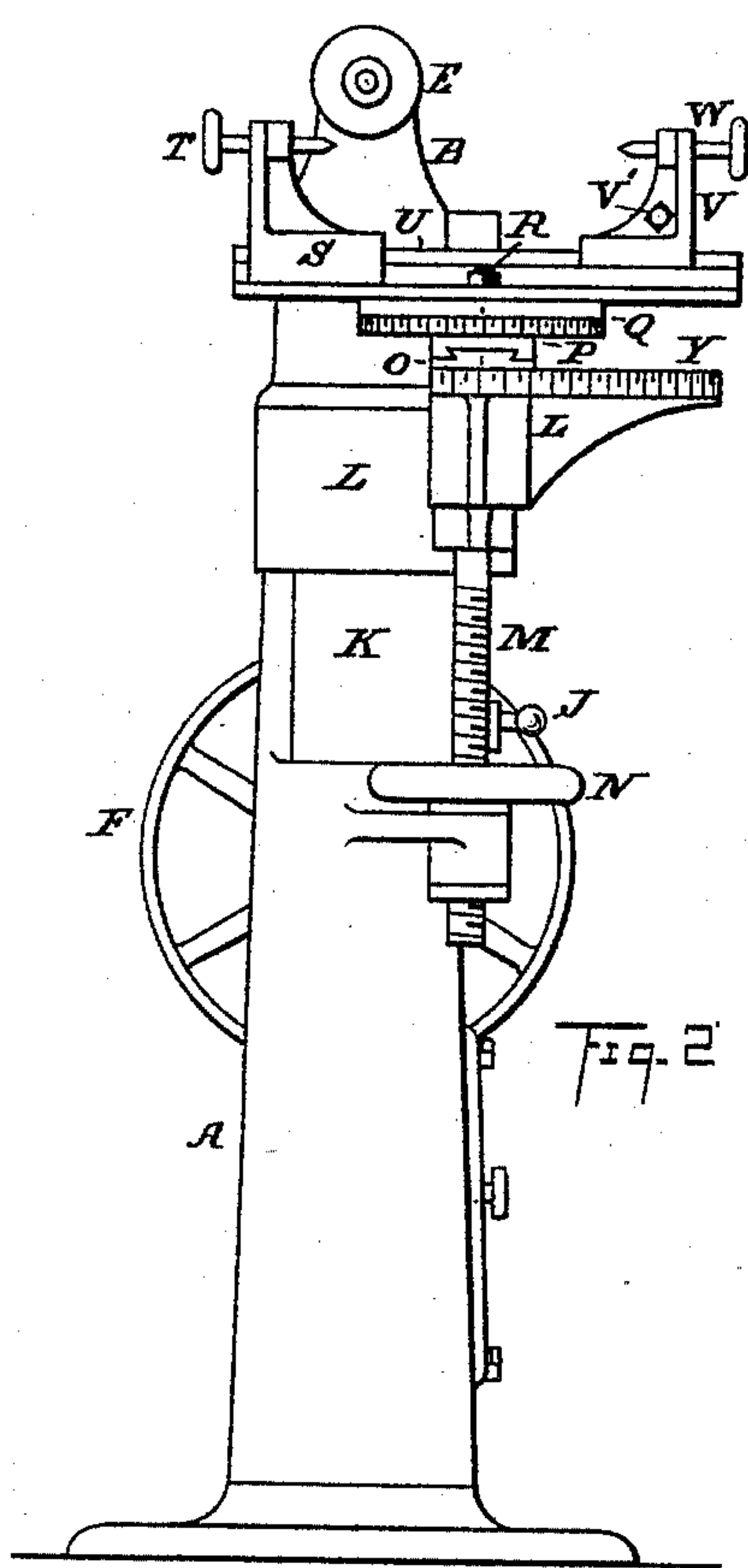
(No Model.)

2 Sheets—Sheet 1.

E. W. BRADLEY.
CUTTER OR REAMER GRINDER.

No. 444,875.

Patented Jan. 20, 1891.



Witnesses
Belle S. Lowrie.
C. E. Humphrey.

Inventor
Ernest W. Bradley.
by C. E. Humphrey
Attorney.

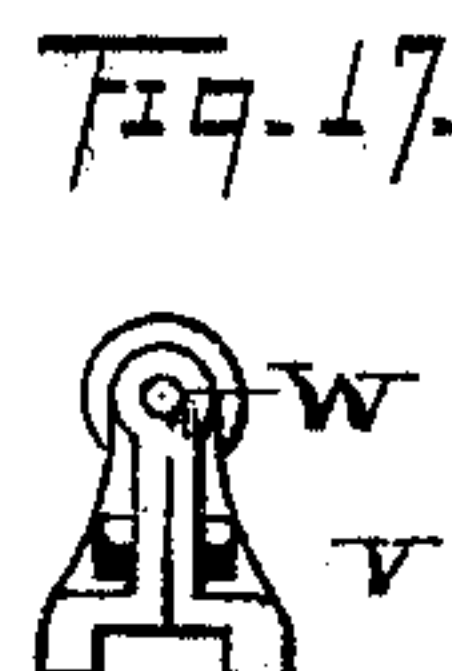
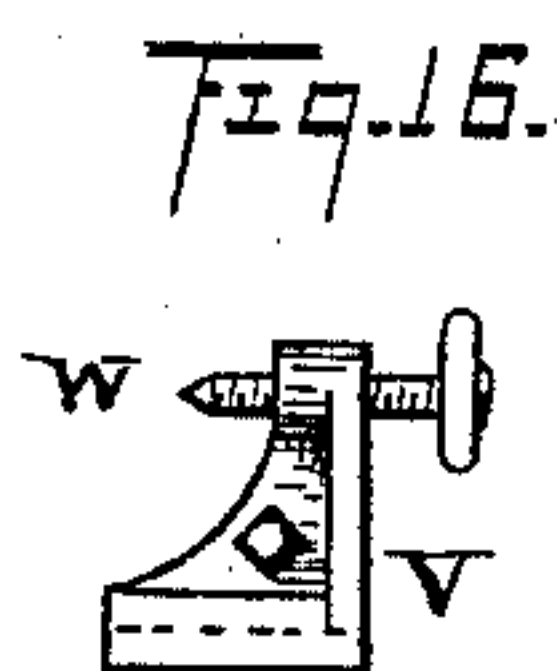
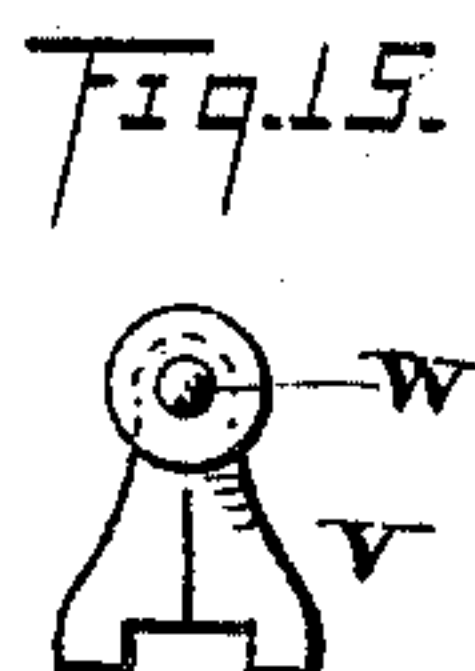
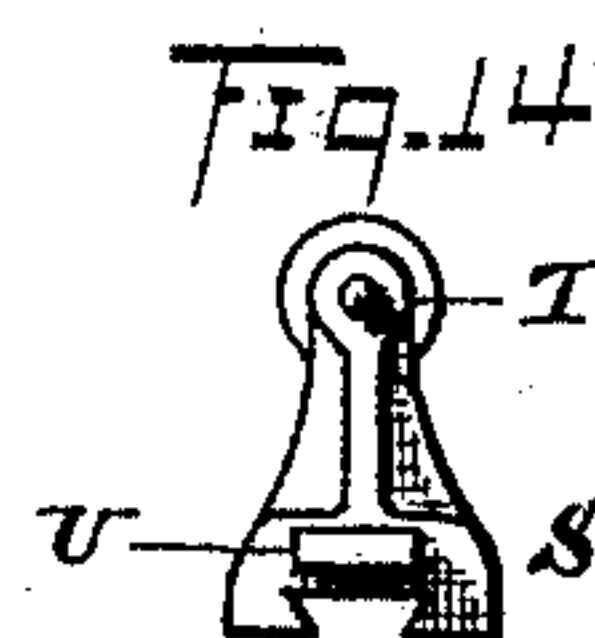
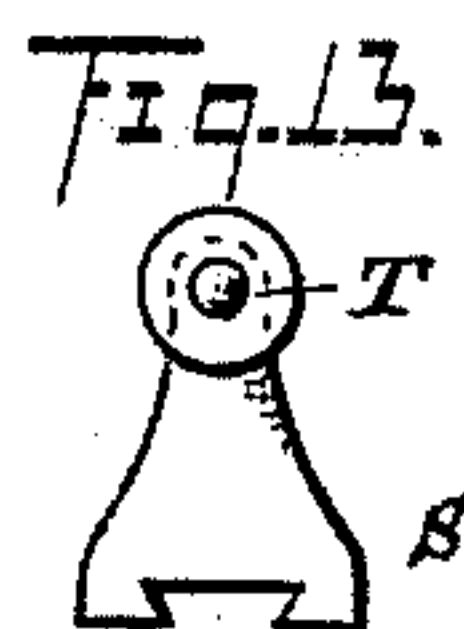
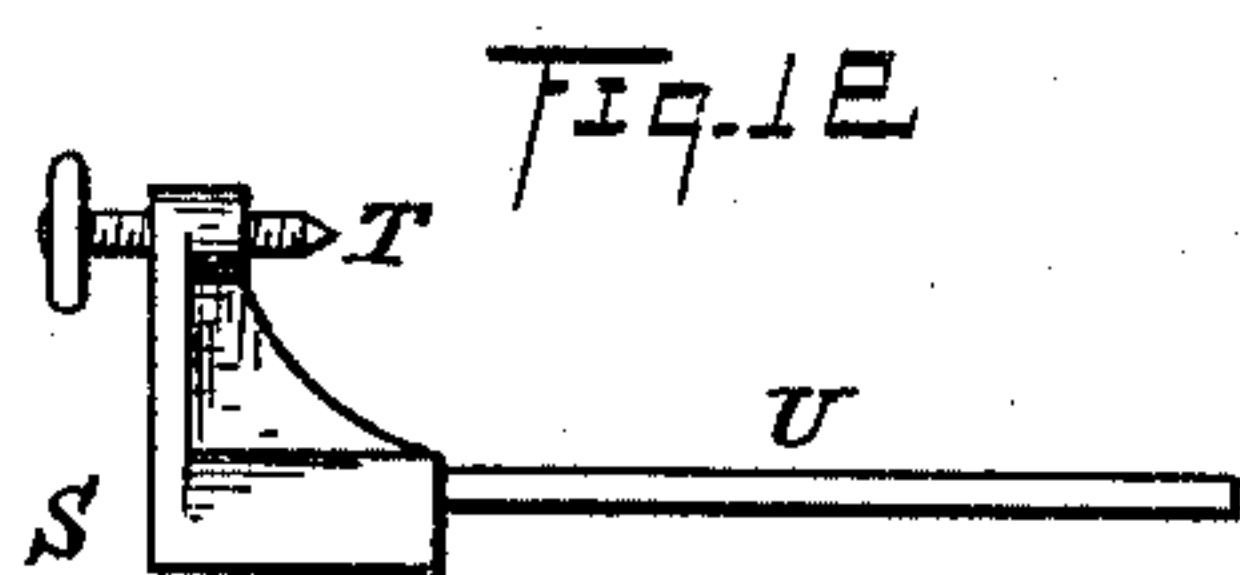
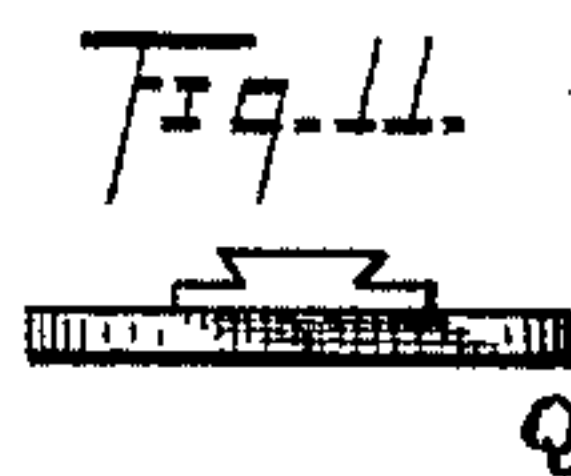
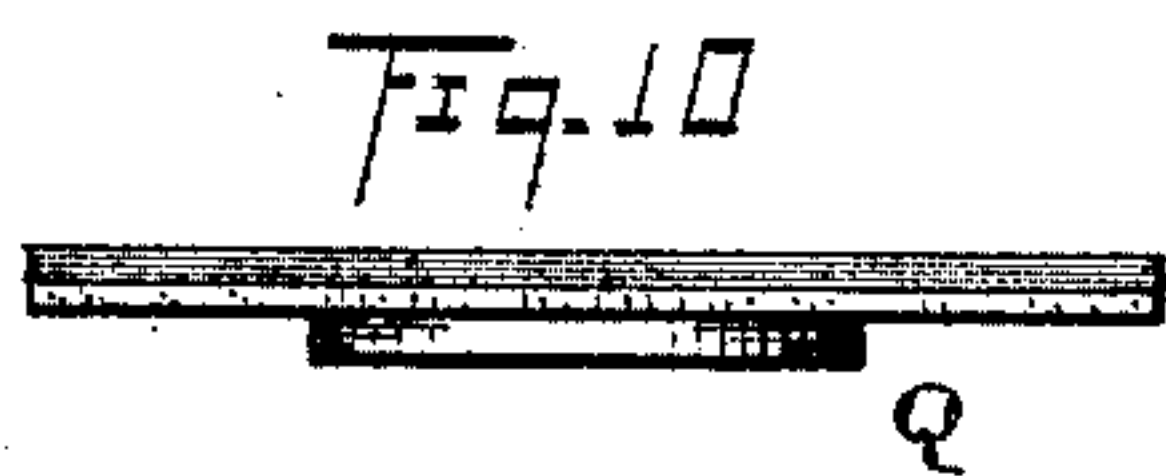
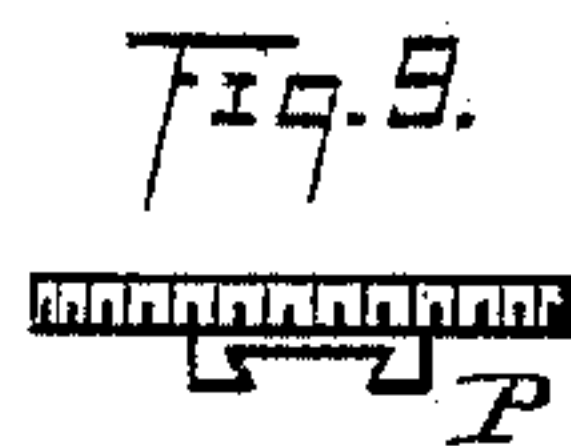
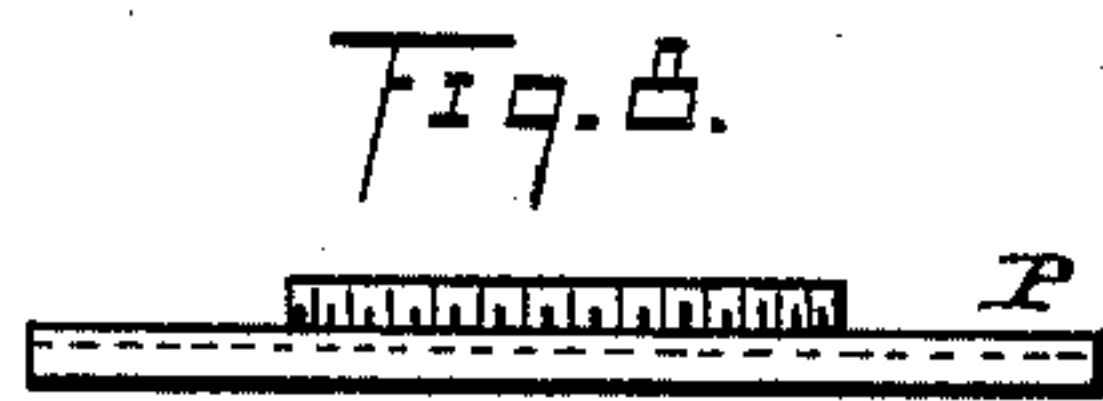
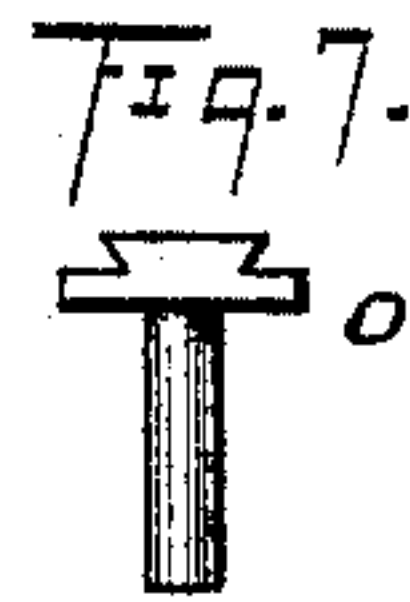
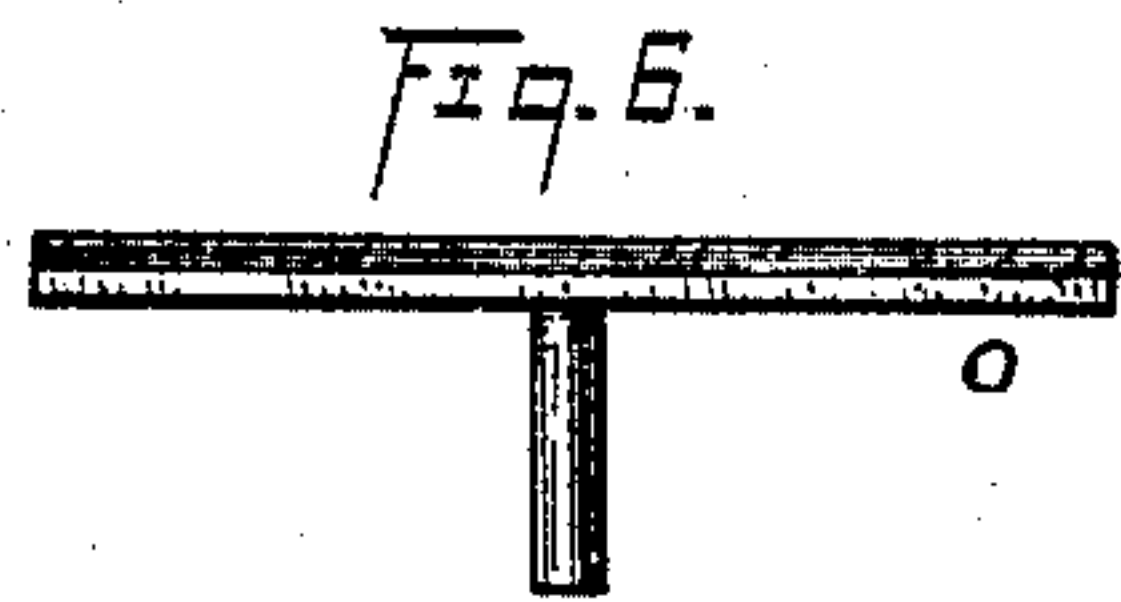
(No Model.)

2 Sheets—Sheet 2.

E. W. BRADLEY.
CUTTER OR REAMER GRINDER.

No. 444,875.

Patented Jan. 20, 1891.



Witnesses.

Chas. S. Lowrie.
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by C. E. Humphrey
Attorneys.

UNITED STATES PATENT OFFICE.

ERNEST W. BRADLEY, OF AKRON, OHIO, ASSIGNOR TO TAPLIN, RICE & COMPANY, OF SAME PLACE.

CUTTER OR REAMER GRINDER.

SPECIFICATION forming part of Letters Patent No. 444,875, dated January 20, 1891.

Application filed October 21, 1889. Serial No. 327,646. (No model.)

To all whom it may concern:

Be it known that I, ERNEST W. BRADLEY, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Cutter or Reamer Grinders, of which the following is a specification.

My invention has relation to improvements in that class of cutter or reamer grinders in which the edges of the cutters or reamers are finished by being carried along the face of a rapidly-revolving emery-wheel.

The object of my invention is to produce a simple and effective machine which can be readily adapted to grind cutters or reamers of any desired shape or construction, as straight, conical, and spiral, and which shall be provided with graduated scales by which any desired angle may easily be obtained without the use of other appliances.

It consists in the peculiar construction and combination of parts hereinafter described, and then specifically pointed out in the claims, reference being had to the accompanying drawings, which form a part of this specification.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figures 1, 2, and 3 represent, respectively, a side and front elevation and a plan of my improved machine; Figs. 4 and 5, sectional views of the turn-table and vertically-moving carriage at the lines X X and Z Z of Fig. 3, respectively; and Figs. 6 to 17, inclusive, details of the machine hereinafter fully described.

The machine is supported on a standard or post A, having a suitable base, on the top of which are bearings B, in which is journaled an arbor C, provided with a small pulley D and bearing at its outer end an emery-wheel E, detachably connected by nuts and washers. The shaft C is revolved by a belt from a pulley F on a shaft G, journaled in bearings H at the back of the post A, which also bears fast and loose pulleys I I', to the former of which motion is primarily communicated by a belt, which is regulated by a shifter J.

On the front of the post A is a broad guide K, on which slides a vertically-moving carriage L, which is raised and lowered by a screw M and hand-wheel N. On the carriage

L rests an elongated block O, side and end elevations of which are shown in Figs. 6 and 7, respectively, pivotally connected therewith, so as to revolve horizontally by means of the dependent pin shown, which rests in a hole in the carriage. (Shown in Fig. 5.) On the top of the block O is formed a horizontal guide, on which is a slide P, side and end elevations of which are shown in Figs. 8 and 9, respectively, having on its top a circular horizontal plate, the edges of which are graduated. On the plate of the slide P rests a corresponding circular plate Q, side and end elevations of which are shown in Figs. 10 and 12, respectively, the edges of which register with the edge of the plate P and bears a single mark by which to read the graduated marks on the latter. This plate Q revolves horizontally on the plate P and is retained thereon by a depending central boss, which enters a corresponding depression in the latter and is locked by T-shaped bolts R, which rest in an annular T-shaped channel in the plate P, (see Fig. 4,) the two plates constituting what may be for convenience termed the "turn-table." On the plate Q is a guide similar to the guide on the block O, on which is a slide S, side, front, and rear elevations of which are shown in Figs. 12, 13, and 14, respectively, which bears a vertical bracket, through which is a center point T, terminating in a milled head. Extending from the front of the slide S is a bar U, parallel with and resting on the guide on the plate Q and on which is mounted a vertical bracket V, rear, side, and front elevations of which are shown in Figs. 15, 16, and 17, similar to the bracket on the slide S, through which is a similar center point W. This bracket is split vertically nearly to the center point W, and is clamped upon the bar U by a bolt V'.

At one side of the carriage L is a semicircular disk Y with a raised edge equal in diameter to one-half the length of the block O and upon which it rests as it is revolved. The edge of this disk is graduated and the outer end of the block O bears a simple mark by which to read the graduated marks on the latter.

In operation the article to be ground is mounted between the center points T W and brought to any desired angle with the plane

of revolution of the wheel E by turning either the plate Q or block O, or both, the angle being readily determined by the graduated edges of the plate Q and the disk Y, and is brought
 5 into contact with the wheel E while the latter is in rapid revolution by moving the slide S, carrying the bracket V along the guide on the plate Q or the slide P on the guide on the block O, according to the form and construction
 10 of the article to be ground.

I claim as my invention—

1. In a tool-grinding machine, the combination, with a standard having a grinder mounted thereon, of a vertically-movable carriage on the side of the standard having a
 15 semicircular disk at one side, said disk being provided with a graduated edge, an elongated block on the table, the upper side of which is provided with a horizontal guide and the lower
 20 side is provided with a dependent pin to fit in the hole in the disk, and a slide and a plate on the block provided with means for supporting the article to be ground, substantially as described.

25 2. In a tool-grinding machine, the combination, with a standard having a grinder

mounted thereon, of a vertically-movable carriage on the side of the standard, a plate on the carriage having a guide, a slide on the guide provided with a vertical bracket and
 30 having a bar projecting from its front, and a vertical bracket adjustable on the free end of the bar, substantially as described.

3. In a tool-grinding machine, the combination, with a standard having a grinder
 35 mounted thereon, of a carriage on the side of the standard, a plate on the carriage provided with a guide, a slide on the guide provided with a bracket and a forwardly-projecting bar, a bracket on the free end of the bar, the
 40 upper portion of which is provided with a center point and the lower portion is split vertically nearly to the center point, and a bolt for clamping the bracket on the bar, substantially as described.

In testimony that I claim the above I hereunto set my hand.

ERNEST W. BRADLEY.

In presence of—

C. P. HUMPHREY,
 C. E. HUMPHREY.