

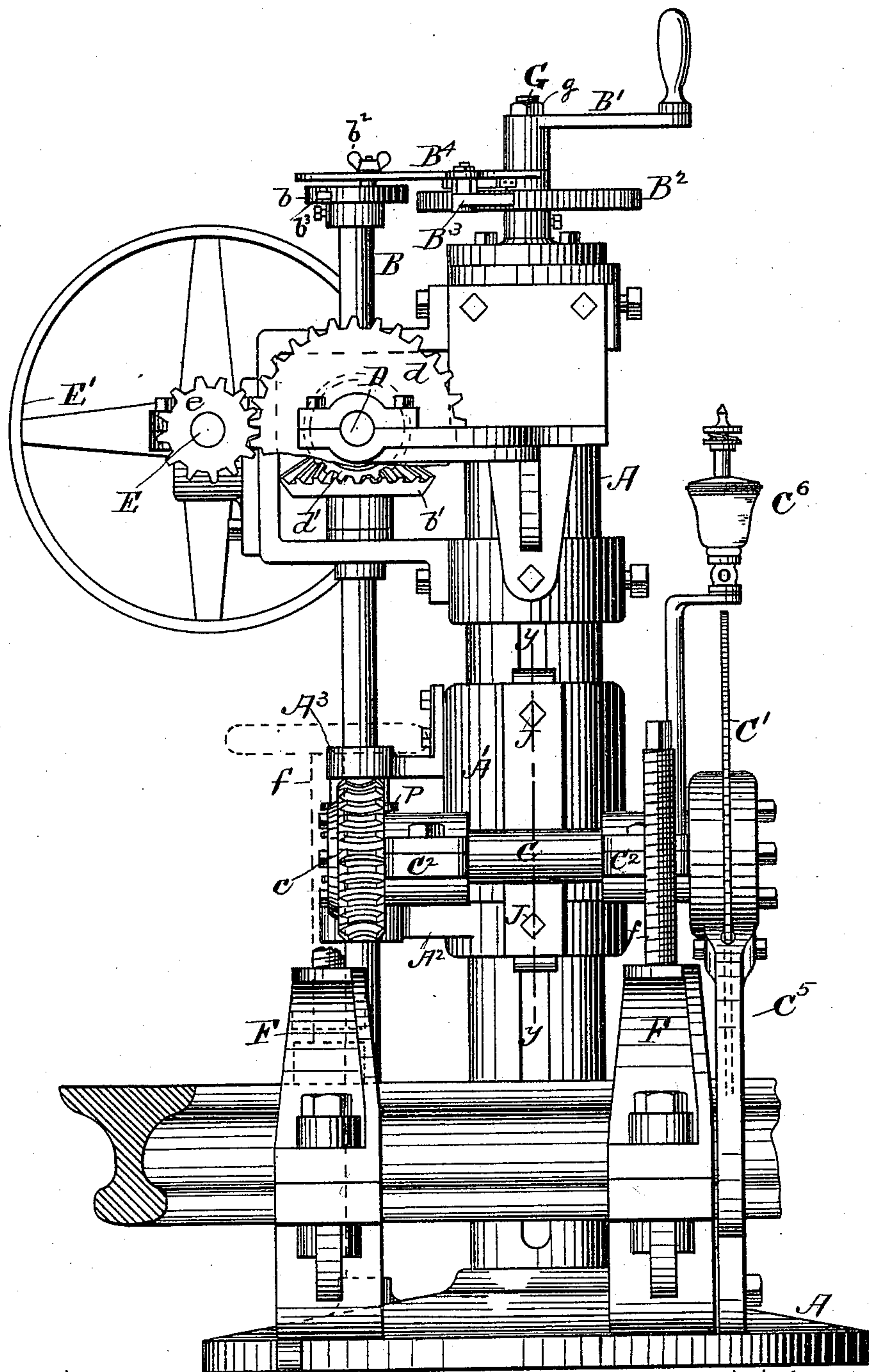
(No Model.)

2 Sheets—Sheet 1.

W. STEERS.
MACHINE FOR SAWING METAL.

No. 441,597.

Patented Nov. 25, 1890.



WITNESSES.

Frank M. Parker.

Henry B. Leach

Fig. 1.

INVENTOR.

William Steers

W. STEERS.
MACHINE FOR SAWING METAL.

No. 441,597.

Patented Nov. 25, 1890.

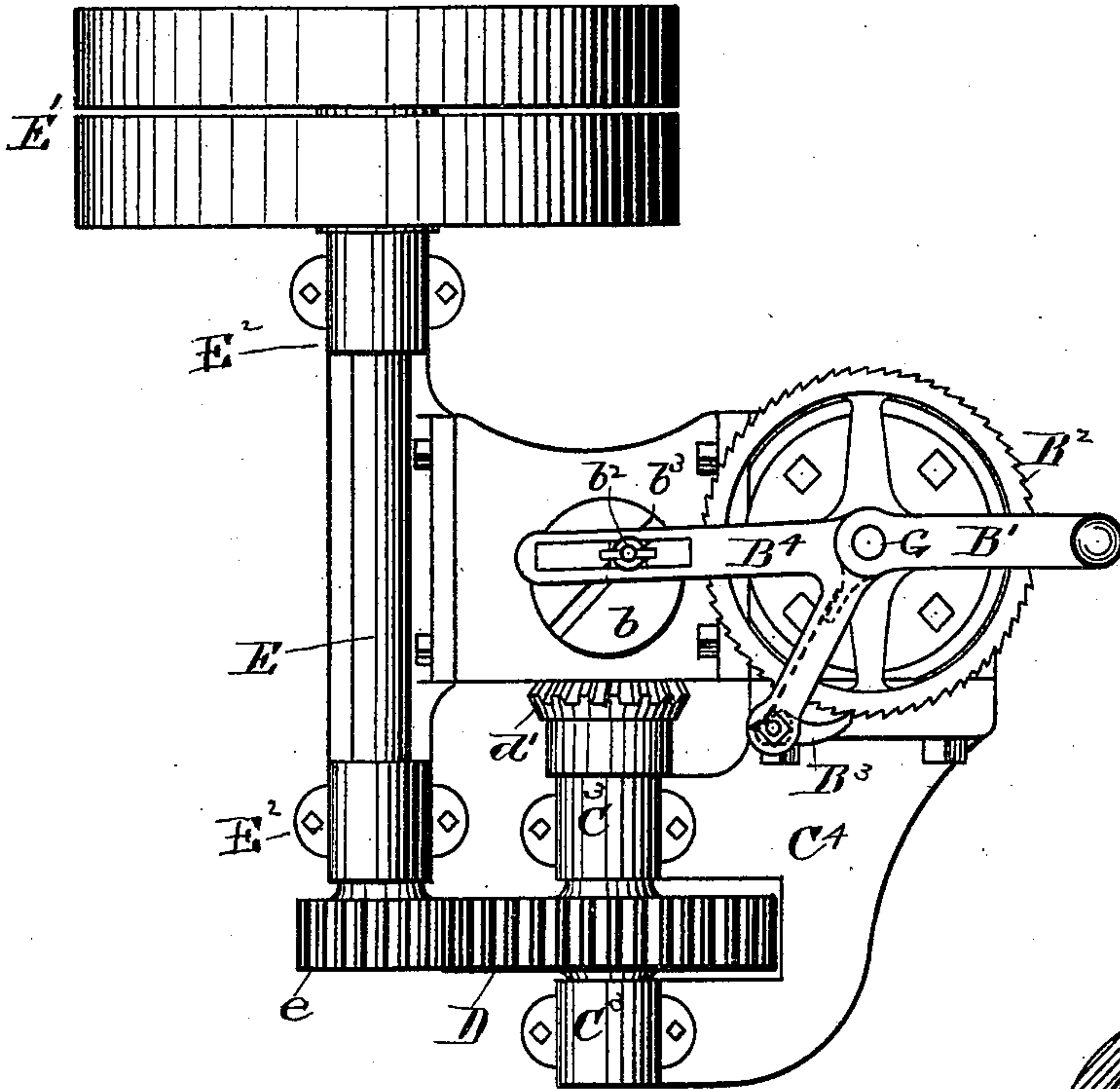


FIG. 2.

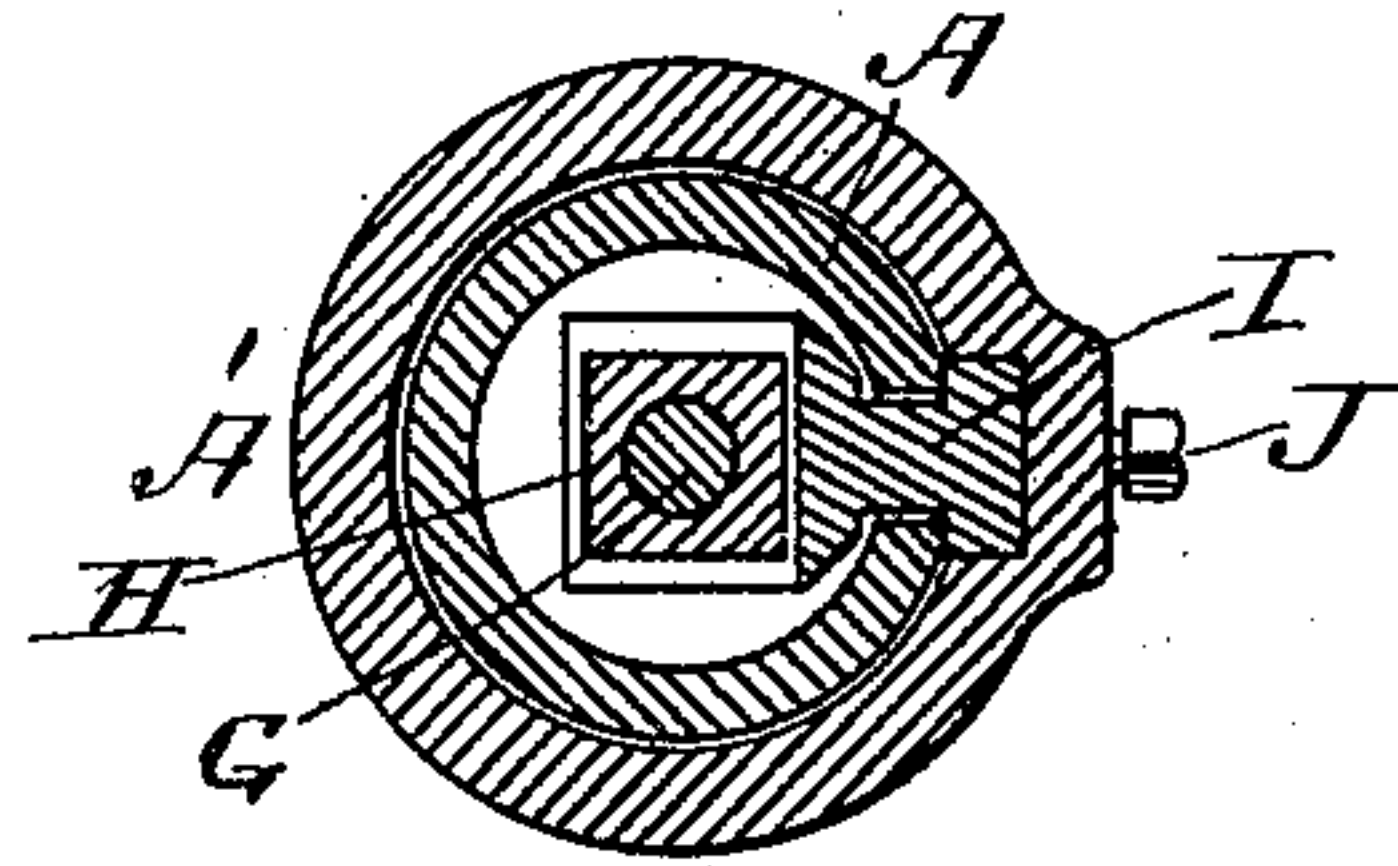


FIG. 5.

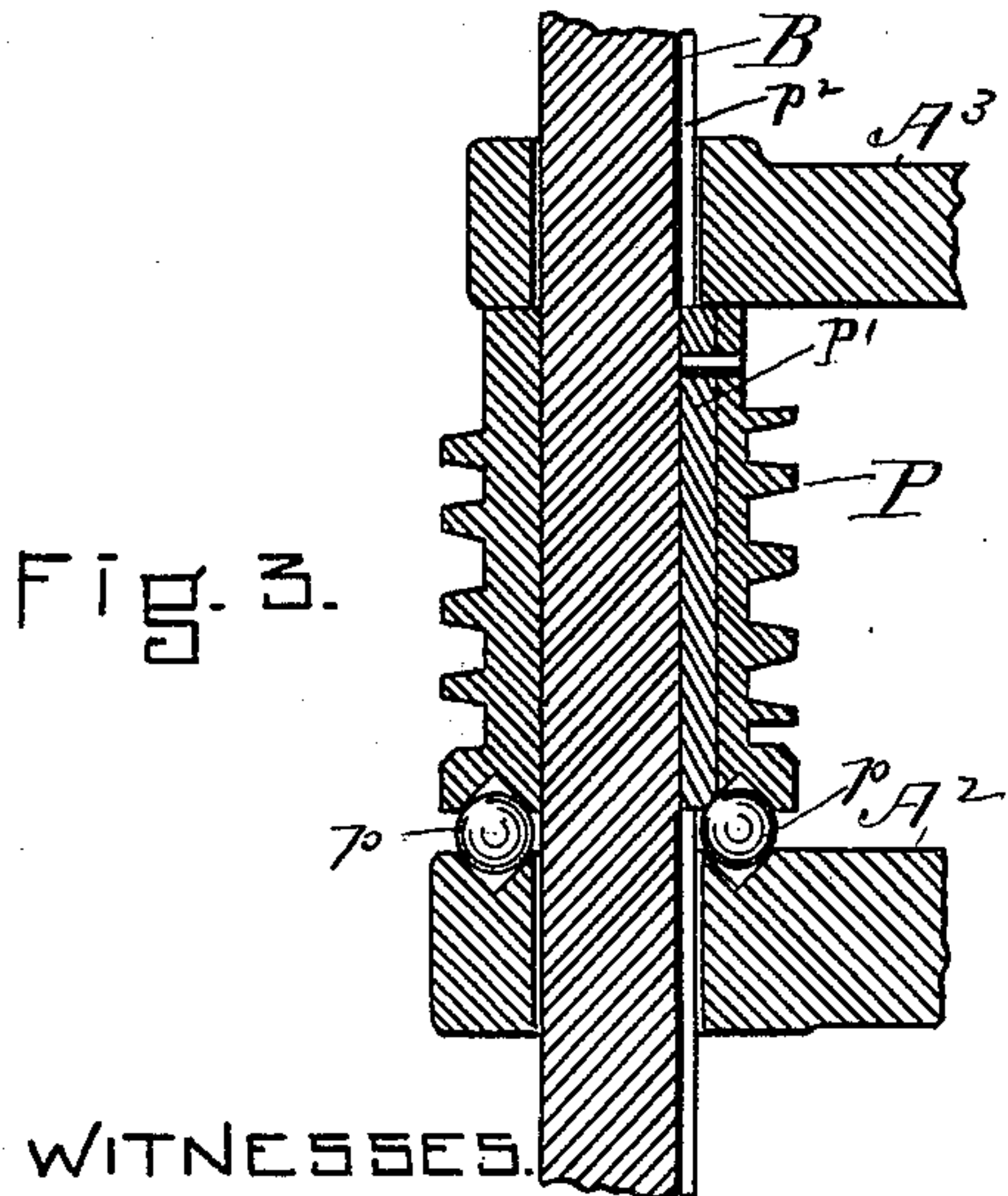


FIG. 3.

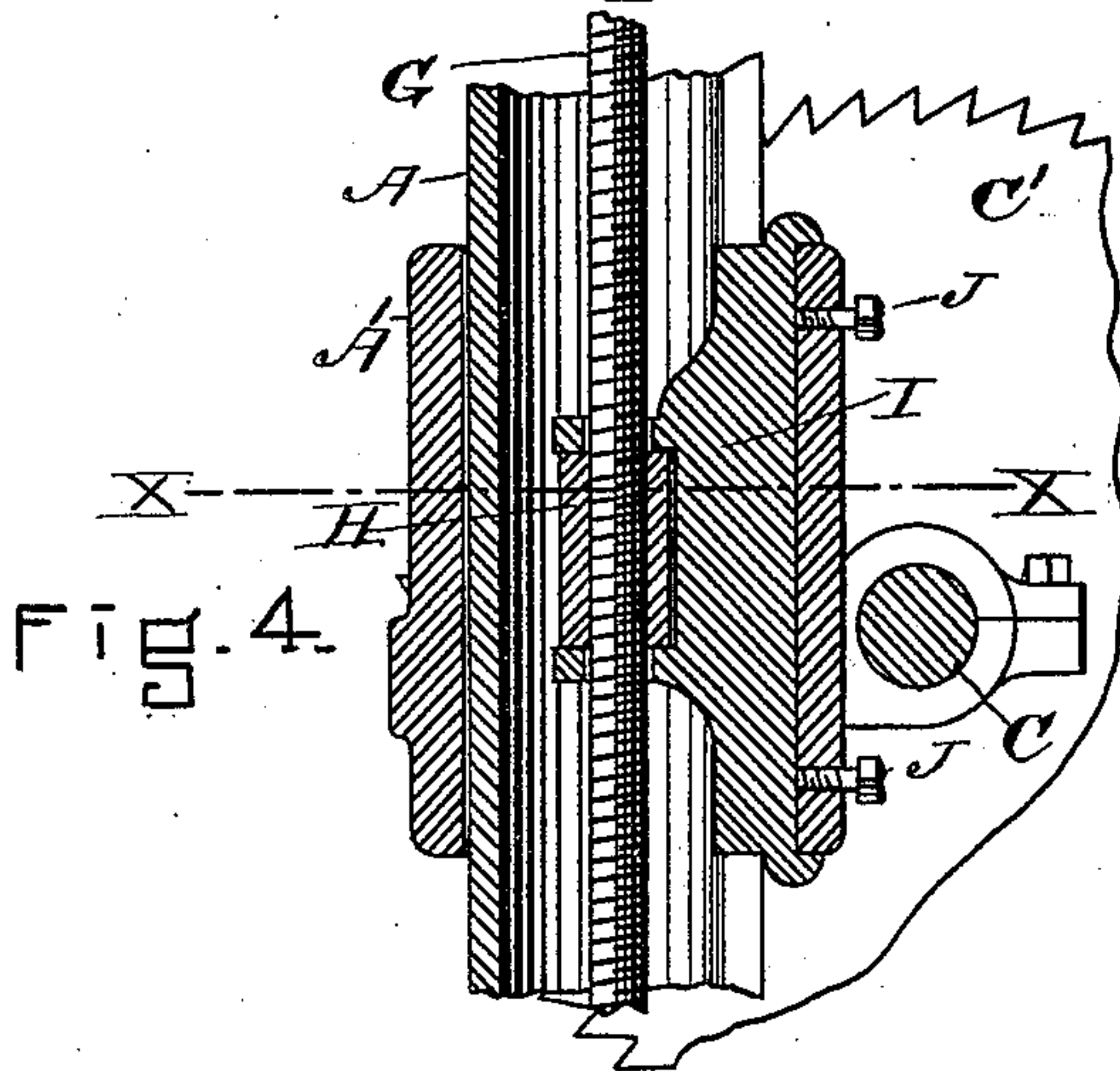


FIG. 4.

WITNESSES.

Frank H. Parker.
Henry B. Leach

INVENTOR.

William Steers

UNITED STATES PATENT OFFICE.

WILLIAM STEERS, OF BOSTON, MASSACHUSETTS.

MACHINE FOR SAWING METAL.

SPECIFICATION forming part of Letters Patent No. 441,597, dated November 25, 1890.

Application filed September 4, 1890. Serial No. 363,907. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STEERS, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Cutting Cold Metal, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to provide an automatic machine for cutting cold metals in a simple and expeditious manner. I attain this object by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a plan of the top of the same. Fig. 3 is a detail view in section to show the ball-bearing for the worm; Fig. 4, a section on line *y y* of Fig. 1; Fig. 5, a section on line *x x* of Fig. 4.

Similar letters refer to similar parts throughout the several views.

Referring to the drawings, A, Fig. 1, shows the main column or standard with sleeve A', having brackets A² and A³, with bearings C² C³ for the saw-shaft C.

B, Fig. 1, is the actuating-shaft with its worm P and bevel-gears b' and d'.

B', Fig. 1, is a crank for operating the shaft G.

B² and B³ are the ratchet-wheel and pawl.

B⁴ is a slotted arm to which the pawl is attached. b is a disk with slot b² and crank-pin b².

C, Fig. 1, is a shaft resting in bearings C² C³, to which the gear c and the saw C' are attached.

D, Fig. 1, is a shaft resting in bearings C³ C⁴ on a bracket C⁴.

E, Fig. 1, is the driving-shaft.

E', Fig. 1, is the pulley or driving-wheel.

F F and f f, Fig. 1, are screw-clamps for holding the work in position.

C⁵ is a guide for preventing the saw from springing out of position.

C⁶, Fig. 1, is an ordinary oil-cup.

G, Figs. 1, 4, and 5, shows the rod for operating the feed-motion.

H, Figs. 4 and 5, shows the nut, and I the feather moving in the spline of the standard A.

J J, Figs. 1, 4, and 5, show the set-screws for keeping the feather in position.

p p, Fig. 3, show the anti-friction balls upon which the worm P revolves.

The operation of the machine is as follows:

The sleeve A', with its brackets A² A³, shaft C, and bearings C² C³, form a carriage for the saw. Said carriage, with the saw, is moved up and down on the standard A by the rod G and crank B', and is prevented from turning by the nut H moving in spline and feather I. The metal to be cut is placed in the receptacle at the base of the machine and clamped and held firmly by the screw-clamps F F and f f. The saw-carriage is then moved down until the saw touches the metal to be cut. The variable feed-motion is then adjusted by moving the crank-pin b² in the slot in the disk b, from the center of the disk, making an eccentric feed-motion for the ratchet and pawl. The motion can be regulated to feed fast or slow by taking in more or less teeth at each revolution of the eccentric. Upon the bracket A² of the saw-carriage A' is the ball-bearing for the worm P. The worm P engages the gear-wheel c on shaft C. Said worm moves vertically on the actuating-rod B in the spline p², being prevented from turning by the feather p'. The anti-friction balls relieve the strain upon the bearing of the worm shown in section in Fig. 3. The actuating-rod B is revolved by the driving-wheel E', pinion c, and gear-wheel d and bevel-gears b' d'. The saw-carriage, with the saw, can be raised very easily, after the metal has been cut, to a position to allow the work to be taken out. The rod G is prevented from reciprocating by a shoulder bearing against the under side of the cap on the top of the standard A. This shoulder prevents the rod from moving up the sleeve on the crank B', and the nut g prevents it from moving down.

This machine can be operated by power or hand-crank motion.

I claim—

1. In a machine for cutting cold iron, steel, and other metals, the combination of the movable saw-carriage and saw with the actuating device and variable-feed mechanism, substantially as described, and for the purpose set forth.

2. In a machine for cutting cold metals, the combination of a movable saw-carriage and

standard, the actuating-shaft having a slotted disk, with the non-reciprocating feed-motion rod, having an adjustable arm, ratchet, and pawl, substantially as described, and for the purpose set forth.

3. In a machine for cutting cold metals, the combination of the worm P, arranged and adapted to revolve with and reciprocate upon the actuating-shaft B, with the anti-friction balls *p p*, inserted in suitable grooves between the worm P and the bracket A², substantially as described, and for the purpose set forth.

4. In a machine for cutting cold metals, the combination of the non-reciprocating shaft B, disk *b*, having a slot and crank-pin, with the slotted arm B¹, carrying pawl B³, ratchet-wheel B², and non-reciprocating shaft G, arranged and adapted to operate together, sub-

stantially as described, and for the purpose set forth.

5. In a machine for cutting cold metals, the combination of the standard A, carriage A', shaft C, carrying the saw C', and the gear-wheel *c*, geared to worm P, actuating-shaft B, bevel-gears *b'* and *d'*, running in connection with shaft D, with its gear *d* geared to pinion *e*, shaft E, and driving-wheel E', substantially as described, and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 29th day of August, A. D. 1890.

WILLIAM STEERS.

Witnesses:

HENRY B. LEACH,
J. A. AREY.