

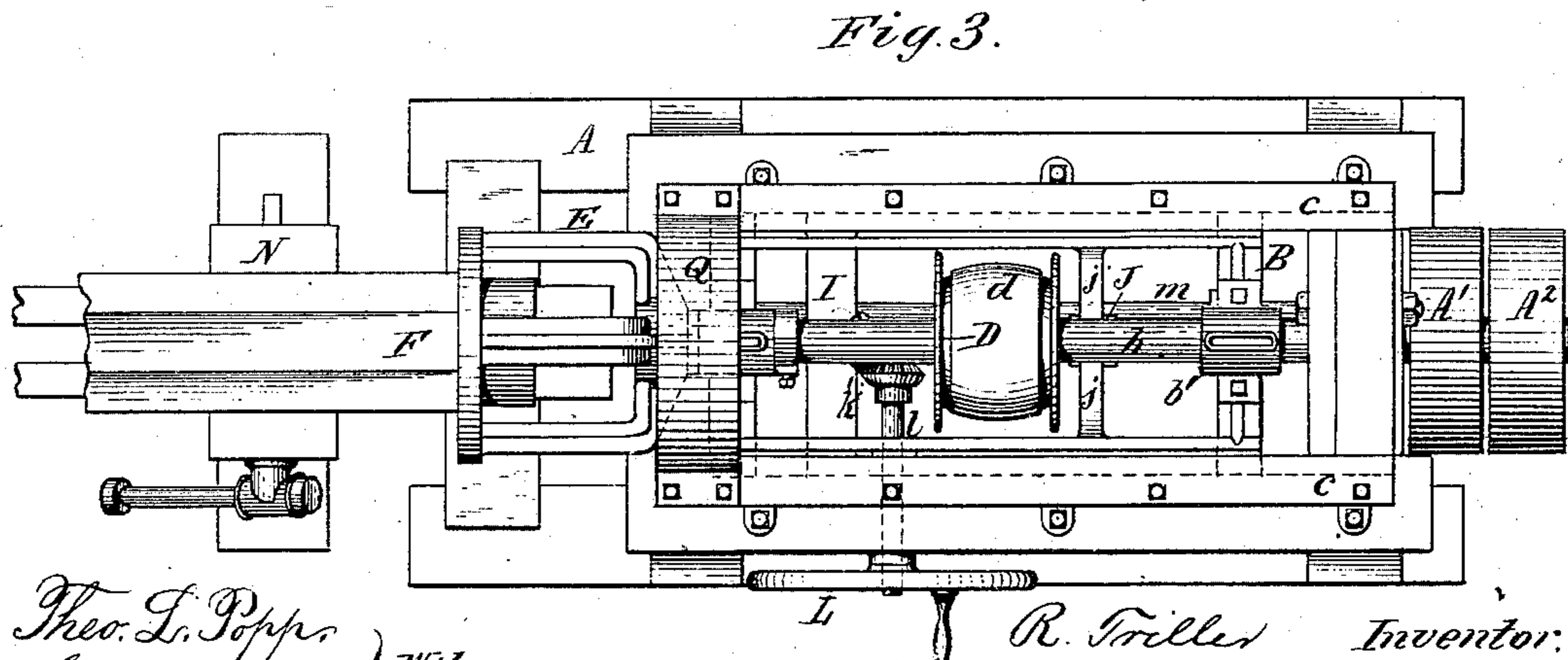
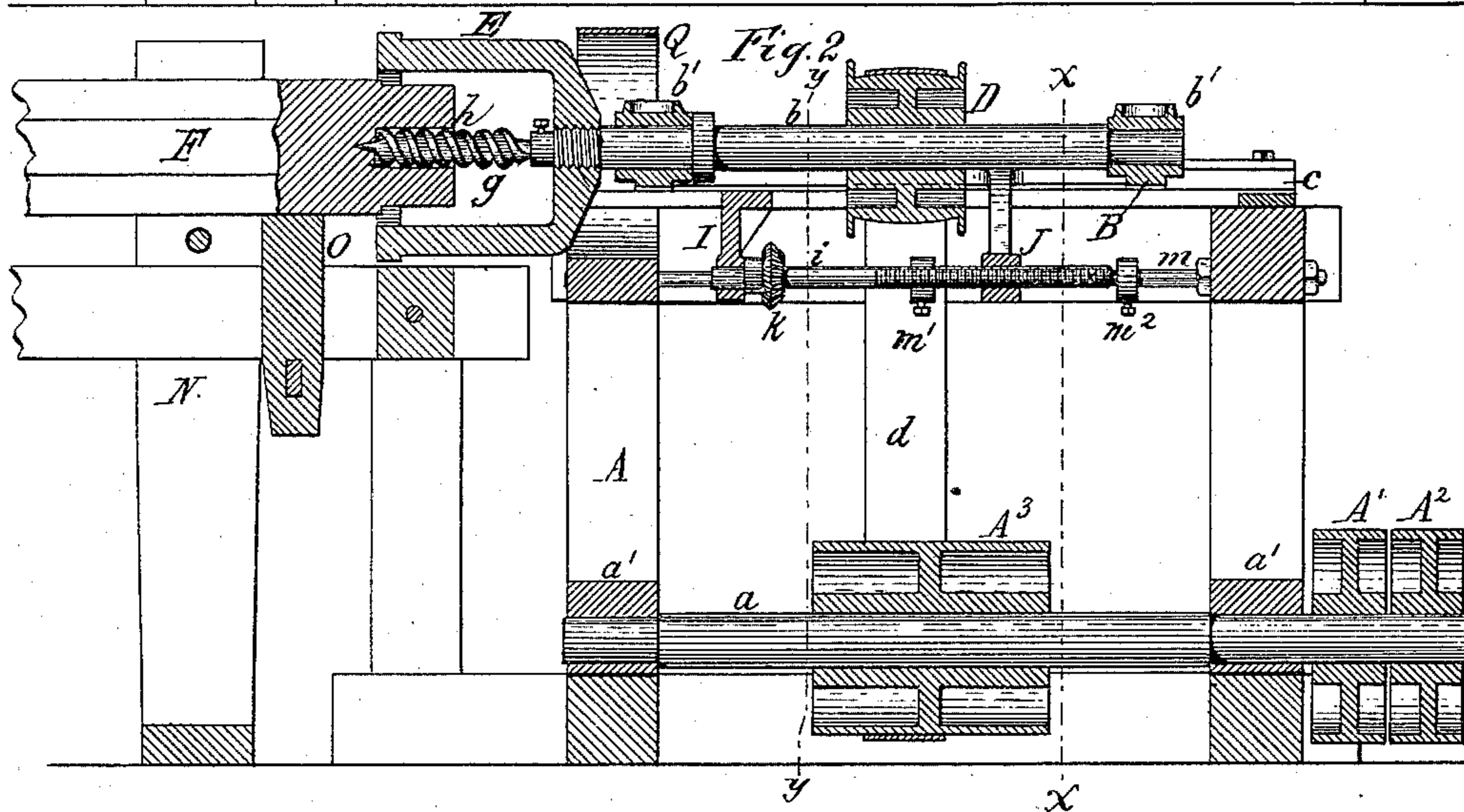
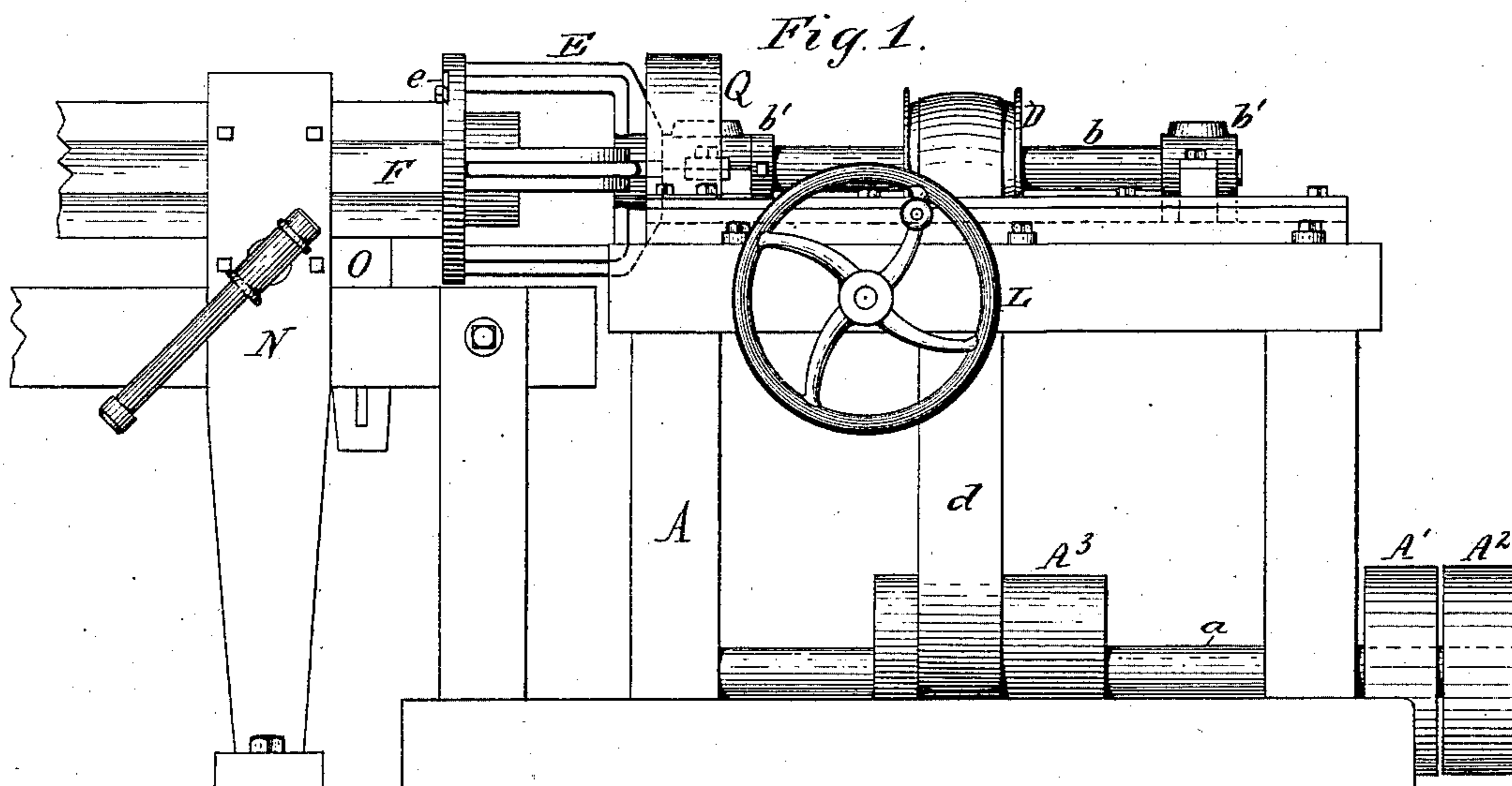
(No Model.)

2 Sheets—Sheet 1.

R. TRILLER.
TENONING AND BORING MACHINE.

No. 312,530.

Patented Feb. 17, 1885.



Theo. L. Popp
Geo. E. Pitman } Witnesses.

R. Triller Inventor.
By Wilhelm Bonner
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

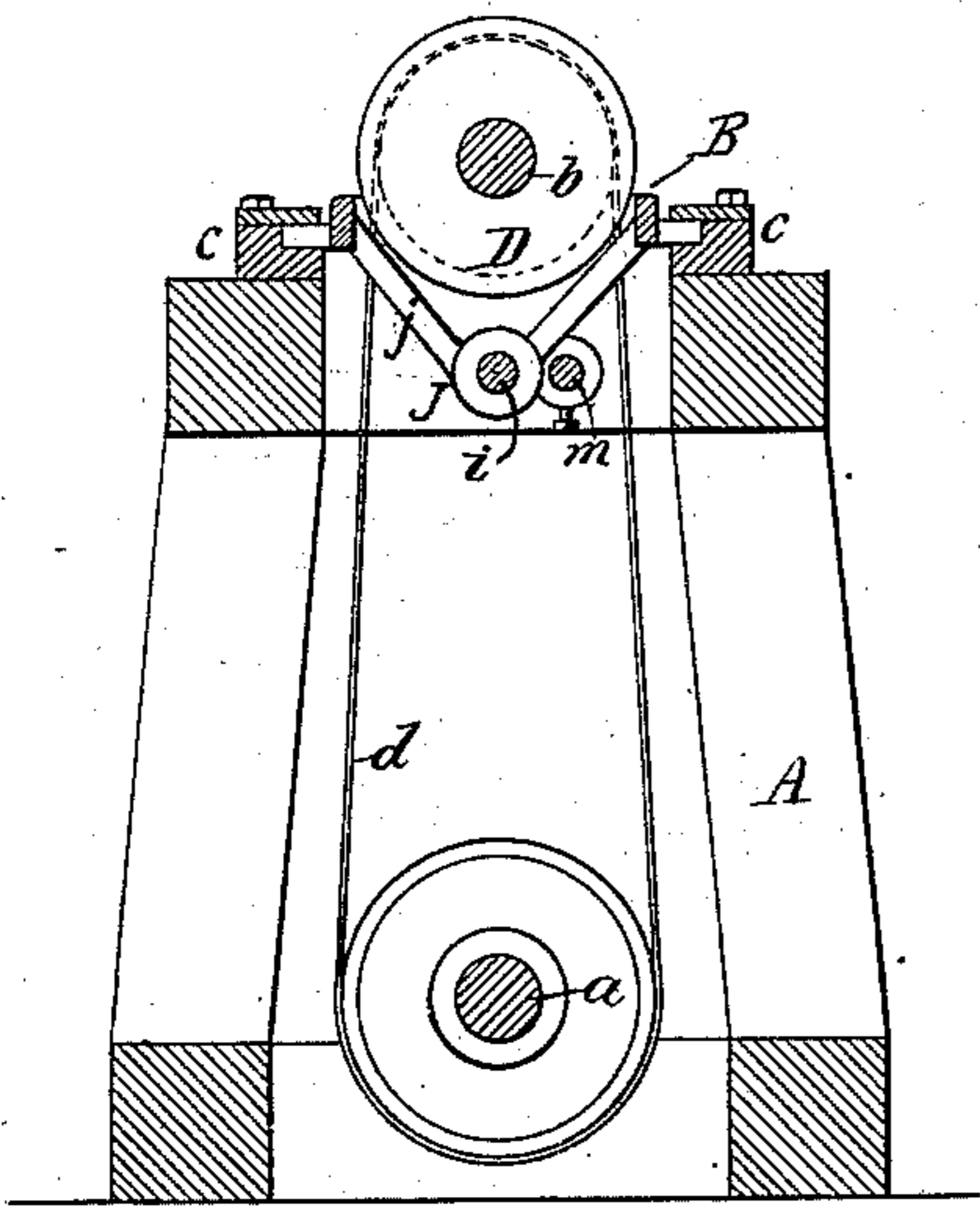


Fig. 5.

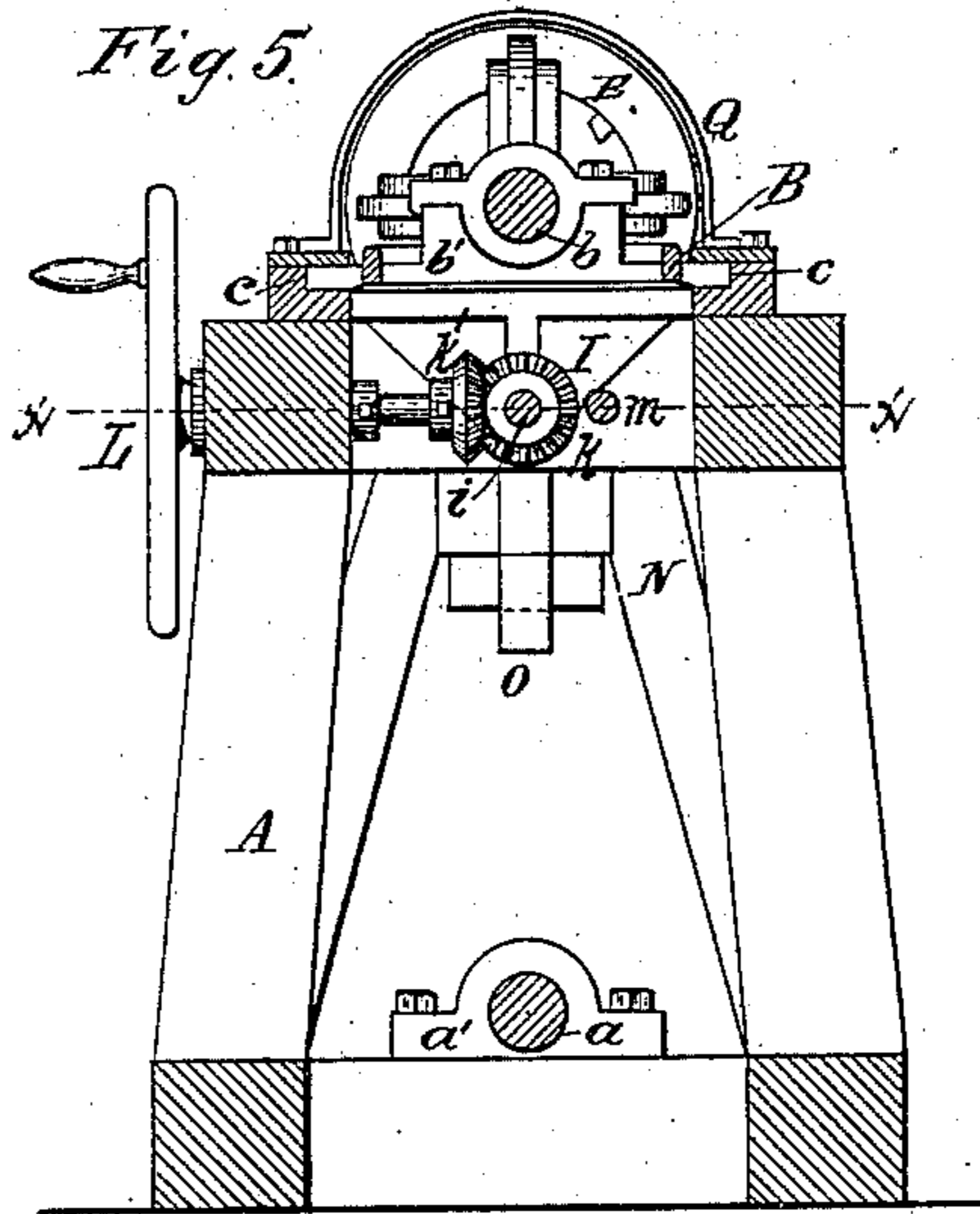


Fig. 6.

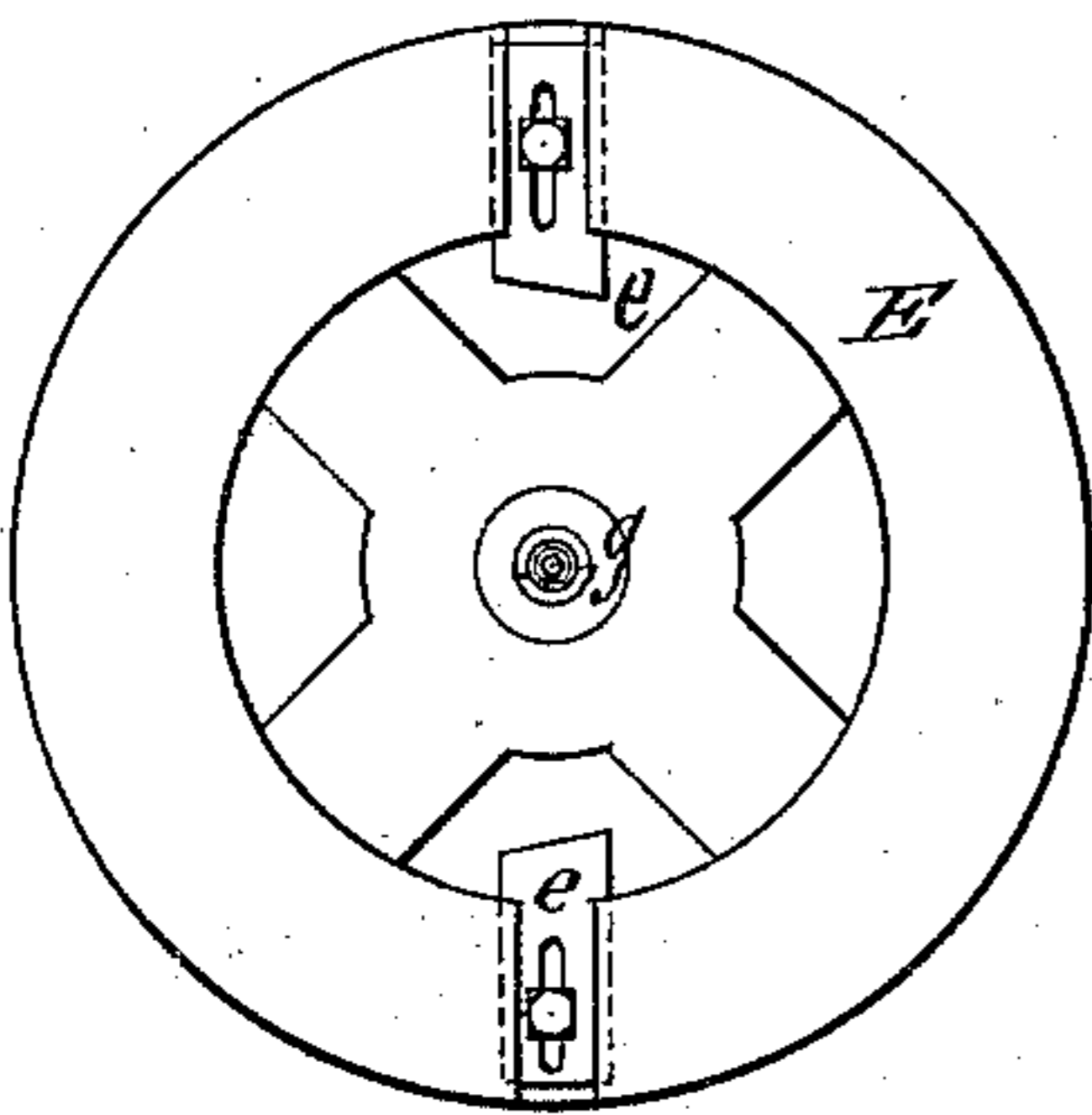


Fig. 7.

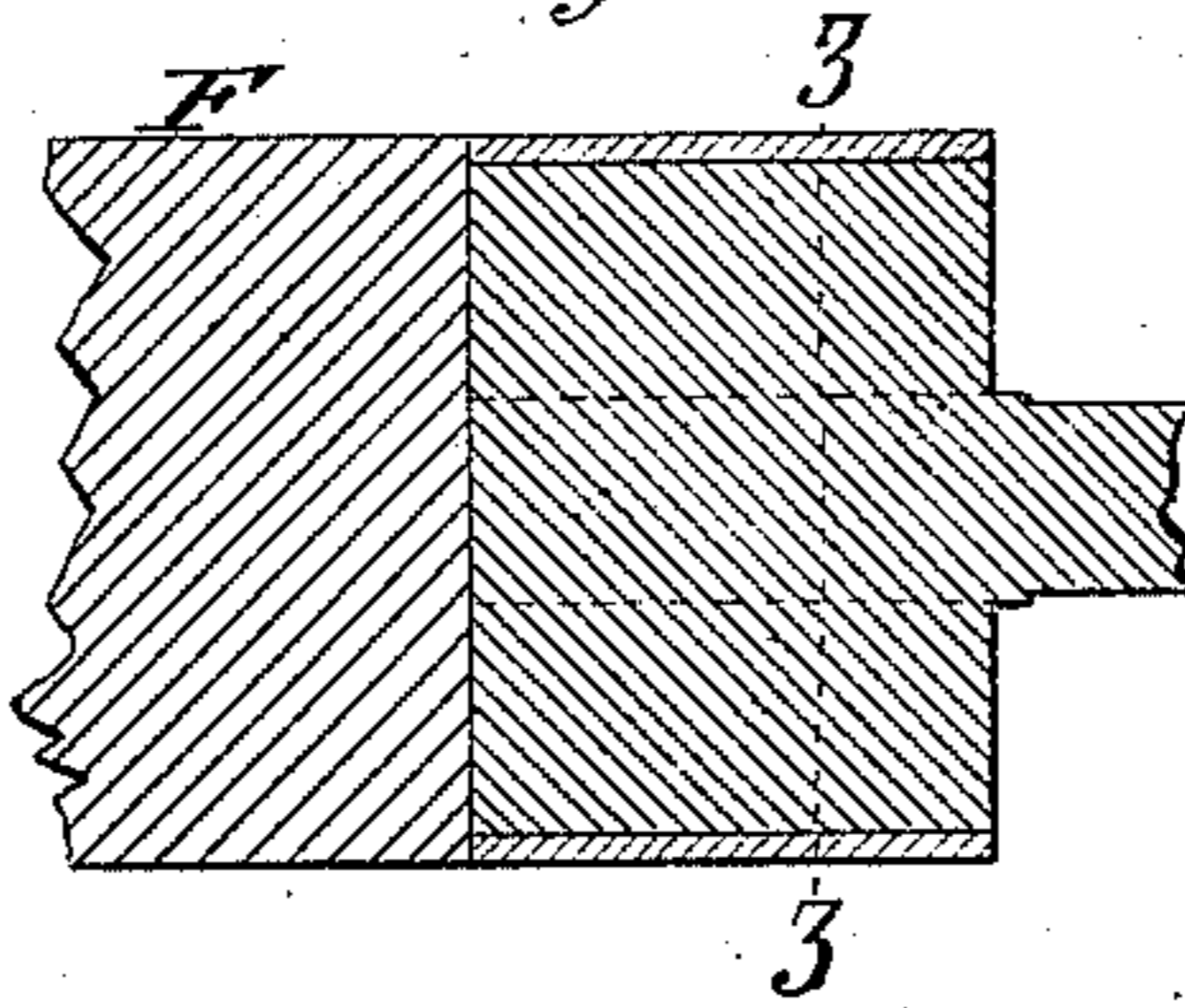


Fig. 8.

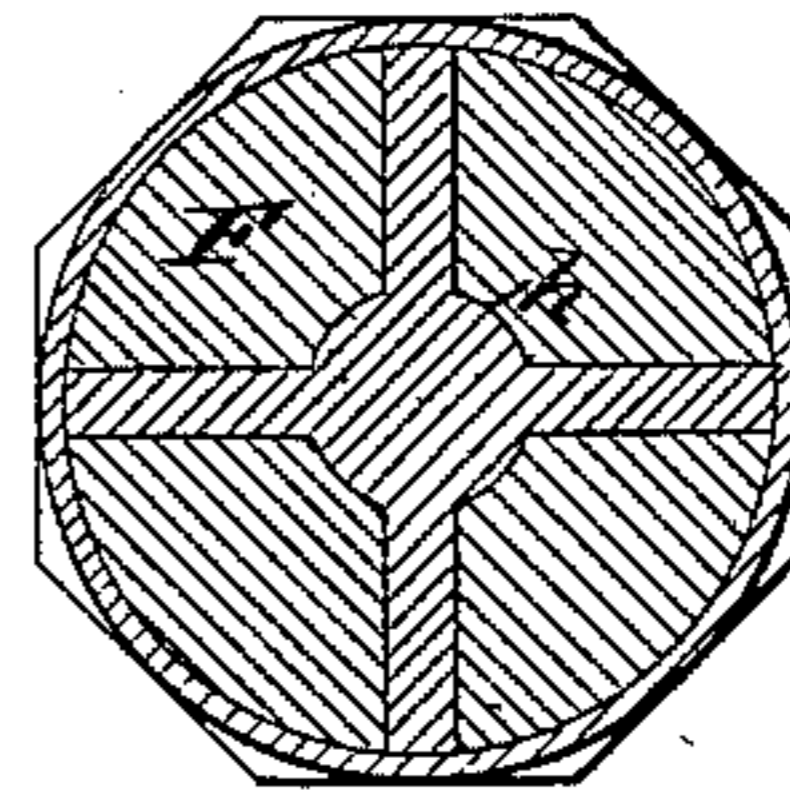
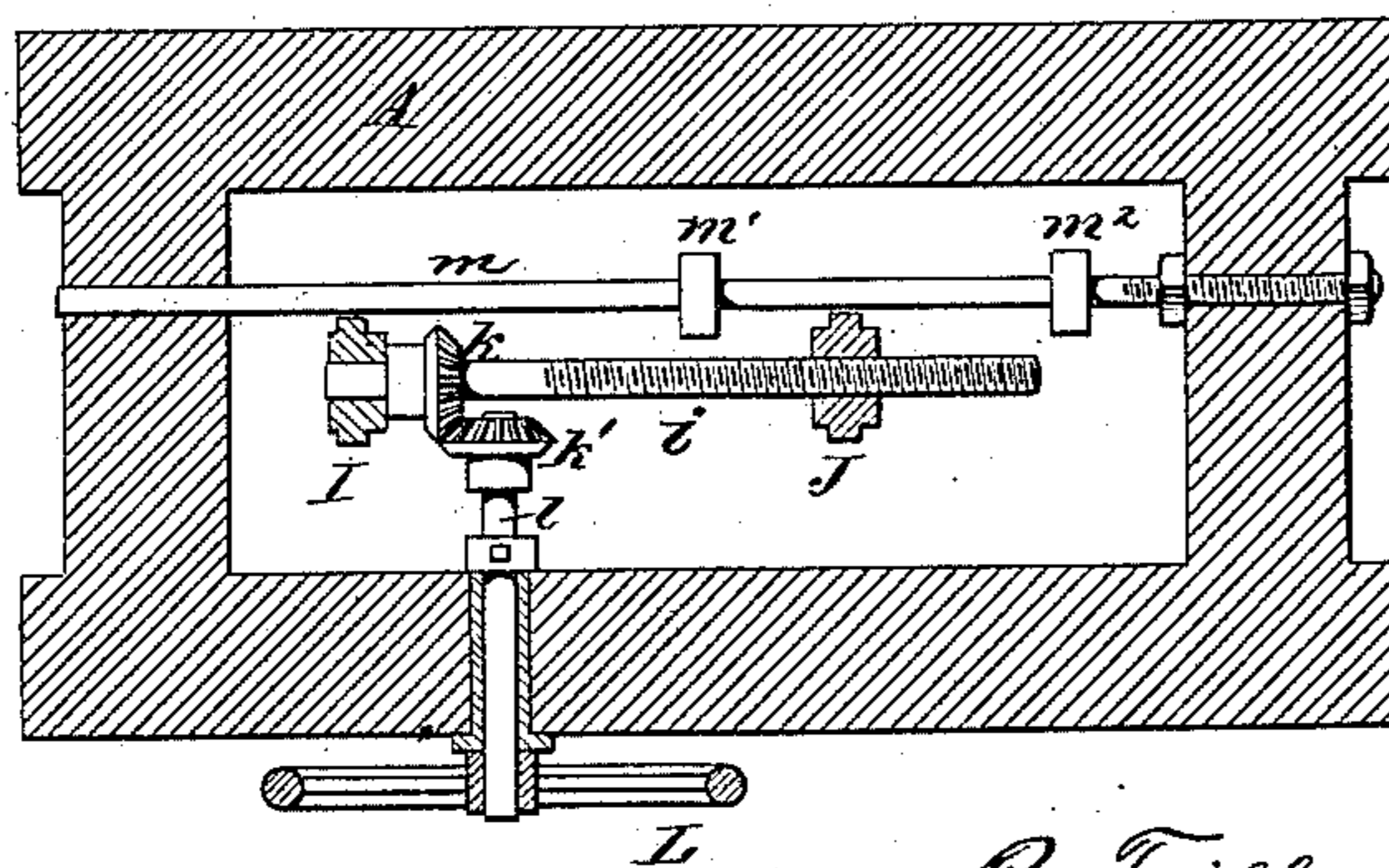


Fig. 9.



Theo. L. Popp.
Geo. E. Pitman } Witnesses.

R. Triller. Inventor.
By Wilhelm Ronner.
Attorneys.

UNITED STATES PATENT OFFICE.

RICHARD TRILLER, OF BUFFALO, NEW YORK, ASSIGNOR TO THE JOHN T. NOYE MANUFACTURING COMPANY, OF SAME PLACE.

TENONING AND BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 312,530, dated February 17, 1885.

Application filed January 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, RICHARD TRILLER, of the city of Buffalo, in the county of Erie and State of New York, have invented new and
5 useful Improvements in Machines for Trimming Wooden Shafts, of which the following is a specification.

This invention relates to a machine for preparing the end of a wooden shaft for the reception of a metallic gudgeon which contains
10 a central cylindrical shaft or stud which is seated in the end of the wooden shaft, and a cylindrical hoop or band which surrounds the end of the wooden shaft and concentric with
15 the shaft of the gudgeon.

The object of my invention is to produce a machine by which the outer surface of the wooden shaft can be turned off for the reception of the cylindrical hoop at the same time
20 that the central opening is formed in the end of the wooden shaft for the reception of the central shaft of the gudgeon, thereby insuring the proper concentric arrangement of the central opening within the outer cylindrical
25 surface of the end of the shaft.

My invention consists, to that end, of the improvement in the construction of the machine, which will be hereinafter fully set forth, and pointed out in the claims.

30 In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved machine. Fig. 2 is a longitudinal sectional elevation thereof; Fig. 3, a top plan view. Figs. 4 and 5 are cross-sections in
35 lines *xx* and *yy*, Fig. 2, respectively. Fig. 6 is an end elevation of the cutter-head on an enlarged scale. Fig. 7 is a longitudinal section of the end of the wooden shaft, with a gudgeon applied thereto. Fig. 8 is a cross-
40 section on line *zz*, Fig. 7. Fig. 9 is a horizontal section in line *xx*, Fig. 5.

Like letters of reference refer to like parts in each of the figures.

45 A represents the stationary frame, in which the working parts of the machine are supported.

a is the horizontal driving-shaft, arranged lengthwise in the lower part of the frame A, and supported in bearings *a'*.

A' *A*² represent a tight and loose pulley, 50 mounted on the end of the shaft *a*, outside of the frame A.

*A*³ is a long driving-pulley, secured to the shaft *a* within the frame A.

b represents the longitudinal shaft of the 55 cutter mechanism, arranged parallel with the shaft *a* and above the same. The shaft *b* is supported in bearings *b'*, formed on a carriage, B, which slides in horizontal ways or guides *c*, secured to the upper side of the frame A. 60

D represents a pulley secured to the shaft *b* between the bearings *b'*; and *d* is an endless belt, whereby motion is transmitted from the pulley *A*³ to the pulley D. The latter is provided with marginal rims or flanges, whereby 65 the belt *d* is held on the pulley D, and compelled to follow the longitudinal movement of the pulley D as the carriage B moves back and forth on the ways *c*.

E represents the cutter-head, secured to one 70 end of the shaft *b*, and consisting of an open frame which surrounds the end of the wooden shaft F which is being operated upon.

The cutter-head E is provided at its outer end with adjustable cutters *e*, which are 75 adapted to turn off the outer surface of the end of the wooden shaft F. One of these cutters is constructed with a pointed edge adapted to produce a deep cut, and the other cutter is constructed with a flat edge adapted to 80 smooth the ridges left by the preceding cutter.

g represents an auger secured axially in the cutter-head E, and adapted to bore a hole, *h*, centrally into the end of the wooden shaft F. 85 The shank of the auger *g* is removably secured by a set-screw or otherwise in a socket formed in the end of the shaft *b*, within the cutter-head E, so that augers of different diameters can be inserted, if desired. 90

i represents the feed-screw, whereby the carriage B is moved back and forth in the ways *c* toward and from the end of the wooden shaft F. The feed-screw *i* is held against longitudinal movement in a bearing, I, secured 95 to the upper portion of the stationary frame A. The threaded portion of the feed-screw *i* engages in a screw-nut, J, formed in the car-

riage B, the nut J being connected with the side pieces of the carriage B by inclined bars or braces *j*, as represented in Fig. 4.

k represents a bevel-wheel secured to the feed-screw *i*, and *k'* represents a bevel-wheel which meshes with the wheel *k*, and is secured to the inner end of a shaft, *l*, which is supported in the upper portion of the stationary frame A, and provided at its outer end with a hand-wheel, L, by which it can be turned.

m represents a horizontal bar or rod, secured in the upper portion of the frame A, parallel with the feed-screw *i*, and provided with two adjustable stops or collars, *m'* *m''*, whereby the movement of the carriage B is limited.

N represents a clamp or vise, whereby the wooden shaft F, which is to be trimmed, is held in position; and O represents a block upon which the end of the wooden shaft is supported.

Q represents a cover or guard, which protects the inner end of the cutter-head E.

Upon turning the hand-wheel L in one or the other direction the carriage B is moved backwardly or forwardly in the ways *c*. The movement of the carriage B in either direction is limited by the nut J striking against one of the collars *m'* *m''*.

Upon moving the carriage B backward until the nut J rests against the collar *m''*, the machine is made ready for operation. The wooden shaft F to be trimmed is now placed with its end opposite the cutter-head E and secured in position by the clamp N. The cutter-head is now set in motion, and the carriage B is fed forward toward the shaft F by means of the hand-wheel L. As the cutter-head moves for-

ward the cutters *e* turn off the outer surface of the shaft F, and the auger *g* bores a hole axially into the end of the shaft F concentric with the outer cylindrical surface formed by the cutters *e*. This operation is continued until the nut J strikes against the collar *m'*. The latter is so adjusted on the rod *m* that the wooden shaft is trimmed to the desired length when the carriage B reaches the limit of its forward movement. The movement of the carriage B is now reversed and the carriage returns to its former position, when the trimmed shaft F is removed from the machine and another shaft put in its place. In this manner the outer cylindrical surface and the axial hole are formed in the shaft simultaneously and in their proper relative position, thereby greatly expediting the operation of preparing the wooden shafts for the reception of metallic gudgeons, and insuring correct and uniform work.

I claim as my invention—

The combination, with the clamp N, of the frame A, provided with horizontal guides *c*, the carriage B, provided with screw-nut J, the shaft *b*, provided with cutter-head E and auger *g*, the feed-screw *i*, the shaft *l*, arranged at right angles to the feed-screw, and provided with a hand-wheel, L, the bevel-wheels *k* *k'*, connecting the shaft *l* with the feed-screw, stops *m'* *m''*, driving-shaft *a*, and driving-belt *d*, substantially as set forth.

Witness my hand this 7th day of January, 1884.

RICHARD TRILLER.

Witnesses:

JNO. J. BONNER,
CHAS. F. GEYER.