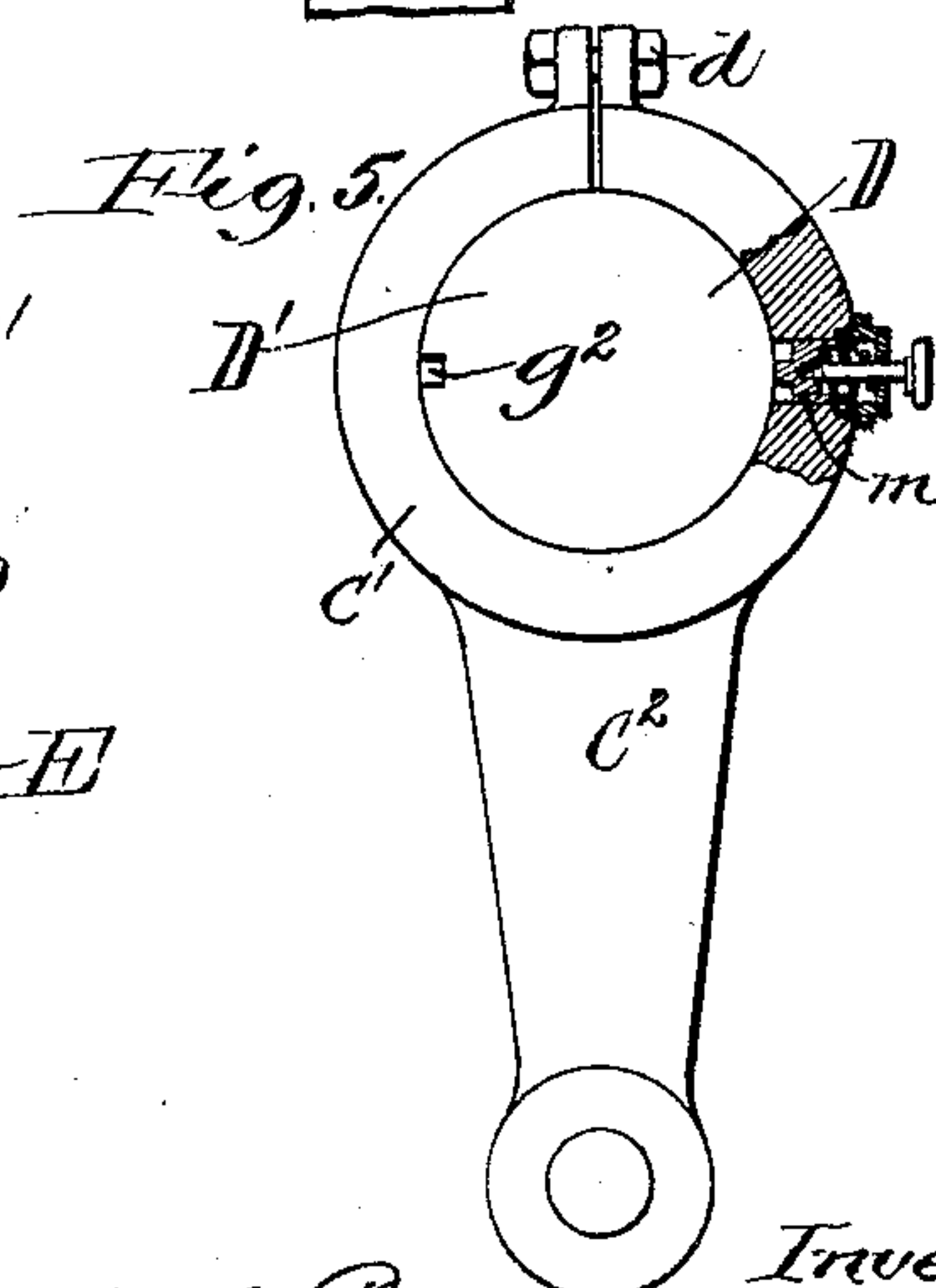
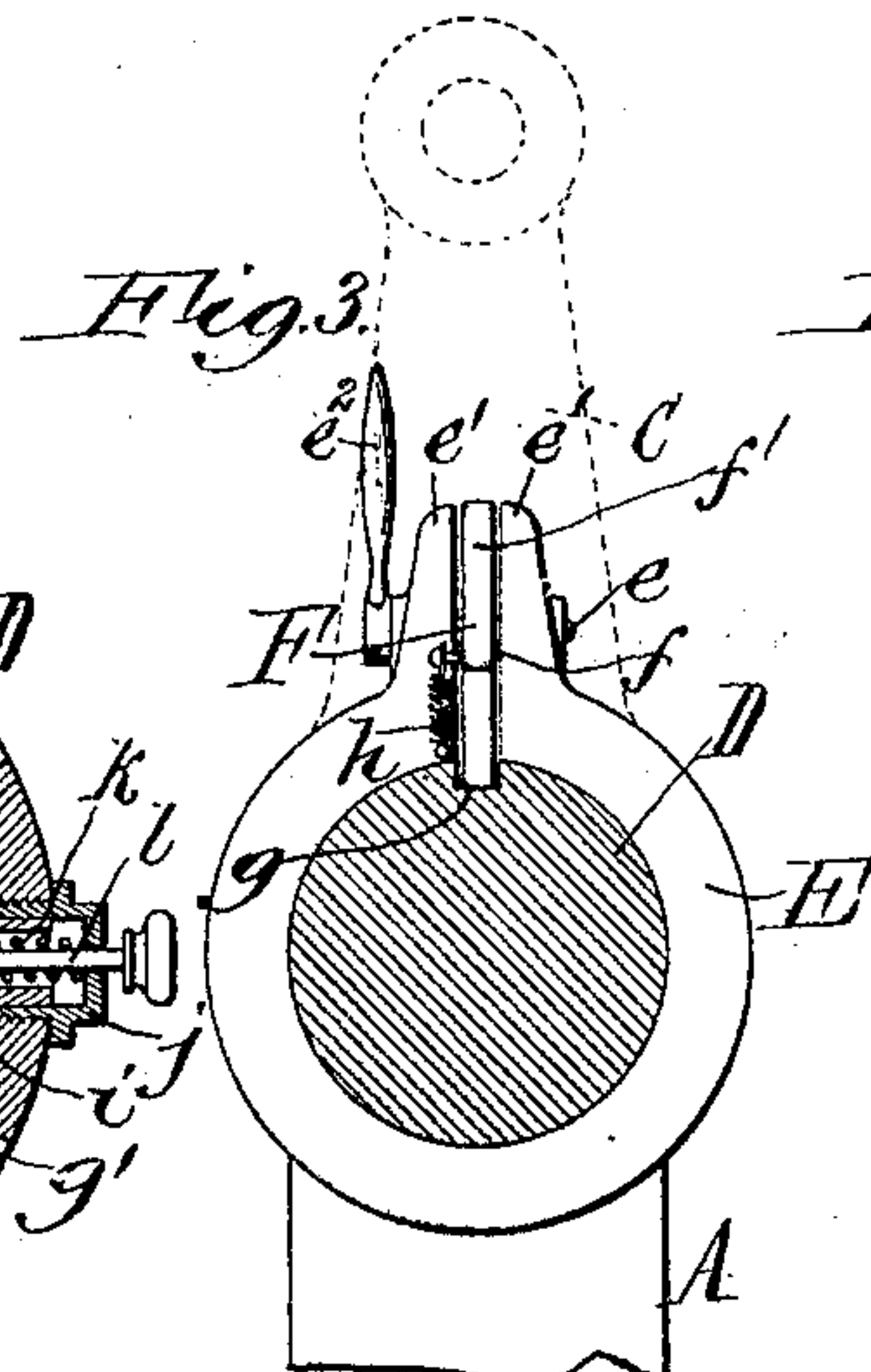
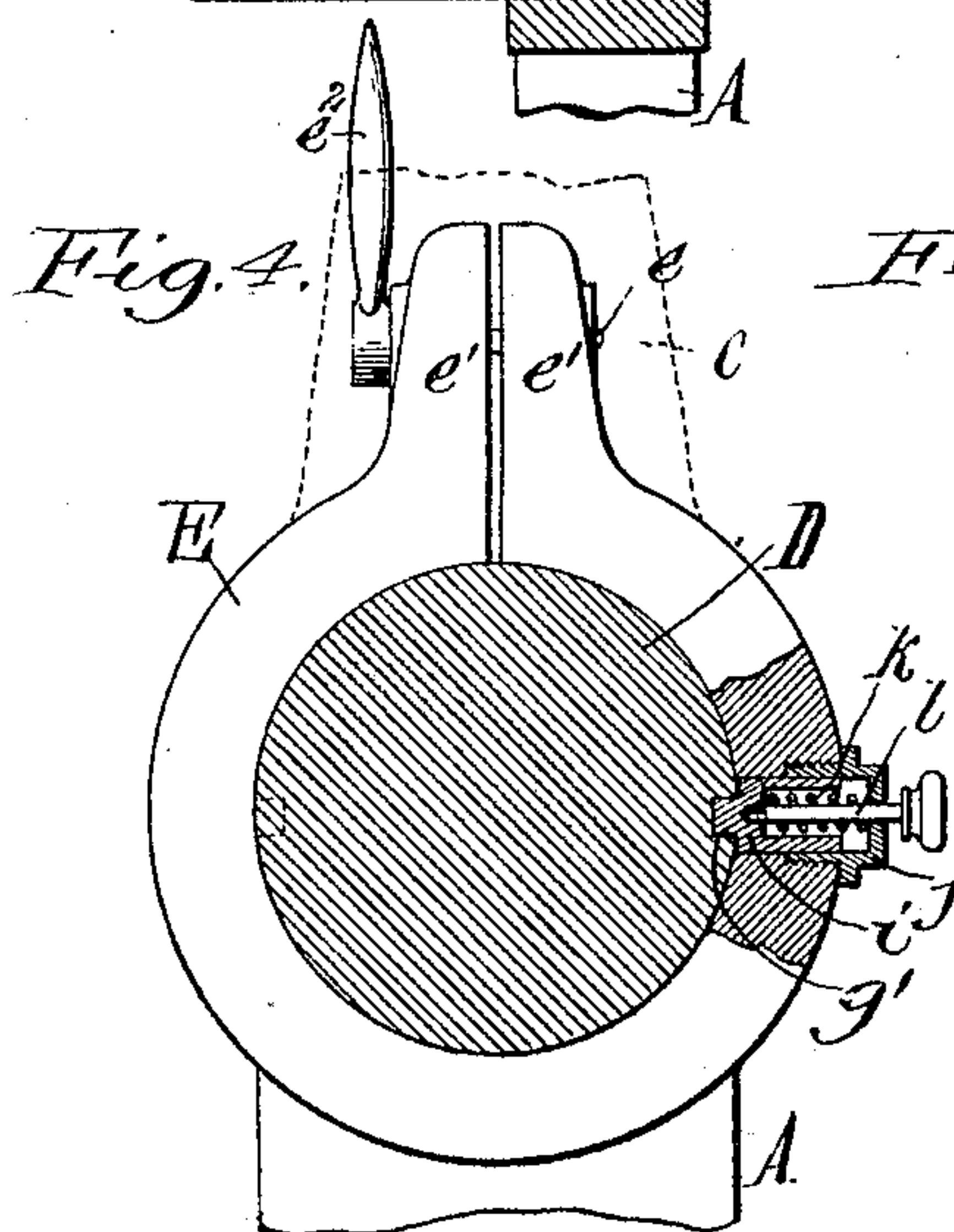
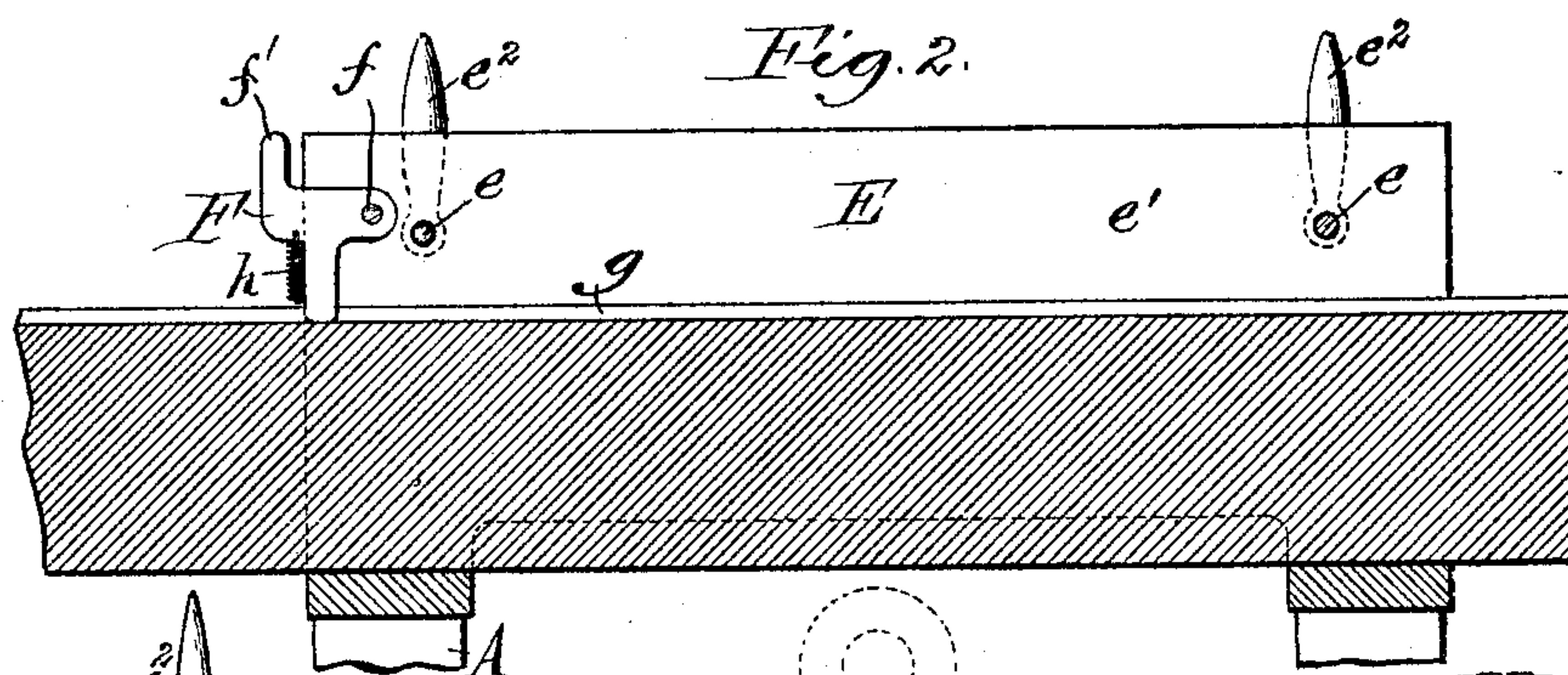
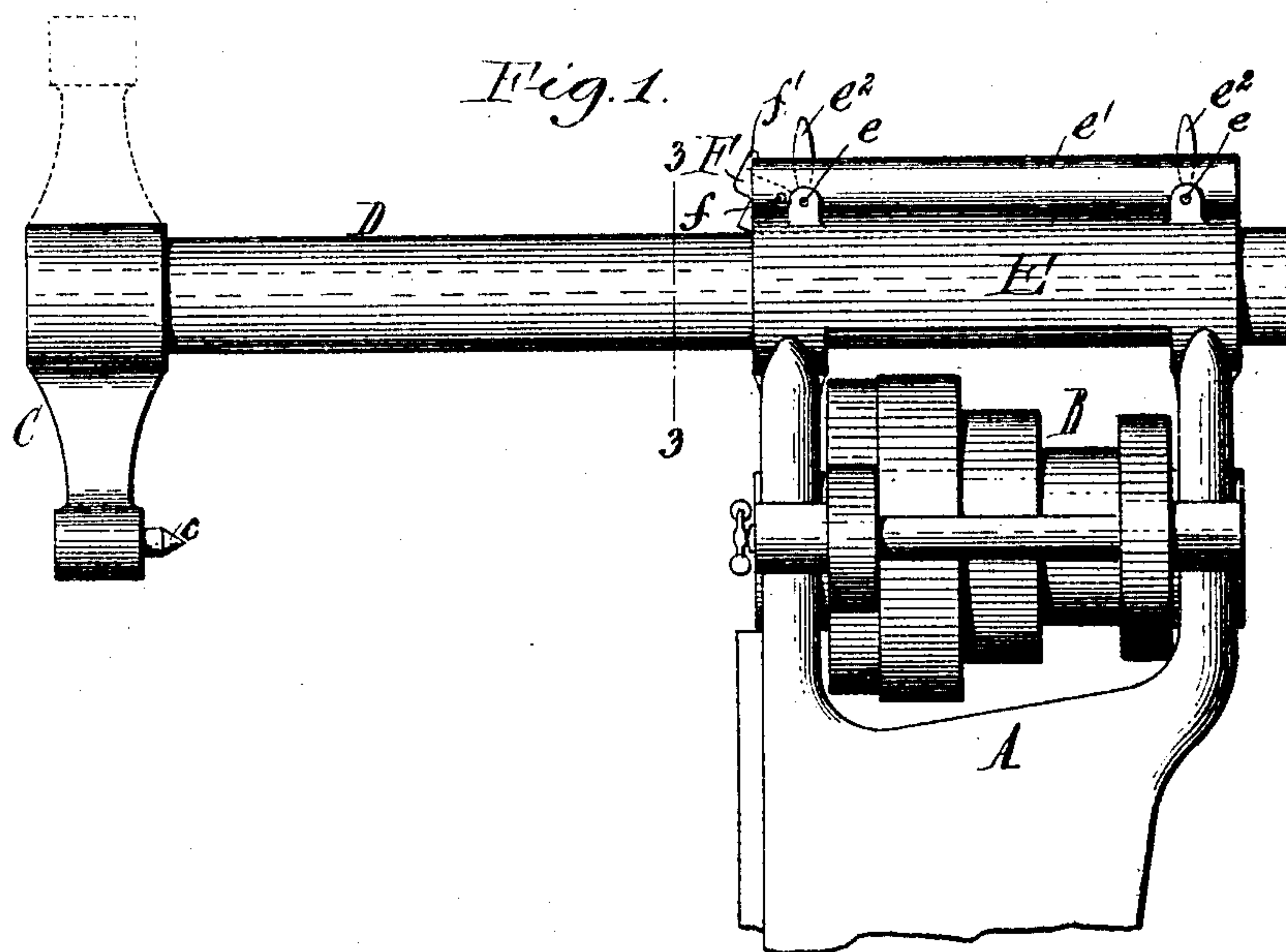


No. 799,616.

PATENTED SEPT. 12, 1905.

W. J. PARKINSON.
MILLING MACHINE.

APPLICATION FILED OCT. 20, 1904.



Louis W. Gratz }
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Witnesses:

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UNITED STATES PATENT OFFICE.

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MILLING-MACHINE.

No. 799,616.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed October 20, 1904. Serial No. 229,274.

To all whom it may concern:

Be it known that I, WILLIAM J. PARKINSON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Milling-Machines, of which the following is a specification.

This invention relates to that class of milling-machines in which the outer center is supported by a depending arm or hanger which is carried by an overhanging arm capable of longitudinal adjustment on the head of the machine and also capable of rotation in its bearing to permit the hanger to be elevated or turned out of the way when not in use. This hanger is usually held in either of its positions by clamping-screws, which contract the split bearing of the overhanging arm. It sometimes happens that the operator neglects to clamp this arm after elevating the hanger, in which case the latter is liable to swing down accidentally and damage the cutter or the work.

It is the object of my invention to provide the machine with a safety device which automatically locks the hanger when turned to its inoperative position, thus rendering it impossible to elevate the same without at the same time locking it in place.

In the accompanying drawings, Figure 1 is a side elevation of the upper portion of a milling-machine containing my invention. Fig. 2 is a fragmentary longitudinal section of the head of the machine, on an enlarged scale, showing the overhanging arm locked for retaining the hanger in its inoperative position. Fig. 3 is a transverse section in line 3-3, Fig. 1. Fig. 4 is a similar section showing a modified construction of the locking device. Fig. 5 is an end view of the overhanging arm and the hanger, showing another modification of the improvement.

Similar letters of reference indicate corresponding parts throughout the several views.

A is the head or upper portion of the machine, and B the usual cone-pulley, mounted on the cutter-spindle, which latter is journaled in the head in a well-known manner.

C is the hanger, which carries the outer center *c* of the machine and which is secured to the outer end of the usual overhanging arm D. This arm, which is of the usual cylindrical form, is clamped in the customary split bearing E at the top of the machine by the trans-

verse screws *e*, passing through the jaws or flanges *e'* of the bearing and having the handles *e''*. Upon loosening these screws the arm can be adjusted lengthwise in its bearing for changing the distance between the centers, or it may be turned therein for swinging the hanger up out of the way when not required, as shown by dotted lines in Figs. 1 and 3.

F, Figs. 1, 2, and 3, indicates an automatic lock or locking device for retaining the hanger in its reversed or inoperative position. In its preferred form this locking device consists of a vertically-swinging pawl arranged at the front end of the head A and pivoted between the jaws *e'* of the bearing E by a transverse pin *f*. The arm D is provided in its under side with a longitudinal groove *g*, with which the pawl F is adapted to interlock automatically when the arm is given the necessary half-turn to bring the hanger above the arm, as shown in Figs. 2 and 3, thereby positively locking the arm in that position until released by withdrawing the pawl from its groove. By providing the machine with such an automatic lock the hanger is reliably locked in its elevated position in the act of reversing it. Its retention in its upper position is not, therefore, dependent on a separate act of the operator, which is liable to be neglected or forgotten, and all danger of injuring the cutter or the work by the accidental falling down of the hanger is averted.

The locking-pawl has a thumb-piece *f'* for lifting it out of engagement with the groove of the shaft. It is preferably pivoted in an overhanging position, as shown, so as to engage by gravity with the groove of the arm D, and, if desired, it may be provided with a spring *h* to insure its engagement with the groove. This spring is fastened at one end to the front portion of the pawl and at its other end to the bearing E, as best shown in Fig. 3. By extending the locking-groove *g* throughout the length of the arm D the same will interlock with the pawl in all longitudinal adjustments of the hanger.

I do not wish to be limited to the particular locking means herein shown and described, as various other automatic locks or catches could obviously be employed without departing from the spirit of my invention. For example, Fig. 4 illustrates a lock of the spring-bolt type. In this case the sliding bolt *i* is preferably arranged at one side of the bear-

ing E and the locking-groove g' is properly located to engage the bolt when the hanger is reversed to its upper position, as shown. In the construction shown the bolt is hollow and slides in a radial opening in the bearing and a cap j , screwed into an enlargement of the opening. A spring k surrounds the stem l of the bolt between the bottom of its bore and the cap j .

10 My invention is also applicable to a construction in which the hanger is reversible on the overhanging arm instead of securing it permanently to the arm and reversing the latter in its bearing. Such a modification of the
15 invention is shown in Fig. 5. In this case the hub C' of the hanger C^2 is split and clamped upon the arm D' by one or more bolts d . This hub carries an automatic lock, such as a spring-bolt m , which is adapted to engage
20 in the longitudinal locking-groove g^2 of the arm when the hanger is reversed to its upper position. Before reversing the hanger its clamping-bolt d is slackened, and as soon as the hanger reaches an upright position the
25 spring-bolt m interlocks with the groove of the arm, retaining the hanger in its elevated position.

My improved locking attachment is exceedingly simple in construction and can be readily
30 applied to existing as well as new milling-machines.

I claim as my invention—

1. In a milling-machine, the combination

with the head, of an overhanging arm mounted in the head and having a longitudinal groove, 35 a hanger supported by the arm and carrying the outer center, means for retaining the arm and hanger in their normal position, and automatic locking means for the hanger arranged to engage with said groove when the hanger 40 is elevated to its inoperative position, substantially as set forth.

2. In a milling-machine, the combination with the head, of an overhanging arm capable of rotary and longitudinal movement in the 45 head and provided with a longitudinal groove, a hanger for the outer center carried by said arm, and an automatic locking member mounted on the head and adapted to engage with said groove, substantially as set forth. 50

3. In a milling-machine, the combination with the head having a bearing, of an overhanging arm capable of rotary and longitudinal movement in said bearing and provided in its under side with a longitudinal groove, 55 a hanger for the outer center carried by said arm, and a locking-pawl pivoted to said bearing above the overhanging arm and adapted to interlock with the groove thereof, substantially as set forth. 60

Witness my hand this 18th day of October, 1904.

WILLIAM J. PARKINSON.

Witnesses:

C. F. GEYER,

E. M. GRAHAM.