

(No Model.)

G. & H. HONIG.  
MEANS FOR OPERATING ENGINES.

No. 510,394.

Patented Dec. 5, 1893.

Fig. 1.

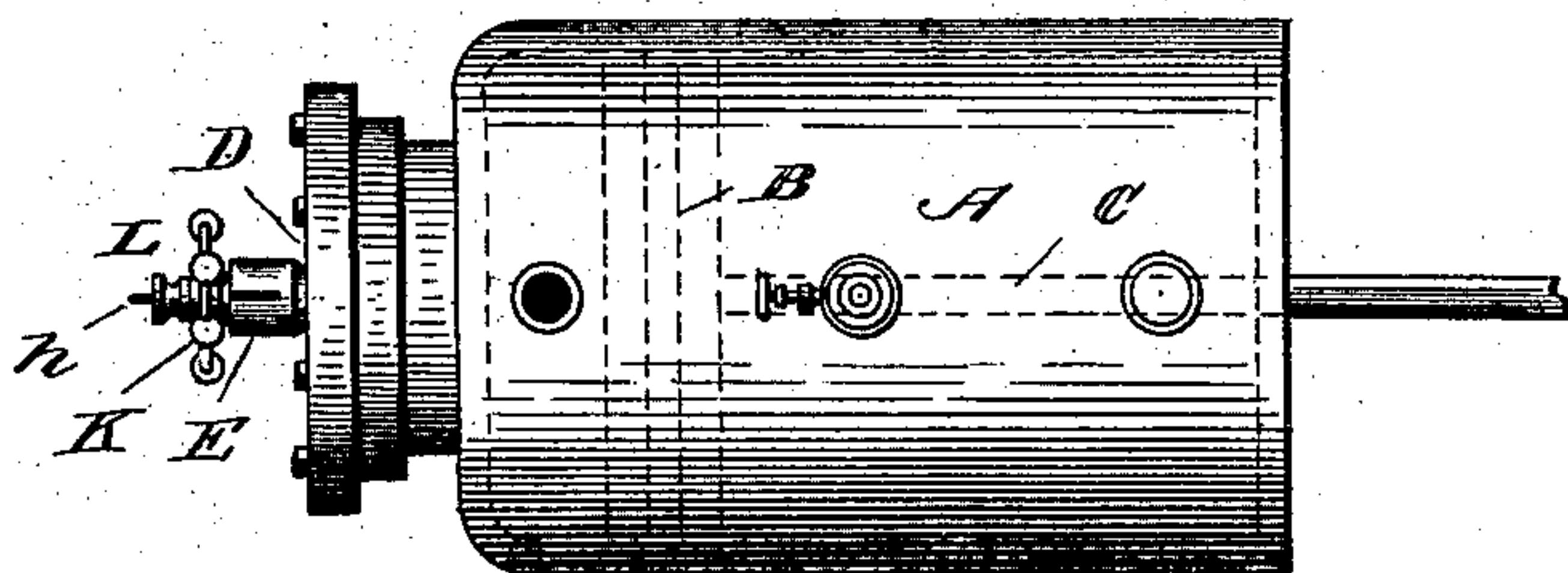


Fig. 2.

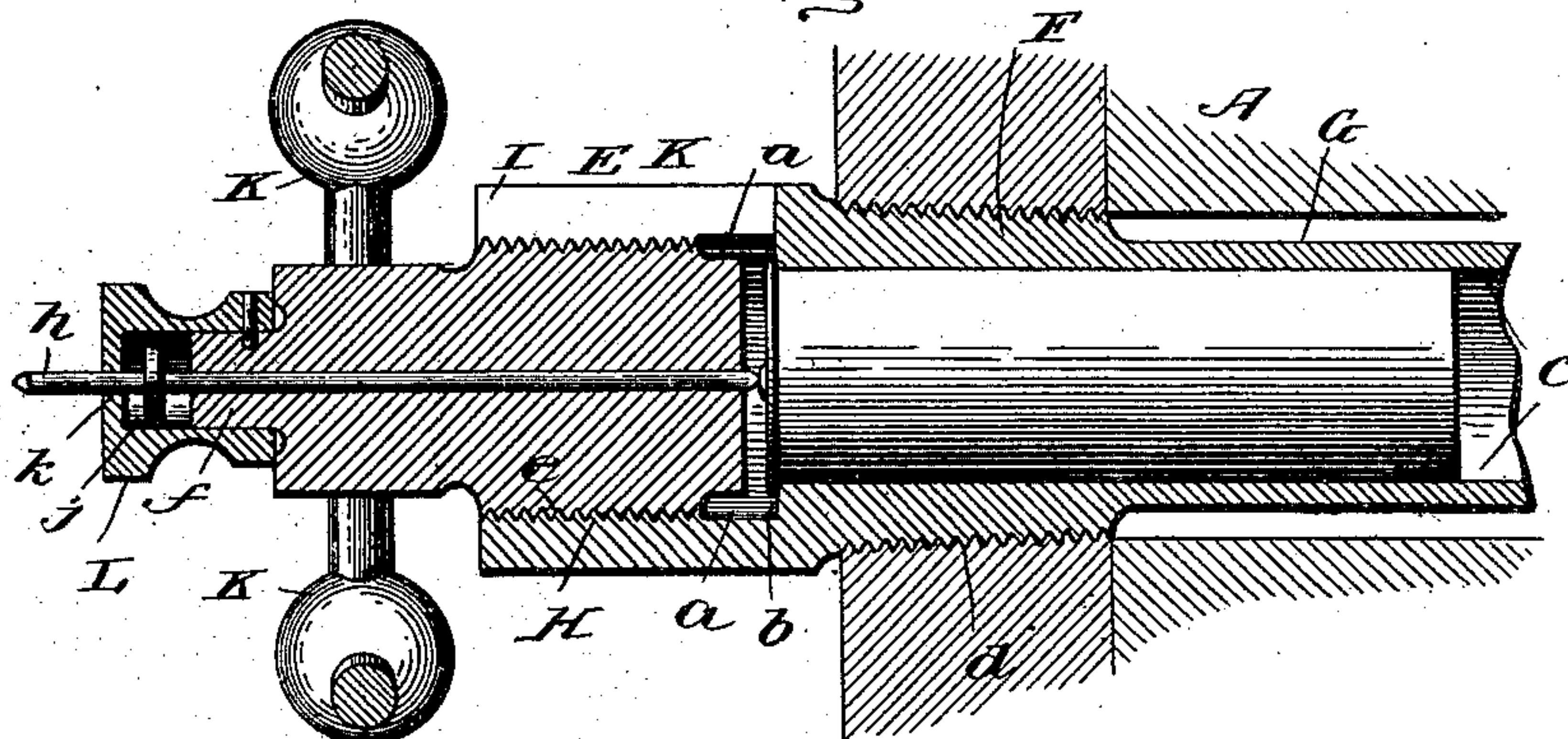


Fig. 6.

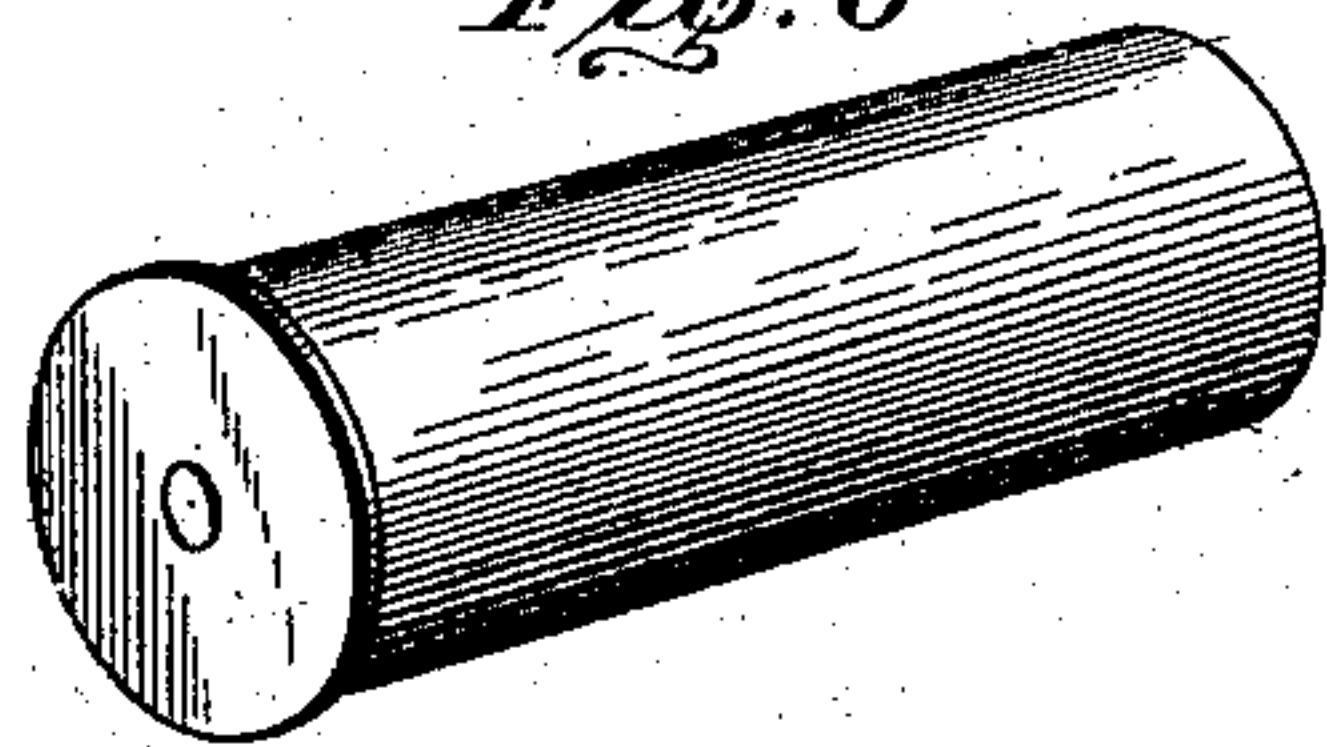


Fig. 5.

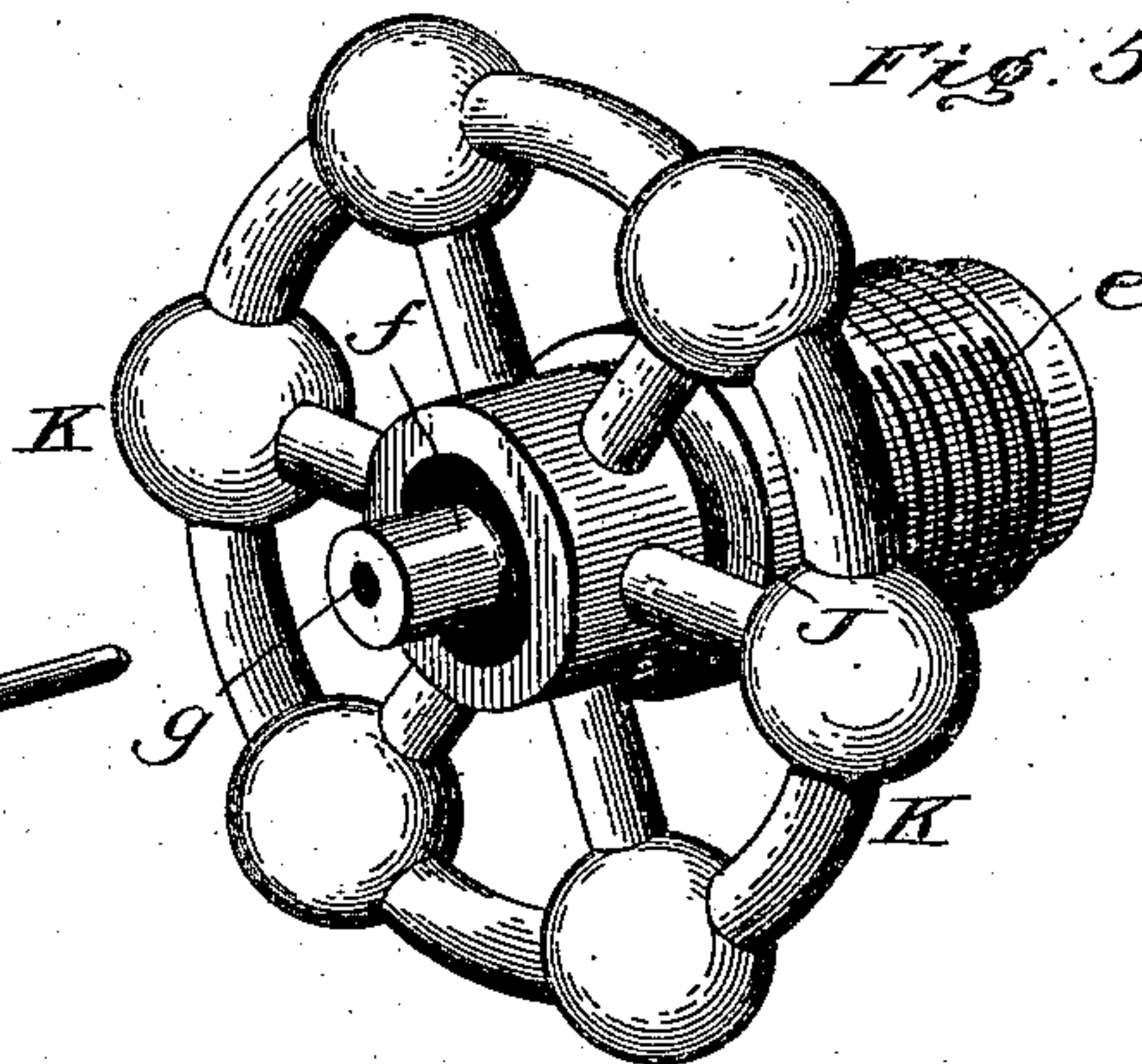


Fig. 4.

Fig. 3.

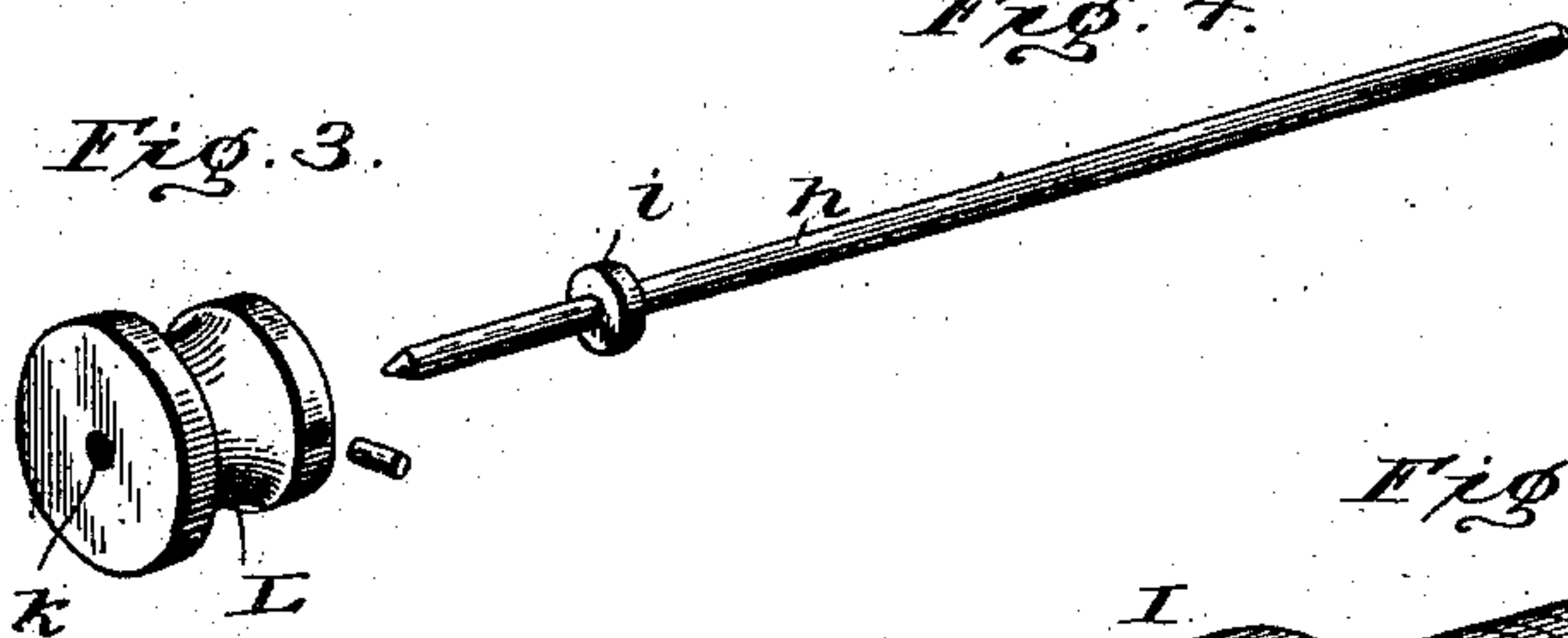
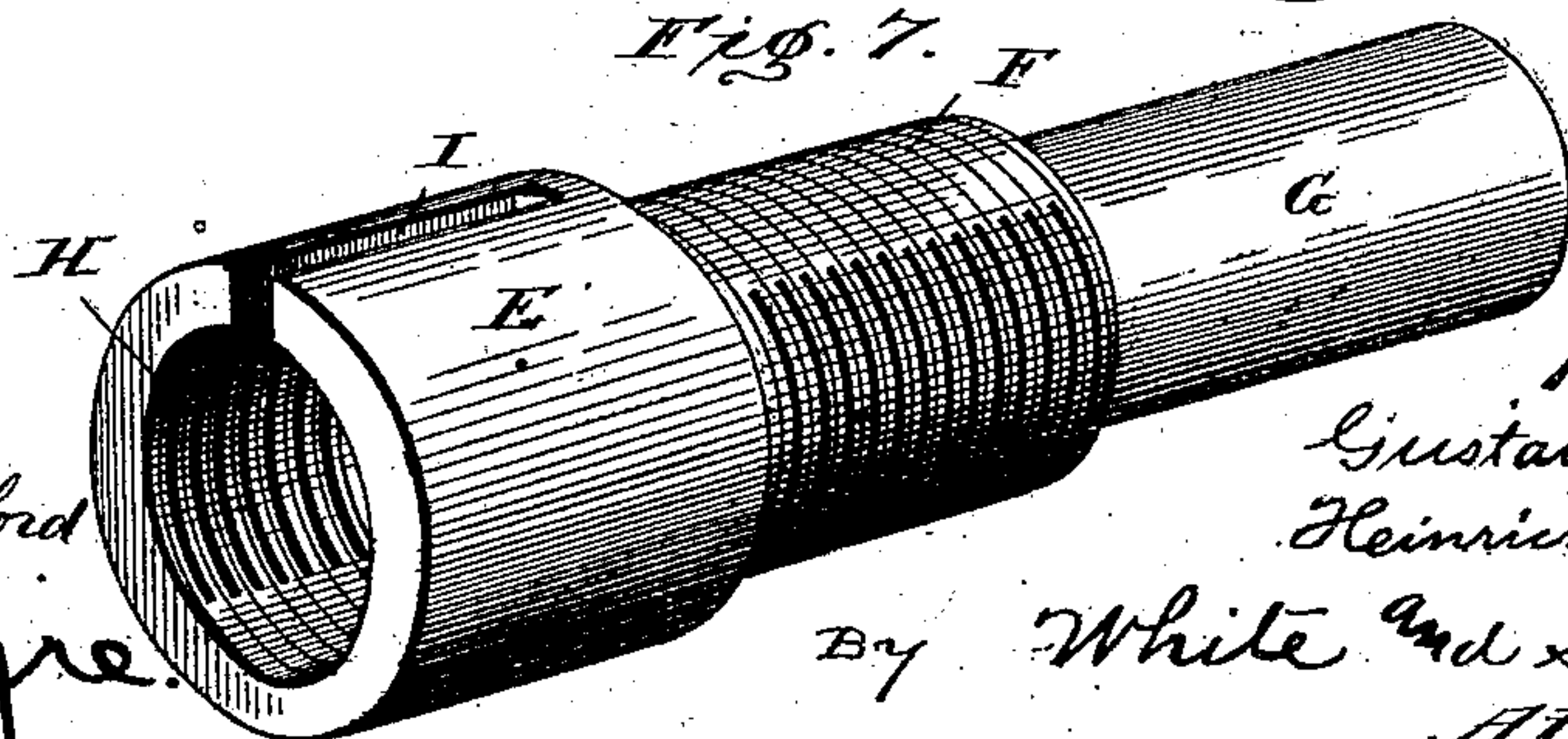


Fig. 7.



Witnesses

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# UNITED STATES PATENT OFFICE.

GUSTAV HONIG AND HEINRICH HONIG, OF HERMANN, MISSOURI.

## MEANS FOR OPERATING ENGINES.

SPECIFICATION forming part of Letters Patent No. 510,394, dated December 5, 1893.

Application filed October 3, 1892. Serial No. 447,745. (No model.)

*To all whom it may concern:*

Be it known that we, GUSTAV HONIG and HEINRICH HONIG, citizens of the United States, residing at Hermann, in the county of Gasconade and State of Missouri, have invented certain new and useful Improvements in Means for Operating Engines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to means for inducing the primary movement of a piston in the operation of an engine and maintaining the motion thereof when started, being more especially devised for that class termed gas engines, or those wherein the working force is derived from the explosion of a main charge or charges in the cylinder.

To this end the invention particularly stated consists in means for the production of an initial explosion for setting in motion the piston, and subsequently inducing a flow of gas or other explosive compound into the cylinder at regular intervals, and therein exploding the same on opposite sides of the piston alternately, for the purpose of driving it back and forth under influence of the power thus generated. To all who are familiar with this art it is a fact well known that when once in motion these engines are automatic and regular in their operation requiring but little attention, while on the other hand it is a fact equally well known that they are extremely difficult to start, it sometimes requiring the combined strength of no less than four men to set in motion an engine of twenty-three or twenty-five horse-power. This difficulty is due to the necessity of turning the engine by main strength at least half of a revolution for the purpose of moving the piston in the cylinder toward one end of the other, and thus drawing therein a charge of gas; moreover, it frequently happens that such laborious efforts have to be repeated time and again before the engine will respond properly. To obviate these difficulties therefore, by the production of a neat, compact, effective and simple attachment to the cylinder for imparting to the

piston its initial stroke, and inducing a flow of the working charges to the cylinder is the object of this invention, which will be hereinafter described and particularly pointed out in the claims.

In the accompanying drawings which form part of this specification Figure 1 represents a plan view of an engine cylinder with our improvement attached; Fig. 2 a longitudinal central section of the invention showing also its attachment to a cylinder, and Figs. 3, 4, 5, 6 and 7 detailed detached perspective views of the several members of the device.

Reference being had to the drawings and letters thereon A represents the cylinder of an ordinary explosive engine, containing the usual piston and piston-rod shown by dotted lines in Fig. 1 and marked respectively B, C; said cylinder being drilled and tapped with a screw-thread at a point back of the thrust of the piston as preferably at D.

The body of our invention is tubular in form consisting of parts E, F and G exteriorly reduced in size in the order named part E having an internal screw thread H, at the inner end of which is a smooth annular seat *a* terminating in a shoulder *b*, the side of said tube E being provided with an open ended slot I extending to the shoulder *b*, for a purpose that will hereinafter appear. Parts F and G are provided with a corresponding smooth inner surface *c* slightly less in diameter than the seat *a* thus providing for the shoulder *b* before described, while the former F bears an external screw thread *d* extending from parts F to G, or throughout the combined length of parts F, G, if preferred for the purpose of screwing the tube into the cylinder. These parts E, F and G when applied and in use constitute what may be termed an auxiliary chamber communicating directly with the cylinder proper.

J indicates a plug or stopper bearing an external thread *e* for engaging thread H of part E when the parts are assembled and above said threaded portion *e* is a hand wheel K for use in screwing the parts together, while outside of this is formed a reduced portion or shoulder *f*, to receive a cap L, and the entire length of parts last described is perforated by a central opening *g* in which is a pin *h* capable of a longitudinal movement. The



pin *h* has secured near its outer end a collar *i* and the cap *L* is constructed with a recess *j* and a central perforation *k* for receiving said collar *i* and outer protruding end of the pin *h* respectively.

This being substantially the construction of our invention and the various parts having been assembled in a manner similar to that set forth, its use and operation are as follows: It being desired to give to the piston its initial stroke, and care being taken that the engine is not on a dead center, plug *J* is removed by operation of hand wheel *K* taking with it the firing pin *h*; a cartridge such as illustrated by Fig. 6 containing the usual explosive material and percussion cap, is then inserted within the tube or seated with its flange resting upon shoulder *b*; this being followed by plug *J* it is apparent that the one remaining requirement to fire the charge directly into the cylinder and through the expansion of gases thus produced set in motion the engine by driving its piston to the opposite end of its stroke, is a blow upon the end of firing pin *h*. The function of slot *I* is an important one its uses being to facilitate the extraction of an exploded shell by inserting in the slot a pointed instrument for engaging the shell beneath the flange whereby it can readily be withdrawn when the plug *J* is displaced; and it is obvious that explosives of various kinds may be used in charging the cartridge, furthermore in order to avoid the necessity of firing a paper wad into the cylinder each time the engine is set in motion a

wad made of gun cotton or other combustible material may be used, or if preferred a wad may be dispensed with altogether.

Although preferred apparatus is above described, we by no means limit ourselves to the precise construction shown, as many minor changes may be made and substituted for those herein shown and described without in the least departing from the spirit of our invention, which having been thus described what we claim is—

1. In a gas engine the combination with the cylinder having the usual gas supply passage with means for igniting the gas and the piston reciprocating in said cylinder, of an auxiliary barrel or tube opening into the cylinder, and having a seat for an explosive cartridge with slot extending below the seat, and a firing pin; substantially as described.

2. In a gas engine, the combination with a cylinder and piston reciprocating therein, of the exteriorly threaded auxiliary barrel screwed into said cylinder and having the cartridge seat therein, the breech block for closing said barrel, and the firing pin working in the breech block; substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

GUSTAV HONIG.  
HEINRICH HONIG.

Witnesses:

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