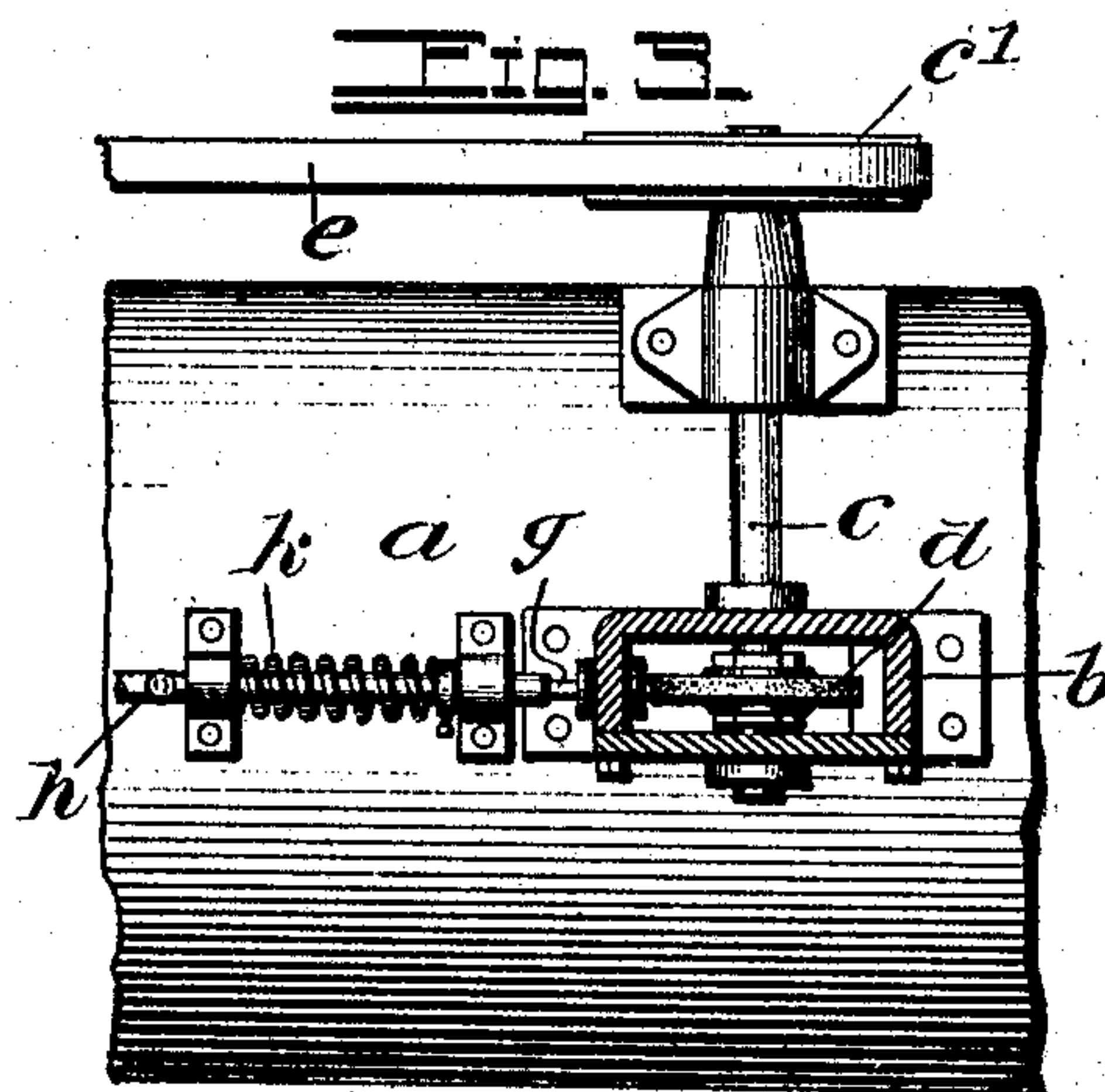
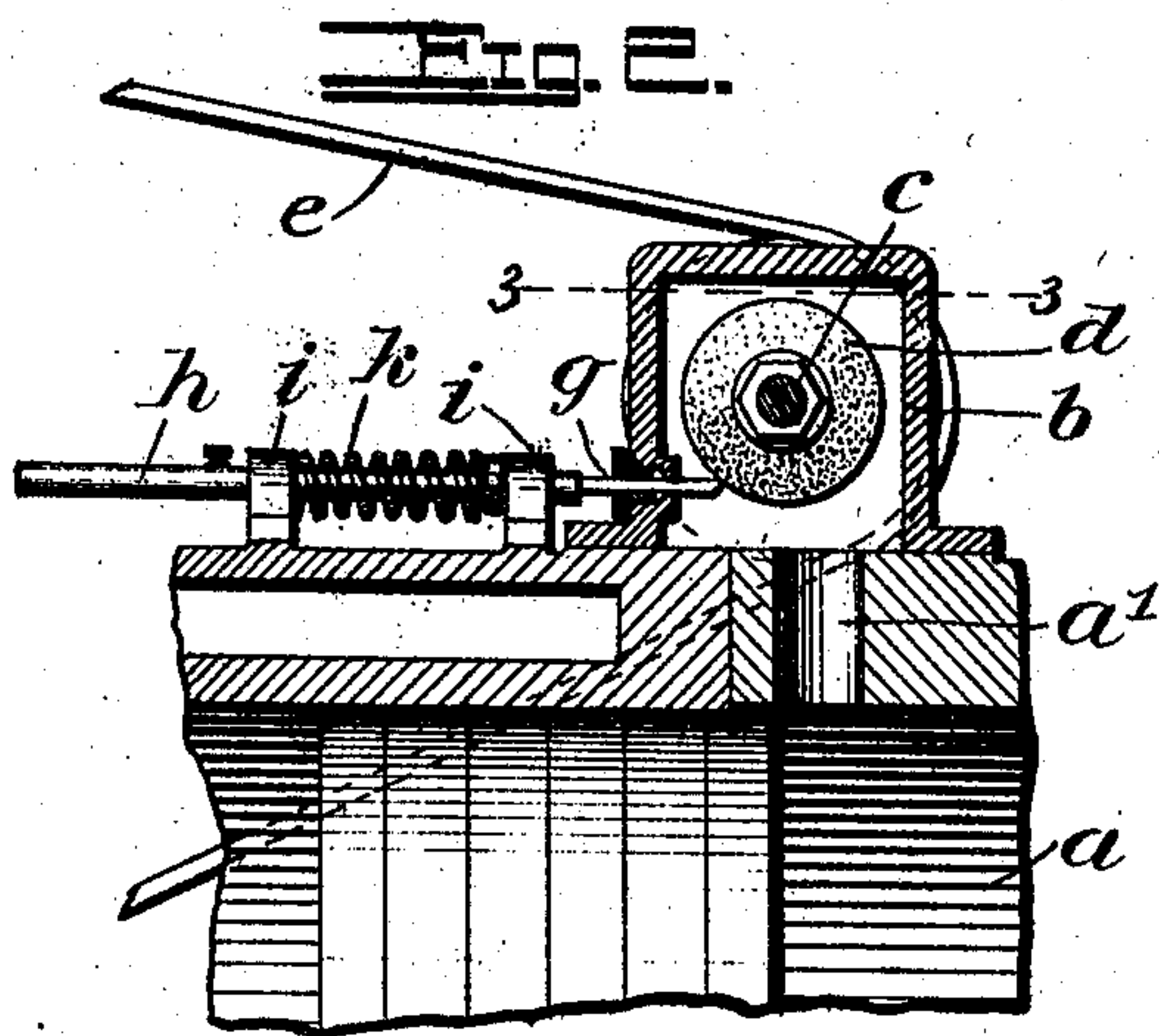
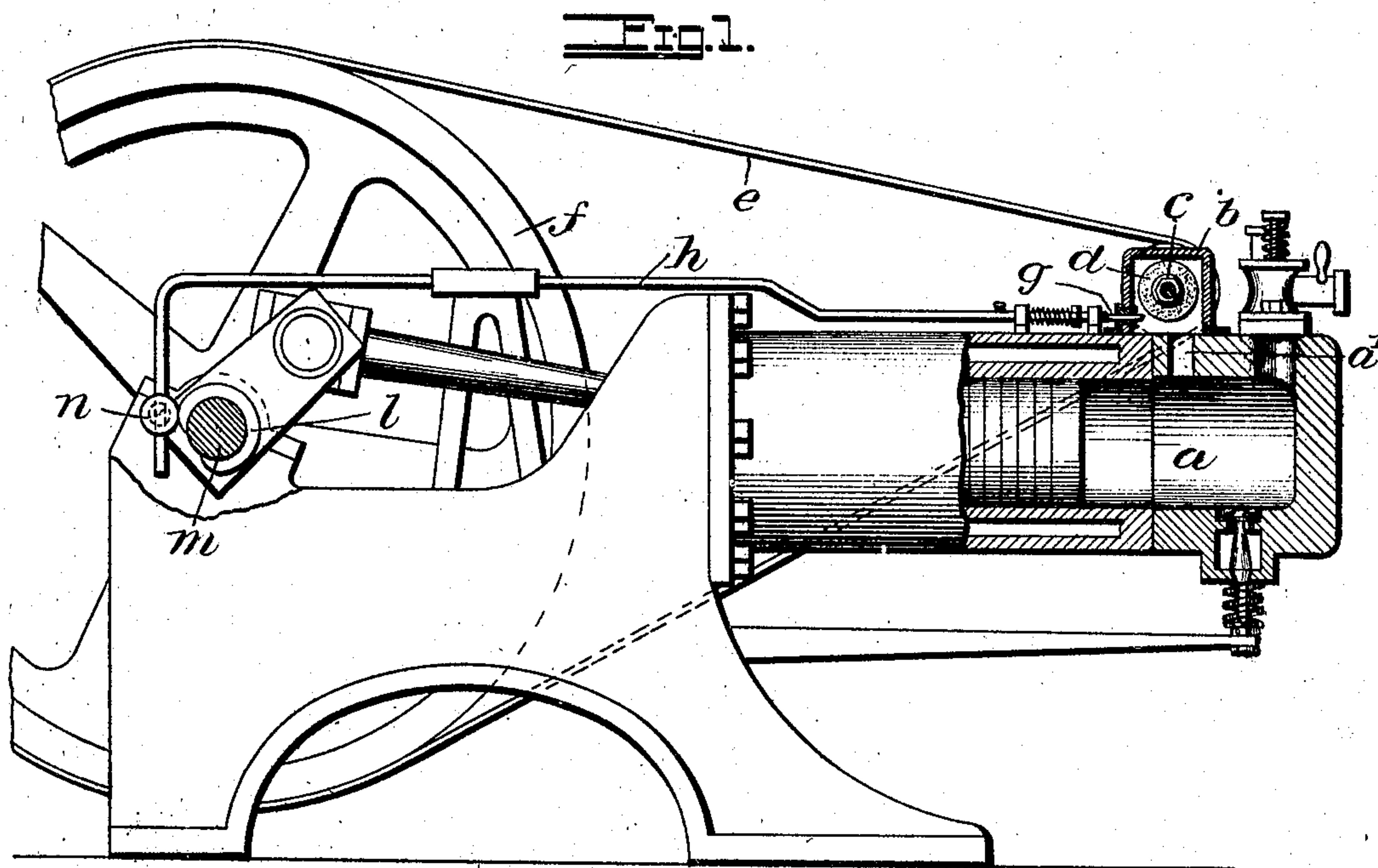


No. 867,755.

PATENTED OCT. 8, 1907.

F. E. REAM.
IGNITER FOR INTERNAL COMBUSTION ENGINES.
APPLICATION FILED MAY 29, 1906.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FREDERICK EUGENE REAM, OF GREEN RIDGE, MISSOURI.

IGNITER FOR INTERNAL-COMBUSTION ENGINES.

No. 867,755.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed May 29, 1906. Serial No. 319,277.

To all whom it may concern:

Be it known that I, FREDERICK EUGENE REAM, a citizen of the United States, and a resident of Green Ridge, in the county of Pettis and State of Missouri, have invented a new and Improved Igniter for Internal-Combustion Engines, of which the following is a full, clear, and exact description.

The object of my invention is to devise a reliable and efficient means for igniting the charge in an internal combustion engine, and I attain this end by providing a metal tongue coacting with a continuously moving member, preferably of emery or like abrasive or grinding material, said parts being arranged to engage each other at the ignition point in the cycle of the engine so that a shower of sparks is produced in the compressed mixture of fuel and air, and flame is propagated instantly.

The invention involves certain other features of major or minor importance, all of which will be set forth hereinafter and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings which illustrate as an example the preferred embodiment of my invention, in which drawings

Figure 1 is an elevation of the internal combustion engine with part of the cylinder broken away showing the application of my invention thereto; Fig. 2 is an enlarged elevation with part of the cylinder in section; and Fig. 3 is a sectional plan on the line 3—3 of Fig. 2.

a indicates the work cylinder of the engine, which has communication by a port *a'* with a case *b* which is fastened to the upper side of the cylinder. Within said case is arranged a shaft *c* carrying what is preferably an emery wheel *d*. This shaft and wheel are arranged to turn continuously, and this is effected by a belt *e* running over a band wheel *c'* on the shaft *c* and over the fly wheel *f* of the engine.

Reciprocable through an opening in the side of the case *b* is a steel tongue *g*, which is adjustably carried in a rod *h* slidable in bearings *i* suitably attached to the cylinder *a*. *k* indicates a spring tending to press

the tongue *g* into engagement with the wheel *d*, and *l* indicates a cam on the crank shaft *m* of the engine, engaging a roller *n* on the rod *h*, the cam holding the rod *h* and tongue *g* in inactive position for the major portion of the rotation of the shaft and having a depression permitting the spring *k* to advance the tongue *g* into engagement with the emery wheel once during every revolution of the cam shaft. This arrangement is adapted to two cycle engines. If the engine operates on the four stroke cycle the engagement of the parts must be timed accordingly, as will be understood from the prior art.

The cam *l* is so arranged that it will permit the tongue *g* to engage the emery wheel when the mixture in the working cylinder is compressed, and since the emery wheel is revolving rapidly a shower of sparks will be thrown through the port *a'* into the compressed mixture, igniting the same. The sparks fly with great velocity from the wheel, and will spread themselves throughout the compression space, thus igniting the mixture at innumerable points and bringing about instant flame propagation, as contra-distinguished from that relatively slow propagation which follows the production of a single spark or a plurality of sparks at the same point in the combustion space.

Having thus described the preferred form of my invention, what I claim as new and desire to secure by Letters Patent is:

The combination with a combustion cylinder, and a piston therein, of a drive shaft driven by the piston, a case on the cylinder and communicating therewith, an emery wheel journaled in the case, a steel tongue mounted for reciprocation on the cylinder, the end of said tongue projecting into the case, and means connected with the drive shaft for rotating the emery wheel, and for moving the tongue intermittently into contact with said wheel, whereby to produce a shower of sparks within the case.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK EUGENE REAM.

Witnesses:

JAMES S. REAM,

GILBERT W. BIDWELL.