

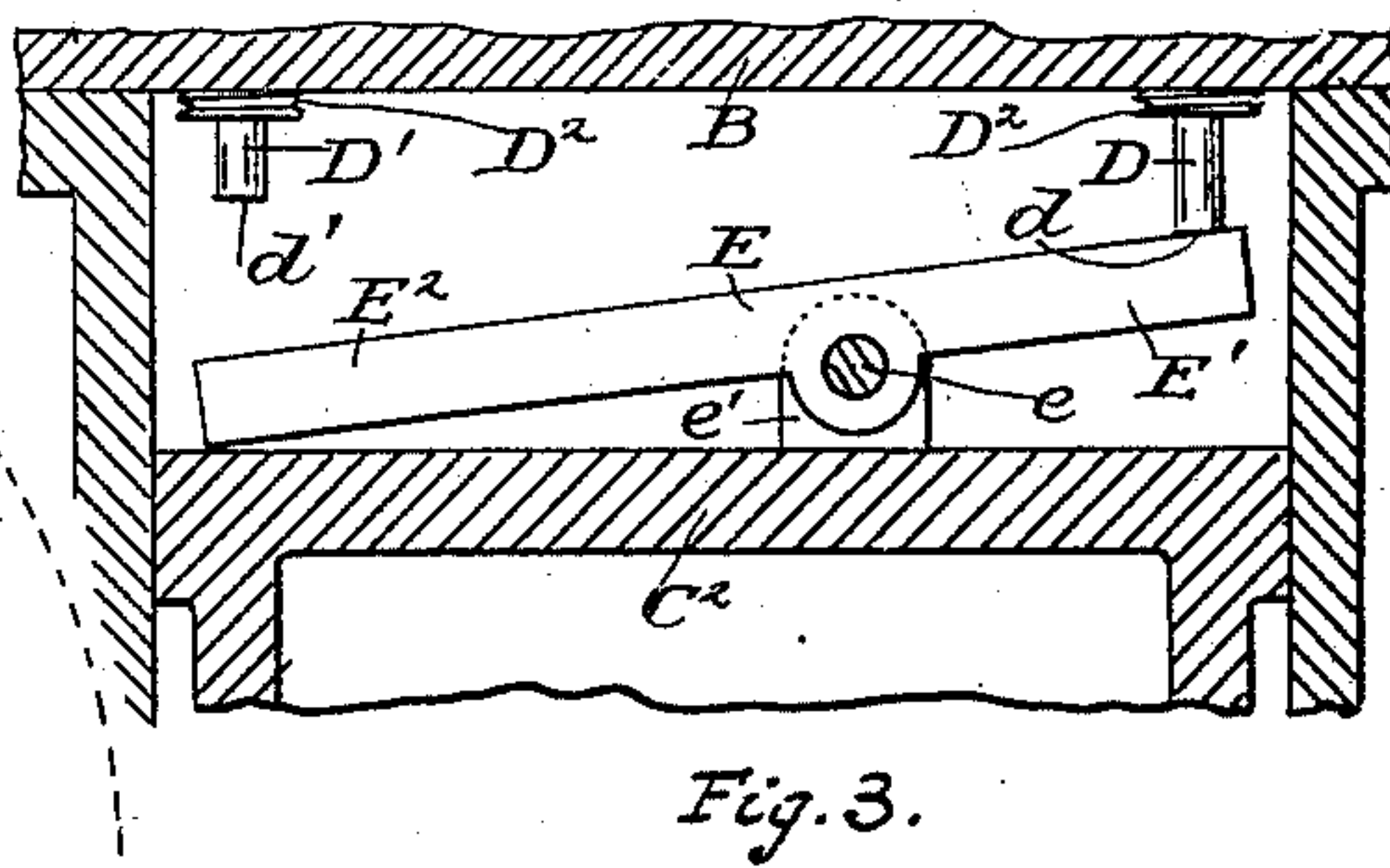
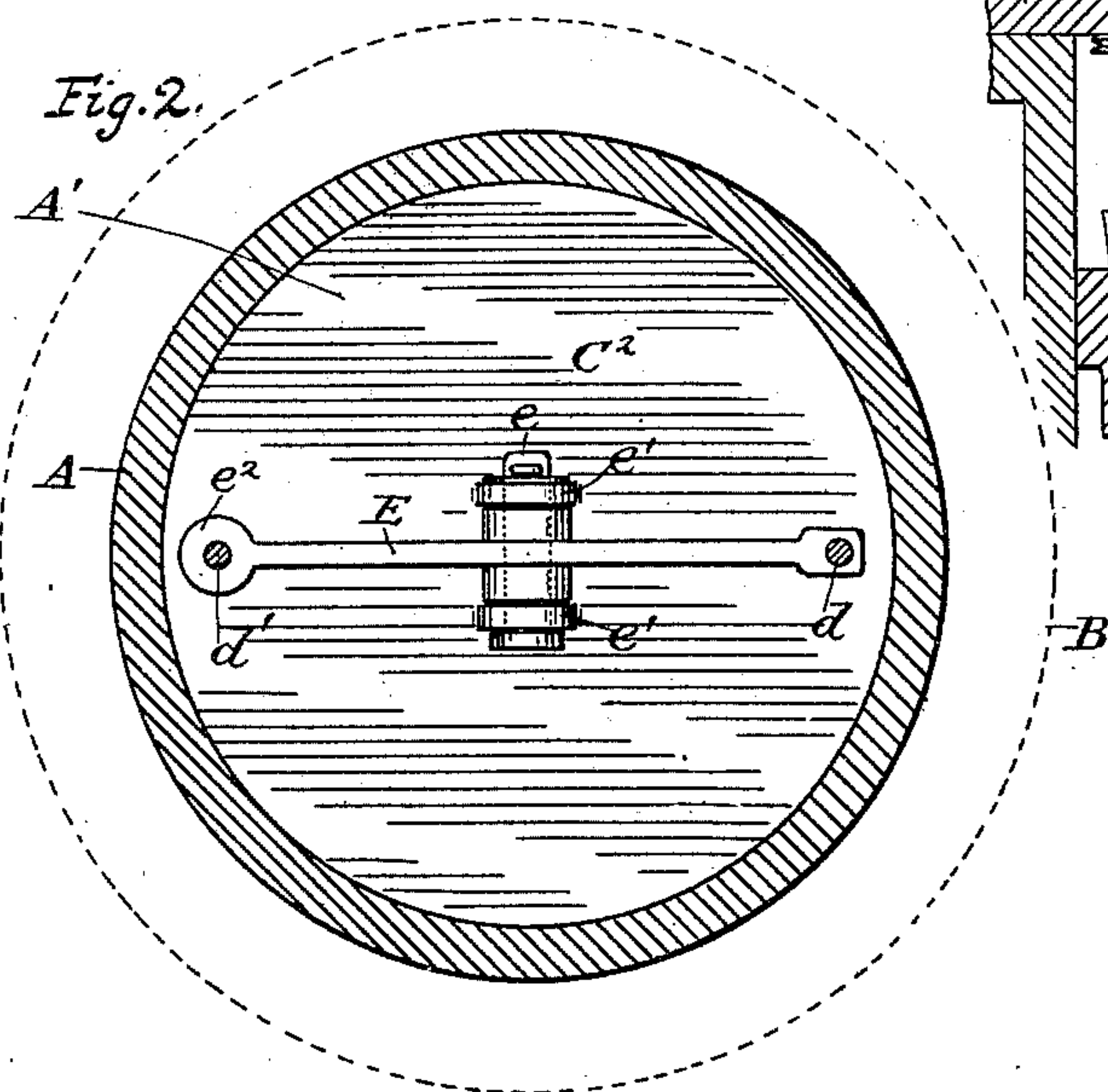
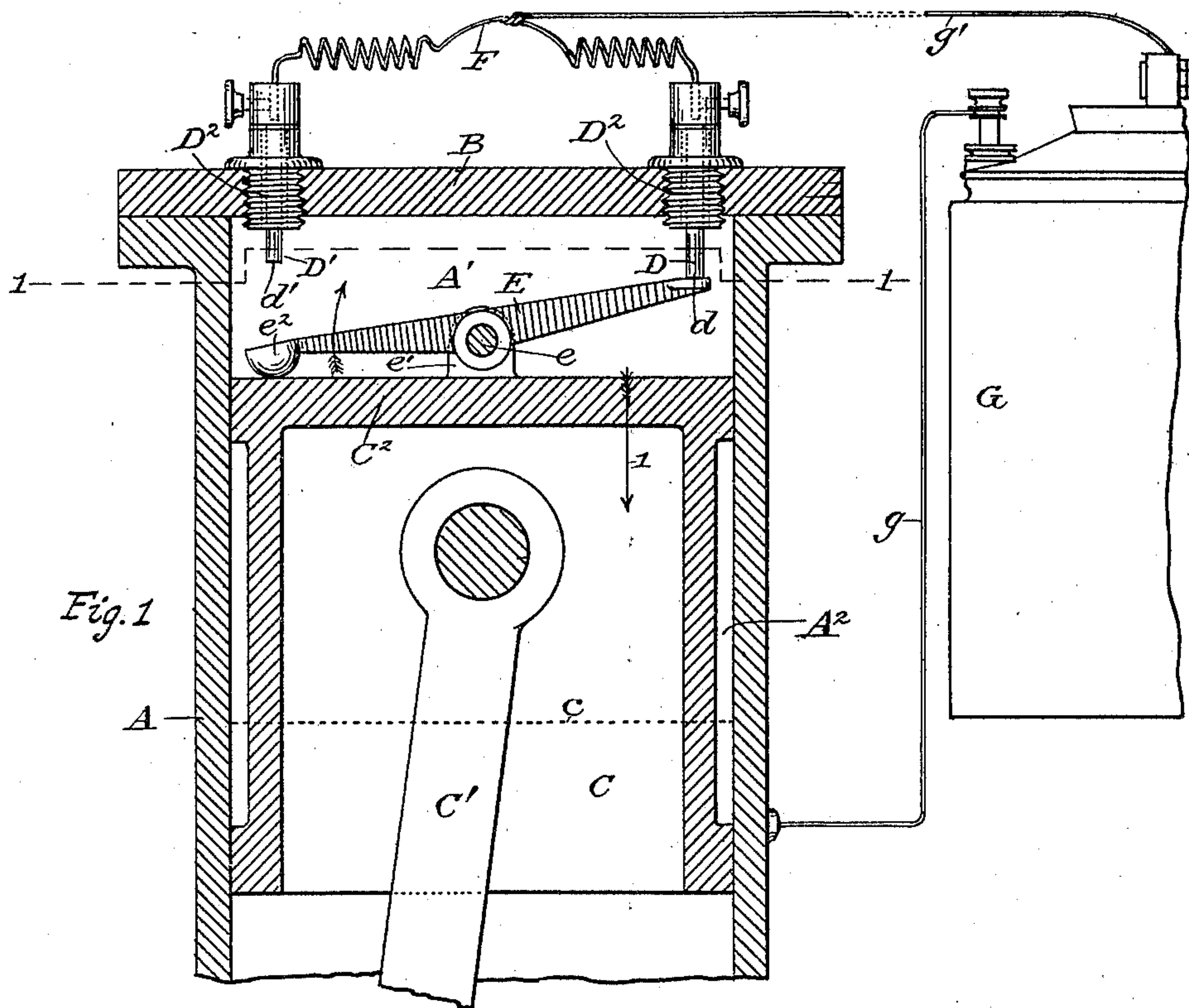
No. 674,027.

Patented May 14, 1901.

J. G. SNYDER.
SPARKER FOR GAS ENGINES.

(Application filed Mar. 9, 1901.)

(No Model.)



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SPARKER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 674,027, dated May 14, 1901.

Application filed March 9, 1901. Serial No. 50,427. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. SNYDER, a citizen of the United States, residing at Green Island, in the county of Albany and State of New York, have invented an Improvement in Sparkers for Gas-Engines, of which the following is a specification.

My invention relates to sparkers for gas-engines; and it consists of the novel devices and combinations and arrangements of devices hereinafter described, and pointed out in the claims.

The objects and advantages of this invention will be fully understood by the following description, taken in connection with the drawings and reference-letters marked thereon and forming a part of this specification, in which—

Figure 1 is a vertical section showing my invention embodied in a cylinder of a gas-engine. Fig. 2 is a horizontal section taken at line 1 in Fig. 2, and Fig. 3 is a modification of the sparking-lever.

Similar letters refer to similar parts throughout the several views.

In the drawings I show my improved sparker embodied in a gas-engine, of which engine A is the cylinder, which may be of any suitable form. B is the head of the same. A' is the explosion-chamber, and A² is the piston-cylinder.

C is the piston. C' is the connection-rod, pivoted by one of its ends to said piston and by its opposite end (not shown) to the crank of the shaft of the driving-wheel, also not shown.

DD' are suitable insulated connectors fixed in a suitable portion of the wall of cylinder which incloses the explosion-chamber A'. In the drawings these conductors are shown to be fixed in the head-wall B of the cylinder. The inner ends d d' of these conductors project to a suitable distance past the inner surface of the wall portion of the cylinder, in which they are secured and insulated by insulators d^2 d'^2 .

E is a sparking-lever, which is pivotally connected to the reciprocating piston C by means of pivot e , supported in place by suitable pivot-support e' , which is shown to be connected to the inner or head end C² of the said piston. This sparking-lever has one of its arms, as E', lighter than the opposite arm,

E², which latter is preferably weighted by weight e^2 , connected with the said weighted arm at its outer end; yet, if preferred, these different weights of arms E' and E² may be produced in said lever by setting the pivot e to a suitable distance past the point of middle of its length, as shown in Fig. 3. When the piston C is moving in direction away from its point of inward throw, as shown by full lines in Fig. 1, to the line of its greatest distance of outward throw, so that its head end C² will be, say, at dotted line c and until its return to position of full lines, this sparking-lever will be out of contact with the insulated conductor D D'.

F is a suitable yoking-conductor, which may be of wire or a stiff bar of suitable metal, which is suitably connected by one end thereof to conductor D and the opposite end to conductor D'.

The source of supply of an electric current for operating this sparker may be a dynamo or a battery G. The latter is shown in the drawings. This battery is suitably supported by any convenient and suitable supporting device, which source of electric current is suitably connected to any suitable current-receiving substance or device by return-wire g , which is shown to connect said source of electric current to the side wall of the cylinder A. An electric supply-wire g' connects the positive pole of said source of electric current to the yoking-conductor F.

The manner in which the parts above described operate is as follows: When the moving device—say the piston C, carrying the sparking-lever—is to position shown by full lines in Fig. 1, the outer end of the lighter arm E' will be in contact with the inner contact-point of conductor D; but when the said part C is started in its movement in direction of arrow 1 in Fig. 1 said sparking-lever will be carried away from the conductors D D' and will remain out of contact with the same until the return of said moving device C, when at the end of its inward throw the contact end of the lighter arm E' of the sparking-lever E will be carried into contact with the contact end or point d of the conductor D, to be instantly attended by a rebound of the weighted arm of said lever, when the contact of the lighter arm E' with conductor D will

be broken and a spark will be produced, and at this time of breaking of said contact of arm E' with said conductor D the weighted arm E² will be thrown upward by its rebound into contact with the lower end of conductor D', to immediately drop away from such contact, and thereby produce a second spark only an instant less than the production of the first spark. It is intended that either of these sparks may be effective for firing the explosive gas which may be in the explosion-chamber A' at the time such sparks are produced. By removal of one end of the yoking-conductor from either of the insulated conductors D D' but a single spark will be produced at the parting of the said sparking-lever from the contact end of the conductor D or D', which may be in electrical connection with the current-supply wire g'.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A sparker for firing gas, formed by the combination with a fixed piece provided with an insulated conductor, and a sparking-lever having one arm thereof heavier than the other and pivotally supported by a piece which is adapted to have a reciprocating movement in relation to the contact end of said insulated conductor, of a source of an electric current described, a return-wire connected with the said source of electric current, and a suitable receiver of said current, and a current-supply wire connecting said insulated conductor with said source of electric current, whereby a single spark may be produced as and for the purposes set forth.

2. A sparker for firing gas, formed by the combination with a fixed piece provided with two insulated conductors having, each, one of their ends serving as a contact-point, a yoking-conductor connecting with the opposite ends of said two insulated conductors, and a sparking-lever having one arm thereof heavier than the other, a reciprocating piece moving in relation to the contact ends of the said two insulated conductors, a pivot, from which said sparking-lever is supported, suitably connected to said reciprocating piece, of a source of an electric current described,

a return-wire connected with said source of electric current and a suitable receiver of said current, and a current-supply wire connecting the yoking-conductor whereby two sparks may be produced, as and for the purposes set forth.

3. A sparker for gas-engines formed by the combination with a suitable wall portion of the cylinder, an insulated conductor fixed in said wall portion and having its inner end serving as a contact-point, a sparking-lever having one arm thereof heavier than the other with its lighter end adapted to be moved alternately into contact with the contact end of said insulated conductor and out from such contact, a reciprocating piston, a pivot suitably supported from said piston and supporting said sparking-lever so that it may freely oscillate alternately to and from the contact end of the said insulated conductor, of a source of an electric current described, a return-wire connected with the latter and a suitable current-receiver and an electric-current-supply wire connecting said insulated conductor with the said source of electric current, as and for the purposes set forth.

4. A sparker for gas-engines formed by the combination with a suitable wall portion of the cylinder, a piston, two insulated conductors fixed in said wall portion and having their respective inner ends serving as contact-points, a yoking-conductor connecting said insulated conductors, a sparking-lever having one arm thereof heavier than the other and adapted to be oscillated to have contact alternately with the respective contact ends of said two insulated conductors, a pivot connecting said sparking-lever to said piston, of a source of an electric current described, a return-wire connected with the latter and a suitable receiver of the current, and an electric-current-supply wire connecting the said yoking-conductor with the described source of electric current, whereby two sparks may be alternately produced, as and for the purposes set forth.

JOHN G. SNYDER.

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