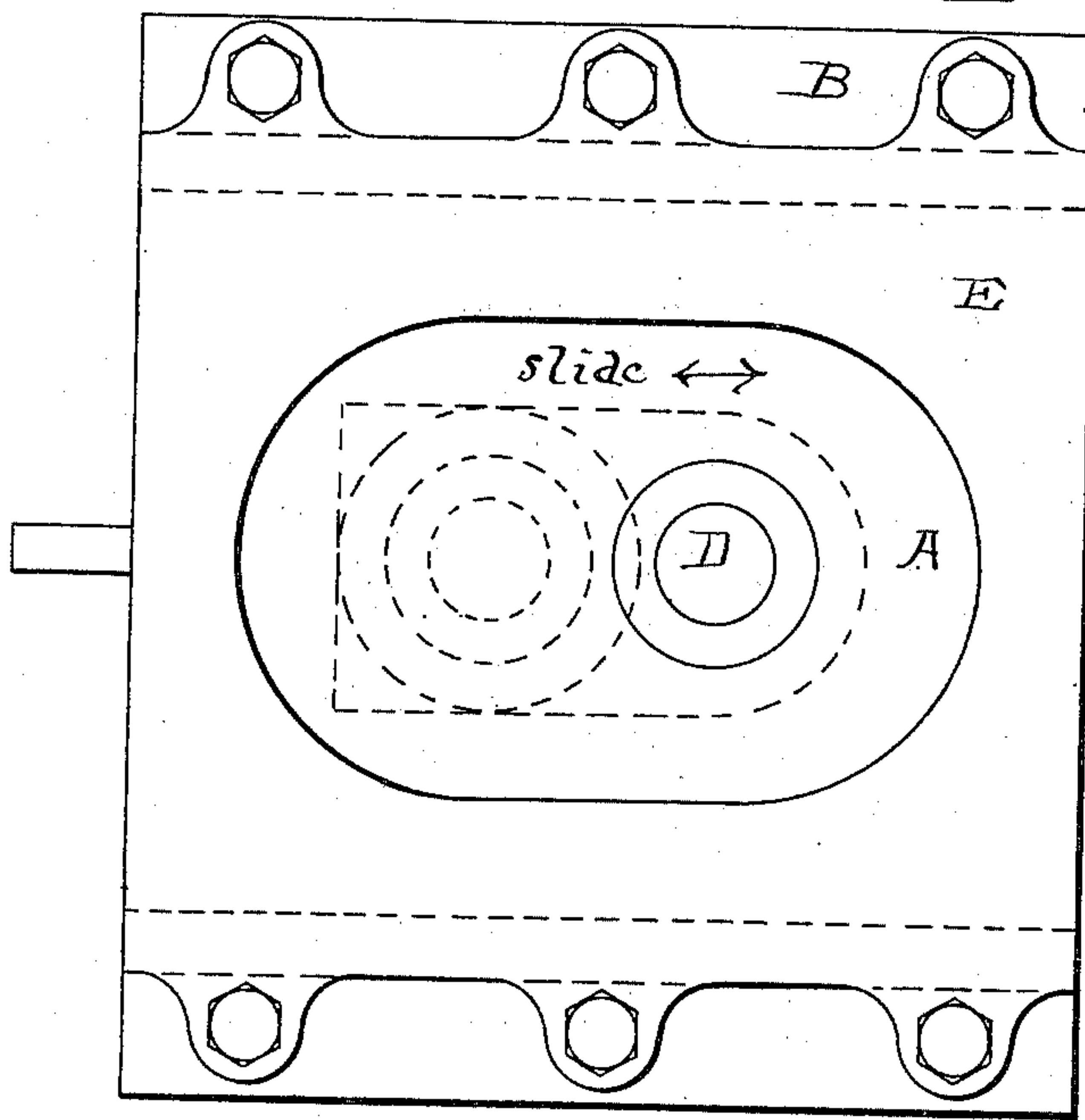
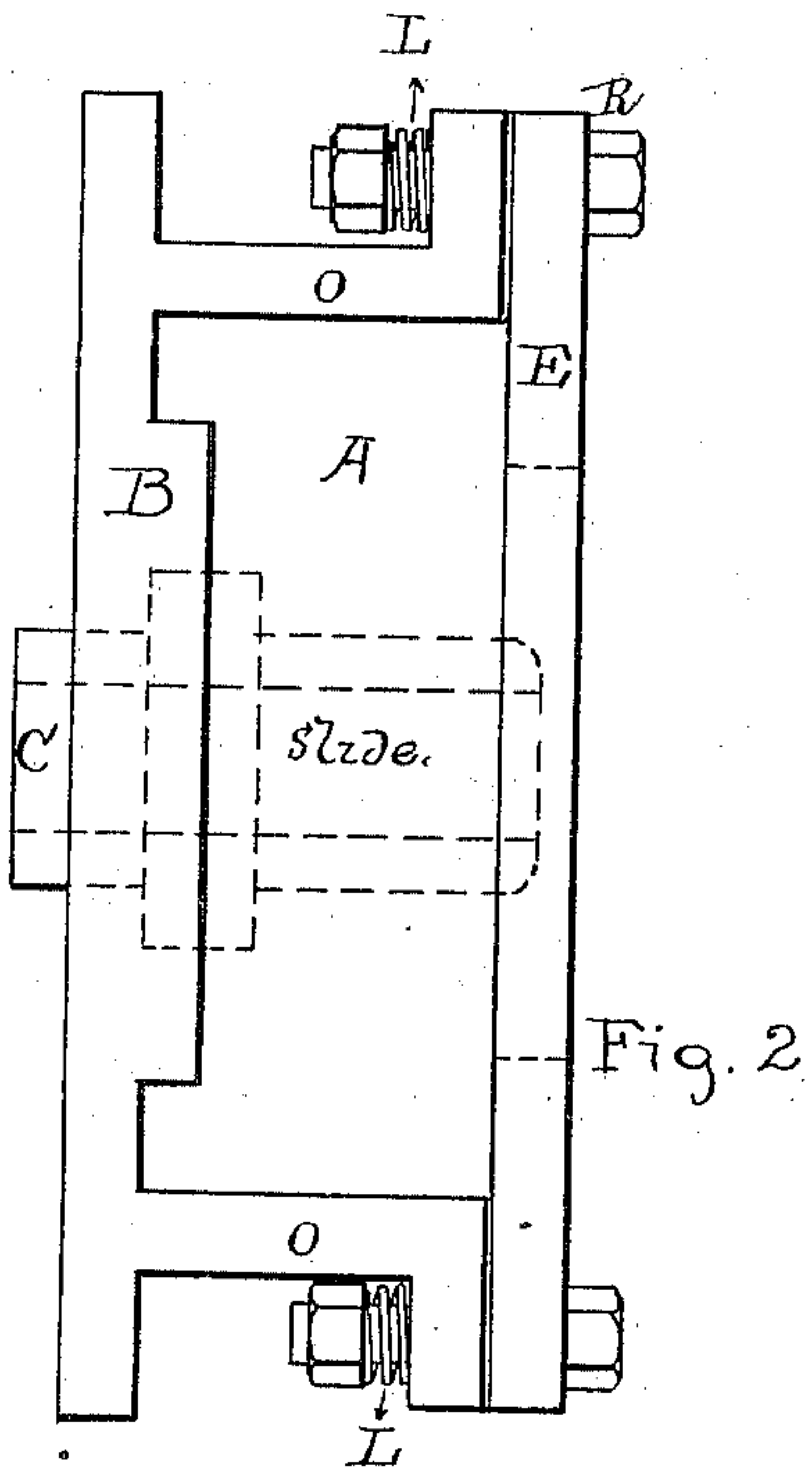
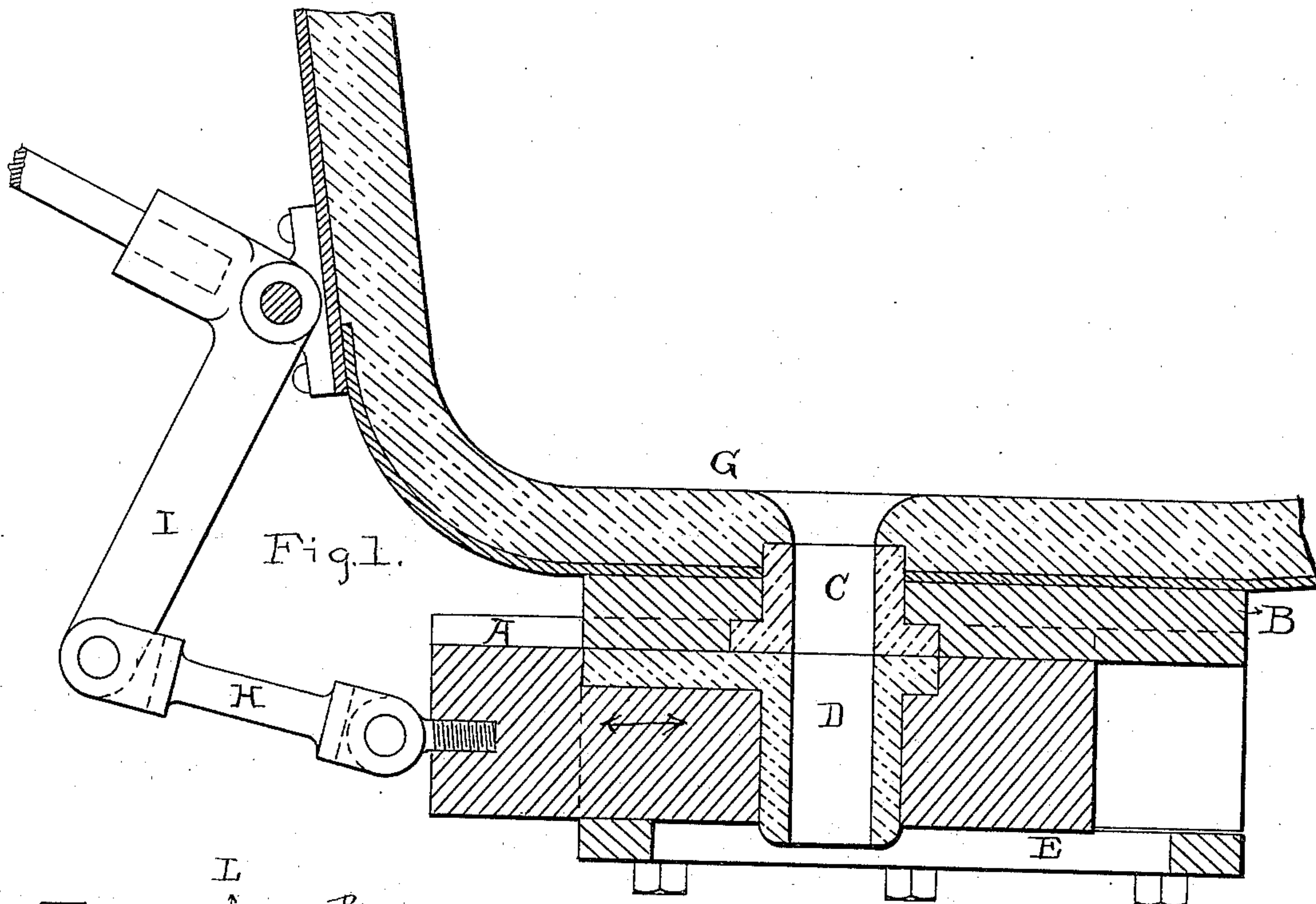


(No Model.)

D. D. LEWIS.
STOPPER FOR LADLES.

No. 311,902.

Patented Feb. 10, 1885.



Witnesses
J. W. Garner
J. E. Prosperi

Fig. 3

Inventor.
D. D. Lewis
per *J. A. Lehmann,*
Att'y.

UNITED STATES PATENT OFFICE.

DAVID D. LEWIS, OF JOHNSTOWN, PENNSYLVANIA.

STOPPER FOR LADLES.

SPECIFICATION forming part of Letters Patent No. 311,902, dated February 10, 1885.

Application filed November 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, D. D. LEWIS, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Stoppers for Ladles; and I 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in stoppers for ladles; and it consists in the combination of the ladle having a suitable perforated casting secured to its under side, and a suitable perforated brick which is applied to this casting, with a metallic casting, which is moved back and forth by a suitable mechanism, and which is also provided with a perforated brick, a plate or casting which supports the movable casting in position, and springs for the purpose of forcing the two castings together, so that the melted steel cannot get between them, all of which will be more fully described hereinafter.

The object of my invention is to provide a stopper for ladles which can be moved freely back and forth for the purpose of controlling the flow of melted steel, and in which the parts are forced together by suitable springs.

Figure 1 represents a vertical longitudinal section of an apparatus embodying my invention. Fig. 2 is an end view of the same. Fig. 3 is an inverted view.

G represents the ladle, which will be constructed in the usual manner. Secured in any suitable manner to the under side of this ladle is a metallic casting, B, which has an opening through it, so as to register with the opening through the bottom of the ladle, and which casting has suitable depending flanges, O, which serve as guides to the slide. This casting is recessed, as shown, for the purpose of receiving the perforated brick C, which protects the casting B from the melted steel. Applied to the under side of this casting B, and in between its flanges O, is a second metallic casting, A, which is moved freely back and forth by means of the crank-lever I, pivoted upon the crucible and the connecting-rod H. This casting A is also perforated and

recessed, as shown, so as to receive the perforated brick D, which serves to protect the casting from the action of the steel. The top part of this brick B extends forward sufficiently far to always close the opening through the brick C, and thus prevent the melted steel from ever coming in contact with the casting A. The casting A is supported in position against the under side of the casting B by means of the perforated plate E, as shown. Suitable bolts, P, are passed up through the plate E and the lower edges of the flanges O on the casting B, and then spiral springs L are applied to the bolts for the purpose of keeping the casting A forced upward tightly against the bottom of the casting B, so as to prevent the melted steel from coming between them. The casting A is made sufficiently thick to project slightly below the lower edges of the flanges O, and hence the plate E will keep the casting A pressed up into position. When the casting A is drawn outward into the position shown in Fig. 1, the melted steel flows freely out; but when the casting A is forced backward, the front portion of the brick D stops the flow. In case the bricks C D should become burned out at any time, the bolts P can be readily removed, the casting A taken out, and new bricks applied.

Having thus described my invention, I claim—

1. The combination of the ladle, the perforated and recessed casting B, applied to its under side, with the perforated and recessed casting A, a mechanism for moving it, and the two perforated bricks C D, substantially as shown and described.

2. The combination of the crucible, the recessed and perforated casting B, provided with the flanges O, the recessed and perforated casting A, a mechanism for moving the casting, the bricks C D, the plate E, and springs for forcing the castings A B together, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID D. LEWIS.

Witnesses:

J. D. LEWIS,
THOMAS WATKINS.