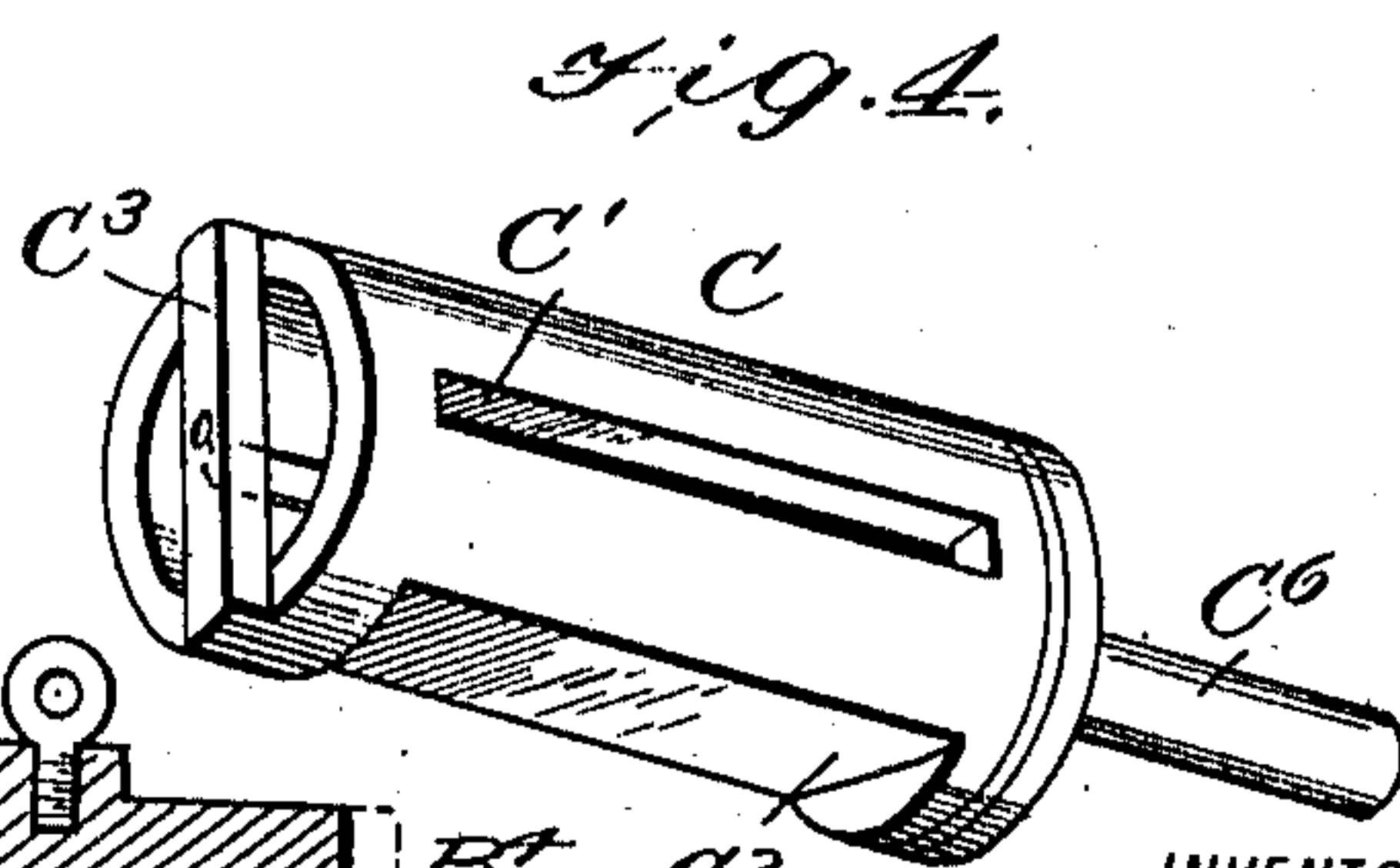
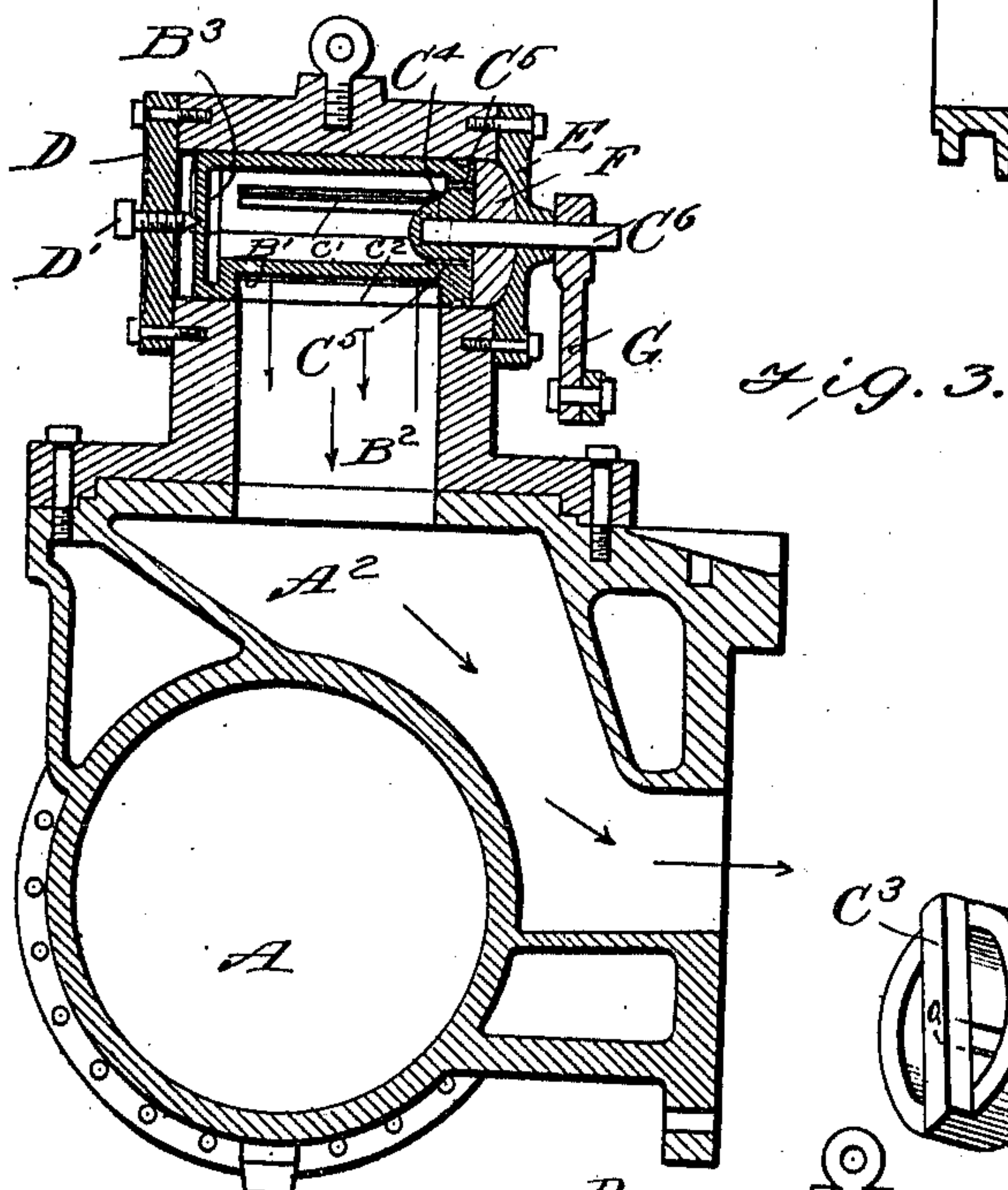
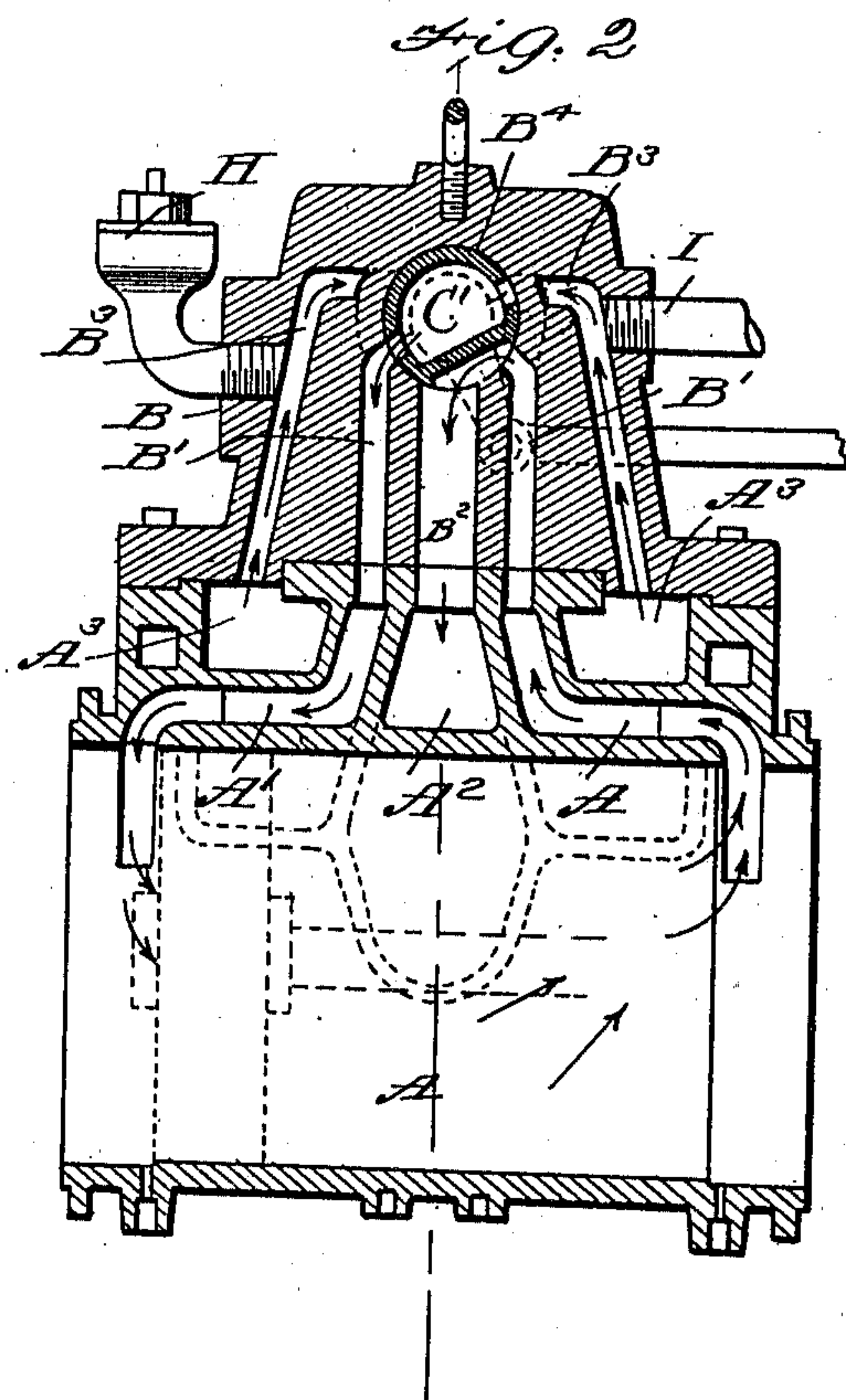
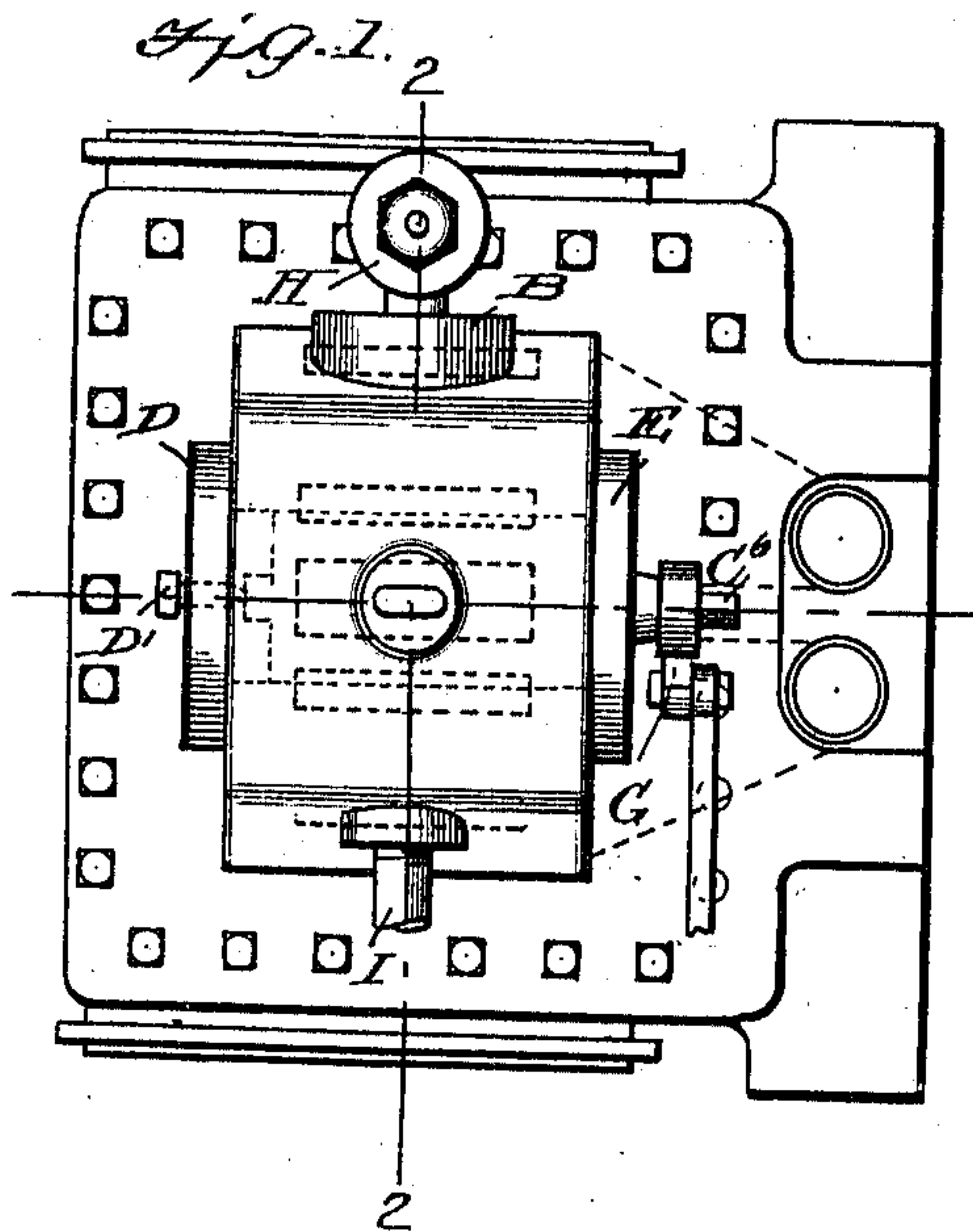


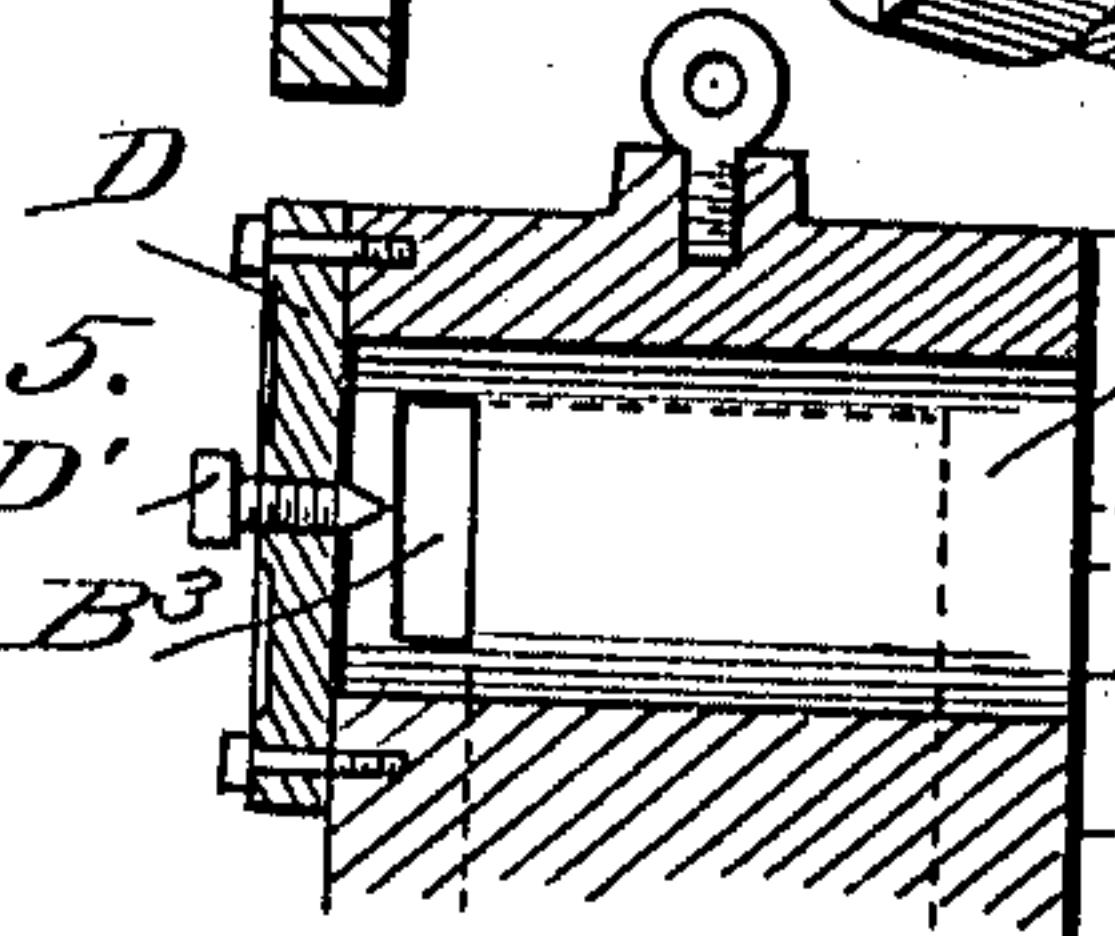
C. W. MANNOOCH.  
LOCOMOTIVE VALVE.  
APPLICATION FILED APR. 11, 1910.

990,057.

Patented Apr. 18, 1911.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

CHARLES W. MANNOOCH, OF FITZGERALD, GEORGIA.

## LOCOMOTIVE-VALVE.

990,057.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed April 11, 1910. Serial No. 554,585.

*To all whom it may concern:*

Be it known that I, CHARLES W. MANNOOCH, a citizen of the United States, and a resident of Fitzgerald, in the county of Ben Hill and State of Georgia, have invented certain new and useful Improvements in Locomotive-Valves, of which the following is a specification.

This invention is an improvement in feed valves for cylinders and is especially designed for use on locomotive cylinders and has for an object, among others, to provide a balanced rocking valve in cylindrical form and which can be oscillated from any suitable moving part of the engine to properly deliver steam alternately to the opposite ends of the cylinder and to correspondingly exhaust the steam as the operation of the invention proceeds; and the invention consists in certain novel constructions and combinations of parts as will be hereinafter described and claimed.

In the drawing Figure 1 is a top plan view of my invention as in use. Fig. 2 is a vertical cross section on about line 2—2 of Fig. 1. Fig. 3 is a vertical longitudinal section of the invention. Fig. 4 is a detail perspective view of the valve and Fig. 5 is a detail section drawn longitudinally through the valve seat portion of the valve chest.

The cylinder A may be generally of ordinary construction and is provided with the usual feed ports A' and exhaust port A<sup>2</sup> and the valve chest B is adapted for application to the cylinder and has feed ports B' and exhaust port B<sup>2</sup> communicating with those in the cylinder, the purpose being to adapt the valve chest having my improved valve for application to the ordinary cylinders now in use when so desired. The valve chest also has supply ports B<sup>3</sup> in communication with the live steam channels A<sup>3</sup> through which steam is supplied from the boiler and the ports B', B<sup>2</sup> and B<sup>3</sup> communicate with the cylindrical valve seat B<sup>4</sup> in which the cylindrical rocking valve C is mounted to oscillate as will be understood from Figs. 2 and 3 of the drawing.

The supply ports B<sup>3</sup> open into the seat B<sup>4</sup> near one end thereof and deliver steam to the open end of the hollow cylindrical valve C as best shown in Fig. 3 of the drawing. The steam then passes into the cylindrical valve C and discharges through ports C' in the said valve to one or the other of the feed ports of the valve chest and is delivered

thence to the cylinder, one feed port C' being closed when the other is open as best shown in Fig. 2 of the drawing. The cylindrical valve C is flattened on one side forming a recess or port C<sup>2</sup> which communicates one of the feed ports B' with the exhaust port B<sup>2</sup> in one position of the valve C as shown in Fig. 2 and communicates the other feed port B' with the said exhaust port B<sup>2</sup> when the valve is rocked to its other position as will be understood from Fig. 2 of the drawing.

At its open end the cylindrical valve C is provided with a cross bar C<sup>3</sup> crossing the valve diametrically and spacing the open end away from the head D of the valve chest to such an extent as to permit the port B<sup>3</sup> to deliver steam to the cylindrical valve. This cross bar C<sup>3</sup> also provides a bearing for the inner end of the screw D' which is threaded in the head D and may be tightened sufficiently to press the closed end of the valve snugly against the opposite head E of the valve chest. The screw D' also has another function in that it may be used in an emergency as in case of a break-down on one side of the engine to lock the cylindrical valve at such side from turning so the opposite side of the engine may be used as is frequently desirable.

At its closed end the cylindrical valve abuts against a packing plate F of brass whose outer side is rounded and fits in a correspondingly formed seat in the head E so it will operate as a packing and somewhat in the fashion of a ball joint in taking up wear and forming a closed joint at such end of the cylindrical valve. The end plate C<sup>4</sup> of the valve is ported at C<sup>5</sup> to permit the passage of steam to balance the valve at such end and the valve stem C<sup>6</sup> which may be of wrought iron and be cast into the cast iron valve, extends through the brass packing plate F and through the head E and, as shown, receives a crank arm G which can be connected to any movable part of the machine or engine for properly operating the valve.

The valve chest may be provided with a relief valve H and a lubricating pipe I which may be of ordinary construction.

I claim:

1. The combination substantially as herein described of a cylinder having feed and exhaust ports and live steam channels, a valve chest fitted thereto and having a cylin-



dricul valve seat and provided with feed and exhaust ports communicating at one end with the corresponding ports of the cylinder and at their other ends with the cylindrical valve seat, the said valve chest being also provided with supply ports communicating at one end with the live steam channels of the cylinder and at their other ends with the cylindrical valve seat near one end of the latter, a cylindrical valve fitting the said seat and having one end open and provided across said end with a cross bar, the said open end of the valve being in communication with the supply ports of the chest, a head closing the end of the valve seat adjacent the open end of the valve and a screw threaded in said head and bearing against the cross bar of the valve, the valve having feed ports communicating with the feed ports of the chest and also having a groove

or recess forming an exhaust port for communicating one or the other of the feed ports of the chest with its exhaust port.

2. The combination of a valve chest having a cylindrical valve seat and feed and exhaust ports communicating therewith and also having supply ports opening into the cylindrical valve seat adjacent to one end thereof, a cylindrical valve operating in said seat and having ports to cooperate with the feed and exhaust ports and open at one end for the passage of steam from the supply ports and having at such end a cross bar and compression devices operating thereon, substantially as set forth.

CHARLES W. MANNOOCH.

Witnesses:

SOLON C. KEMON,  
PERRY B. TURPIN.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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