

No. 887,638.

PATENTED MAY 12, 1908.

J. HOPKINSON & R. KILBURN.

STOP VALVE.

APPLICATION FILED MAY 10, 1907.

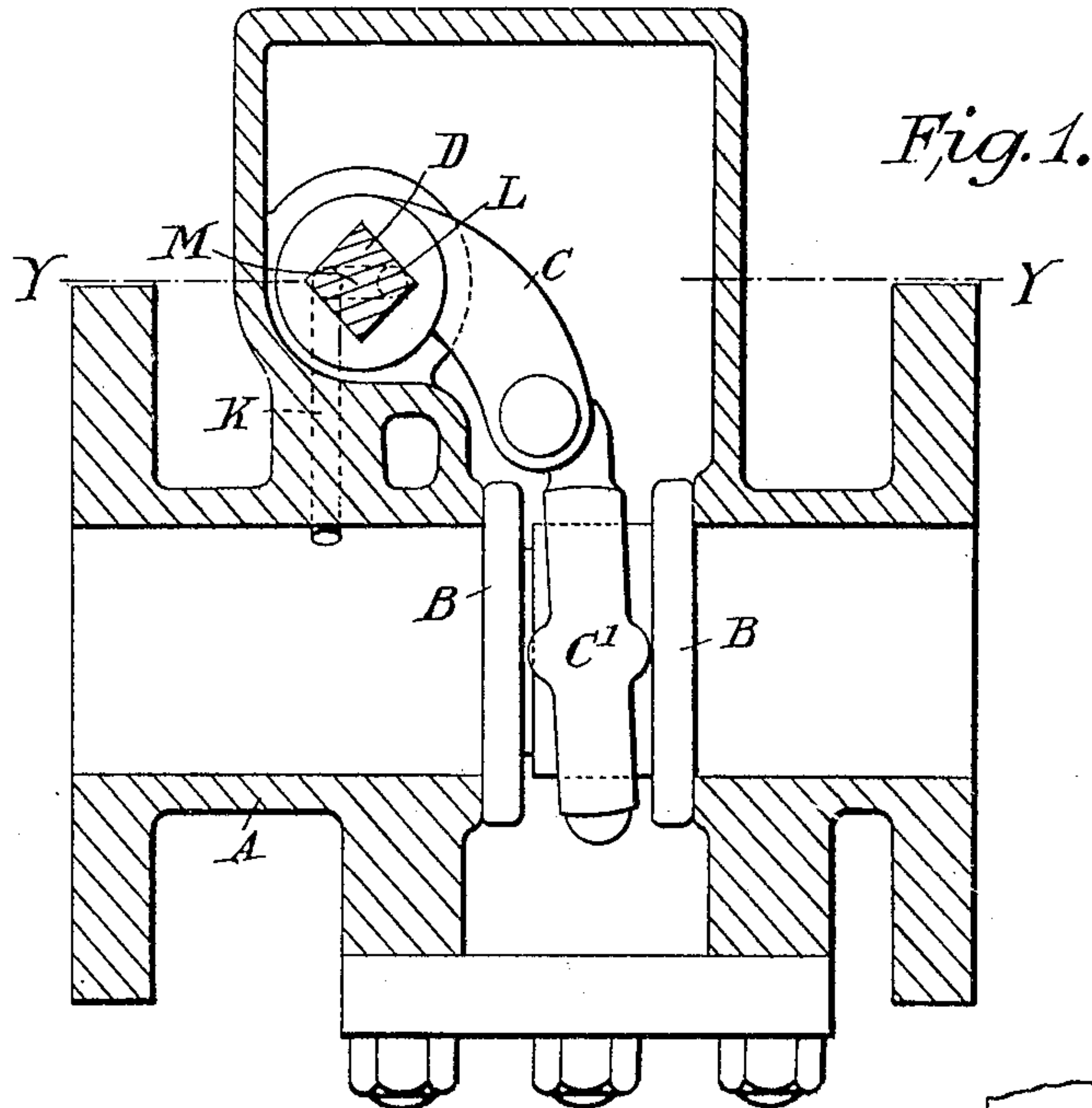


Fig. 1.

Fig. 4.

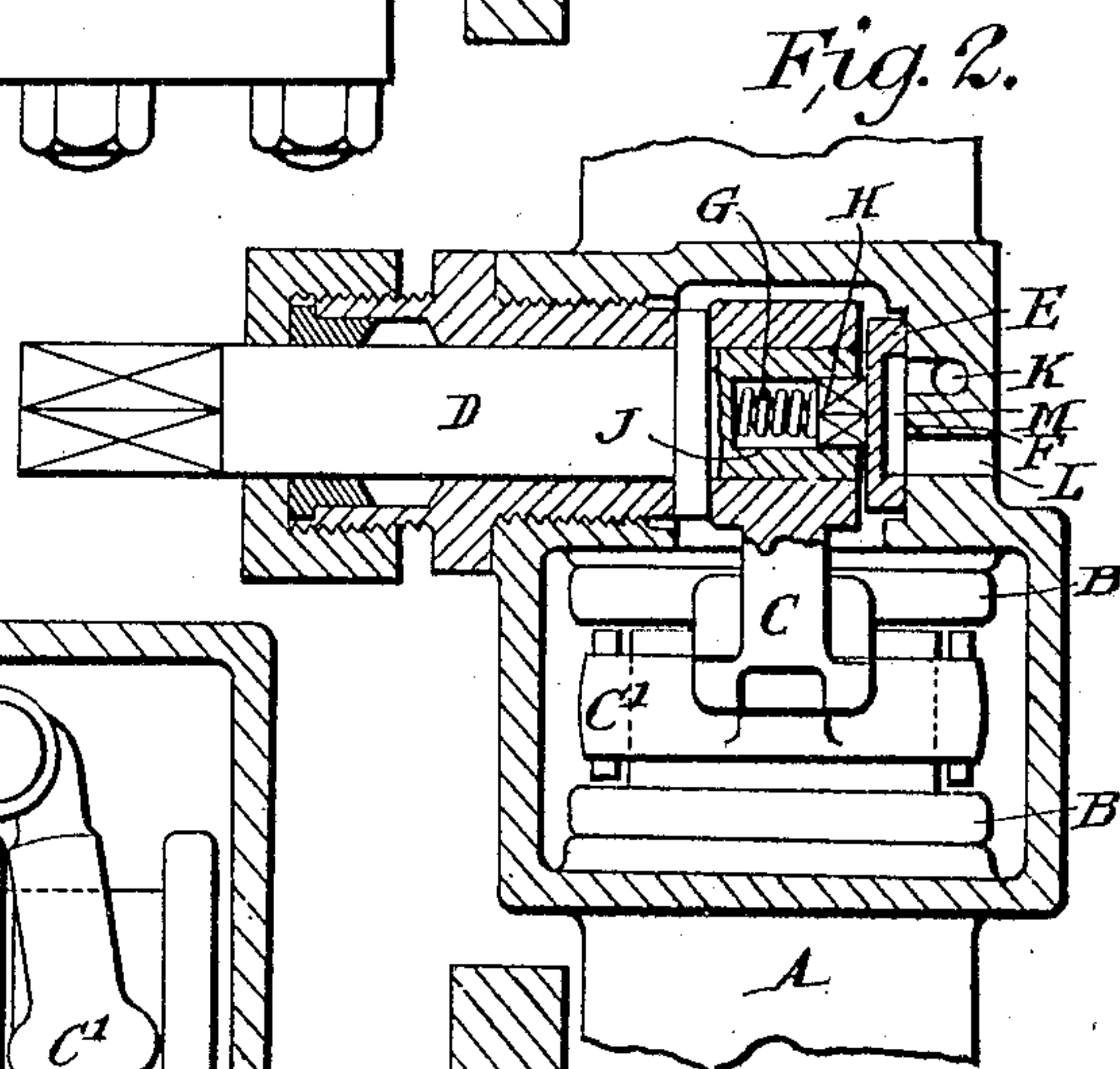
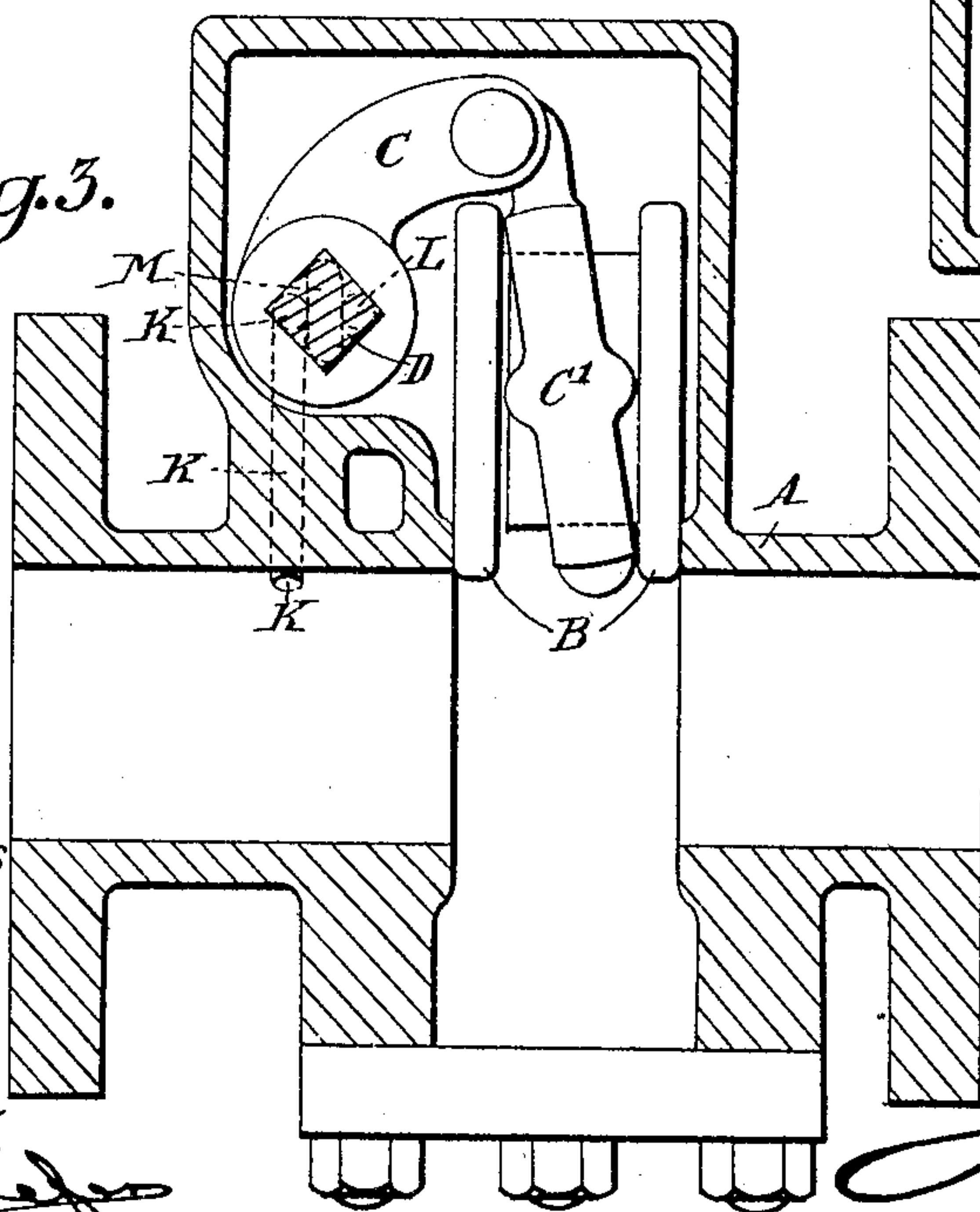


Fig. 2.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH HOPKINSON AND RICHARD KILBURN, OF HUDDERSFIELD, ENGLAND, ASSIGNORS
TO J. HOPKINSON & CO., LTD., OF HUDDERSFIELD, ENGLAND, A CORPORATION OF
GREAT BRITAIN.

STOP-VALVE.

No. 887,638.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed May 10, 1907. Serial No. 372,913.

To all whom it may concern:

Be it known that we, JOSEPH HOPKINSON and RICHARD KILBURN, subjects of the King of Great Britain, residing at Huddersfield, England, have invented certain new and useful Improvements in Stop-Valves, of which the following is a specification.

This invention relates to stop valves of the kind described in the specification of British Patent No. 22805, dated 15th October 1906, that is to say, to parallel slide stop valves in which there is an arm mounted on a rotary operating spindle and pivotally connected to a belt surrounding the valve disks which preferably have a spring arranged between them.

The said invention also relates to similar stop-valves as hereinafter referred to.

The present invention has for its object the provision of means controlled by the operating spindle for placing the egress side of the valve body in communication with the external atmosphere when the main valve is shut thereby relieving the said egress side of the valve body of fluid pressure at such times. The communication with the external atmosphere is cut off when the main valve is open.

Our invention is illustrated in the accompanying drawings, in which

Figure 1 is a longitudinal central section of the valve, showing the main valve shut, and communication between the egress side of the valve body and the external atmosphere established. Fig. 2 is a section taken on the line Y, Y, Fig. 1, Fig. 3 is a section similar to Fig. 1 but showing the main valve open, and the communication passage between the egress side of the valve body and the external atmosphere closed, and Fig. 4 is a face view of a disk hereinafter described.

Like letters of reference denote corresponding parts in the several figures.

A is the valve body, B the main valve, C the link or arm for opening and closing the valve through the belt C', and D the operating spindle for actuating the said arm or link. These parts are arranged and operate substantially in the manner described in the before-mentioned specification.

According to our present invention we combine with the operating spindle D a disk E which turns with the spindle and which bears against a face or seat F formed in the valve body, a spring G being preferably pro-

vided to keep the said disk against its seat when there is no fluid pressure behind it. A convenient mode of connecting the said disk to the operating spindle is by forming the disk with a squared boss or projection H engaging with a squared recess J in the spindle so that the disk must turn with the spindle. Leading from the seat face F two independent thoroughfares K, L are provided, the thoroughfare K communicating with the interior of the valve body on the egress side thereof, and the thoroughfare L communicating with the external atmosphere. In the face of the disk E a groove M is formed, said groove serving in one position of the disk shown in Figs. 1 and 2 to form a communication between the two thoroughfares K, L, and in that position of the disk the egress side of the valve body is in free communication with the atmosphere. In another position of the disk shown in Fig. 3 the groove M does not form a communication between the two thoroughfares K, L, and the egress side of the valve body is then shut off from the external atmosphere. The arrangement is such that when the operating spindle D is turned to raise or open the main valve B, the communication between the egress side of the valve body and the external atmosphere is shut off by the turning of the disk E, and on the other hand when the operating spindle D is turned to lower or close the main valve B the said communication between the egress side of the valve body and the external atmosphere is restored by the turning back of the disk E, and any fluid pressure in said egress side is thereby immediately released. Our improvements are equally applicable to a parallel slide stop valve in which the connection between the valve disks and the operating spindle is made otherwise than by an arm as herein shown, for example where the connection is made by a rack and pinion.

What we claim is:—

1. In a parallel slide stop valve, the combination, with a valve-casing and a valve-spindle actuating the slide-valve, of a valve-seat having thoroughfares communicating respectively with the interior of said valve casing at the egress side of the slide valve and with the atmosphere, and a disk which is provided with a groove for coacting with said thoroughfares and is arranged coaxially with said valve-spindle, means for connecting said disk and said valve-spindle so as to

permit relative motion of said disk and spindle in an axial direction but so that said parts shall turn together and a spring acting between said parts to press said disk against
5 said valve seat.

2. A parallel-slide stop valve comprising a valve-casing, a slide valve consisting of valve-disks movable in said casing, a belt
10 surrounding said valve-disks between the faces on the opposite sides thereof, a valve spindle, an arm fast on said valve spindle and pivotally connected to said belt, a valve seat having thoroughfares communicating respectively with the interior of said valve-

casing at the egress side of the slide valve 15 and with the atmosphere, and a rotary valve adapted to be turned by said valve spindle and adapted to put the egress side of the valve casing into communication with the atmosphere when the slide valve is closed. 20

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOSH. HOPKINSON.
RICHARD KILBURN.

Witnesses:

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S. MATHER.