

(No Model.)

2 Sheets—Sheet 1.

E. JONES.
GOVERNOR FOR STEAM ENGINES.

No. 459,853.

Patented Sept. 22, 1891.

Fig. 4.

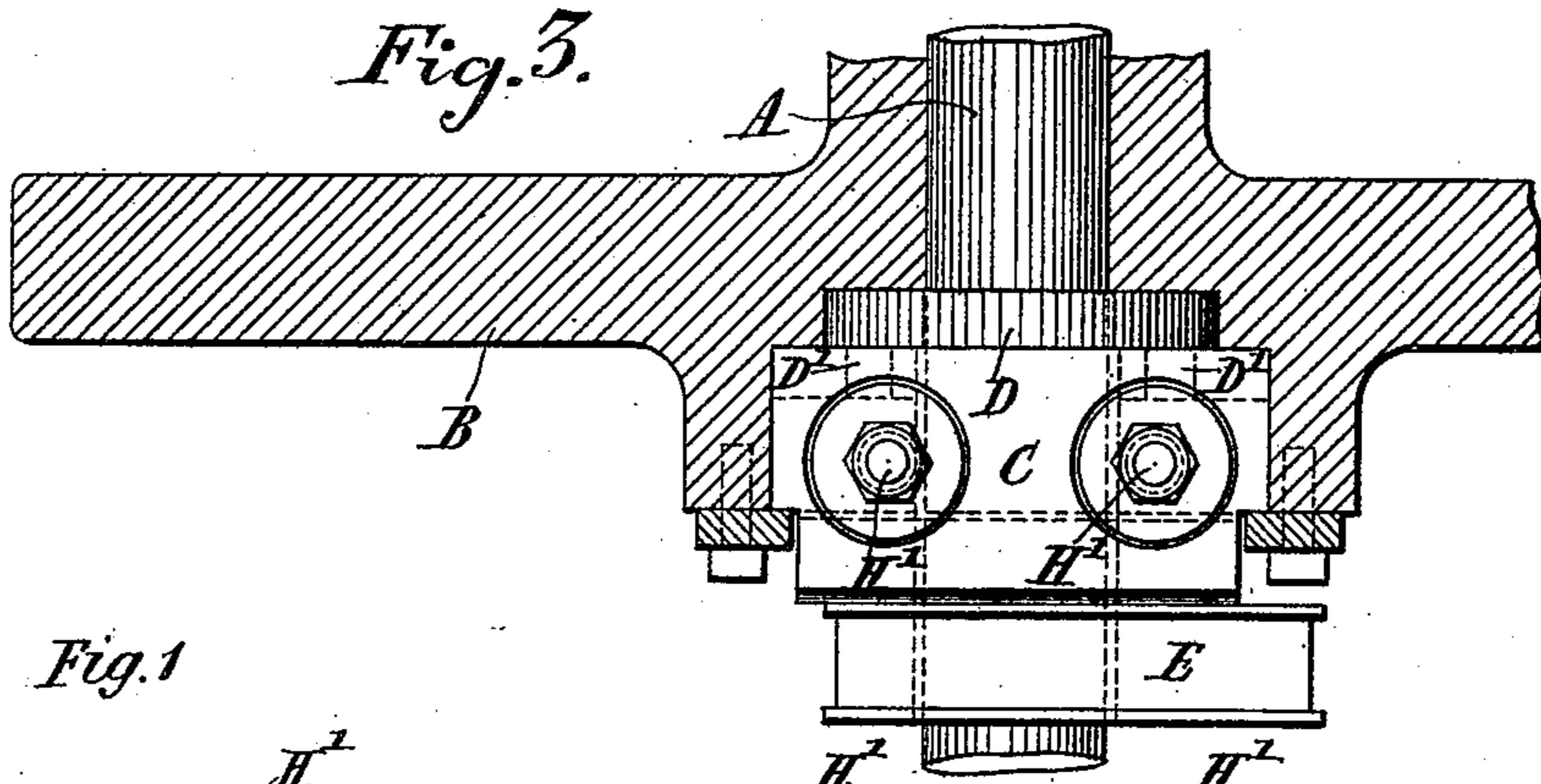
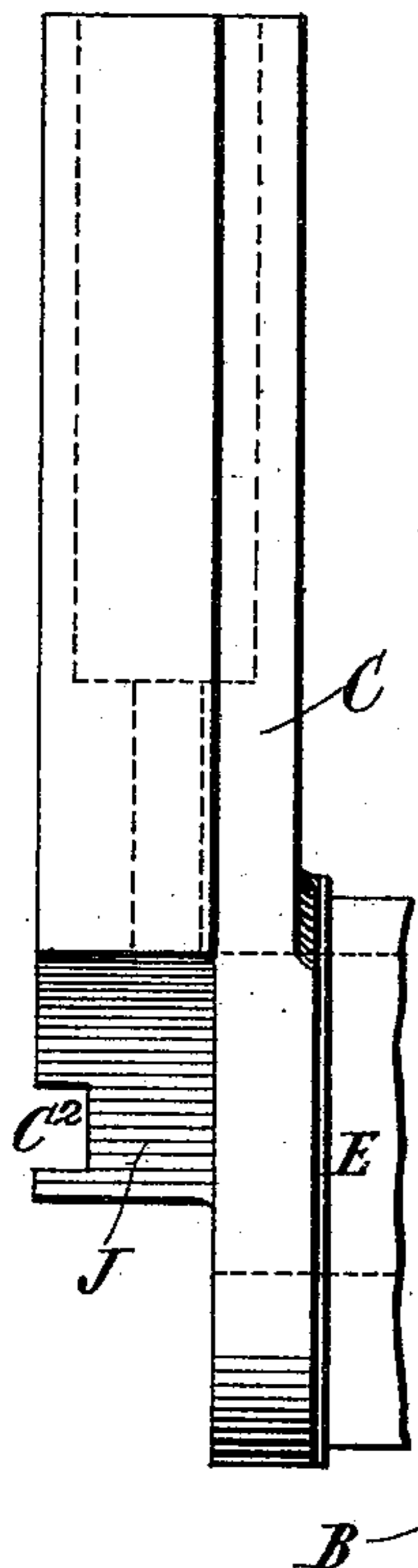


Fig. 1

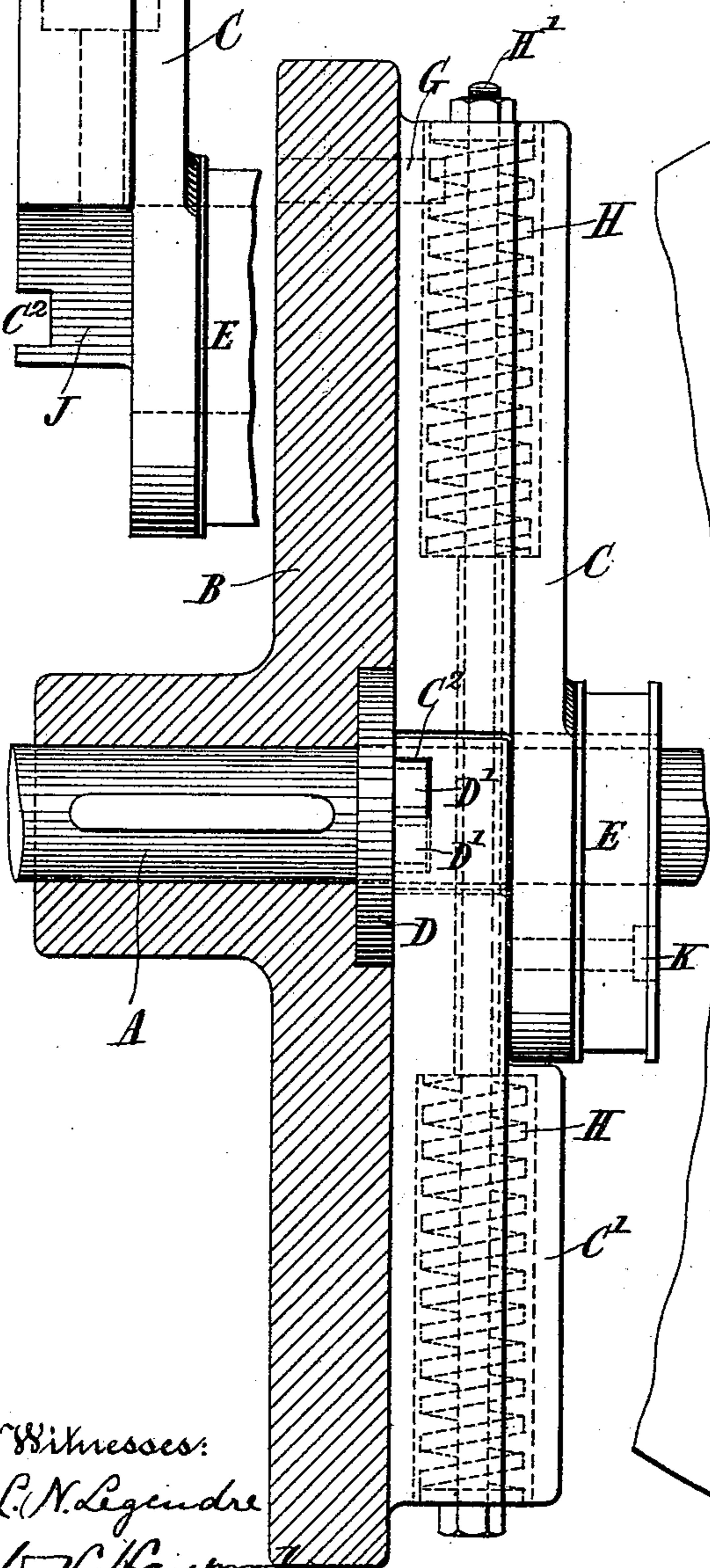
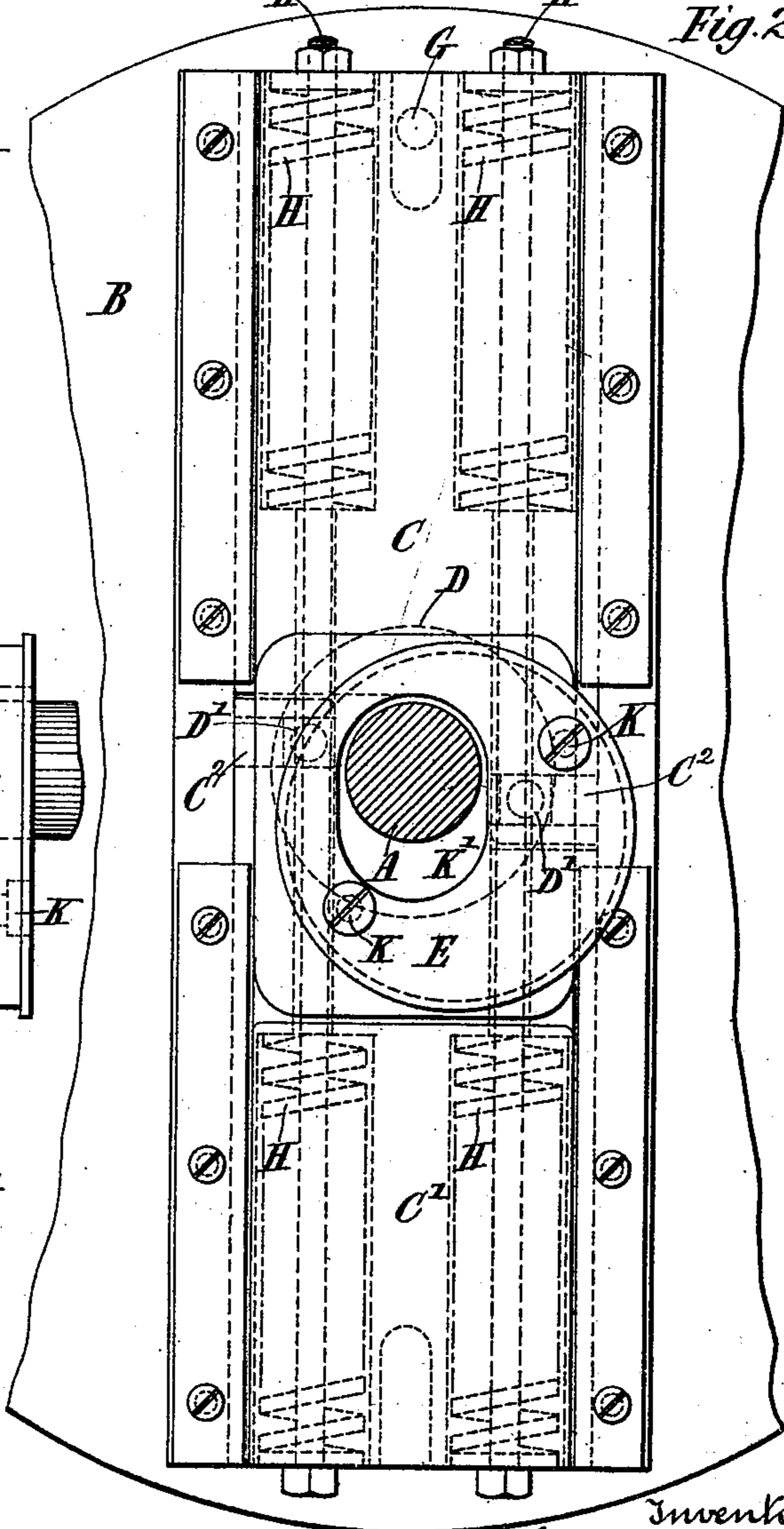


Fig. 2



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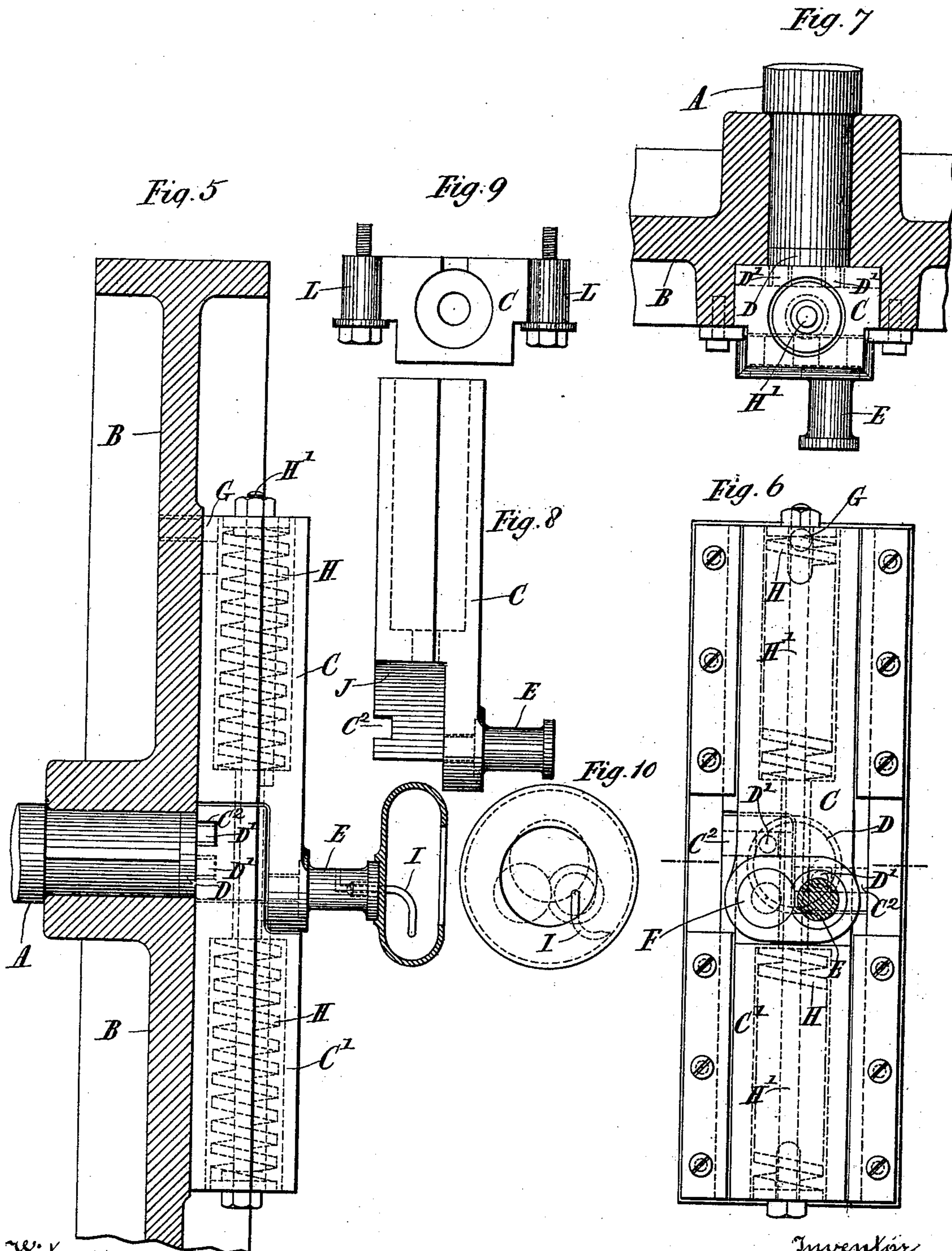
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

EDWARD JONES, OF LEEDS, ENGLAND.

GOVERNOR FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 459,853, dated September 22, 1891.

Application filed August 13, 1890. Serial No. 361,861. (No model.) Patented in England July 9, 1888, No. 9,958.

To all whom it may concern:

Be it known that I, EDWARD JONES, of 13 Blenheim Square, Leeds, in the county of York, England, have invented certain new and useful Improvements in Steam-Engine Governors, (for which I have obtained a patent in Great Britain, No. 9,958, on July 9, 1888,) of which the following is a specification.

10 The object of this invention is to provide a simple and inexpensive variable cut-off governor for steam-engines which may be placed either at the end of or at any other part of the driving-shaft and arranged to work either
15 with an eccentric or a crank-pin, as the case may be.

In the accompanying drawings I have shown my improved governor placed at some point in the length of the shaft with the eccentric arrangement and the same placed at
20 the end of the shaft with the crank-pin arrangement.

Figure 1 is a sectional elevation; Fig. 2, a front view. Fig. 3 is a plan view, partly in section, of the eccentric arrangement. Fig. 4
25 is a side view of a weight detached. Figs. 5, 6, 7, and 8 are views corresponding to Figs. 1, 2, 3, and 4 of the crank-pin arrangement. Fig. 9 is a slight modification, and Fig. 10
30 shows in front view an oiling device.

The governor consists of a disk or plate keyed to the shaft and provided with radial slideways, in which work slides or weights. These weights are so arranged that they shall,
35 under the influence of the centrifugal force, as the disk rotates with the shaft slide outward against the pressure of suitable springs. The slides or weights are connected together in such manner as will insure the movement of
40 both slides simultaneously in opposite directions. Attached to one of the slides is an eccentric, the eccentricity of which will depend upon the movement of the slide. As in this case the governor is placed at some point in
45 the length of the shaft, the eccentric is slotted to allow for the shaft passing through it. The eccentric will be connected with the slide-valve in order to transmit thereto the necessary reciprocating motion. As the weights
50 move, the eccentric (or the crank-pin, if such be used) will be caused to assume a more or less eccentric position with respect to the axis

of the shaft, and therefore more or less motion will be given to the valve, or, in other words, the cut-off will be effected sooner or
55 later, according to the speed at which the engine is running. I use an even number of slides or weights, as the apparatus is thereby balanced and will work more evenly. Two of such slides or weights are sufficient for the
60 successful carrying out of my invention.

This new governor, which is more particularly applicable to stationary engines, lends itself readily to change the direction of the engine, if required, for any purpose, for by
65 taking out the slides and putting them in again on opposite sides and changing the position of the eccentric or crank-pin the engine can be run in the opposite direction without changing the lead.
70

A is the driving-shaft, and B is the plate or disk keyed thereon, and which serves as the slide or weight carrier.

C C' are the sliding weights, C being the main weight which carries the eccentric or
75 the crank-pin, and C' the counterbalance-weight.

D is the link, consisting of a ring or disk which fits into the disk or plate on the axle, and is formed with two projecting pins D',
80 which work in transverse slots or grooves C², formed in the back of the weights C C', such link serving to connect the two weights together, so that one cannot move without the other.
85

E is the eccentric, (or the crank-pin,) which is secured to the weight C by screws K, and a slot K' is made in the eccentric, through which the shaft A passes. The eccentric (or the crank-pin) gives motion to the slide-valve
90 of the engine, with which it is connected in any suitable manner.

F is a locking-pin (see Fig. 6) to prevent the crank-pin E becoming unscrewed. This pin F also serves to protect the hole into
95 which it is screwed from injury, as this hole is intended to receive the crank-pin under certain conditions, which will be hereinafter referred to.

G is a stop-pin to prevent the weights flying out of the slides should the engine be running at an excessive speed.

The weights are recessed to receive springs H, which are strung on bolts H'. These bolts

pass right through both weights and are provided at opposite ends with nuts, by which the tension of the springs can be regulated. The tendency of these springs is always to
5 force or draw the weights together, and this tendency is increased or diminished according to the tension, so that these springs act as controlling-springs to regulate the speed of the engine.

10 It will be seen from Fig. 8 that the weight C is formed with a recess J, into which a corresponding portion or extension of the slide C' fits. In those parts of the two weights which overlap the transverse grooves for the
15 link-motion are made.

I is an oiling arrangement for lubricating the crank-pin E.

Instead of slideways for the weights, I may use rollers L, as shown in Fig. 9.

20 When it is desired to run the engine in the reverse direction, the weights will be changed end for end and the position of the crank-pin E and locking-pin F will be reversed.

Having now particularly described and ascertained the nature of my said invention 25 and in what manner the same is to be performed, I declare that what I claim is—

The combination, with a driving-axle, of a disk or plate having opposite radial slideways 30 affixed on said axle, opposite sliding weights fitted to said slideways and having in them boxes for springs, springs arranged within said boxes, rods passing through said opposite weights and springs and provided with screw-threads and nuts for adjusting said springs, 35 a link or ring arranged in a recess in the disk or plate and furnished with pins which work in grooves in the said weights, and an eccentric or crank-pin carried by one of said weights, substantially as herein set forth.

EDWARD JONES.

Witnesses:

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