

(No Model.)

2 Sheets—Sheet 1.

J. J. TONKIN.

STEAM VALVE.

No. 362,406.

Patented May 3, 1887.

Fig. 1.

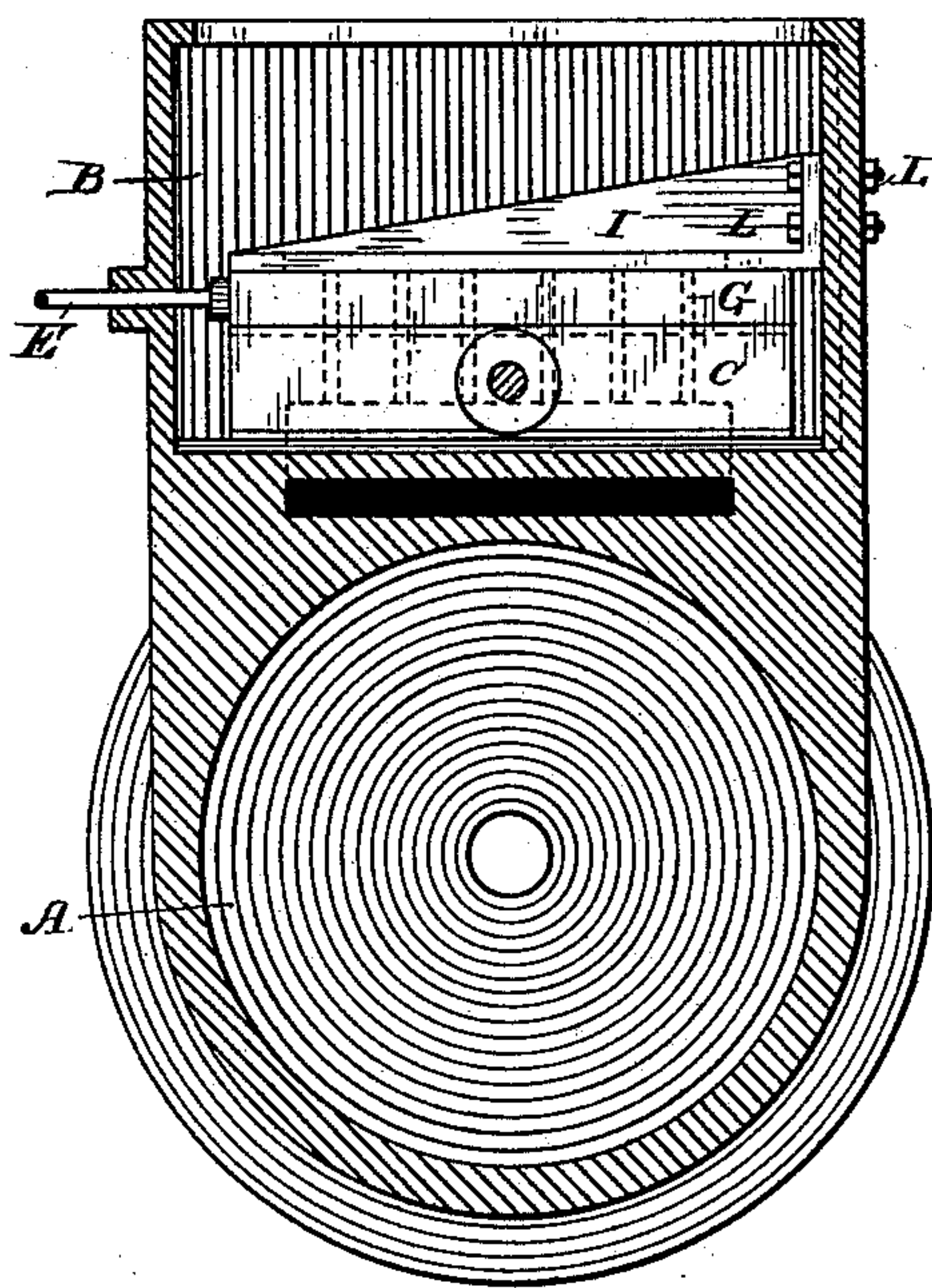
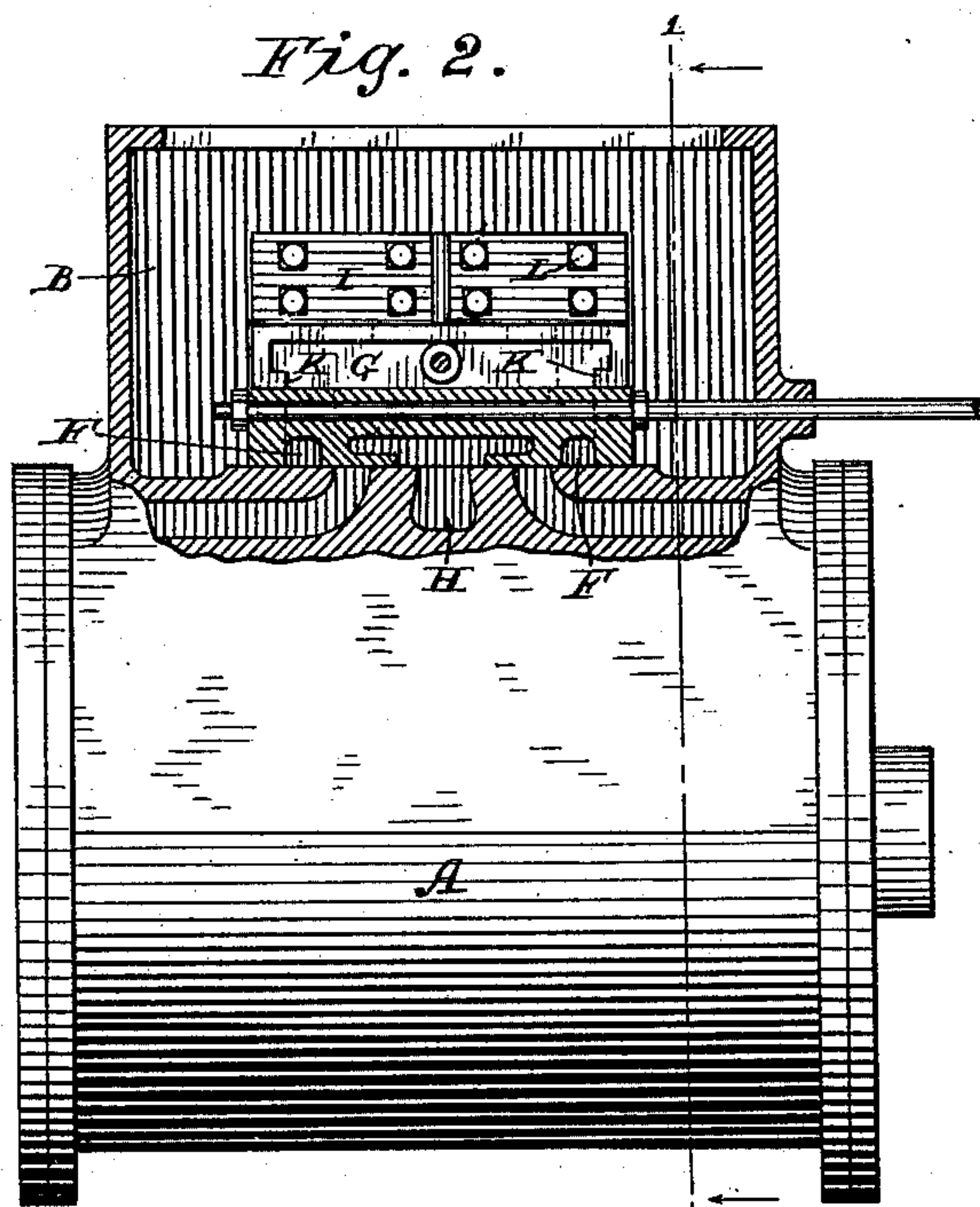


Fig. 2.



WITNESSES

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Fig. 3.

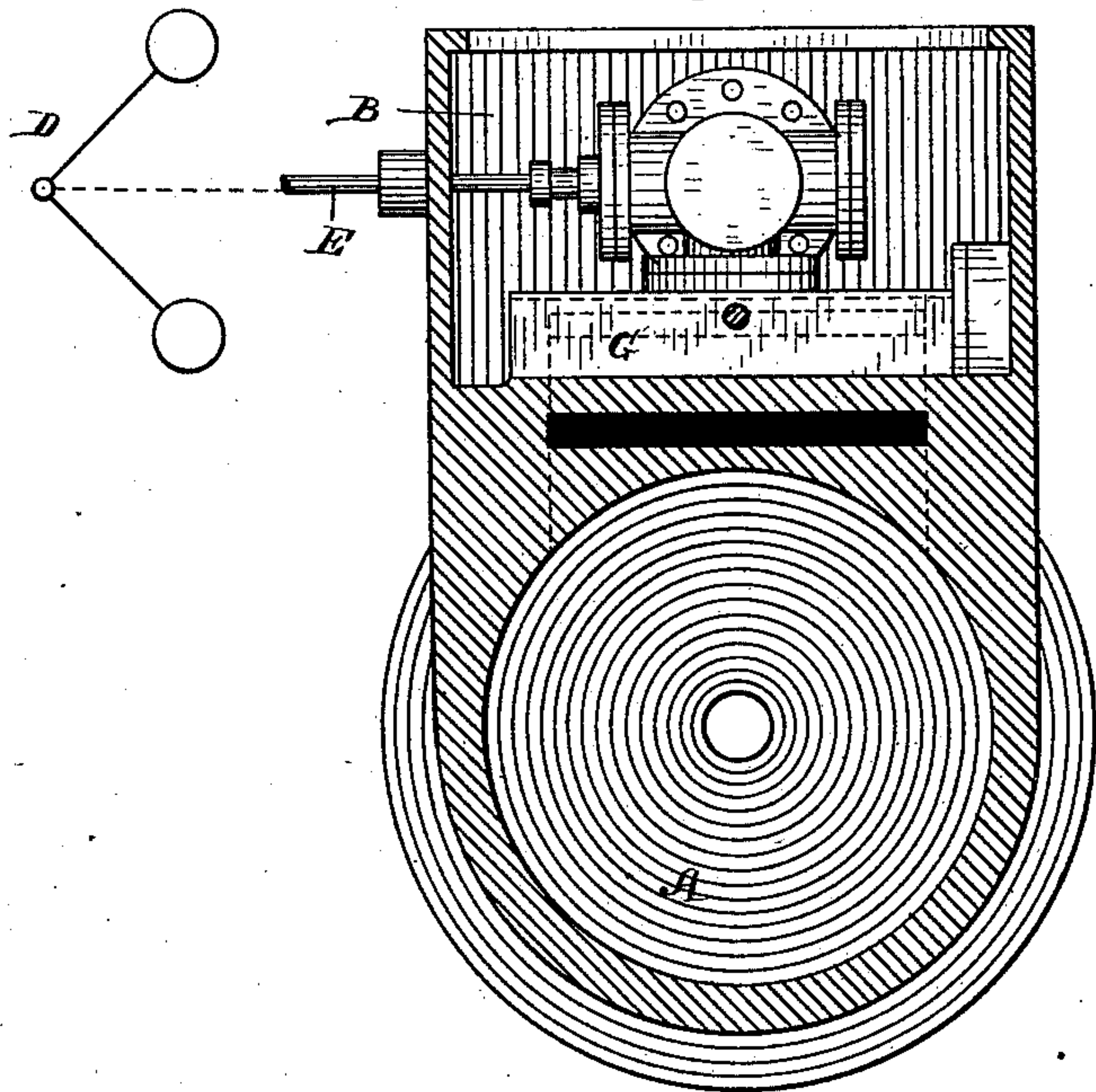
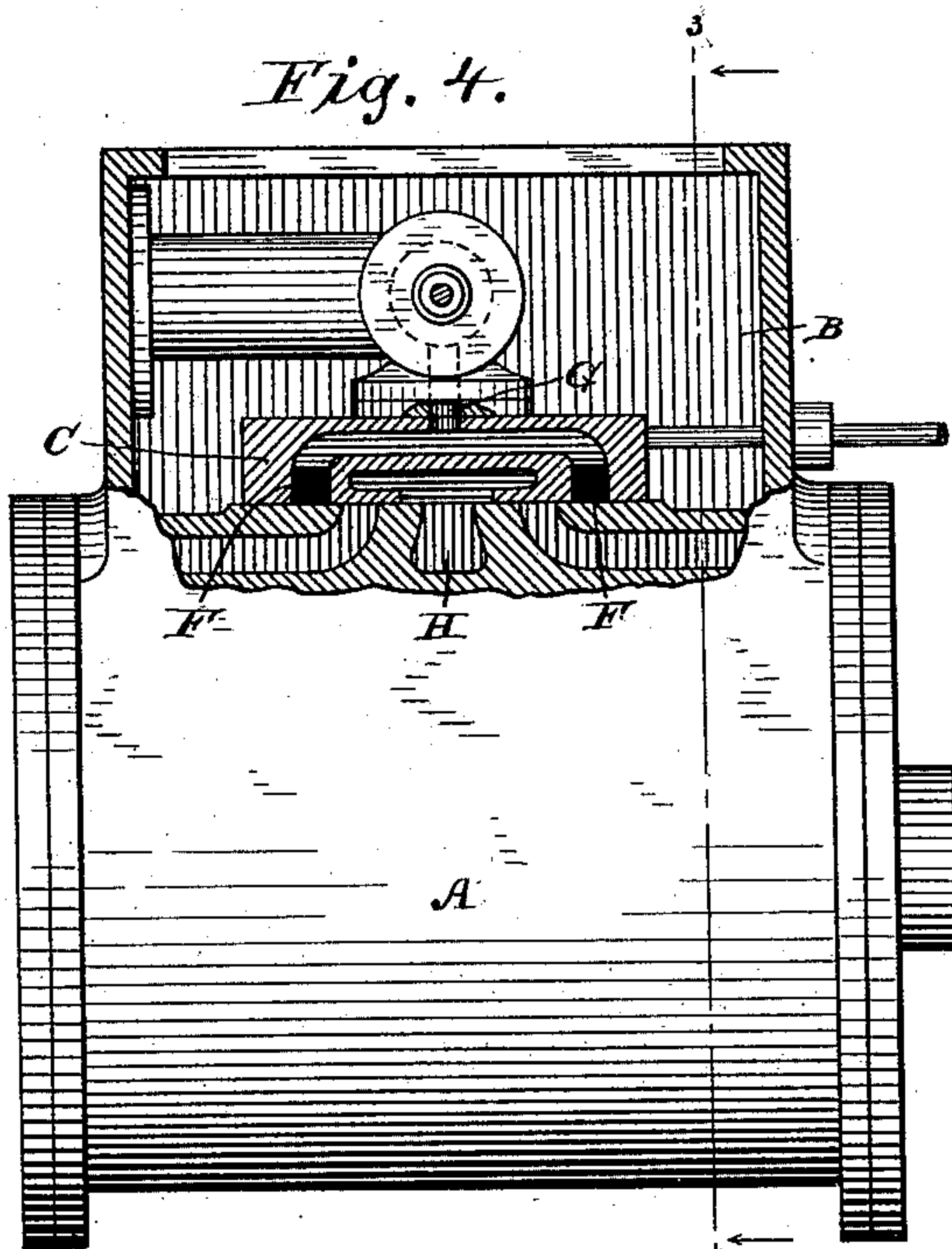


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN J. TONKIN, OF OSWEGO, NEW YORK, ASSIGNOR TO THOMSON
KINGSFORD, OF SAME PLACE.

STEAM-VALVE.

SPECIFICATION forming part of Letters Patent No. 362,406, dated May 3, 1887.

Application filed December 16, 1886. Serial No. 921,733. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. TONKIN, of Oswego, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Steam-Valve Mechanism, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to improve that class of valve mechanism in which a throttle-valve works within a steam-chest in immediate contiguity with the ordinary main cut-off or steam-supply valve for the steam-cylinder; and my invention consists in the combination of parts, hereinafter described, and succinctly summed up in my appended claim, whereby I provide a simple efficient valve mechanism all within a steam-chest and easy to repair and little liable to get out of order.

Figure 1 of the drawings represents a transverse section of an ordinary steam-cylinder and steam-chest provided with a main slide-valve and with a sliding throttle-valve working at right angles to the main slide-valve. Fig. 2 is a longitudinal section of the same. Fig. 3 is a transverse section similar to Fig. 1, except that a lifting throttle-valve is shown. Fig. 4 is a longitudinal section of Fig. 3.

Referring to the letters upon the drawings, A indicates an ordinary steam-cylinder; B, an ordinary steam-chest; and C, an ordinary main slide or cut-off valve, the usual steam and exhaust ports being provided.

D indicates a governor, which may be of any variety desired.

E indicates the reciprocating governor-stem connected with a slide throttle-valve, as shown in Fig. 1, and with a lifting throttle-valve, as shown in Fig. 3.

F F indicate the ordinary steam-ports in the main slide-valve, and G suitable steam-ports in the throttle-valve.

H indicates the ordinary exhaust-port.

I in Fig. 1 indicates a frame provided with ways K, in Fig. 2, for the sliding throttle-valve. This frame may be attached, as illustrated, by means of screw-bolts L to one of the side walls of the cylinder, which renders it removable.

It will be observed that the reciprocations of the throttle-valve, as shown, are at right angles to those of the main cut-off valve. The operation of the main cut-off valve is, as usual,

by means of suitable connecting mechanism with the working parts of the engine. (Not illustrated.)

The operation of the governor is also as usual, responding to the variations in the load upon the engine to reciprocate the governor-stem and open and close the ports of the throttle-valve, according to the amount of steam required to be admitted to the work. By this arrangement just enough steam will be automatically admitted to the cylinder from the chest by the operation of the throttle-valve to drive the piston with the force actually required for every stroke without the waste of steam and delay in adjusting the pressure to the load, which is necessarily incident to the operation of all engines in which the throttle-valves are placed outside of their cylinders. By this arrangement also the use of an automatic cut-off valve, which is objectionable on account of its comparative complication and expense and liability to wear and get out of order, is obviated. By this arrangement also it will be observed that the frame carrying the throttle-valve and governor-stem may be removed bodily for repairs by simply unscrewing the bolts which fasten it to the inside of the cylinder, when the engine will operate like any ordinary engine unprovided with a throttle-valve.

Having thus described my improvements, what I claim to be new, and desire to secure by Letters Patent of the United States, is—

The combination, with an ordinary steam-chest and steam-cylinder provided with an ordinary main slide-valve and usual ports, of an automatic throttle-valve and stem moving at right angles to the movement of the main valve and operated by a governor, D, at right angles to the movement of the main slide-valve, and a frame, I, removably secured to the chest for supporting the throttle-valve mechanism within the steam-chest, whereby the throttle-valve mechanism may be removed for repairs and the engine remain operative, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

JOHN J. TONKIN.

Witnesses:

MARCUS S. HOPKINS,
C. P. ELWELL.