

No. 784,290.

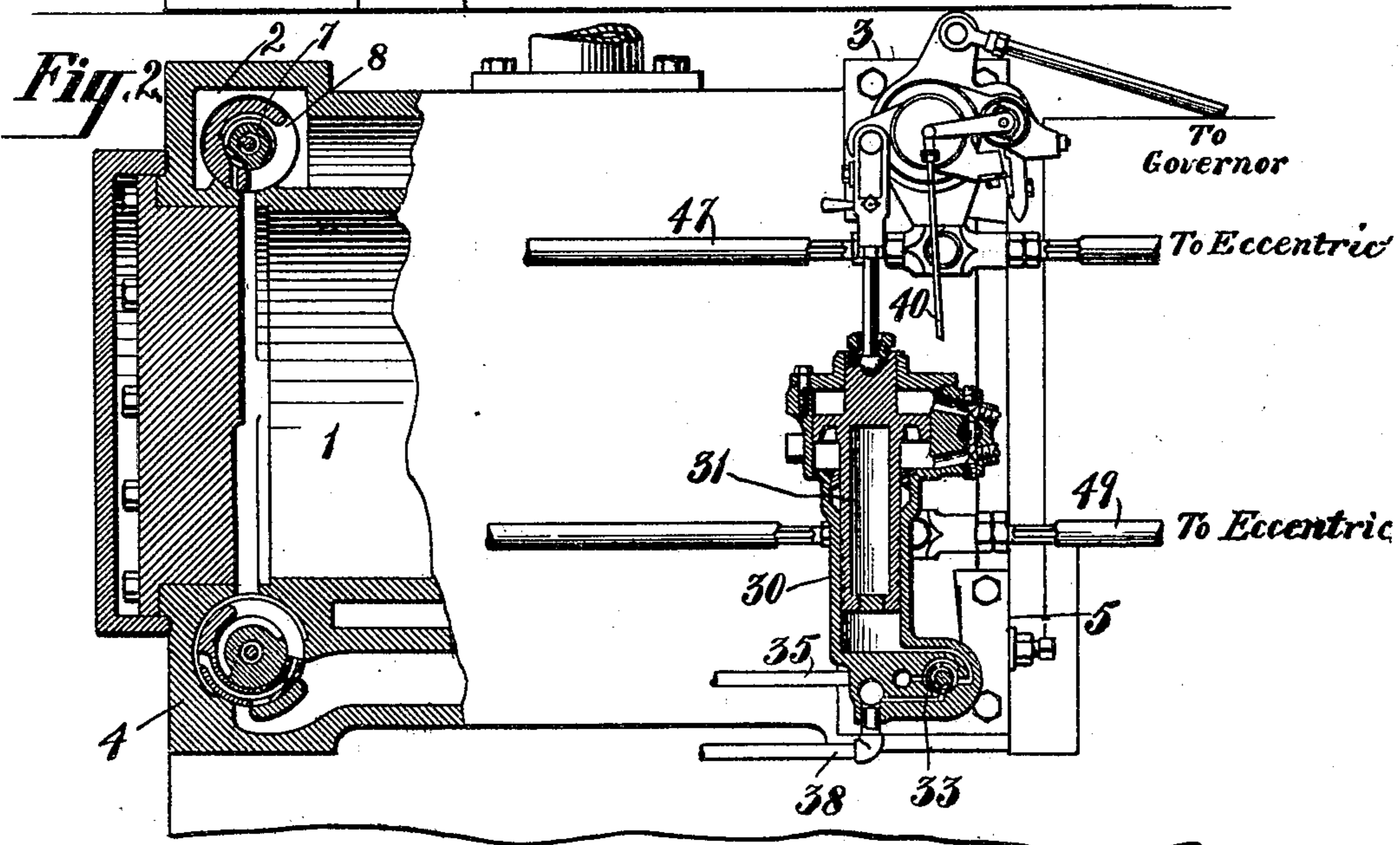
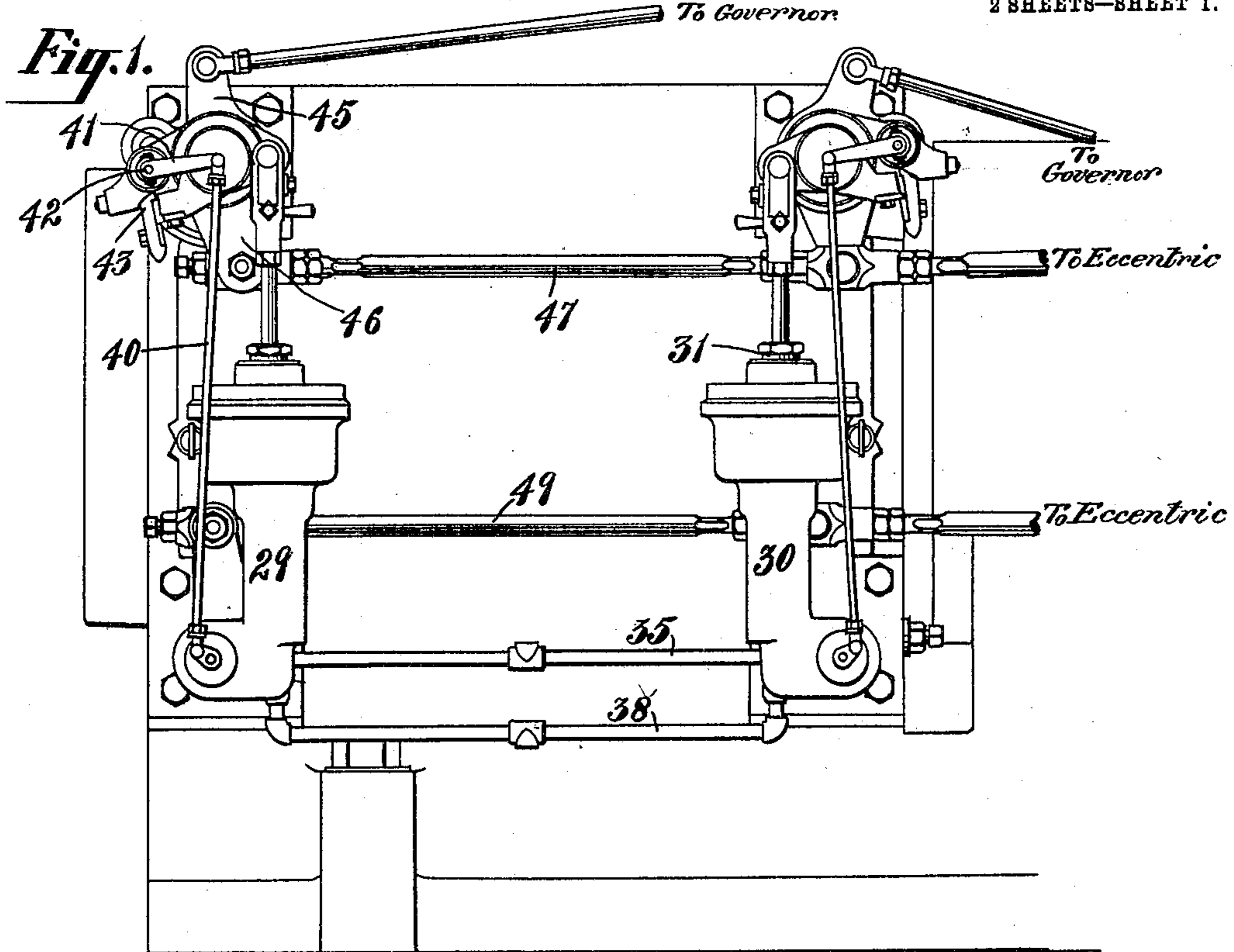
PATENTED MAR. 7, 1905.

R. WHITEHILL, DEC'D.
M. E. WHITEHILL, ADMINISTRATRIX.

ENGINE.

APPLICATION FILED OCT. 3, 1903.

2 SHEETS—SHEET 1.



Witnesses:

G. G. Hachenberg
Henry Thierach

Inventor:

Robert Whitehill
By Brown & Deane
his Attorneys

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2 SHEETS—SHEET 2.

Fig. 3.

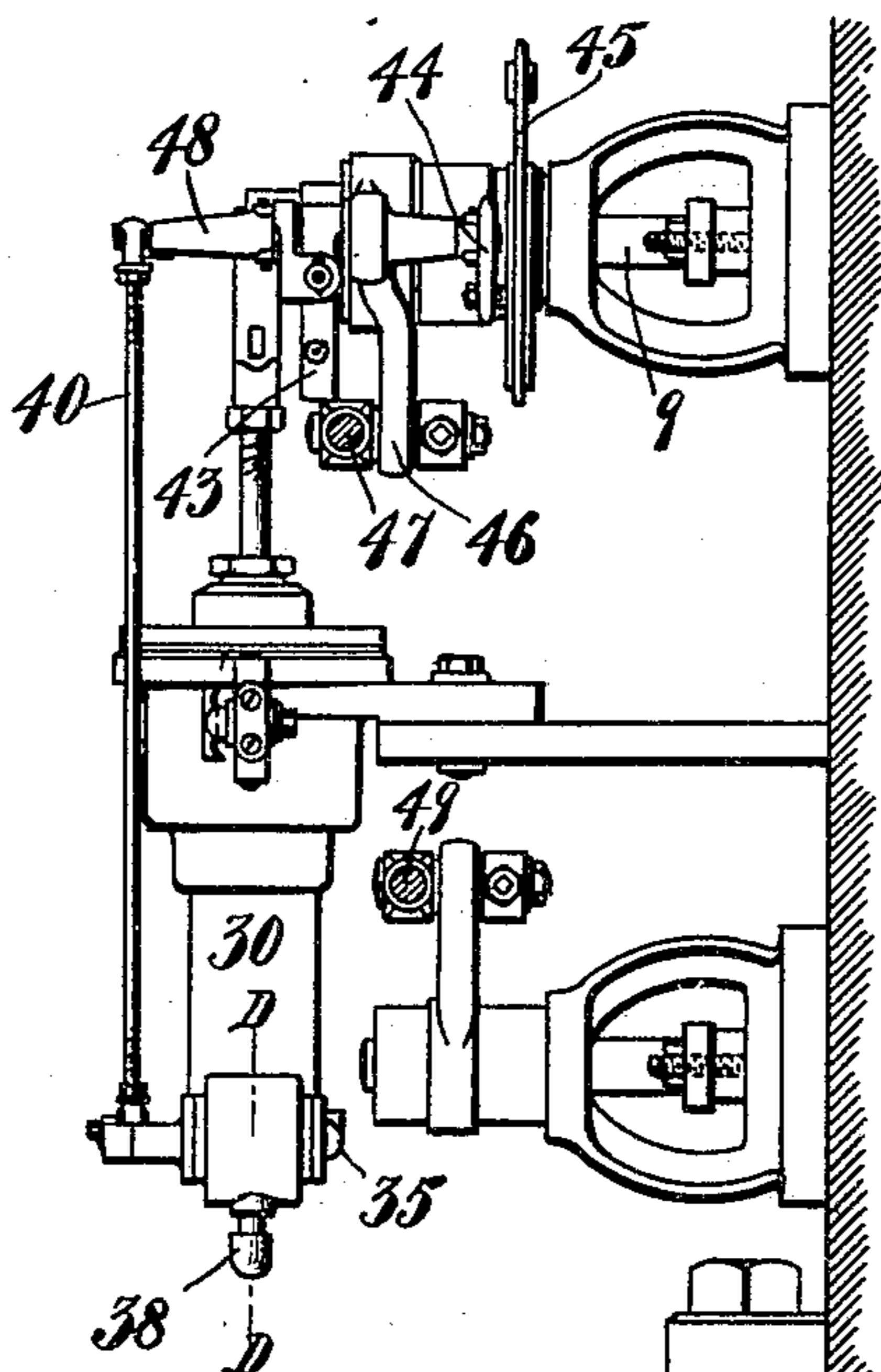


Fig. 6.

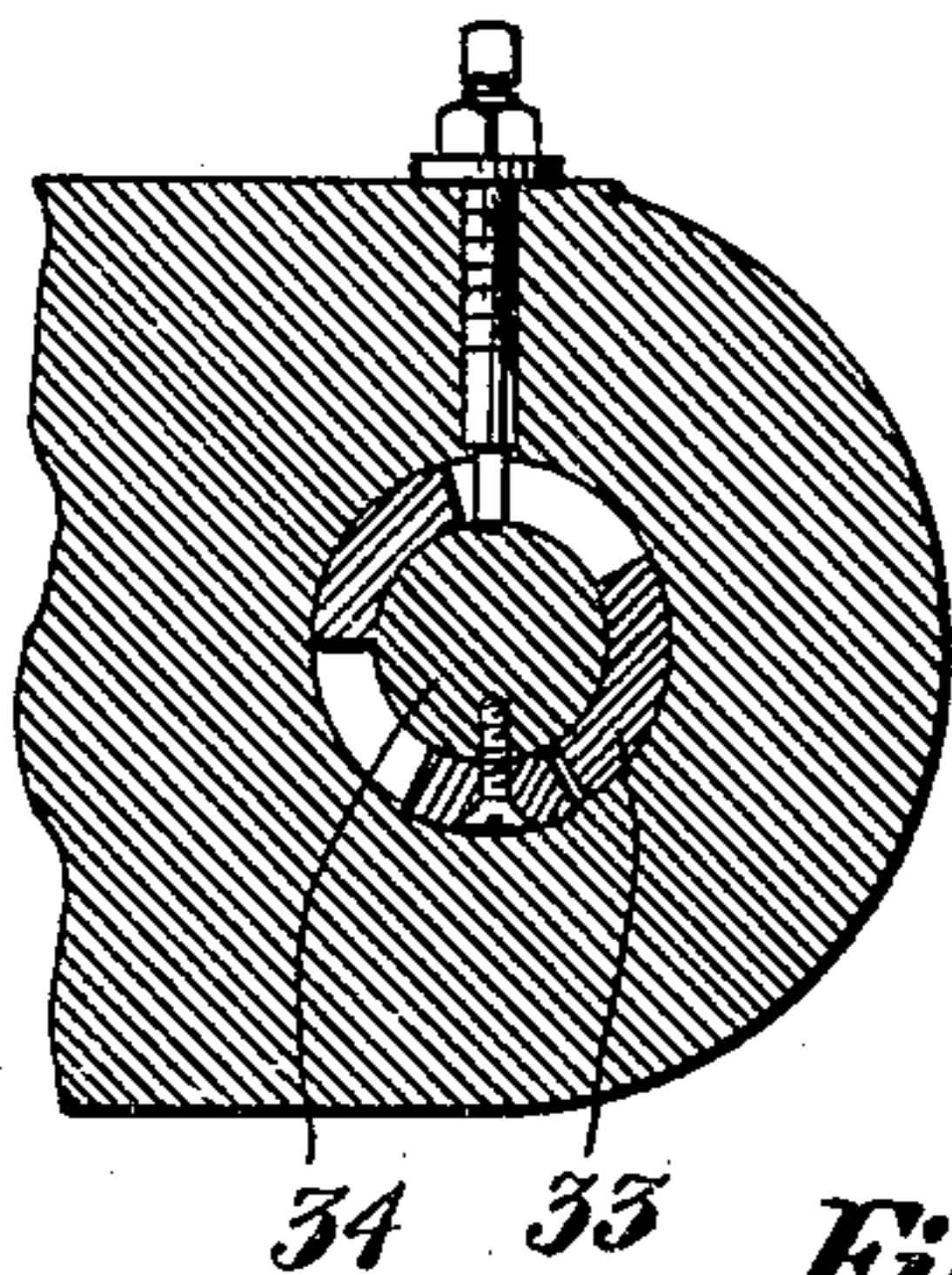


Fig. 5.

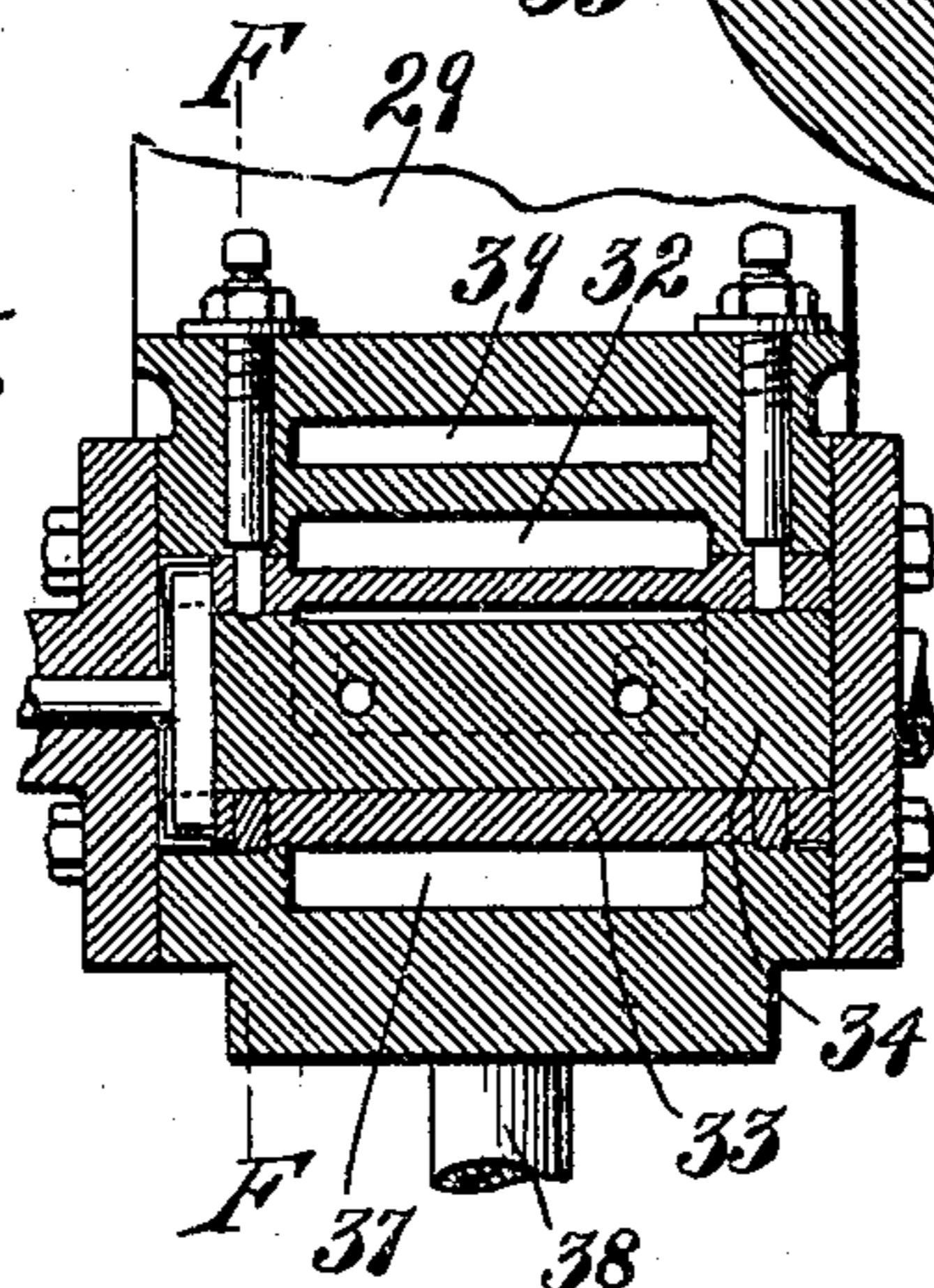
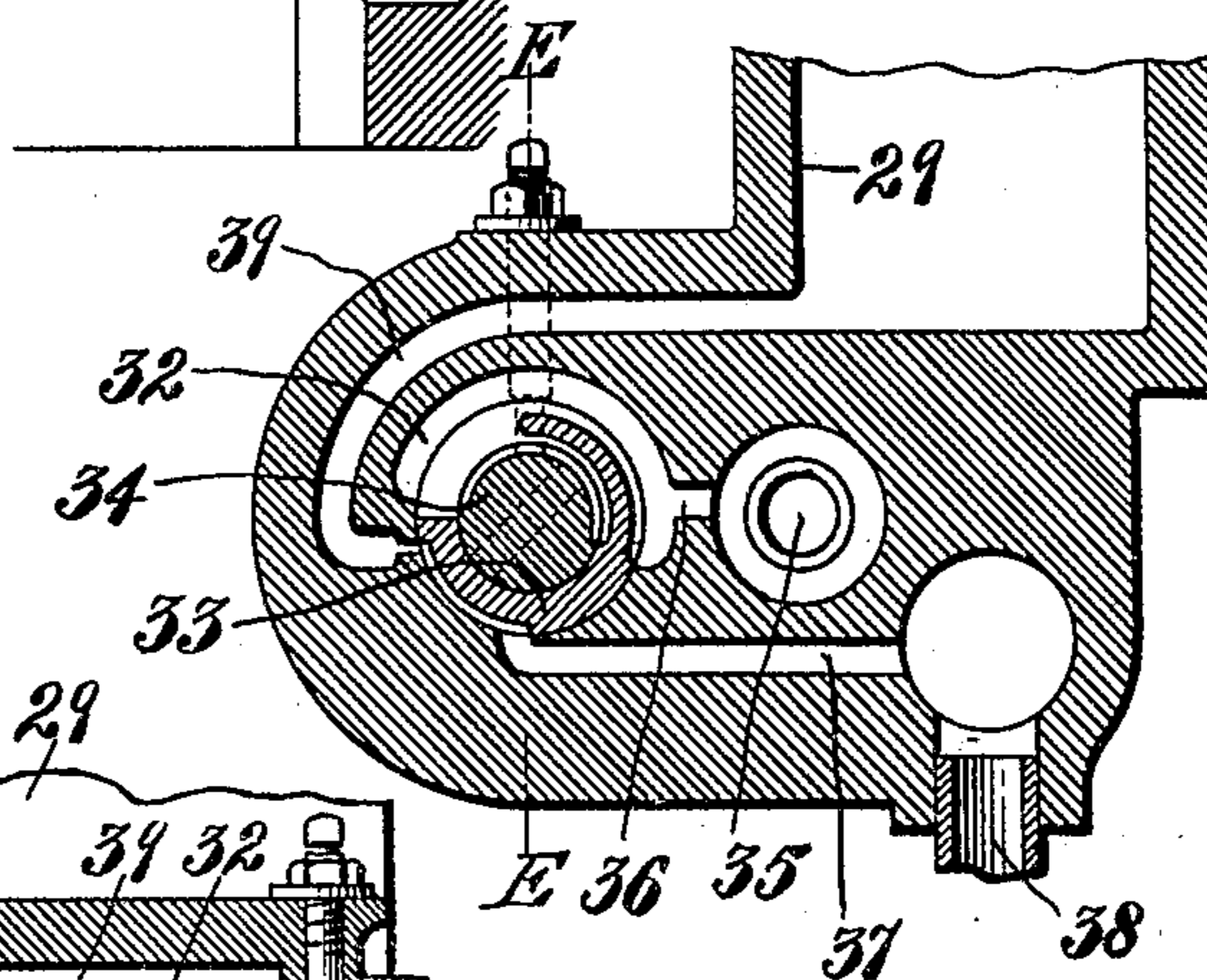


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT WHITEHILL, OF NEWBURGH, NEW YORK; MARY E. WHITEHILL
ADMINISTRATRIX OF SAID ROBERT WHITEHILL, DECEASED.

ENGINE.

SPECIFICATION forming part of Letters Patent No. 784,290, dated March 7, 1905.

Application filed October 3, 1903. Serial No. 175,548.

To all whom it may concern:

Be it known that I, ROBERT WHITEHILL, a citizen of the United States, and a resident of Newburgh, in the county of Orange and State of New York, have invented a new and useful Improvement in Engines, of which the following is a specification.

My invention relates to an improvement in engines, and more particularly to the valve-gear, the object being to effect the closing of the steam-inlet valves by steam under low pressure in place of the vacuum heretofore employed.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view in side elevation of my improved valve-gear, showing it applied to a cylinder. Fig. 2 is a similar view, partly in section. Fig. 3 is an end view of the said gear. Fig. 4 is a view of the valve for admitting steam to the dash-pot, showing the same in connection with its casing centrally in the plane of the line D D of Fig. 3. Fig. 5 is a view of the same in longitudinal section in the plane of the line E E of Fig. 4, and Fig. 6 is a transverse section of the same in the plane of the line F F of Fig. 5.

The general arrangement of the valves with respect to the cylinder is that commonly used in the Corliss engine.

The cylinder is denoted by 1, the valve-chambers for the admission of steam by 2 and 3, and the valve-chambers for the exhaust of steam by 4 and 5.

The dash-pots 29 30, while still retaining the cushioning feature, have in my present improvement the heretofore vacuum portions converted into steam-cylinders for actuating the plungers, one of which plungers is shown in section in Fig. 2 and denoted by 31.

The means for admitting steam to operate the plungers in the cylinders 29 and 30 is shown on a small scale in Fig. 2 and on a large scale in Fig. 4.

Referring to Fig. 4, the bottom of the dash-pot or, more properly, cylinder 29 has in con-

nection therewith a casting in which there is a valve-chamber 32 for the reception of a rocking tubular valve 33, balanced by means of a core 34 in a manner quite similar to that hereinabove described with respect to the steam inlet and exhaust valves. Steam is admitted to the valve-chamber through an inlet-pipe 35 and port 36 and is exhausted through a port 37 in connection with an exhaust-pipe 38. A reducing pressure-valve, not shown, but of any well-known or approved form, may be employed to reduce the pressure of the steam in pipe 35. A port 39 leads from the valve-chamber 32 to the lower end of the cylinder 29.

The valve 33 is provided with the proper cove, so that when rocked into the position as shown in Fig. 4 it will permit the steam to exhaust from the cylinder 29 and when rocked over toward the left will permit the steam to enter the cylinder 29 and by its force lift the plunger 31 and promptly close the steam-inlet valves.

The valve 33 is operated by means of a rod 40, (see Fig. 1,) leading to an arm 41 on a spindle 42, which spindle also carries the hook 43 and a knock-off lever 44, the latter in engagement with the cam 45 under the control of the governor, as is common in this type of engine.

The point where the arm 41 is connected with the rod 40 is in axial alinement with the steam-inlet valve, so that the bodily movement of the hook and its spindle and the parts carried thereby in a circular path by the action of the arm 46, connected with the rod 47, leading to the eccentric on the engine-shaft, will not affect the valve 33 until the spindle 42 is itself rocked in its bearing 48 by the engagement of the knock-off lever 44 with the cam 45. This engagement is so timed that steam is not admitted to the dash-pot or cylinder 29 or 30 until after the hook is unlatched.

What I claim is—

In valve-gear, steam-inlet valves, means for opening them, steam-cylinders, and plungers, one for each valve, for closing the valves, valves for admitting steam to the said cylin-

ders, rocking spindles, arms on the rocking
spindles, valve-operating rods connected with
the said arms at points in axial alinement with
the steam-inlet valves, cams under the control
5 of the governor and knock-off levers in the
spindles in position to engage the cams.

In testimony that I claim the foregoing as

my invention I have signed my name, in pres-
ence of two witnesses, this 29th day of Sep-
tember, 1903.

ROBERT WHITEHILL.

Witnesses:

FREDK. HAYNES,

C. S. SUNDGREN.