

No. 763,586.

PATENTED JUNE 28, 1904.

L. R. ALLEMAN.
CYLINDER FOR STEAM ENGINES.

APPLICATION FILED JULY 20, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

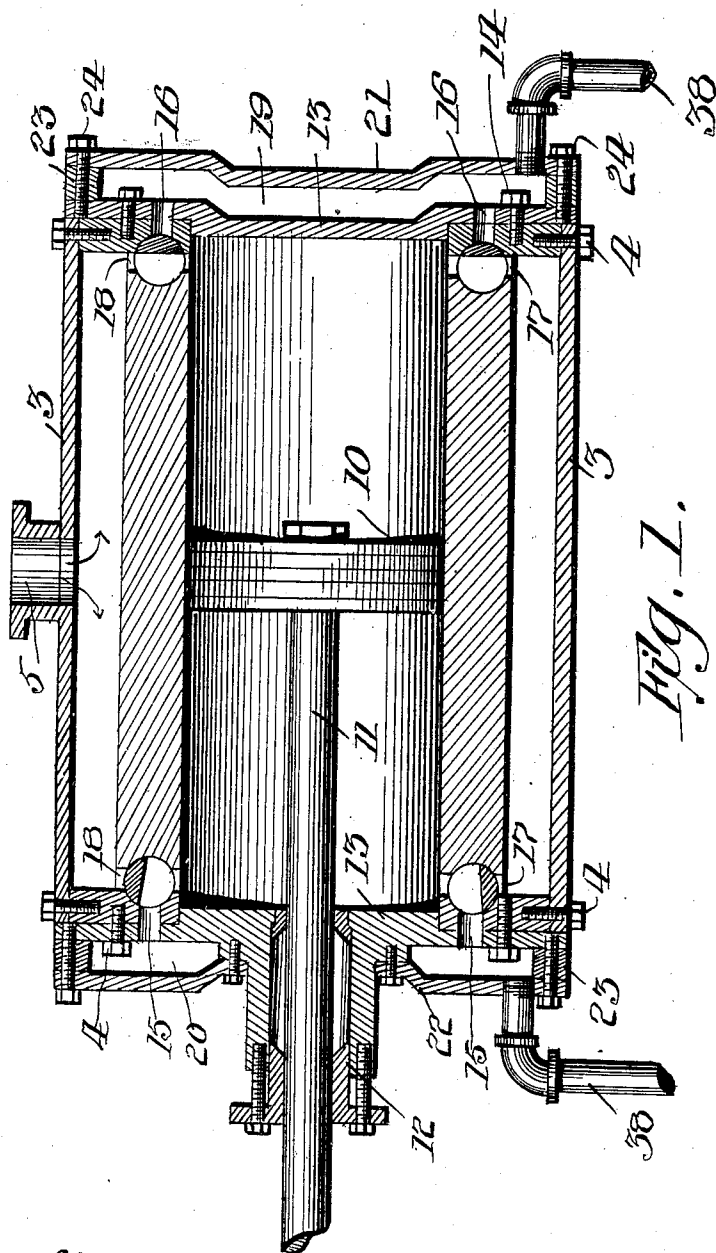


Fig. 1.

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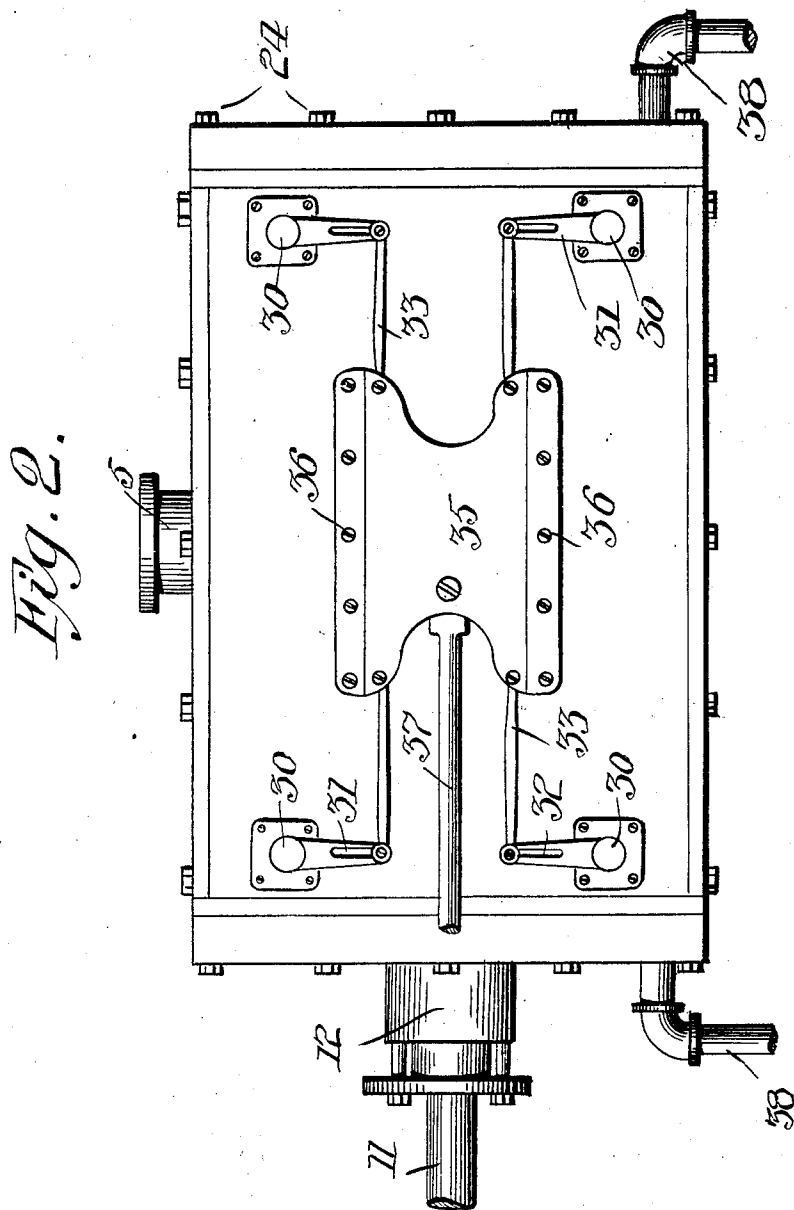
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 4.

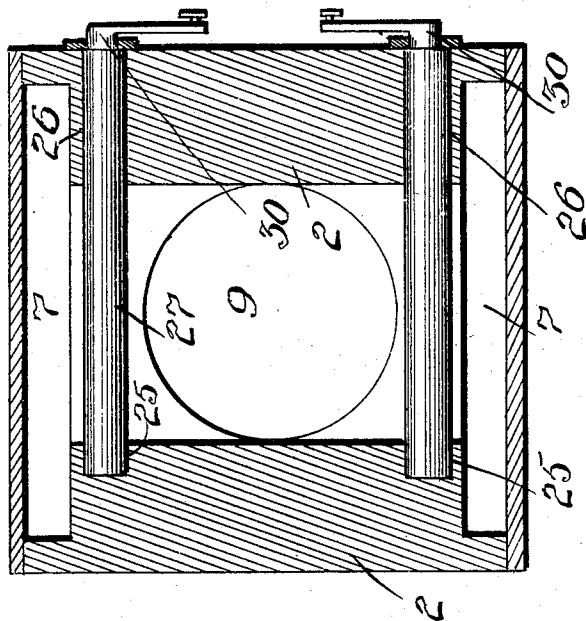


Fig. 5.

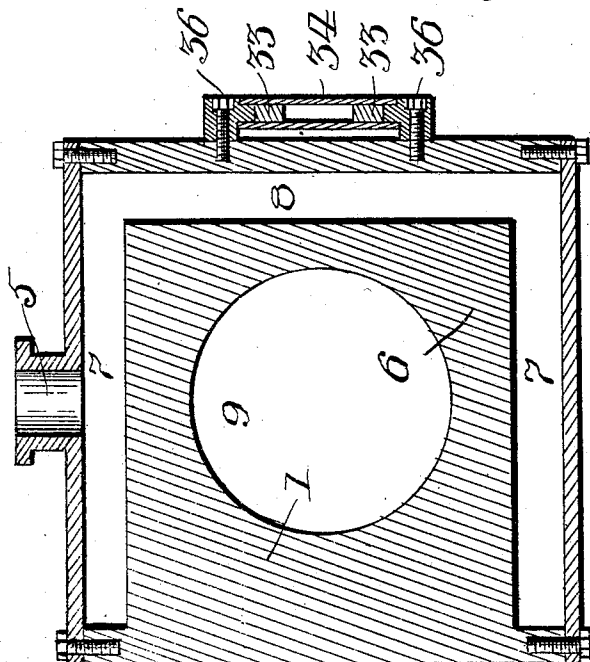
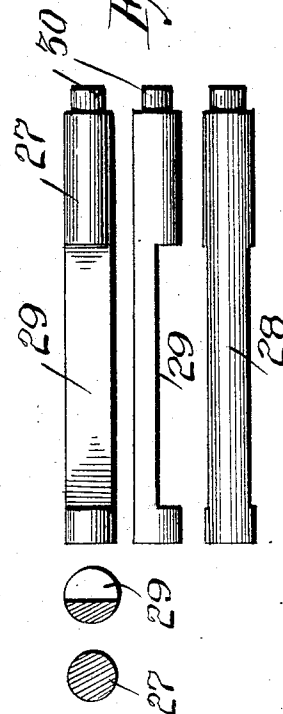


Fig. 5.



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UNITED STATES PATENT OFFICE.

LEON R. ALLEMAN, OF ROCHESTER, PENNSYLVANIA.

CYLINDER FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 763,586, dated June 28, 1904.

Application filed July 20, 1903. Serial No. 166,321. (No model.)

To all whom it may concern:

Be it known that I, LEON R. ALLEMAN, a citizen of the United States, residing at Rochester, in the county of Beaver and State of Pennsylvania, have invented a new and useful Improvement in Cylinders for Steam-Engines, of which improvement the following is a specification.

This invention relates to certain new and useful improvements in cylinders for steam-engines, and more particularly to those employed in connection with steam-engines and the like.

The object of my invention is to provide a cylinder for steam-engines in which during the forward stroke of the piston steam is admitted at one end by suitable rotary valves and exhausted at the other end by valves similar to those aforementioned and upon the return stroke of the piston the valve action is reversed.

Another object of the invention is to construct a cylinder for steam-engines which will be comparatively inexpensive to manufacture, strong and durable, and highly efficient in operation.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a sectional view of the cylinder. Fig. 2 is a side elevation of the cylinder, showing the valve-gear. Fig. 3 is a central cross-section of the cylinder. Fig. 4 is a section through the valves, and Fig. 5 is a view of the valves.

To put my invention into practice, I provide a casing 1, having side walls 2, the other walls comprising plates 3, secured to the casing by bolts 4. One of these plates carries the opening 5, and formed integral with the casing is the body portion 6, having the channels 7 upon its upper edges and the vertical chan-

nel 8 on its one side, which communicates with the channels 7. Formed centrally through the body portion 6 is the opening 9, in which operates the head 10 of the piston-rod 11, said rod 11 passing through the ordinary stuffing-box 12, carried by the end plates 13 of the casing. These end plates are secured on the casing by bolts 14, and formed in these plates are the ports 15 and 16, said ports communicating with the channels 17 and 18, formed in the ends of the body portion 6, and said ports also communicate with chests 19 and 20. These chests are formed by the plates 21 and 22, which are secured on the end plates 13 by the projection-lugs 23 and the bolts 24.

In the channels 18 are formed the annular openings 25 and 26, in which are seated the valves 27, said valves being illustrated in Fig. 5 of the drawings. The valves are oblong and annular in form, as indicated by reference-numeral 28, and have the intermediate portion cut away, as indicated at 29. The outer ends 30 of the valves protrude without the casing and have the levers 31 secured thereon, the ends of these levers being slotted, as indicated at 32, to receive the arms or cranks 33, which are secured upon their other ends to the valve-slide 34, which has its casing 35 secured to the casing 1 by the bolts 36. The arms or cranks 33 are operated by the rod 37 in the usual manner.

The reference-numeral 38 indicates the exhaust-pipes, which are connected to the chests 20 and 19, and the operation of my improved cylinder is as follows: When the steam enters the inlet 5, it enters the channels or chests 7, as indicated by arrows, by the vertical channel 8, from whence it enters the cylinder through the ports 17 and 18, as shown by the arrow. In the drawings I have shown the valves as when the steam is entering the cylinder, and when the rod 37 is operated to throw the arms or cranks 33 the valves 27 will be rotated to exhaust the steam through the ports 16 and 15 to the chests 19 and 20 to the exhaust-pipes 38. It will thus be seen that I have double the port-openings at all points of the stroke of slide-valve engine system on account of having two valves admitting steam and two valves rapidly emptying the cylinder.

While I have herein shown and described my invention in detail, it will be obvious that various changes may be made in the details of construction without departing from the general spirit of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described,
10 the combination of a body portion, a piston operating in a chamber therein, plates secured on the sides of said body portion to form a steam-chamber, end plates provided with an exhaust-chamber secured to said body portion,
15 said body portion provided in its ends with ports connecting said chambers in the body portion and the said steam-chamber, exhaust-ports connecting said first-named ports with said exhaust-chambers, and a rotary valve
20 working in the ends of the body portion and in the end plates for opening and closing said ports.

2. In a device of the character described,

the combination of a body portion having a piston operating in a chamber therein, of a casing secured to the body portion forming a steam-chamber therebetween, of end plates having valve-seats in the upper and lower portions thereof and being provided with exhaust-chambers, said body portion provided with corresponding valve-seats, rotary valves arranged to operate in said seats, said casing being provided with ports connecting said steam-chamber with said piston-chamber and said end plates provided with ports connecting said first-named ports with said exhaust-chambers, said rotary valves being arranged to alternately open said ports.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LEON R. ALLEMAN.

In presence of—
F. O. HENZI,
O. D. LEVIS.