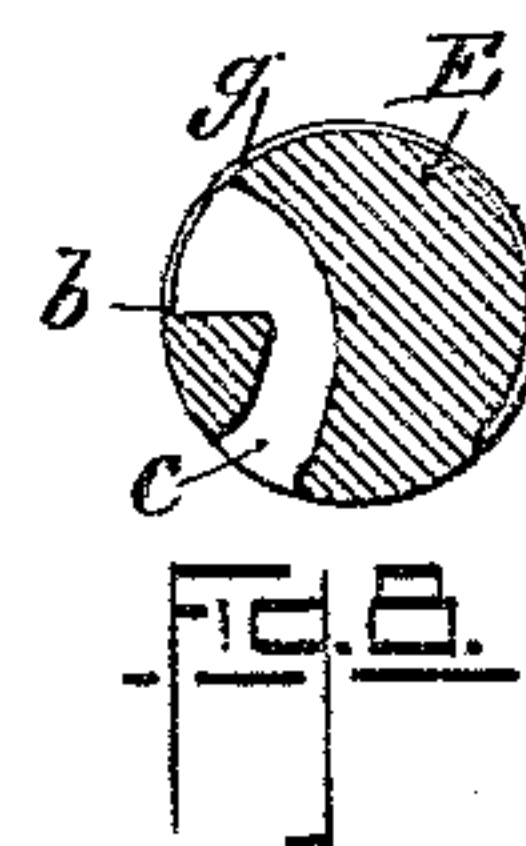
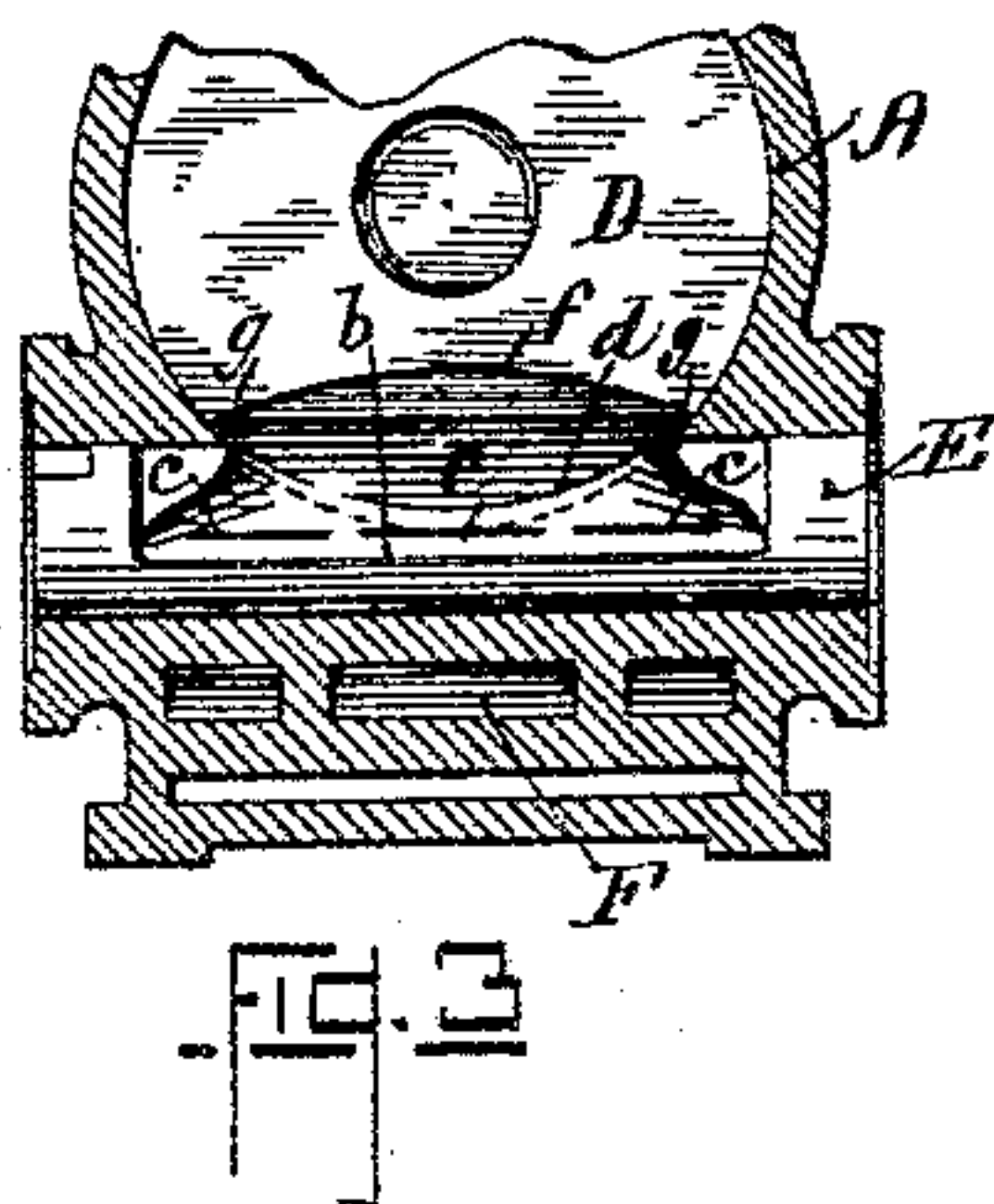
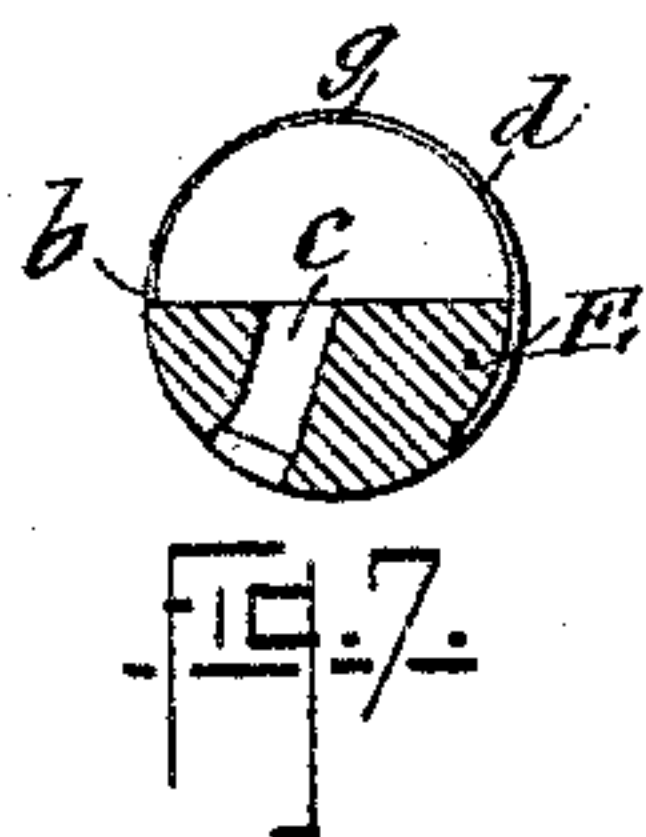
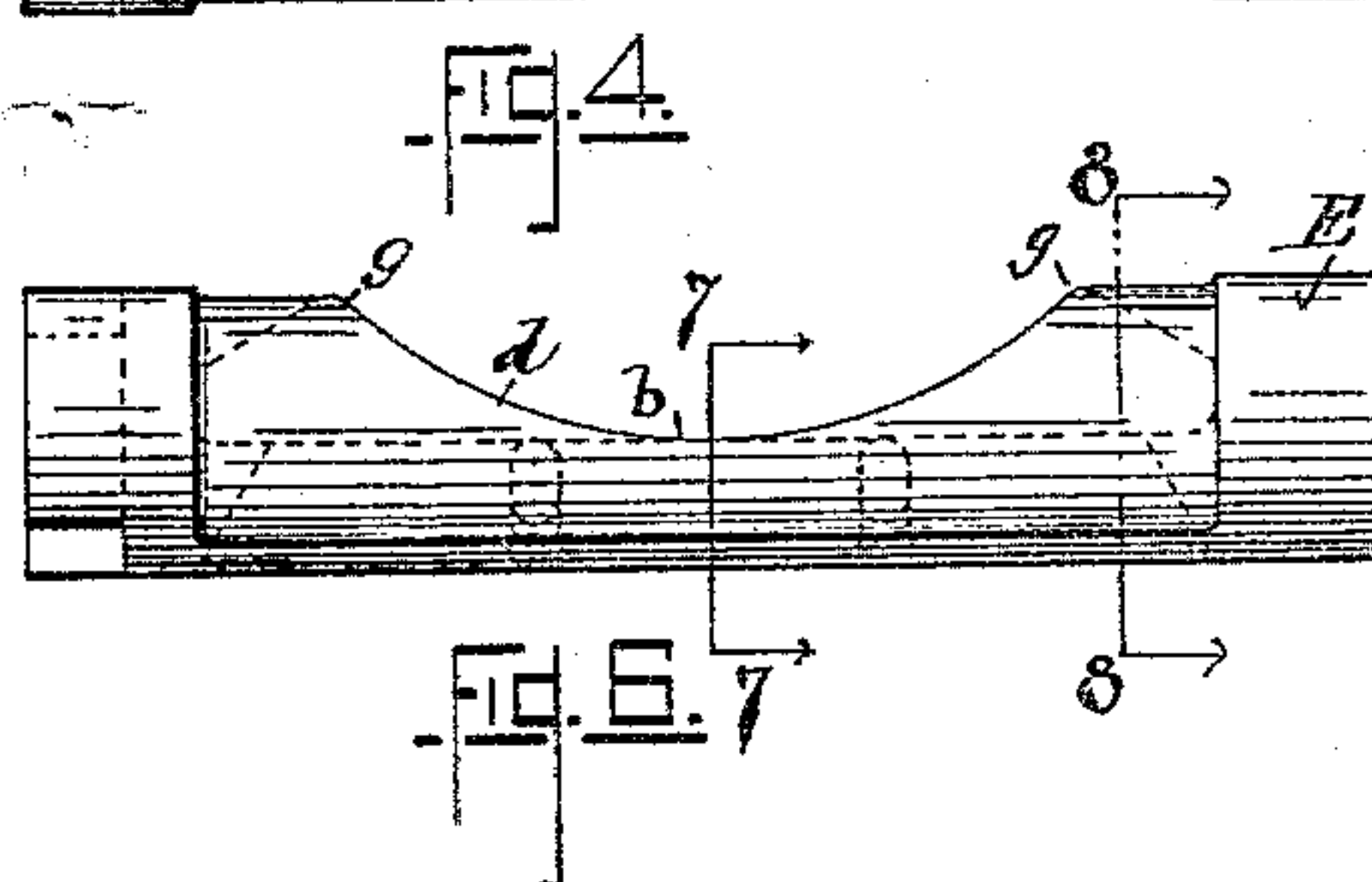
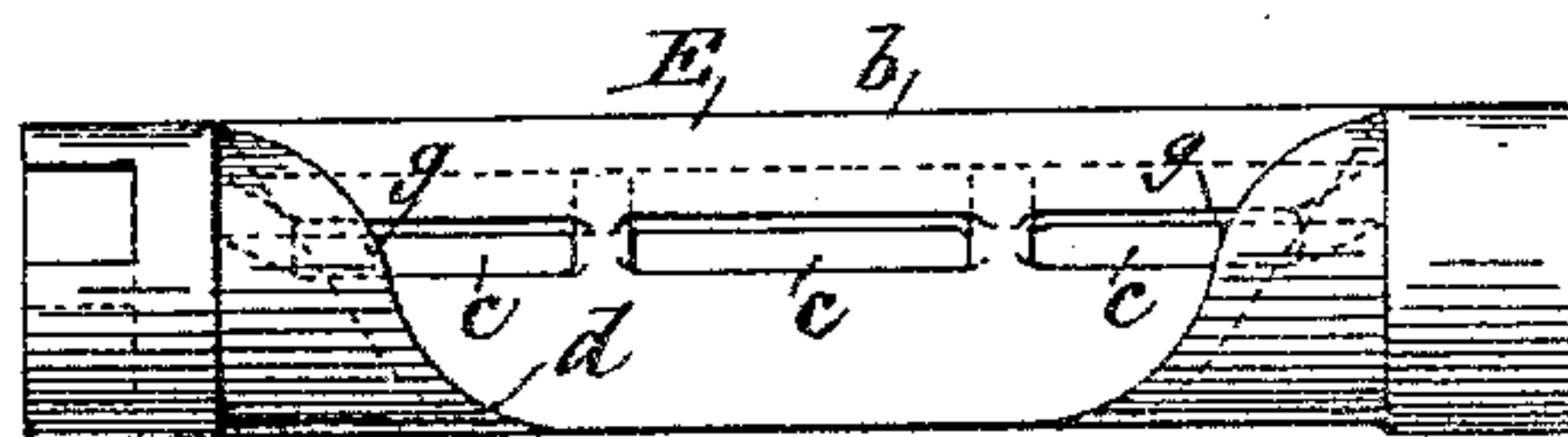
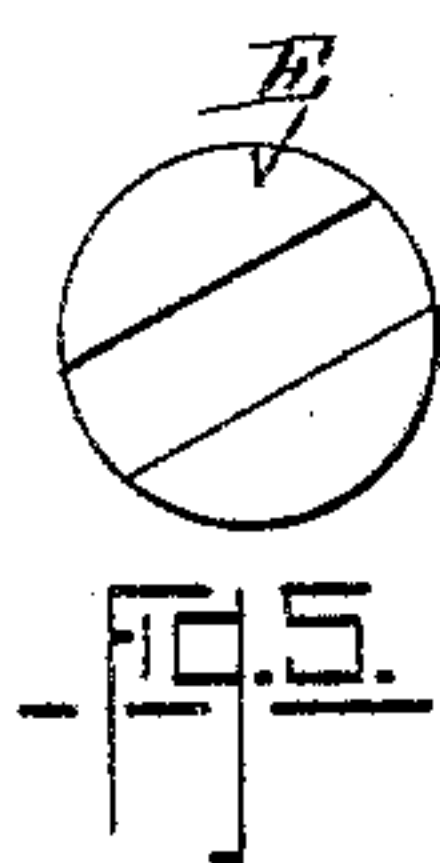
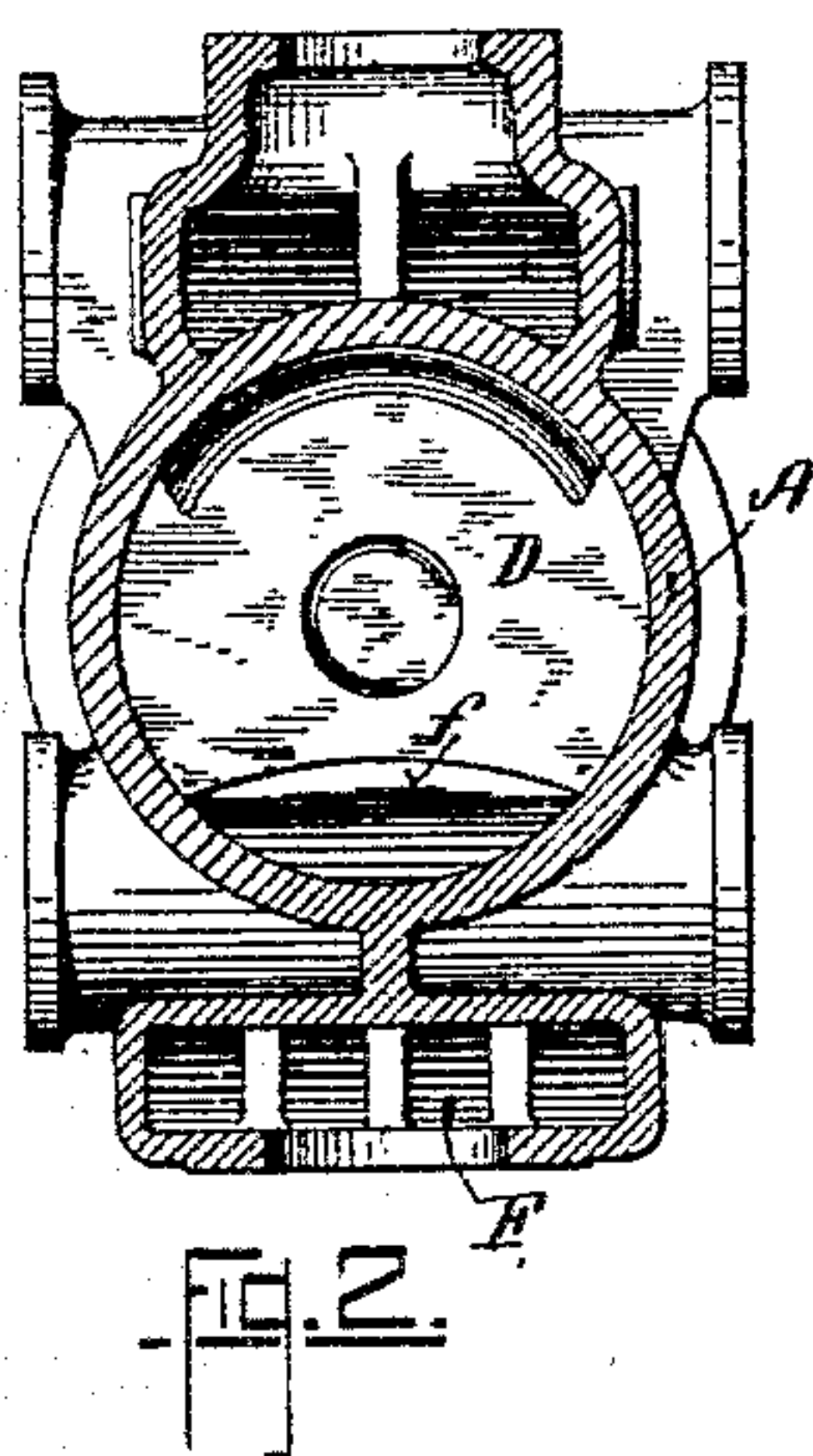
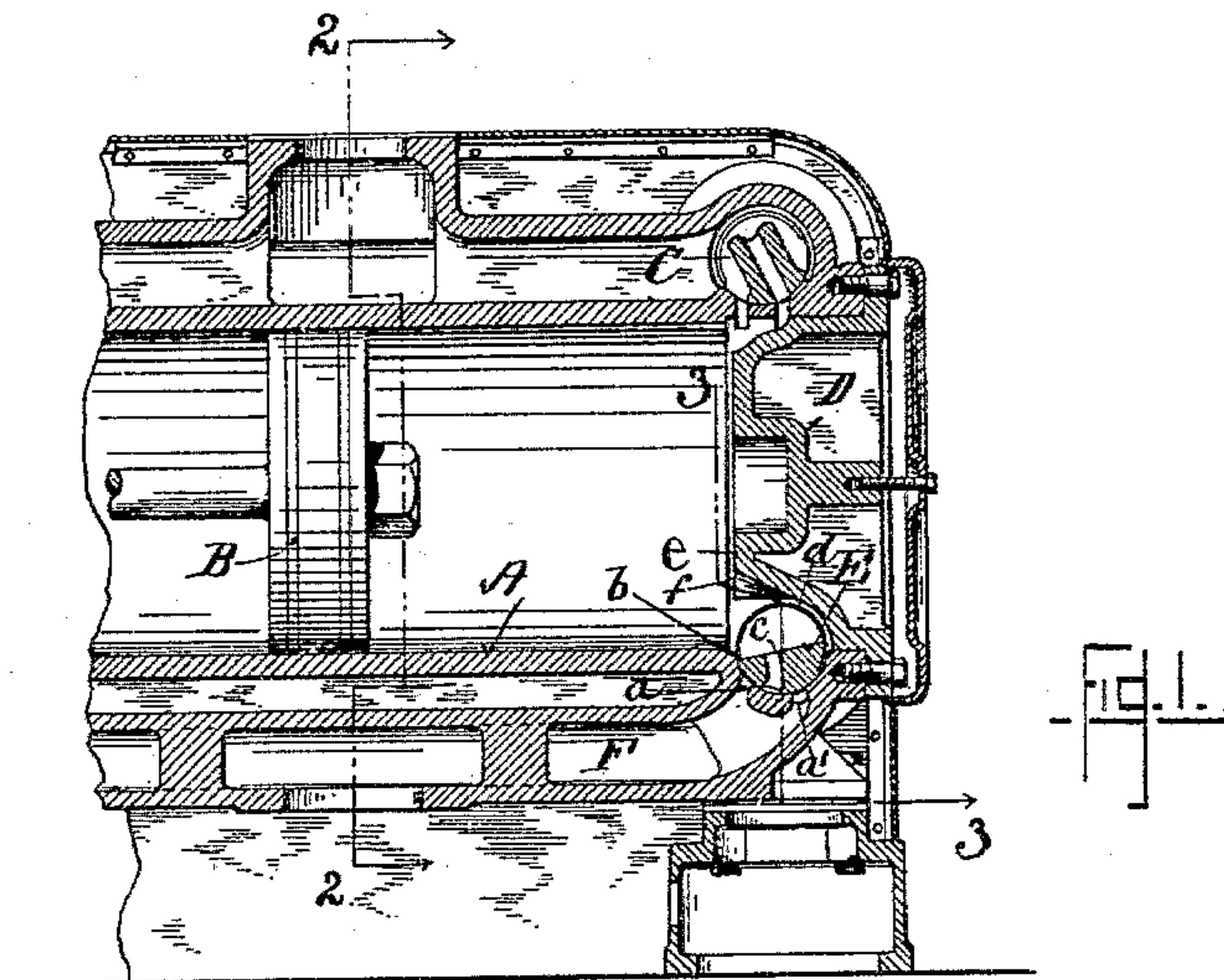


(No Model.)

J. W. SARGENT.
EXHAUST VALVE FOR STEAM ENGINES.

No. 545,414.

Patented Aug. 27, 1895.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN W. SARGENT, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE
RICE & SARGENT ENGINE COMPANY, OF SAME PLACE.

EXHAUST-VALVE FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 545,414, dated August 27, 1895.

Application filed May 9, 1895. Serial No. 548,729. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SARGENT, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Exhaust-Valves for Steam-Engines, of which the following is a specification.

The nature of my invention consists in the improved construction and arrangement of the oscillating exhaust-valve of a steam-engine, as hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 represents an axial section of the outer end portion of the cylinder of a steam-engine provided with my improved exhaust-valve. Fig. 2 represents a vertical section taken in the line 2 2 of Fig. 1. Fig. 3 represents a detail section taken in the line 3 3 of Fig. 1. Fig. 4 represents an enlarged top view, and Fig. 5 an end view, of the exhaust-valve removed from the cylinder. Fig. 6 represents a rear side view of the valve as shown in Fig. 4. Fig. 7 represents a transverse section taken in the line 7 7 of Fig. 6. Fig. 8 represents a transverse section taken in the line 8 8 of Fig. 6.

In the drawings, A represents the engine-cylinder; B, the piston; C, the inlet-valve; D, the cylinder-head; E, the exhaust-valve, and F the steam-exhaust passage extending from the double exhaust-ports *a a'* at the valve. The exhaust-valve E is located so that its central axis will lie at or near the line of the bottom of the bore of the cylinder, while horizontally the periphery of the valve is brought forward to about the line of the inner face *e* of the cylinder-head D. The forward edge *b* of the valve E is made straight and the valve is provided with one or more passages *c*, through which the steam is guided to the port *a'*. The valve E is also provided with the rearwardly-curved edge *d*, which is so formed that the piston B may be removed from the cylinder A without necessitating the

removal of the valve. The face *e* of the cylinder-head D is cut away at *f* in curved form, in order to provide ample space for the passage of steam from the cylinder A to the valve E, and the curved edge *d* of the valve is preferably made to overhang at the points *g g*, in order that the steam may have free lateral passage to the outer ends of the passages *c* under the overhanging edge *d* and at the same time the steam clearance space between the cylinder and the exhaust-ports be reduced to a practical minimum.

I claim as my invention—

1. The combination with a cylinder having an exhaust-port and a valve-seat intersecting the bore of the cylinder, of a valve cut away to allow the removal of the piston, without necessitating the removal of the valve.

2. The combination with a cylinder, having an exhaust-port and a valve-seat intersecting the bore of the cylinder of a valve having its front edge straight, and its rear edge curved, to allow the removal of the piston without necessitating the removal of the valve.

3. The combination with a cylinder having an exhaust-port, and a valve-seat intersecting the bore of the cylinder, of a valve provided with a steam passage, and having its front edge straight, and its rear edge overhanging the outer ends of the steam passage of the valve, and curved to allow the removal of the piston, without necessitating the removal of the valve.

4. The combination with a cylinder having an exhaust port, and a valve seat intersecting the bore of the cylinder, of a valve provided with a steam passage, and having its front edge straight, and its rear edge overhanging the outer ends of the steam passage of the valve, substantially as described.

JOHN W. SARGENT.

Witnesses:

SOCRATES SCHOLFIELD,
BROZ Y. LINDGREN.