

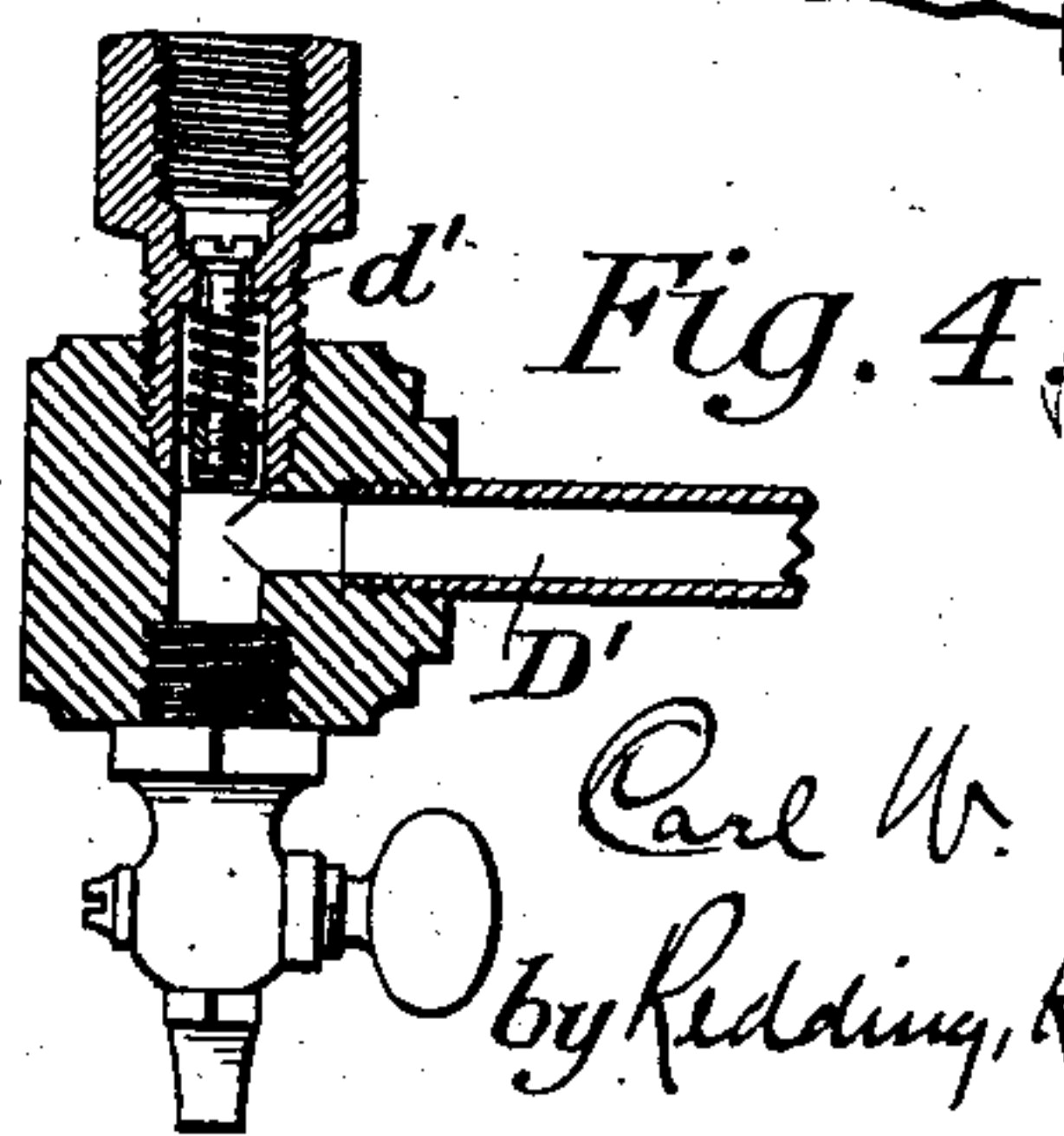
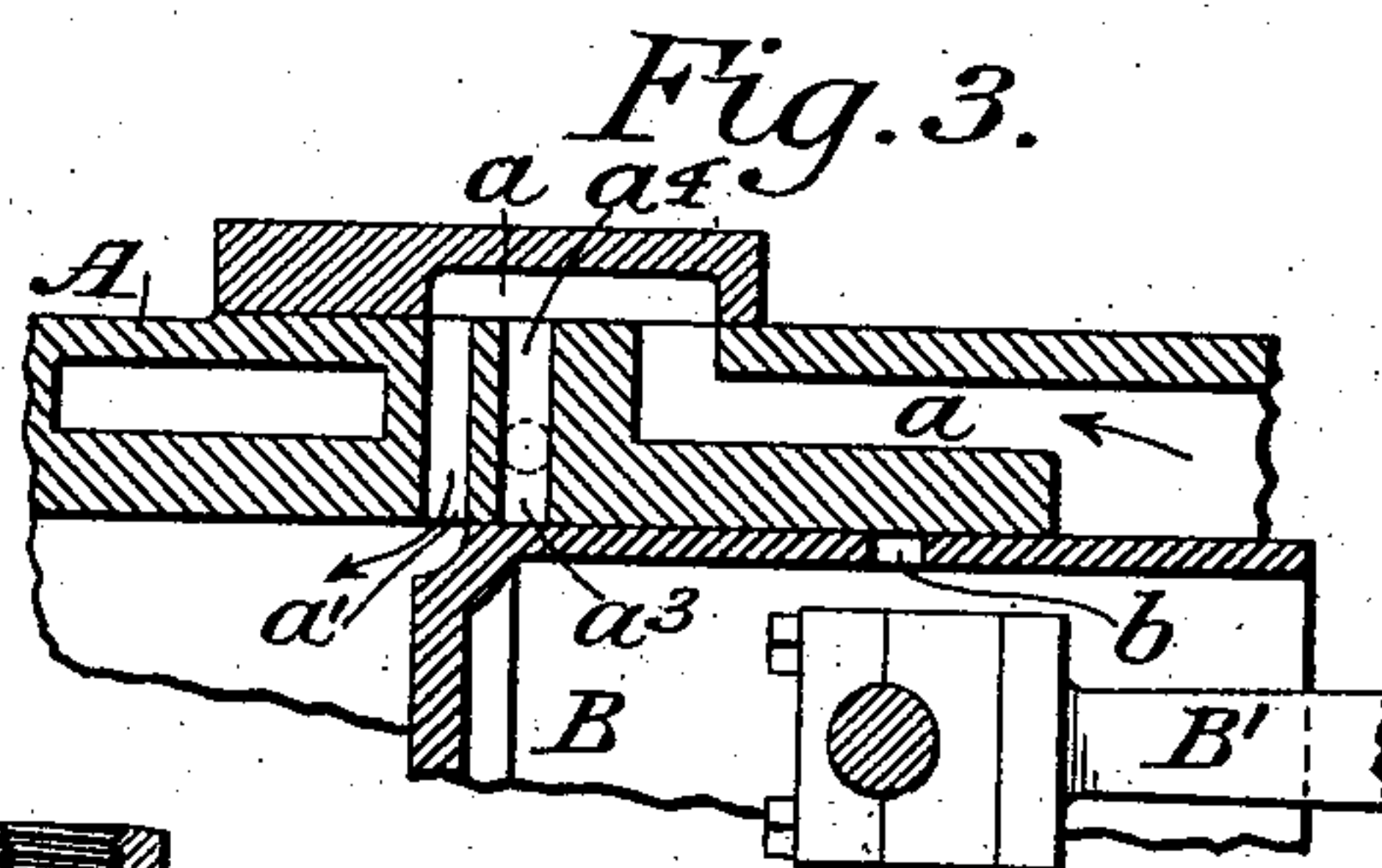
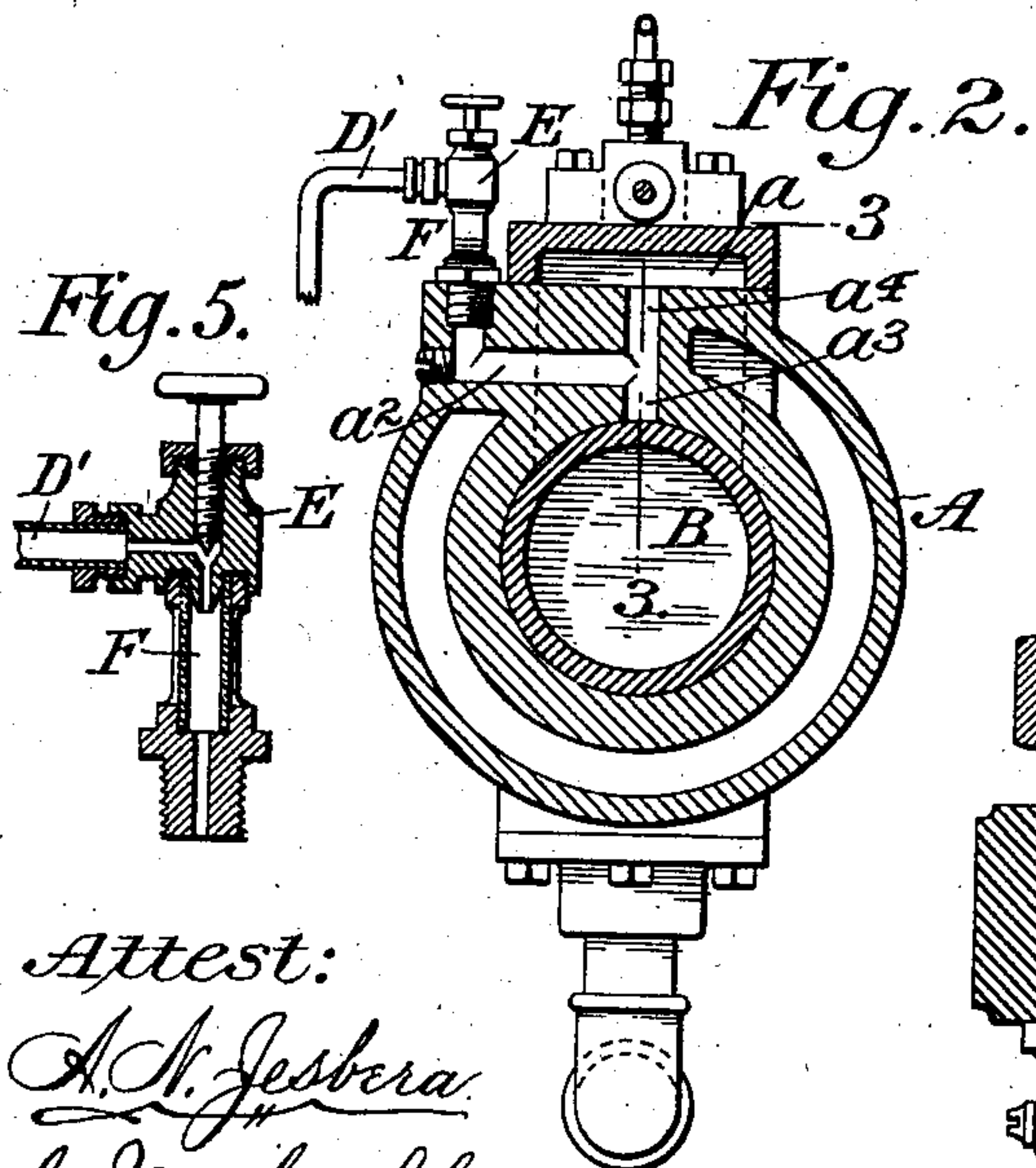
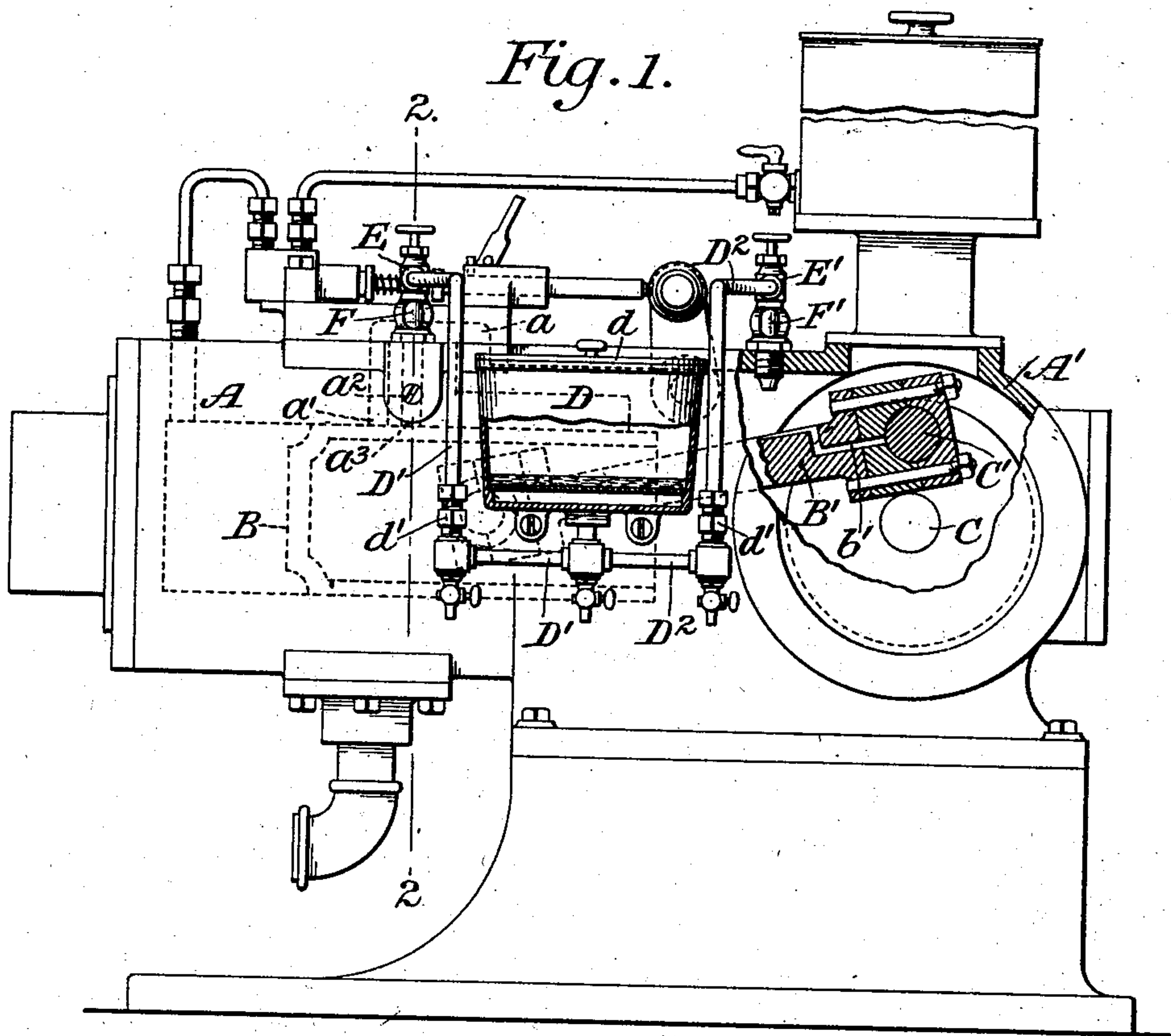
No. 710,026.

Patented Sept. 30, 1902.

C. W. WEISS.  
LUBRICATOR FOR EXPLOSIVE ENGINES.

(Application filed Aug. 13, 1900.)

(No Model.)



Attest:  
*A. N. Jesbera*  
*J. M. Scoble*

Inventor:  
*Carl W. Weiss*  
by *Redding, Kidd & Green*  
Attys.



# UNITED STATES PATENT OFFICE.

CARL W. WEISS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO AUGUST MIETZ, OF NEW YORK, N. Y.

## LUBRICATOR FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 710,026, dated September 30, 1902.

Application filed August 13, 1900. Serial No. 26,713. (No model.)

*To all whom it may concern:*

Be it known that I, CARL W. WEISS, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Lubricators for Explosive-Engines, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

10 This invention relates to devices for delivering lubricating-oil to the pistons and other inclosed parts of explosive-engines. Heretofore such devices have generally been so constructed and arranged that it has been impossible to determine with certainty whether the lubricating-oil is being properly fed. Even when sight-glasses are provided it has often happened that the oil-passages, including the passage through the sight-glass, have

20 been filled with oil, so that the escape of oil from the needle or other valve drop by drop cannot be seen.

It is the object of this invention to provide such a construction so that the accumulation of oil is prevented and the dropping of the oil from the needle or other valve can be seen at all times.

A further object is to render the feeding of the oil dependent upon the action of the engine alone.

The invention will be more fully described hereinafter with reference to the accompanying drawings, in which for purposes of explanation the same is illustrated in a convenient and practical embodiment and as applied to an explosive-engine of a well-known type.

In the drawings, Figure 1 is a side elevation, with parts in vertical section and some parts broken out, of an explosive-engine to which the invention is applied. Fig. 2 is a section on the plane indicated by the broken line 2 2 of Fig. 1. Fig. 3 is a detail section on the plane indicated by the line 3 3 of Fig. 2. Fig. 4 is a detail section, on a larger scale, showing one of the valves interposed in the oil-passages; and Fig. 5 is a detail central section of one of the needle-valves.

The engine to which the invention is applied may be of any usual or desired construction. In the drawings it is shown as hav-

ing an ordinary cylinder A with an extension A', forming an inclosed crank-chamber, the piston B (shown in dotted lines in Fig. 1) being connected by a pitman B', as usual, with the crank-pin C' of the crank-shaft C. As usual in engines of this type, the chamber formed by the forward end of the cylinder or inclosed crank-chamber A' is connected by a passage  $a$  with the air-inlet port  $a'$  of the working cylinder, through which the air compressed in the crank-chamber is delivered when the piston reaches the forward limit of its stroke to the working cylinder. Such port  $a'$  is covered during the remainder of the stroke by the usual trunk-piston B, and during the rearward movement of the piston a partial vacuum is produced in the crank-chamber.

A suitable receptacle or reservoir D for the lubricating-oil is supported at a convenient point, preferably upon one side of the cylinder A and below the top of the same, being provided with a loosely-fitting or perforated cover  $d$ , and therefore open to atmospheric pressure, and a pipe D' is connected to the lower part of the receptacle or reservoir D to deliver the oil to the needle or other suitable valve E, from which it drops through the sight-glass F into the oil-passage  $a^2$ , by which it is conducted to the inner wall of the cylinder through a port  $a^3$ , which is preferably located at a point slightly forward of the rear end of the piston when the latter is in its extreme forward position. The port  $a^3$  is covered by the trunk-piston B at all times except when the oil-opening  $b$  is in alinement therewith to permit the oil to drop upon the end of the pitman B'. The port  $a^3$  or passage  $a^2$  is also vented, as at  $a^4$ , into the air-passage  $a$  above referred to. At some suitable point in the oil-conductor D' is located a check-valve  $d'$ , as shown in detail in Fig. 4.

It will now be seen that as the piston moves rearwardly the oil will be delivered from the reservoir D to the needle or other valve E under the influence of the reduction of pressure in the crank-chamber and will drop from such valve through the sight-glass F, the oil-passage being in communication with the crank-chamber through the vent  $a^4$ . Backward movement of the oil through the con-



ductor during the forward stroke of the piston is prevented by the check-valve  $d'$ , and any oil which may collect in the port  $a^3$  will be delivered through the oil-opening  $b$  in the trunk-piston whenever during the forward movement of the piston the opening is in alinement with the port. Furthermore, as the receptacle is below the top of the cylinder and the oil is drawn by suction through the movements of the engine the feeding of the oil is wholly automatic and dependent upon the action of the engine alone, stopping altogether when the engine stops.

The oil reservoir or receptacle  $D$  may also be connected by an oil-conductor  $D^2$ , having also a check-valve  $d'$ , with a needle or other regulating valve  $E'$  and sight-glass  $F'$ , through which the oil drops upon the forward end of the pitman  $B'$ , being conducted to the crank-pin bearing by a channel  $b'$ . The movement of the oil through the conductor  $D^2$  is effected in substantially the same manner as the movement of the oil through the conductor  $D'$ .

It will be understood that the invention is not to be limited to the precise construction and arrangement of parts shown and described herein, as the same may be varied without departing from the spirit of the invention.

I claim as my invention—

1. The combination with an explosive-engine having a chamber in which a partial vacuum is produced by the rearward movement of the piston, of an oil-receptacle, a conductor to deliver oil from said receptacle to a port in the cylinder-wall, said receptacle being below said port and said conductor terminating in said receptacle below the surface of the oil, and a vent from said port to said chamber whereby the flow of oil is induced by the partial vacuum in said chamber, substantially as shown and described.

2. The combination with an explosive-engine having a chamber in which a partial vacuum is produced by the rearward movement of the piston, of an oil-receptacle, a conductor to deliver oil from said receptacle to a port in the cylinder-wall, said receptacle being below said port, and said conductor terminating in said receptacle below the surface of the oil, a check-valve in said conductor, and a vent from said port to said chamber whereby the flow of oil is induced by the partial vacuum in said chamber, substantially as shown and described.

3. The combination with an explosive-engine having a chamber in which a partial vacuum is produced by the rearward movement of the piston, and a passage from said chamber to the working cylinder through a port adapted to be covered by the piston, of an oil-receptacle, a conductor to deliver oil from said receptacle to an oil-port in the cylinder-wall, said receptacle being below said port and said conductor terminating in said recep-

tacle below the surface of the oil, and the vent from said oil-port to the passage between the chamber and the air-port, substantially as shown and described.

4. The combination of an explosive-engine having a chamber in which a partial vacuum is produced by the rearward movement of the piston, a pitman and a trunk-piston with an oil-opening therethrough, of an oil-receptacle, a conductor to deliver oil from said receptacle to an oil-port in the cylinder-wall, said receptacle being below said port and said conductor terminating in said receptacle below the surface of the oil, said port being in line with said oil-opening in the piston, and a vent from said oil-port to said chamber whereby the flow of oil is induced by the partial vacuum in said chamber, substantially as shown and described.

5. The combination with an explosive-engine having a chamber in which a partial vacuum is produced by the rearward movement of the piston, of an oil-receptacle, a conductor to deliver oil from said receptacle to a port in the cylinder-wall, said receptacle being below said port, and said conductor terminating in said receptacle below the surface of the oil, a sight-glass in said conductor, and a vent from said port to said chamber whereby the flow of oil is induced by the partial vacuum in said chamber, substantially as shown and described.

6. The combination with an explosive-engine having a chamber in which a partial vacuum is produced by the rearward movement of the piston and a passage from said chamber to the working cylinder through an air-port adapted to be covered by the piston, of an oil-receptacle, a conductor to deliver oil from said receptacle to an oil-port in the cylinder-wall, said receptacle being below said port, and said conductor terminating in said receptacle below the surface of the oil, a sight-glass in said conductor, and a vent from said oil-port to the passage between said chamber and the air-port whereby the flow of oil is induced by the partial vacuum in said chamber, substantially as shown and described.

7. The combination with an explosive-engine, of a receptacle for lubricating-oil disposed below the top of the cylinder and open to the atmosphere, a sight-feed above the cylinder, and connections between said receptacle, sight-feed and cylinder, whereby the oil is drawn from the receptacle under atmospheric pressure by the movements of the engine and the feed of the oil is stopped when the engine is stopped.

This specification signed and witnessed this 9th day of August, A. D. 1900.

CARL W. WEISS.

In presence of—

W. B. GREELEY,  
HENRIETTA LYON.