

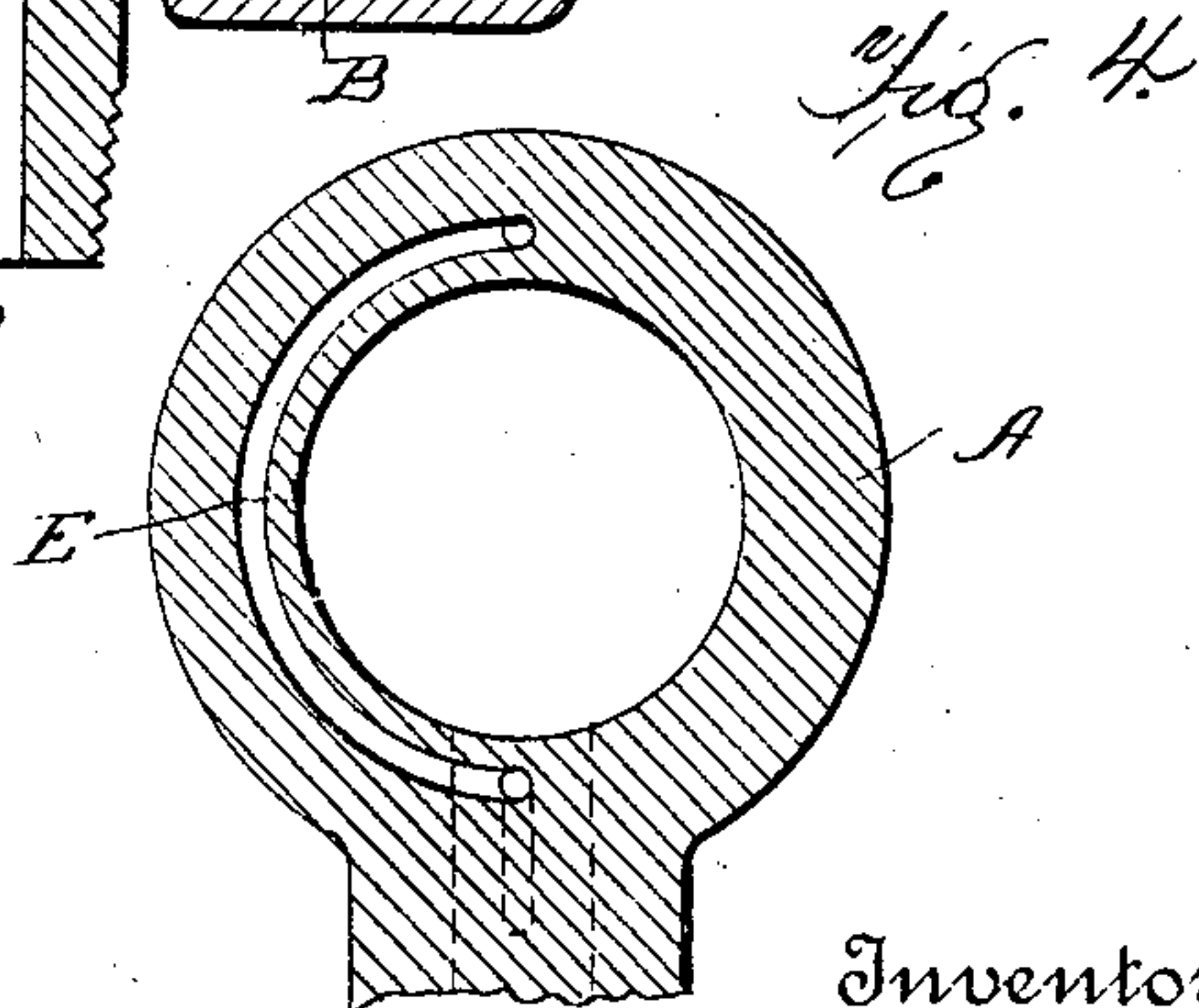
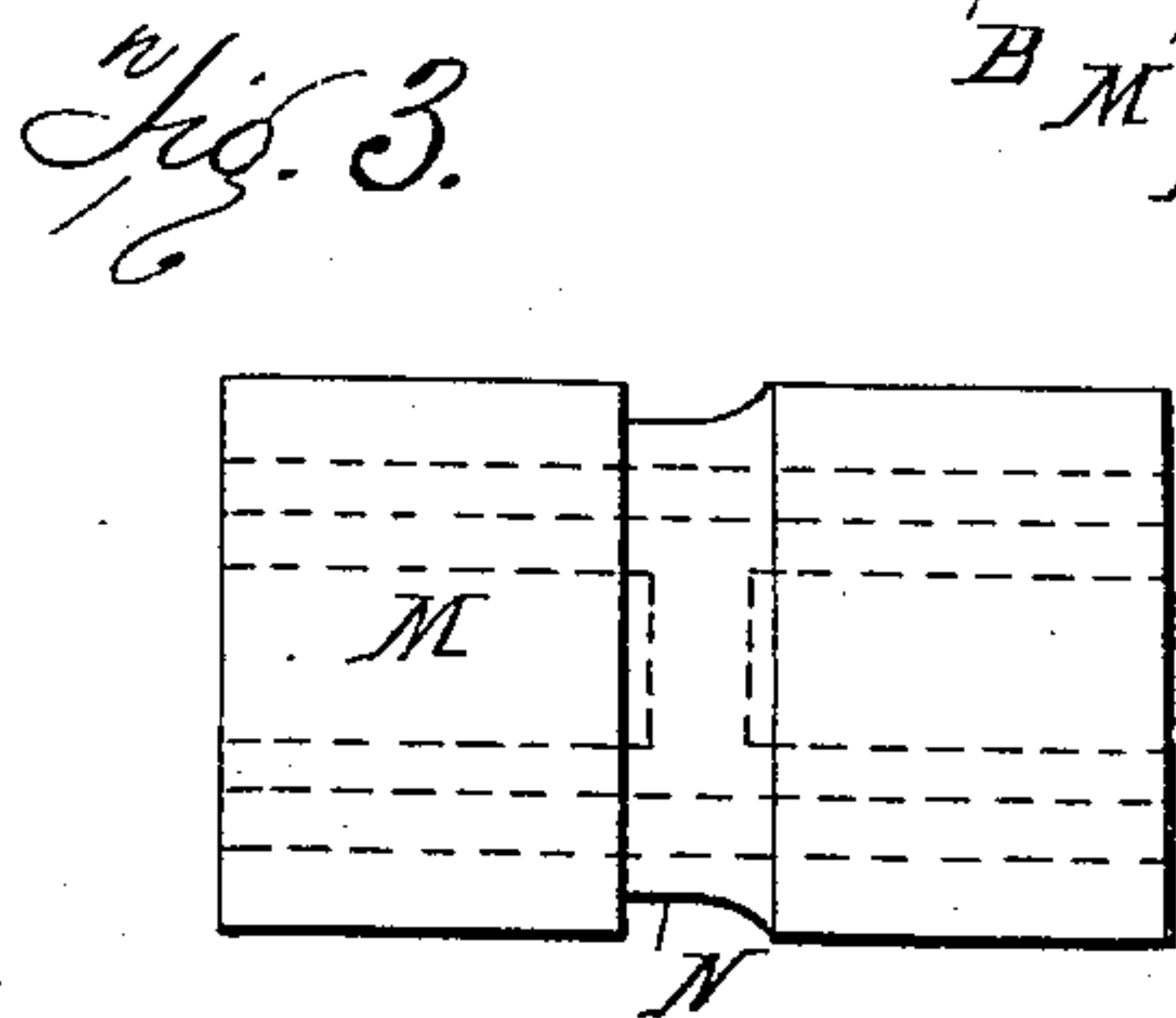
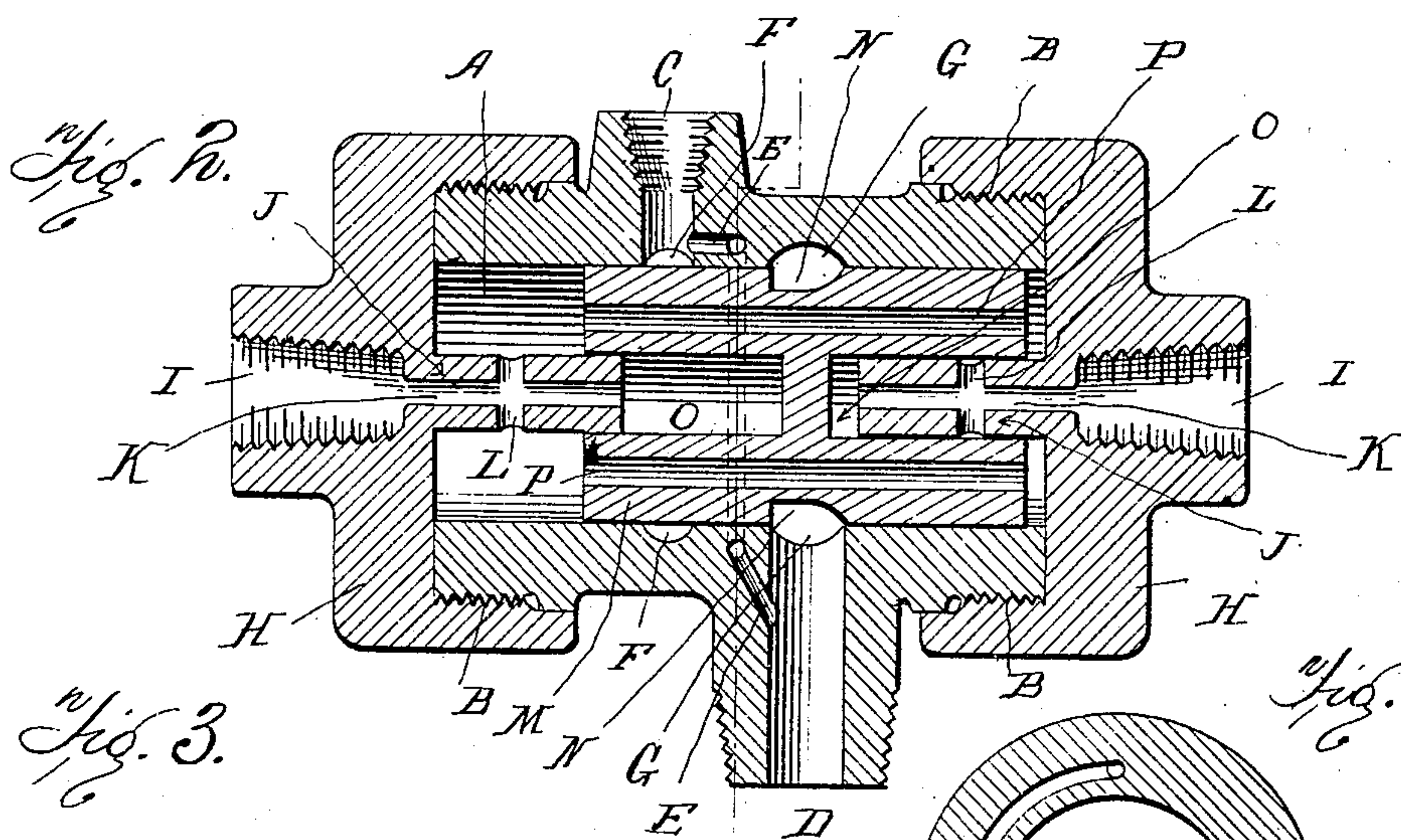
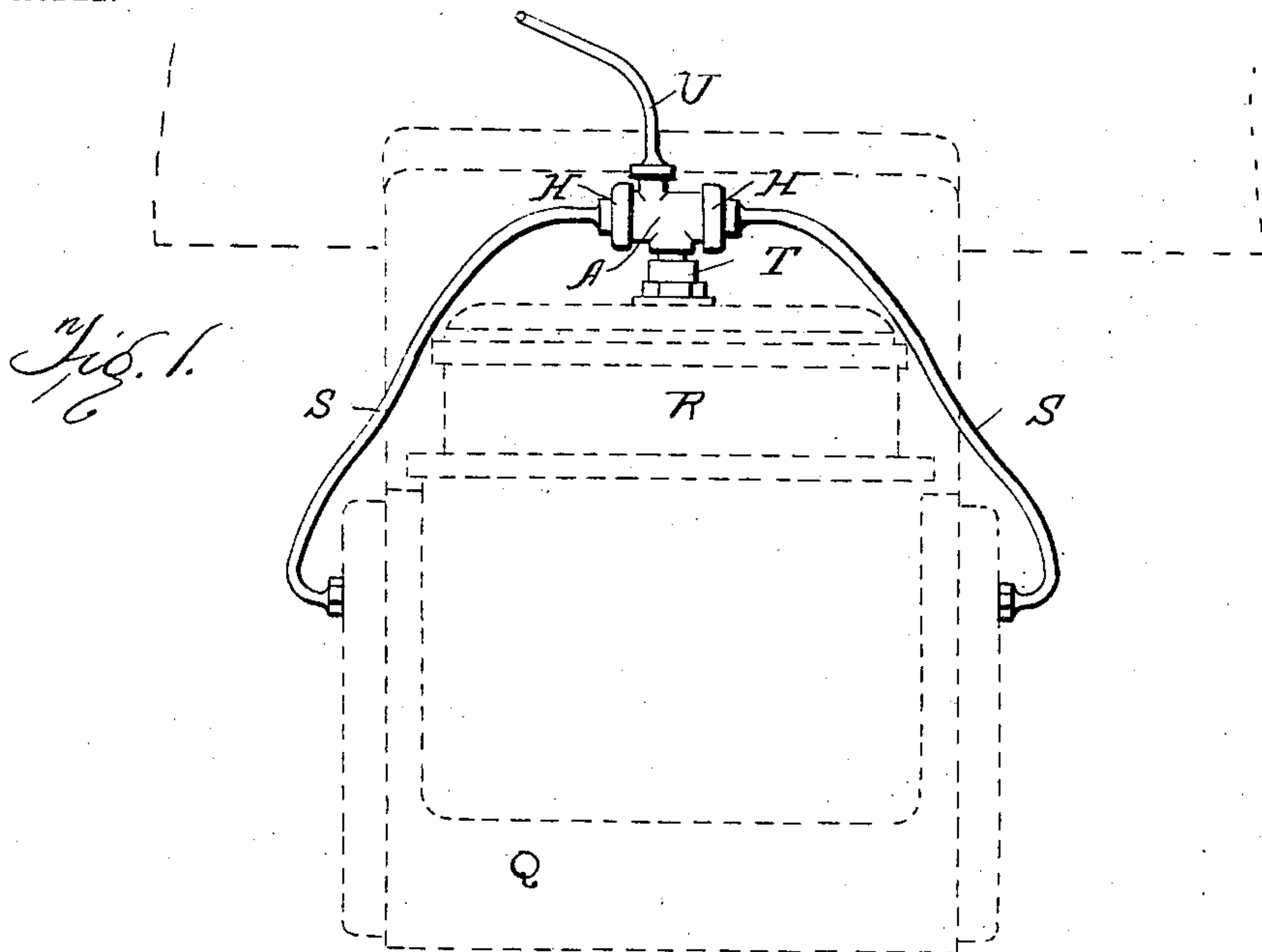
No. 774,015.

PATENTED NOV. 1, 1904.

J. T. WILSON.
LUBRICATOR.

APPLICATION FILED JUNE 27, 1901.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN T. WILSON, OF JERSEY SHORE, PENNSYLVANIA.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 774,015, dated November 1, 1904.

Application filed June 27, 1901. Serial No. 66,249. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. WILSON, a citizen of the United States, residing at Jersey Shore, in the county of Lycoming and State of Pennsylvania, have invented new and useful Improvements in Lubricators, of which the following is a specification.

The object of my invention is generically the provision of means for intermittently transferring oil, &c., from a receptacle or pipe to an opening or to another pipe or receptacle of any kind.

A further object and specifically is the provision of means for intermittently delivering a lubricant, such as oil, to the valve of an engine.

A further object is the provision of means for intermittently delivering oil to the valve of a locomotive-engine and removing the water or water and oil which sometimes forms a plug above the point where the ordinary oil-pipe enters the steam-chest and the provision of additional means whereby the oil from the oil-pipe will be delivered to the valve when the throttle is closed and the locomotive moving under the action of gravity or by its own momentum.

With these ends in view my invention consists, objectively, in a casing or cylinder or the like having ports, a movable element, as a plunger, within the casing and actuated by fluid-pressure, said movable element or plunger being adapted intermittently to transfer fluid from one of the ports to the other port and means for cushioning the movable element at both ends by fluid under pressure.

It further consists in the combination, with a locomotive-engine cylinder and steam-chest, of a device for intermittently delivering oil or oil and water from the oil-pipe to the valve and means independent of the action of the delivery device for allowing the oil to pass directly to the valve at all times.

Finally it consists in certain novelties of construction and combinations of parts hereinafter set forth and claimed.

The accompanying drawings illustrate one example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principle.

Figure 1 shows in dotted lines the cylinder and steam-chest of a locomotive-engine and in full lines my means for delivering fluids associated therewith. Fig. 2 is a sectional view of the fluid-delivery device with the pipes detached. Fig. 3 illustrates the movable element or plunger. Fig. 4 is a section of Fig. 2, taken on the dotted line.

Referring to the several figures of the drawings, the letter A designates a cylinder; B, the threaded ends of the cylinder; C, a port through the wall of the cylinder; D, a similar port located in another part of the cylinder-wall; E, a cored passage in the cylinder-wall which unites the two ports; F, a groove in the inside surface of the cylinder and in line with port C, as shown; G, a similar groove in line with port D and in this case parallel with the first-mentioned groove; H, the cylinder-heads; I, ports in the heads; J, guiding-stems on the heads; K, longitudinal passages through the stems; L, cross-passages; M, a movable or reciprocating plunger; N, a groove in the external surface of the plunger, which may be of the shape shown—that is, one of the surfaces bounding the groove is plain and at right angles to the length of the plunger and the other surface curved; O, central holes in the plunger, both in line and each open at one end; P, longitudinal passages through the plunger; Q, a locomotive or other engine cylinder; R, the steam-chest; S, pipes uniting the ends of the locomotive-cylinder and the ends of the cylinder A of the delivering device; T, a connection uniting the fluid-deliverer and steam-chest and provided with an open passage, and U is the oil-pipe, which may lead from a sight-feed lubricator or other source of oil-supply.

The operation of the device is as follows: Steam or other motive fluid being admitted to the port which is open to the left-hand end of the engine-cylinder, the same passes through pipe S at the left and forces the plunger to the position shown in Fig. 2. When the plunger is moving from the left toward the right and uncovers the cross-passage L, steam has access to the opposite end of the cylinder A by way of the passages P and forms a cushion which prevents the

end of the plunger striking at all or violently striking the cylinder-head. As is well understood, steam is simultaneously being exhausted from the right-hand end of the engine-cylinder while it is being admitted to the left-hand end. The pipe S at the right is therefore open to the exhaust-port of the engine while the plunger is moving from the left toward the right, and hence there is no resistance offered to the movement of the plunger. It is obvious that when live steam is admitted to the right-hand end of the cylinder the plunger will be moved toward the left and the pipe S at the left be in communication with the exhaust. The result is that at every stroke of the engine-piston the plunger M will move simultaneously and in the same direction the length of the casing or cylinder A. In locomotive practice when the throttle is closed and the locomotive is moving downgrade or by its own momentum the piston will compress the air within the cylinder and at opposite ends alternately and the plunger will be actuated and move in the direction opposite to the movement of the engine-piston. The plunger will therefore be operated in locomotive practice under all conditions. Now, referring to Fig. 2, it will be seen that when the plunger is at the left end of the cylinder A the groove N will register with the port C and that whatever oil or oil and water may be in the pipe U will pass to the groove N by gravity. When the plunger moves to the right, the fluid in groove N is carried along and delivered into port D as soon as the groove N registers with groove G. The groove F allows fluid under pressure in pipe U to pass all around the plunger, and thus balance it.

The function of the cored passage is to deliver oil from pipe U to the steam-chest at all times whether the locomotive is or is not working steam. In locomotive-engine practice a water-plug often forms just above the opening of the pipe U into the steam-chest. My fluid-delivering device will remove the water and oil, or either, and insure a uniform delivery of oil to the valve under all conditions.

While I have specifically illustrated and described only one example of the physical embodiment of my invention and that in connection with a locomotive-engine, I by no means intend to restrict the scope to such pictured or specific example or application, inasmuch as the principle can be applied by different modes and for other specific purposes. The necessary elements for the application of the principle are a casing or the like, a movable element actuated by fluid-pressure, means for cushioning the movable elements, a source of fluid-supply which is to be transferred in communication with the movable element in one of its positions, and an opening or pipe which communicates with

the movable element at another position which it occupies relative to the casing. The arrangement should be such that at each cycle of its movement the movable element shall intermittently transfer fluid from one place to another. When the invention is used in connection with a stationary engine, the passage E or its equivalent may be omitted, and in certain cases it may be omitted when used in connection with locomotive-engines, if so desired. The delivering device is obviously adapted for use with a sight-feed or other type of lubricator or with any reservoir and for any purpose where fluid is to be intermittently delivered from any source to a pipe or opening or any receptacle whatever.

The modifications in structure and arrangement and the additions and omissions necessary in adapting the device for different specific purposes or objects will readily be understood by persons skilled in the mechanical arts.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a casing having supply and delivery ports; a reciprocating element in the casing having a groove which alternately registers with the supply and delivery ports; means for containing motive fluid under variable pressure; and means connecting the ends of the casing with the means for containing motive fluid under variable pressure; the casing and reciprocating element being provided with passages, whereby motive fluid is interposed between the end of the reciprocating element and the casing at each stroke thereof for cushioning the same.

2. The combination with a locomotive-engine, of an oil-pipe; means for positively and intermittently delivering oil from the oil-pipe to the steam-chest when the locomotive is working steam; and a cylinder-casing containing the positive operating means uniting the oil-pipe and steam-chest and having a passage open at all times for allowing oil to pass from the oil-pipe to the steam-chest when the locomotive is moving by its own momentum or under the action of gravity.

3. The combination with an engine, of an oil-pipe; means for intermittently delivering oil from the oil-pipe to the steam-chest, said means being actuated by the motive fluid which moves the piston of the engine; and a supplemental conduit connecting the oil-pipe to the steam-chest, said conduit being continually open under all conditions of service.

4. The combination of an engine-cylinder; a casing having ports; a plunger in the casing having a groove which alternately registers with the ports; means uniting the engine-cylinder and the ends of the casing for the passage of motive fluid; an oil-supply pipe; and a steam-chest in communication with the casing by means of the connection, T; said casing having a passage in the wall thereof open at all times for the flow of oil.

5. The combination with a casing having supply and delivery ports, of an element having a groove and movable in the casing and actuated by motive fluid, said groove being in communication with only one port at a time; and means connecting the casing with means containing motive fluid for actuating the movable element; the construction being such that the motive fluid which actuates the movable element is introduced between the movable element and each end of the casing alternately for cushioning the movable element.

6. The combination in a lubricator, constructed and operating substantially as set forth, of a casing having inlet and outlet ports; cylinder-heads having ports; a plunger, and having a groove adapted to register alternately with the ports in the casing, located in the casing; additional means for guiding the plunger; and means for introducing

motive fluid to the opposite ends of the plunger; said plunger having passages for motive fluid, whereby motive fluid may pass from one end of the plunger to the other end and cushion the plunger.

7. In a lubricating device, a casing having ports for connecting the ends thereof with an engine-cylinder, oil inlet and outlet ports adapted for connection with the oil-pipe and steam-chest, respectively; and a piston in the casing having a groove adapted to register with the inlet and outlet ports, said casing having a continuously-open passage arranged to permit the continuous flow of oil from the oil-pipe to the steam-chest.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN T. WILSON.

Witnesses:

FRANK TRUMP,
JAMES MORROW