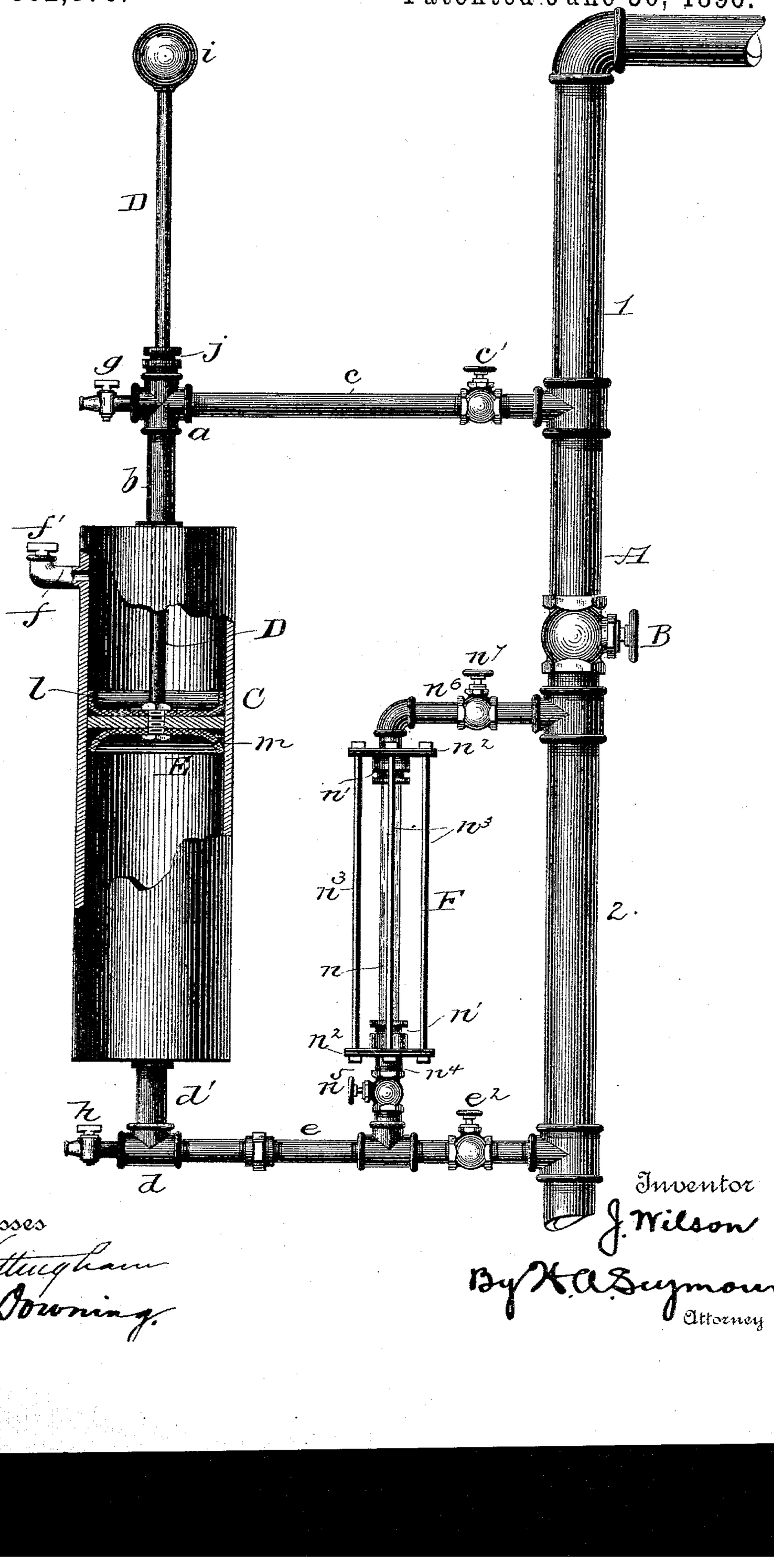
(No Model.)

J. WILSON.

LUBRICATOR.

No. 562,876. Patented June 30, 1896.



Witnesses
C. D. Nottingham
G. F. Downing.

Inventor
J. Wilson
By K. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

JAMES WILSON, OF JACKSON, OHIO, ASSIGNOR OF ONE-HALF TO C. A. MULLEN, OF SAME PLACE.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 562,876, dated June 30, 1896.

Application filed March 27, 1895. Serial No. 543,426. (No model.)

To all whom it may concern:

Be it known that I, JAMES WILSON, a resident of Jackson, in the county of Monroe and State of Ohio, have invented certain new and useful Improvements in Lubricators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in lubricators, and more particularly to such in which the lubricant is forced from the receptacle containing it to the machinery to be lubricated, the object of the invention being to produce a lubricator which shall be automatic in its action, cheap and simple in construction, positive in action, and effectual, in every respect, in the performance of its functions.

A further object is to construct a lubricator in such manner as to avoid the use of complicated parts likely to become deranged and of small inner tubes likely to become clogged by reason of incrustation from boilers.

A further object is to so construct a lubricator, adapted to be operated by steam-pressure, that the steam and lubricant will be effectually separated one from the other while the oil or lubricant is being forced from the receptacle by the steam, and to so construct the piston or plunger against which the steam acts, while forcing the lubricant from the receptacle, that the periphery of said piston or plunger will bear against the inner face of the receptacle with a pressure commensurate with the pressure of steam and oil against it.

A further object is to construct a lubricator in such manner that it can be readily filled and cleaned.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth, and pointed out in the claims.

In the accompanying drawing the figure represents an embodiment of my invention, parts of the apparatus being shown in section.

A represents a steam-pipe adapted to conduct steam from a steam-boiler to the cylinder of an engine, and is provided with a valve B, which separates or divides the pipe A into two sections 1 and 2. This valve is for regulating the supply of steam to the machinery to be operated, and hence the steam in the upper section 1 is at boiler-pressure, while the steam in section 2 is at a lower pressure, or a pressure sufficient to operate the machine, thus forming in effect high and low pressure steam pipes, and for the purposes of convenience I have throughout this specification designated the section 1 as a high-pressure pipe and section 2 as a low-pressure pipe.

C represents the cylinder of my improved lubricator, with the top of which a T-coupling *a* communicates by means of a short pipe *b*. With the coupling *a* one end of a pipe *c* communicates, the other end of said pipe communicating with the portion 1 of the steam-pipe A, so as to receive high-pressure steam therefrom, the said pipe *c* being provided between its ends with a valve *c'*. The bottom of the cylinder C communicates with a coupling *d* by means of a pipe *d'*, and said coupling communicates, by means of a pipe *e*, with the portion 2 of the steam-pipe A and between its ends is provided with a valve e^2. It will thus be seen that the cylinder C communicates with the steam-pipe above and below the valve B. At a point near the top the cylinder is provided with an inlet *f* for filling the cylinder with lubricant, and said inlet is normally closed by means of a plug *f'*. Petcocks *g h* communicate with the respective couplings *a d* for a purpose hereinafter explained.

A plunger-rod D, preferably having a knob *i* at its upper end, passes into the cylinder C through the coupling *a*, pipe *b*, and a stuffing-box *j*, located above said coupling. At the lower end of said rod D a plunger or piston E is secured. This piston comprises two flexible cups *l m*, the periphery of each being adapted to bear against the inner face of the cylinder C with a force commensurate with

the pressure against them. The pressure of the steam on the piston will cause the periphery of the cup *l* to bear against the wall of the cylinder with a force commensurate with the pressure of the steam against it and the periphery of the cup *m* will bear against the wall of the cylinder with a force commensurate with the pressure of oil against it.

To operate the apparatus, close the valve *c'* and open the petcock *g*, thus allowing pressure to escape from the cylinder above the cup-shaped piston E. The pressure under the piston will then cause it to be forced to the top of the cylinder. Then close the valve e^2, open petcock *h*, and allow pressure to escape from lower portion of the cylinder. The petcock *h* will then be closed, the plug *f'* removed, and the cylinder filled with oil through the inlet *f*, and then the petcock *g* will be closed. The valve *c'*, which controls the admission of high-pressure steam to the top of the cylinder, will then be opened, thereby applying full boiler-pressure of steam to the upper side of the piston E. The valve e^2 will then be opened enough to allow the required amount of oil to pass out into the steam-line and be carried by this means into the cylinders of the engine needing lubrication. It is evident that the cylinder C may be provided with any desired number of outlets for lubricant. The lubricator will preferably be provided with an indicator F and when the apparatus is provided with several outlets the indicators will be so arranged as to show the supply of oil being delivered to each machine. The indicator F comprises a glass tube *n*, passing at its ends through stuffing-boxes *n'*, and plates n^2, the latter being connected by a series of rods n^3, which serve to protect the glass tube. The lower end of the tube *n* communicates with the pipe *e* by means of a short pipe n^4 and the latter is provided with a valve n^5. The upper end of the tube *n* communicates, by means of a pipe n^6, with the portion 2 of the steam-pipe A and is provided with a valve n^7. To operate the indicator, the valve e^2 will be closed and the valves n^5 n^7 opened. The glass tube *n* will fill with water from condensed steam and the amount of oil delivered can be seen as it rises through the water.

It will be seen that by constructing the piston E as above described it will always bear against the cylinder with a force or frictional contact commensurate with the pressure against it and forms, in effect, a double automatic packing for the piston against the interior of the cylinder and prevents the intercommingling of high-pressure steam with the oil and renders the apparatus effectual, in every respect, in the performance of its functions.

It is evident that the device can be readily cleansed should occasion require it by opening the valves and permitting the steam to blow through it. Should some obstruction in the oil affect the proper feeding of the oil, the valve e^2 might be opened wider and the obstruction thus permitted to pass.

My improvements are very simple in construction, cheap to manufacture, and effectual, in all respects, in the performance of their functions.

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

1. The combination with a steam-pipe having a valve therein the latter dividing said pipe into two sections the section adjacent to the boiler constituting a high-pressure pipe while the section adjacent to the engine constitutes a low-pressure pipe, of a cylinder adapted to contain lubricant communicating at its respective ends with said pipes, and a piston in said cylinder adapted to receive high-pressure steam from the high-pressure pipe and force the lubricant into the low-pressure pipe, substantially as set forth.

2. The combination with a steam-pipe, of a lubricant-receptacle communicating at both ends with said steam-pipe, a valve in the steam-pipe between the connections of the lubricant-receptacle therewith, the said valve dividing the steam-pipe into a high-pressure pipe and a low-pressure pipe, and a piston in the receptacle adapted to receive high-pressure steam against it and force the oil into the low-pressure pipe, substantially as set forth.

3. The combination with a steam-pipe and a valve therein for regulating the pressure of steam to an engine, of a lubricant-holder, a pipe connecting one end of the lubricant-holder with the steam-pipe at one side of said valve, a pipe connecting the other end of said receptacle with the steam-pipe at the other side of said valve and a piston in said receptacle, substantially as set forth.

4. The combination with a steam-pipe and a valve therein, of a lubricant-receptacle, valved pipes connecting the respective ends of said receptacle with the steam-pipe at opposite sides of the valve therein, a piston in said receptacle, and petcocks adapted to communicate with the respective ends of the receptacle, substantially as set forth.

5. The combination with a steam-pipe and a valve therein, of a lubricant-receptacle, valved pipes connecting the respective ends of said receptacle with the steam-pipe at opposite sides of the valve therein, a piston in said receptacle, the said piston comprising two flexible cups arranged as shown and petcocks in communication with the ends of the lubricant-receptacle.

6. The combination with a high-pressure pipe and a low-pressure pipe, of a cylinder adapted to contain lubricant communicating at its respective ends with said pipes, a piston in said cylinder adapted to receive high-

pressure steam from the high-pressure pipe and force the lubricant into the low-pressure pipe, a lubricant-indicator adapted to communicate with the outlet of the cylinder and with the low-pressure pipe and valves for controlling the passage of lubricant through said indicator, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JAMES WILSON.

Witnesses:
JNO. H. FARRELL,
ERNEST HAUGHT.