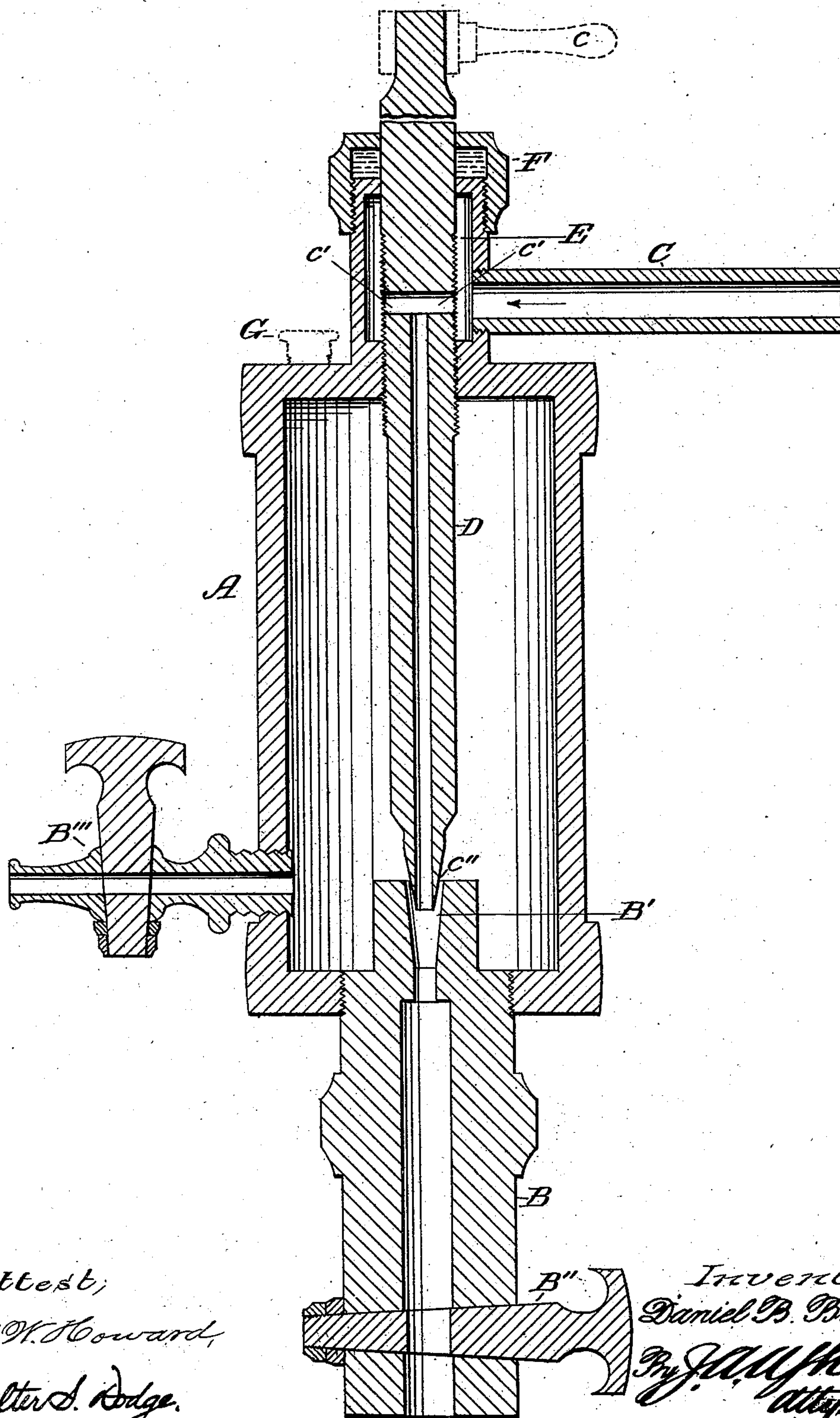


(No Model.)

D. B. BRINDLE.
LUBRICATOR.

No. 294,437.

Patented Mar. 4, 1884.



Attest;
H. W. Howard,
Matter S. Dodge.

Inventor,
Daniel B. Brundle
By J. M. Shley
att'y.

UNITED STATES PATENT OFFICE.

DANIEL BAKER BRINDLE, OF MARTINSBURG, W. VA., ASSIGNOR OF TWO-THIRDS TO JOHN FITZ AND DAVID H. BOWERS, BOTH OF SAME PLACE.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 294,437, dated March 4, 1884.

Application filed December 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, DANIEL B. BRINDLE, a citizen of the United States, and a resident of Martinsburg, in the county of Berkeley and State of West Virginia, have invented certain new and useful Improvements in Methods of and Apparatus for Supplying Oil to the Steam-Valves of Locomotives, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

The apparatus is designed and is especially adapted for use in connection with the sliding steam-valve which is supported upon the steam-chest of locomotive-engines; but it is applicable also in connection with other steam machinery.

Hitherto in practically operating locomotive-engines much difficulty has been encountered in consequence of the uncertain and unequal supply of oil to the valve above referred to, through which steam is supplied to the steam-cylinder, and this difficulty has been greatest when moving heavy trains or in surmounting heavy grades. Under such circumstances the pressure of steam is very great, and this pressure has operated to prevent the inflow of oil to the valve, and thus at the very time when it is most important that the valve should move freely it has frequently been found to be wholly unlubricated, and working with extreme difficulty, because of the dryness of the surfaces and the consequent increased friction. It has been my object to remove this difficulty, and I have devised a method and means by which a continuous and uniform supply of oil to the valve is insured under all conditions of steam-pressure. This is effected by means of an appliance by which a jet of steam introduced through a pipe which is connected with the steam-cylinder or other convenient steam source is discharged into and through the outflow-pipe of the oil cup or reservoir in such a manner as to carry oil along with it to the valve. The pipe through which steam is supplied is arranged to extend into the oil-vessel at or near its upper extremity, and then preferably centrally downwardly in the interior thereof to the upper end of the discharge-pipe.

In the drawing the figure represents a cen-

tral vertical section of the oil-vessel and its immediate connections, all of which are composed of any suitable metal.

A designates the oil-receptacle, preferably cylindrical, as shown; B, the discharge-pipe; B', an inclined portion of the interior surface of the discharge-pipe, which forms a seat for the adjustable steam-injecting pipe; B'', a stop-cock for the discharge-pipe; B''', a discharge-cock for the oil-receptacle; D, the adjustable steam-injecting pipe; e, an operating-handle; e', orifices for the admission of steam; e'', the tapered end of the adjustable steam-pipe; C, the steam-induction pipe; E, a steam-receiving chamber; F, an annular screw-cap, and G a screw-plug for closing the feed-orifice of the oil-vessel. In practice the stop-cock B'' will be applied at a point above that which is indicated in the drawing, and the lower portion of the pipe B will be exteriorly threaded.

In operation the oil-receptacle is applied to the slide-valve upon the steam-chest or dome of a locomotive in such relation to the cab that both the flow of steam to the oil-vessel and the discharge of oil and steam therefrom are within the ready control of the engineer. Steam may thus at pleasure and in any desired volume be discharged into the oil-vessel, passing first into the annular steam-receiving chamber E, and thence into and through the adjustable pipe. Under all ordinary circumstances a minute jet of steam will be sufficient to insure the discharge of oil in the desired quantity, and in an uninterrupted and uniform current.

It will be seen that the process described, in which the steam-pipe is connected at the top of the oil-reservoir, and the current of steam is dischargeable uninterruptedly directly through the main body of the oil and out at the bottom of the reservoir, is essentially different from a process in which it is necessary to manipulate a valve, first, in such a manner as to permit a slight flow of oil from the reservoir, and, secondly, in such a manner as to cut off the flow of oil and admit a current of steam through an independent channel, and also that it is different from a process which requires two distinct valves—one above and the other below the point at which steam is admitted into the oil-conduit—for in both

those processes the flow of oil is necessarily intermittent, while in mine it is continuous.

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

1. The method of supplying oil to steam-valves which consists in conducting steam through the chamber of the oil-reservoir to a point near the bottom of the same, and then discharging it intermingled with oil in a continuous current therefrom.

2. The combination, with an oil-supplying vessel, of a steam-discharging pipe which is so adjustable within the oil-reservoir as to prevent the outflow of oil.

3. The combination, with an oil-supplying cup, of a discharge-pipe which is connected

to the bottom thereof, and a steam-pipe which leads into the oil-cup and downwardly from the top thereof within the same, and which is adjustable to or from the orifice of the discharge-pipe, and by which oil may be either forcibly ejected through the discharge-pipe or prevented from entering the same.

4. The combination, with an oil-supplying vessel, of a steam-pipe which is adapted to conduct steam to the discharge-orifice of the vessel, and which is also adapted either to prevent or to permit or to compel the discharge of oil from the vessel through such orifice.

DANIEL BAKER BRINDLE.

Witnesses:

JOHN FITZ,
J. T. YOUNG.