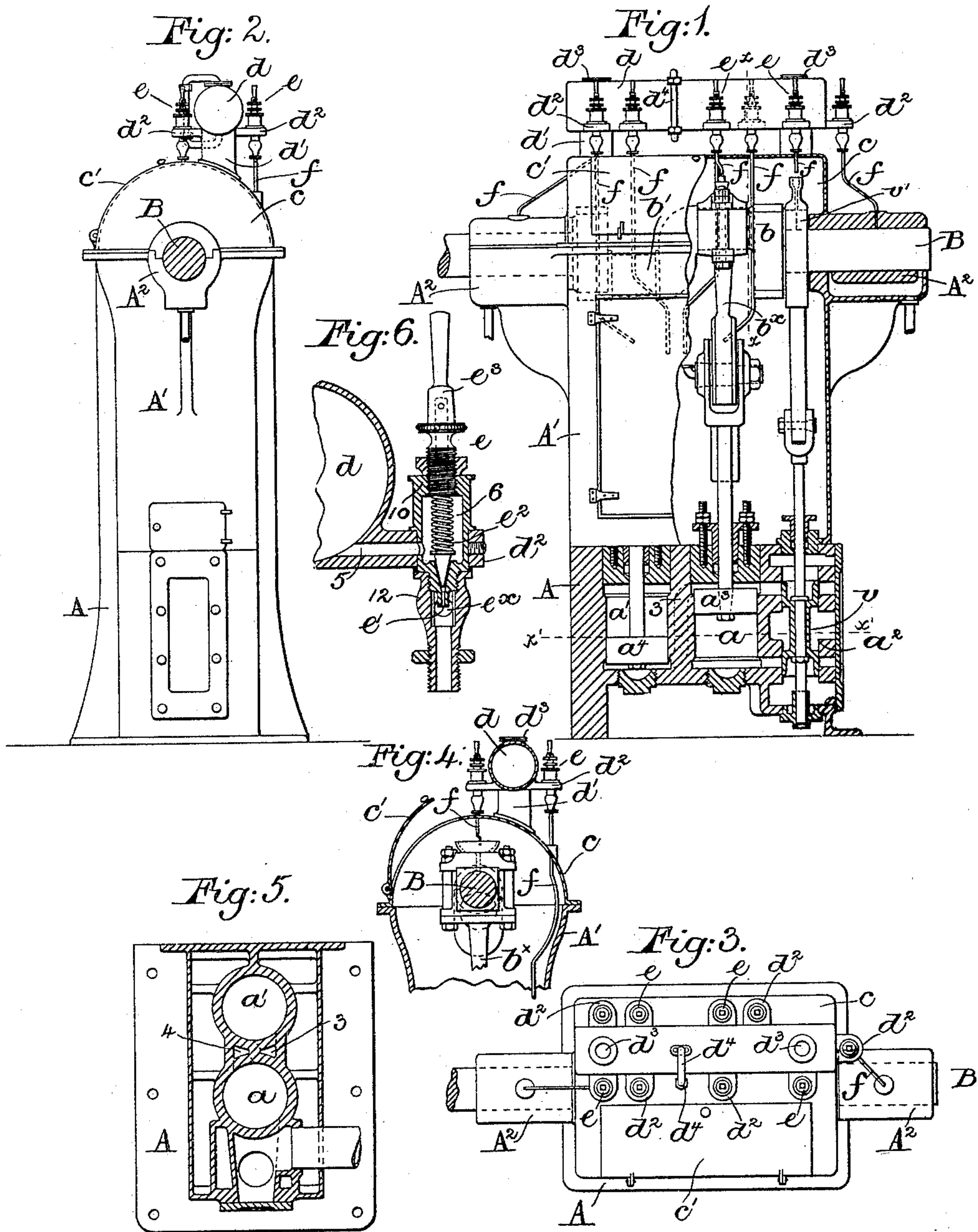


(No Model.)

W. B. SNOW.
LUBRICATOR.

No. 467,879.

Patented Jan. 26, 1892.



Witnesses:

Edward F. Allen.
Fred S. Greenleaf.

Inventor:

Walter B. Snow.
by Crosby & Gregory attys.

UNITED STATES PATENT OFFICE.

WALTER B. SNOW, OF WATERTOWN, ASSIGNOR TO THE B. F. STURTEVANT COMPANY, OF BOSTON, MASSACHUSETTS.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 467,879, dated January 26, 1892.

Application filed April 7, 1891. Serial No. 388,000. (No model.)

To all whom it may concern:

Be it known that I, WALTER B. SNOW, of Watertown, county of Middlesex, State of Massachusetts, have invented an Improvement in Lubricators for Steam-Engines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

For the convenient lubrication of the moving parts of a steam-engine it has heretofore been quite common to place several oil-cups at some convenient place, with tubes leading therefrom to the various bearing-surfaces of the engine. To obviate this complicated arrangement, this invention comprehends a single cylindrical or other oil-reservoir, preferably of considerable length and provided at one or both sides with series of discharge-openings leading through suitable regulating devices to tubes which direct the oil to the various bearings, the discharge-openings being so arranged with relation to the reservoir as to permit the most direct communication by the tubes with the bearings.

Figure 1 represents in side elevation partial section of a stationary engine provided with my lubricator; Fig. 2, a left-hand end elevation of the engine shown in Fig. 1; Fig. 3, a top or plan view of Fig. 1; Fig. 4, a partial section on dotted line xx , Fig. 1; Fig. 5, a horizontal section taken on dotted line $x'x'$, Fig. 1; and Fig. 6, a sectional detail showing one of the oil-regulating devices.

The base A, having formed within it the vertical cylinders $a a'$ and valve-seat a^2 , has bolted to it, as represented, the upright inclosing frame or shell A' , which supports at its upper end, or, as herein represented, has formed as a part of it the bearings A^2 for the horizontal crank-shaft B, having oppositely-placed cranks $b b'$, connected by suitable connecting-rods b^x with pistons $a^3 a^4$ in the cylinders $a a'$, the opposite ends of the said cylinders being connected by ports 3 4, Figs. 1 and 5, so that steam admitted to the upper end of the cylinder a will expand through the port 3 to the lower end of the cylinder a' , and vice versa. Steam admitted to the lower end of the cylinder a will expand through the port

4 to the upper end of the cylinder a' , the steam admitted to and exhausted from the cylinder a' always passing through the cylinder a . The admission of steam to and the exhaust from both the cylinders are controlled by a single valve v , moved by an eccentric v' on the crank-shaft B. This engine is especially designed to be used in connection with a blower, fan, dynamo, or other device, the shaft B being extended to one side to form the shaft or journal of the fan or armature, and when used in such connection the engine is run at a very high speed; but the two cranks being set opposite each other the engine is perfectly balanced.

To obviate the inconvenience due to oil flying from the rapidly-moving parts of the engine and also to exclude dust, I have provided, as herein represented, a semicircular hood c , which is bolted or otherwise secured to the top of the inclosing frame or shell A' , which, in connection with the frame, completely incloses the revolving and reciprocating parts, the said hood having a hinged door c' to give access to the parts when necessary.

As engines for this class of work are run at a very high speed and frequently kept running continuously for a considerable length of time, the question of proper lubrication of the various bearings has been a serious one.

Heretofore it has been customary to place a series of independent automatic lubricating devices upon the engine, the oil from which is conducted to the various fixed and movable bearings by means of fixed conducting-tubes; but this arrangement is not without its disadvantages, for in a duplex engine, such as herein shown, the large number of bearings to be lubricated necessitates the employment of an excessively-large number of individual lubricating devices, it being difficult to arrange them on the engine, and also requires constant attention to keep them filled, as some feed more rapidly than others. To obviate these difficulties, I have provided an oblong or cylindrical oil-reservoir d , supported, as herein represented, by standard d' on the hood c , the said reservoir being provided on each side and at its ends with a series of laterally-extended ears or supports d^2 ,

in which are mounted the oil-regulating devices e , which communicate with the interior of the reservoir by openings 5 in the ears or supports d^2 , tubes f , leading from the regulating devices e to the various bearings of the engine, (see Figs. 1 and 2,) the tubes which lead to the rotating bearings terminating at such points, as shown in Fig. 4, where the oil-cups on the bearing will pick the drops of oil from the ends of the tubes at each revolution.

By making the reservoir of considerable length, as shown, I am enabled to provide for a large number of supports and oil-regulating devices and also to place them at such points along the reservoir that they may be immediately over their respective bearings to thus give the most direct connection therewith, which arrangement would be impossible with a reservoir of square or other equivalent shape, which would crowd the regulating devices together at one spot, necessitating long and, in many cases, crooked conducting-tubes. The reservoir is provided with filling-holes d^3 , fitted with suitable caps, as shown, and the said tube is also provided with a glass gage d^4 to show at all times the level of the oil contained in the reservoir.

The regulating device e may be of any desired kind; but I preferably employ, however, one constructed substantially as herein shown, it consisting of two members 10 12, adapted to be screwed together from opposite sides of and inclosing between them the ear d^2 on the oil-reservoir d , the two members being tightly screwed up against the opposite sides of the ear, insuring a tight joint to prevent oil from leaking out. The oil entering the chamber 6 through the opening 5 in the ear d^2 is discharged therefrom through the nozzle e' , the discharge being regulated by the spring-controlled spindle e^2 , the position of which is controlled by the pivoted lever e^3 ,

the lever when in its position shown in Fig. 6 permitting the oil to flow through the nozzle into the conducting-tube f , and, when turned down to a horizontal position, cutting off the flow of oil. Thus with a common reservoir or supply, the flow of oil therefrom to any particular bearing may at all times be regulated independently of any other and even entirely cut off.

The regulating device e is provided with diametrically-opposite openings e^x between which the oil is fed, so that the attendant may at all times see if the device is feeding properly, the openings being closed by a suitable glass tube to exclude dust and air.

I claim—

1. A lubricator for steam-engines, consisting of a horizontally-arranged cylindrical reservoir and a series of laterally-extended oil-passages disposed longitudinally along said reservoir near its lowest point, combined with regulating devices to control the flow of oil through said passages and conducting-tubes to conduct the oil from said passages to different bearings on the engine, substantially as described.

2. A lubricator for steam-engines, consisting of an oblong oil-reservoir having a series of laterally-extended ears, oil-passages therein, and regulating devices formed in two portions screwed together from opposite sides of said ears to control the flow of oil through said oil-passages, and tubes to conduct the oil to the different bearings of the engine, substantially as described.

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

WALTER B. SNOW.

Witnesses:

BERNICE J. NOYES,
FREDERICK L. EMERY.