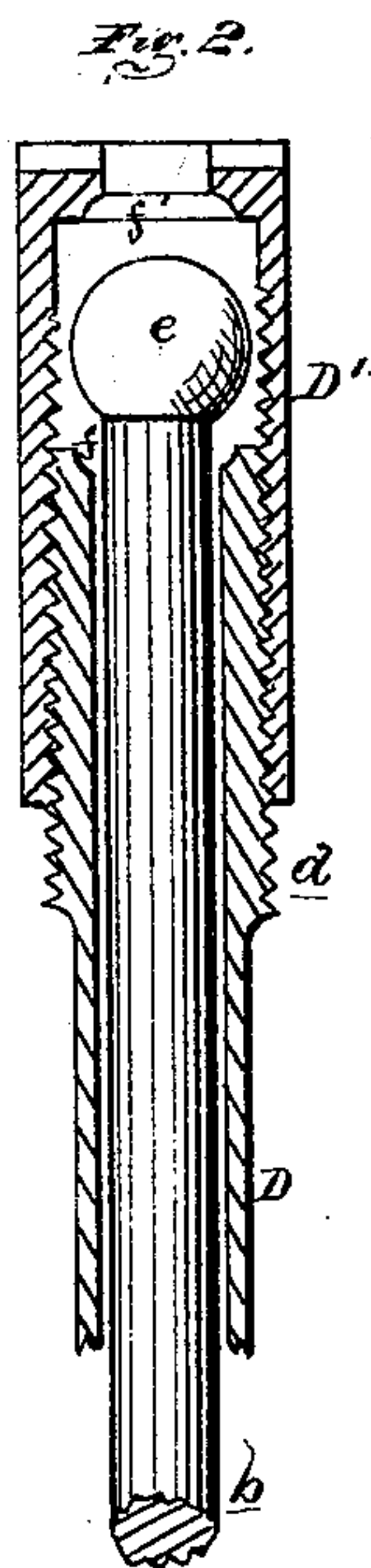
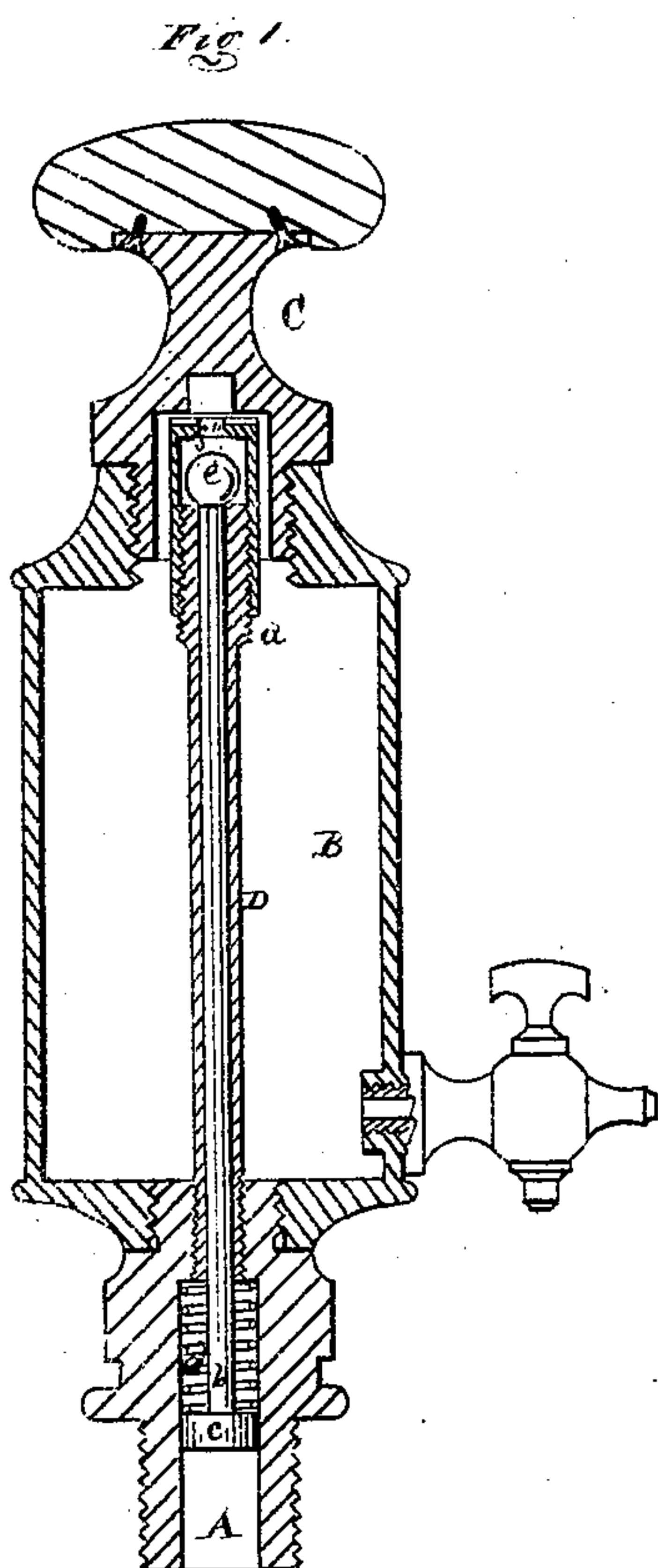


A. WORDEN.
Oilers for Steam Engines.

No. 141,304.

Patented July 29, 1873.



ATTEST:

Wm. F. Chert.
H. S. Sprague.

INVENTOR:

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H. S. Sprague

UNITED STATES PATENT OFFICE.

ALVA WORDEN, OF YPSILANTI, MICHIGAN.

IMPROVEMENT IN OILERS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **141,304**, dated July 29, 1873; application filed April 24, 1873.

To all whom it may concern:

Be it known that I, ALVA WORDEN, of Ypsilanti, in the county of Washtenaw and State of Michigan, have invented a new and useful Improvement in Oilers for Steam-Engines; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a vertical section through the center. Fig. 2 is an enlarged vertical section of the top of the oil-tube and its attachment.

Like letters refer to like parts in each figure.

The nature of this invention relates to an improvement of that class of oilers wherein the flow of the oil is designed to be regulated by the inlet of steam into the steam-chest or cylinder to which the oiler is attached; and the object of the invention is to prevent any waste of oil, and prevent the outflow thereof, when the engine is standing still, and the invention is more especially designed to be an improvement upon the oiler described in the patent to Elijah McCoy, issued July 23, 1872. The improvement consists in the peculiar arrangement and construction of a double valve upon the top of the rod, and in combination therewith of the device for governing the operation of said rod, and preventing the pressure of steam in the oiler from forcing the oil through the tube when the engine is motionless; also, in the combination and arrangement of the various parts, as more fully hereinafter set forth.

In the accompanying drawing, A represents a hollow standard, to screw into the cover of a steam-chest, on which is mounted a cup, B, with a screw-plug, C, at its top, the lower part of said plug having a recess formed in it. D is a tube, rising from the top of the hollow standard A, its upper end terminating within the recess of the plug C, and is externally screw-threaded, as at *a*. Within the tube is a spindle, *b*, carrying a piston, *c*, at its lower end, which plays easily in a chamber or cylinder formed by enlarging the bore at the lower part of the standard A; and above the piston a spring, *d*, is spirally coiled about the spindle, to exert a downward pressure upon the piston, substantially in the manner and

for the purpose described in the Letters Patent of the said McCoy, to wit, sufficient to overcome the upward pressure of the steam in the steam-chest, when a port is open to give steam to the cylinder, but not strong enough to resist the pressure when both steam-ports are covered or closed by the valve, at which time the piston and spindle will be raised by the increased pressure of the steam. At the top of the tube I form a seat, *f*, for a spherical valve, *e*, secured to the top of the spindle. D' is a cylinder or cap, internally threaded, to screw over the top of the tube. In the top of the cap is a seat, *f'*, for the valve, but provided with a central aperture. The top of the cap is slotted so as to permit it to be turned by a screw-driver, and thereby increase or diminish the space between the seats *f* and *f'*.

The cup being filled with the lubricant by removing the plug C, after replacing the latter the cup is ready to operate in the following manner: Steam filling the steam-chest at or near boiler-pressure lifts the spindle and valve from the lower seat *f*, and before it is seated against the upper seat a small volume of steam will have passed out of the tube and its cap into the cup, where it is condensed into water and displaces an equal volume of oil, which is raised above the cap. When a port is open to fill the cylinder with steam, the pressure in the steam-chest is somewhat reduced during the outflow of steam from the chest, when the spring seats the valve on the lower seat, whereupon the space in the cap between the two seats fills with oil. When the valve again rises this volume of oil flows down the tube into the steam-chest, a volume of steam escaping as before into the cup, to be condensed and displace a volume of lubricant. The volume of oil to be fed at each stroke of the engine is regulated by turning the screw-cap so as to give access to the required volume of oil between the seats *f f'*. When the engine is at rest, whether there be pressure or not in the steam-chest, the valve will be seated on one seat or the other, and consequently the flow of oil is shut off.

If the lubricator be applied to a steam-cylinder the action is precisely the same.

In this manner the utmost economy in the expenditure of oil or tallow is attainable, as

but just enough may be fed to the engine to lubricate the valve-seats and cylinder, and that only during the time the engine is at work.

If preferred, a double-faced valve may be employed in place of the spherical one shown.

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

1. The cap D' provided with a seat, *f'*, in combination with the tube D provided with the seat *f*, and the spindle *b* provided with

the spherical or double-faced valve *e*, substantially as and for the purpose set forth.

2. The construction and arrangement of the hollow standard A, cup B, plug C, tube D, spindle *b*, piston *c*, spring *d*, valve *e*, seat *f*, cap D', and seat *f'*, substantially as and for the purpose set forth.

ALVA WORDEN.

Witnesses:

H. F. EBERTS,

H. S. SPRAGUE.