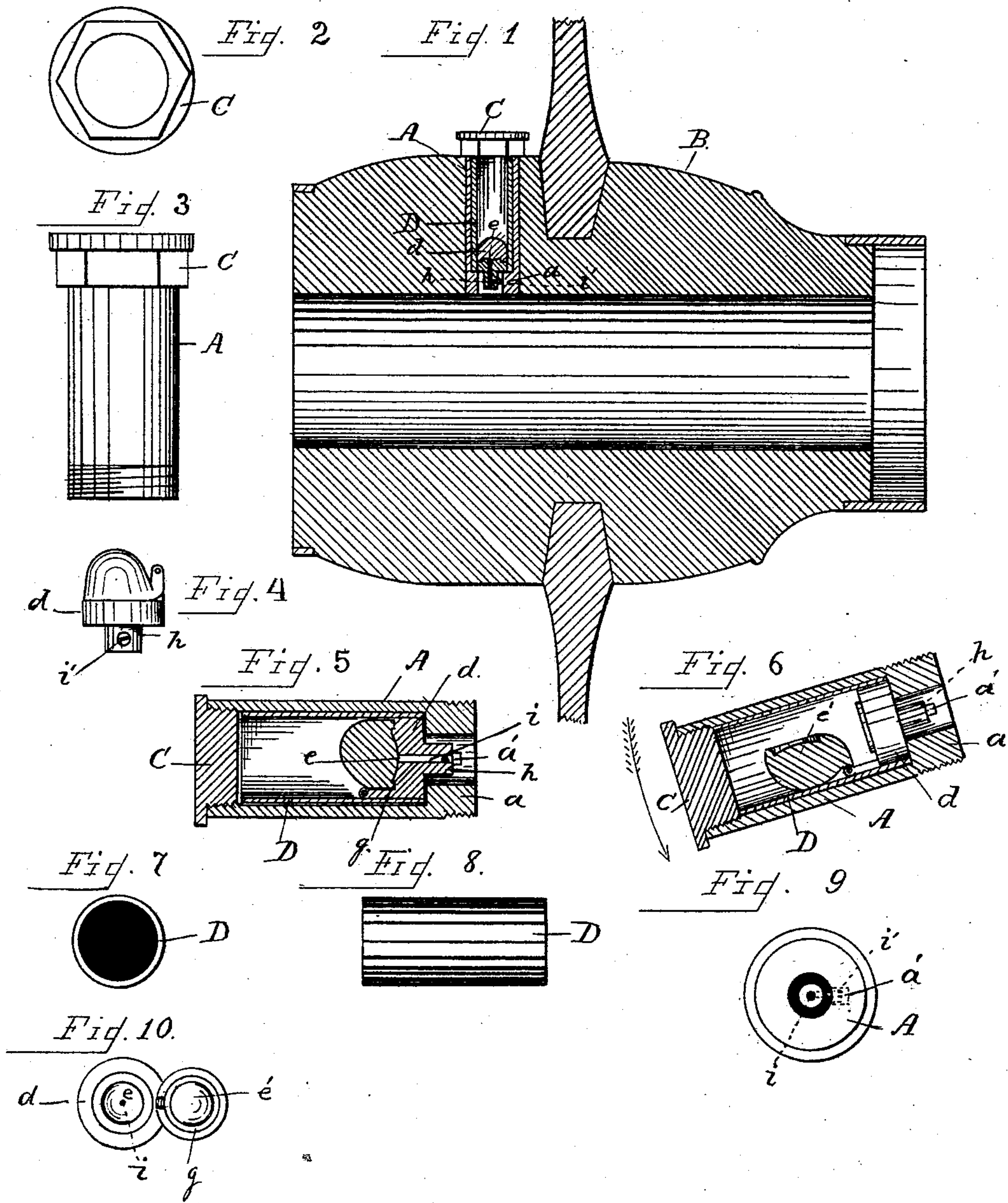


(No Model.)

G. L. WEAVER.
AXLE LUBRICATOR.

No. 482,770.

Patented Sept. 20, 1892.



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UNITED STATES PATENT OFFICE.

GEORGE L. WEAVER, OF DAYTON, OHIO.

AXLE-LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 482,770, dated September 20, 1892.

Application filed June 3, 1892. Serial No. 435,382. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. WEAVER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Axle and Shafting Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in axle and shaft lubricators, and has for its object to furnish a simple, convenient, economical, reliable, and otherwise desirable lubricant-receptacle by which the oil is supplied automatically. It may be introduced into the hub of any vehicle without marring the appearance of the wheel. It may also be attached to loose pulleys or any revolving wheel, the character of my invention being such that it may be applied to hubs of various sizes. I further provide a lubricating device that may be easily detached for the purpose of cleansing when this becomes necessary, all of which, together with other features of usefulness, will be more fully considered in the minute description to follow and in the several claims.

In the accompanying drawings, Figure 1 is a sectional view of a portion of a vehicle-wheel with my invention inserted in the hub thereof. Fig. 2 is a detached screw-cap. Fig. 3 is a elevation in full size of the lubricating device detached from the hub. Fig. 4 is a detailed detached view of the flap-valve. Fig. 5 is a longitudinal horizontal view in section detached from the hub, showing the valve closed. Fig. 6 is an inclined longitudinal view of the same in section, showing the valve open. Fig. 7 is a detailed detached view of an end of the inner tube or cylinder. Fig. 8 is a detailed detached longitudinal view of the same. Fig. 9 is an end view of the lubricator detached from the hub. Fig. 10 is a view of the valve open.

45 In the different views herewith presented similar letters refer to the same parts throughout.

The letter A indicates a casing or cylinder externally threaded at its lower end adapted to be inserted in a corresponding aperture in the hub B, to be made fast thereto with the

aid of a wrench, the lower end opening into the interior space of the hub-box.

The letter *a* indicates a shoulder of desirable depth extending from the inner surface of the lower end of the casing or cylinder A. The letter *a'* is a short groove in said shoulder.

C shows an octagon-shaped screw-cap designed to engage with screw-threads on the outer end of the cylinder A. This screw-cap may be made to set flush with the outer surface of the hub by providing means of screwing and unscrewing the cap from the top instead of the side thereof.

D represents an inner tube or cylinder of shorter length and smaller diameter adapted to fit snugly in the outer cylinder A. To the inner end of this tube D is attached a flap-valve *d*, provided with a concaved seat, as shown by letter *e*, the flap or movable portion being provided with a bossed or convexed inner surface, as indicated by *e'*. The outer edge of this convexed surface is cupped out or provided with an annular groove *g*, the object of which will be more specifically pointed out.

The letter *h* represents the tube or stem of the flap-valve, through the center of which is a channel or passage *i*, comprising the feeding-point of the reservoir.

i' is an adjustable screw that enters the stem or tube *h* horizontally, by the means of which the discharge of oil is regulated. When the inner tube D, with flap-valve attachment *d*, is inserted in the outer cylinder A, the head of the adjustable screw *i* works into the groove *a'*, and the inner tube, with valve, is thereby prevented from turning on its axis.

The operation of my invention is as follows: Assuming the detachable parts to be separated from each other, the inner tube D, having the flap-valve *d* attached permanently at its inner end, is inserted in the outer cylinder A, where it rests against the shoulder *a*, with the head of the adjustable screw *i'* in the groove *a'*, whereby the inner tube is kept from turning. The oil is then poured into the lubricator until it becomes about three-quarters full. The object of filling the lubricator thus is to allow the oil to break with

the running of the wheel by affording some space between the top of the valve (in any position) and the surface of the oil. This gives the valve space to work in, the oil being caught in each revolution of the wheel. The screw-cap is then attached, and the device is ready for insertion in the hub. This should be done with the hinge of the valve in a position to open in the direction of the turn of the wheel. When the wheel is in a position to bring the lubricator off the horizontal plane, as shown in Fig. 6—the hub turning in the direction indicated by the arrow—the valve opens and remains in that condition until the horizontal plane is reached, as shown in Fig. 5. As this plane is reached the cupped or annular groove *g* gathers the oil in its downward movement and the same is forced by the boss *e* of the valve through the feeding-channel. It will be observed that when the wheel stops at any point below the horizontal plane the valve opens automatically and is in a position to take in the oil. If a stop is made at any point above the said plane, the valve is then closed and acts as an automatic cut-off while in that position. I have found in practice that the shoulder *a* should be of sufficient depth to bring the stem *h* far enough from the inner extremity of cylinder A to admit of a cell being formed in the vicinity of said stem, the object of this being to prevent the outlet-point *i* from becoming clogged up, which might occur were the said point to extend clear to the end of the cylinder A.

When it becomes necessary to clean the lubricator, the cap C is unscrewed, and with the finger the inner tube D is easily removed without disturbing the outer cylinder. It will be readily recognized that a frequent removal of the outer cylinder from its seat in the hub would in time cause the same to fit more loosely, and much difficulty would be experienced in keeping it in the seat in a quickly-revolving wheel. This difficulty is

entirely obviated by my device with its removable inner cylinder.

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

1. In an axle or shafting lubricator, an outer cylinder having a cap at one end and a shoulder at the other provided with a slot adapted to receive the head of a screw, a removable inner cylinder inclosed in said outer cylinder, in combination with a flap-valve within said inner cylinder having a screw adapted to increase or diminish the flow of the lubricant from the valve to the shaft or axle.

2. In an axle or shafting lubricator, an outer cylinder adapted to be inserted and secured in a wheel-hub, the said cylinder having an inner cylinder inserted therein, the said inner cylinder being provided with a hinged valve of convex form to enter a concave seat, the outlet from said seat having a transverse screw whereby the size of the outlet may be reduced or enlarged.

3. In an axle or shafting lubricator, a valve consisting of a flap pivoted to its seat, the said flap having an annular groove *g* and a convex surface *e'*, in combination with its seat having a concave surface *e*, an opening *i* in the bottom thereof, and a screw *i'*, adapted to reduce or enlarge the opening *i*, for the purposes herein set forth.

4. In an axle or shafting lubricator, the outer cylinder A, having cap C, and shoulder *a'*, in combination with the inner tube D, having a flap-valve *d* therein provided with an opening *i*, and screw *i'*, adapted to enter the groove *a'* in the shoulder *a* of the outer cylinder, for the purposes herein set forth.

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

GEORGE L. WEAVER.

Witnesses:

R. JAY MCCARTY,
WILSON J. WENGER.