(No Model.)

J. GRACEY & G. W. KEECH.

LUBRICATOR.

No. 405,995. Patented June 25, 1889.

Fig. 1.

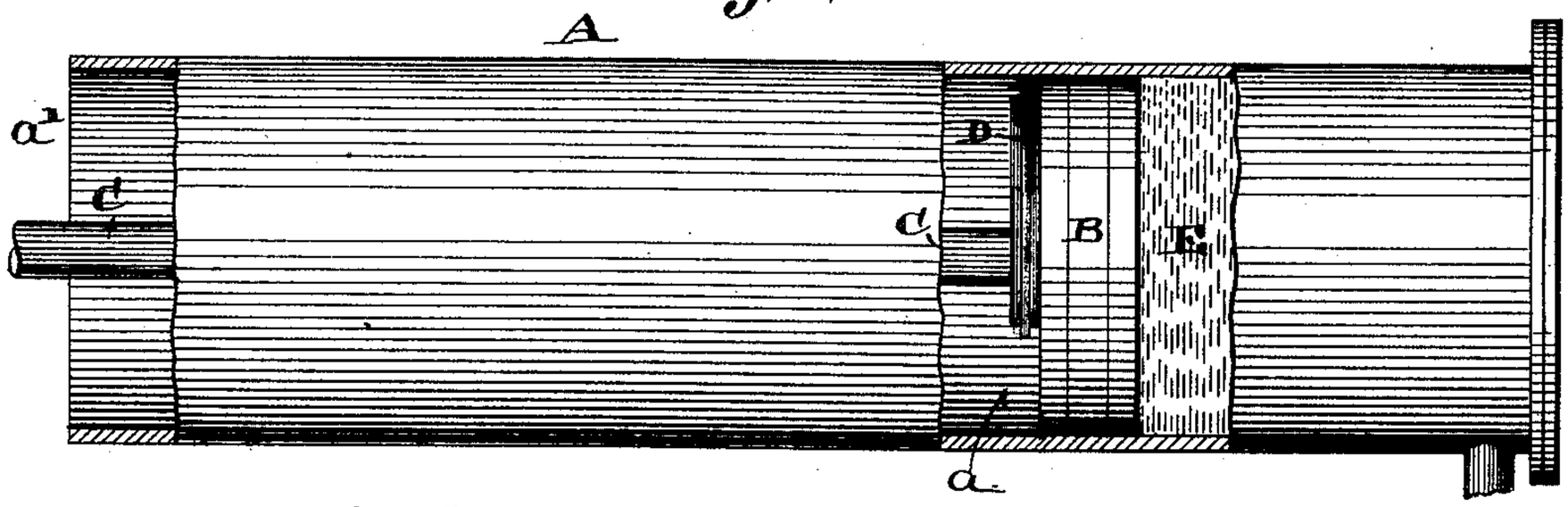


Fig. 2.

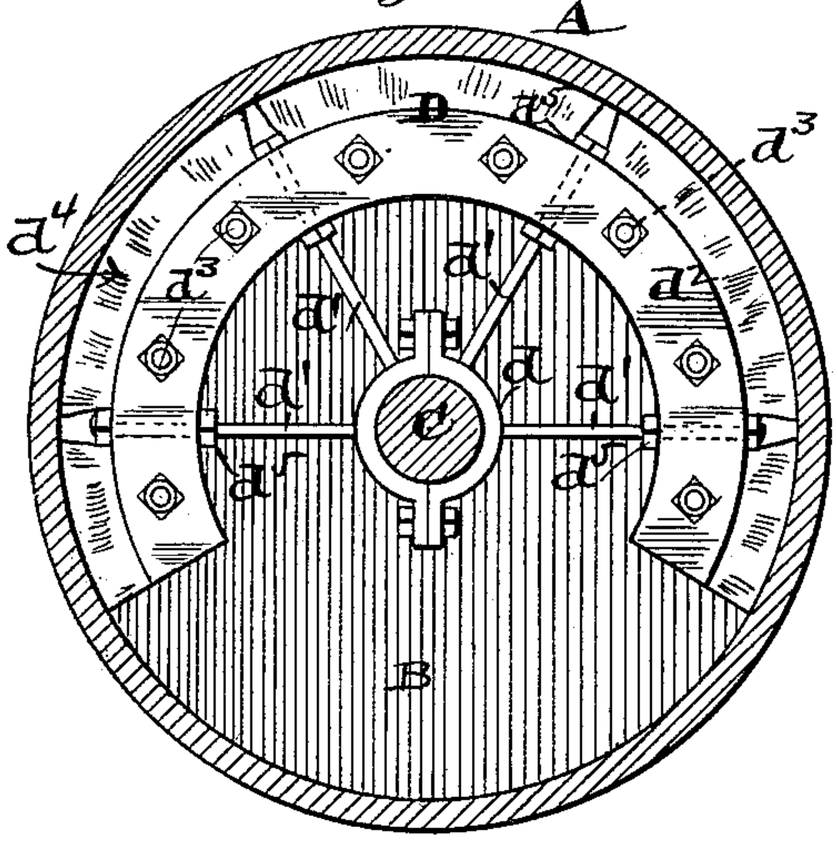


Fig. 3.

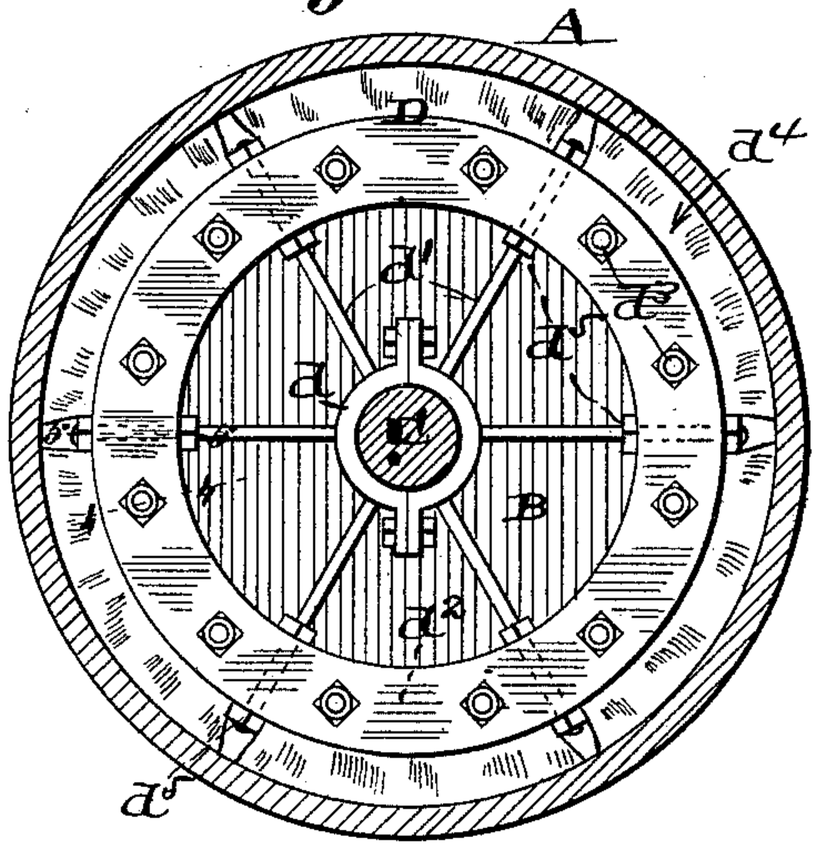


Fig. 4.

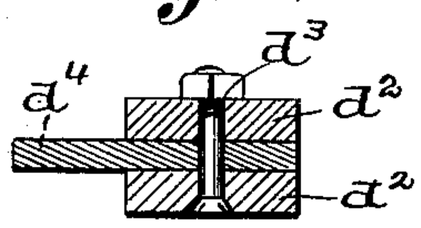
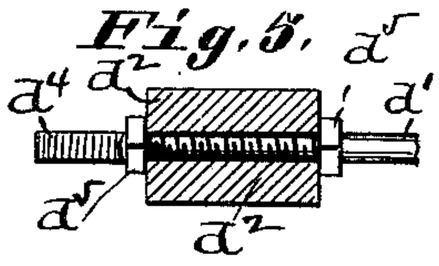


Fig. 5.



Attest:

B. J. Rho
Alston L. Ryland

Inventors:

James Gracey
George W. Keech
by C. D. Moody
atty

UNITED STATES PATENT OFFICE.

JAMES GRACEY AND GEORGE W. KEECH, OF ST. LOUIS, MISSOURI, ASSIGNORS, BY MESNE ASSIGNMENTS, TO SAID GRACEY AND AARON STRAUS, OF SAME PLACE.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 405,995, dated June 25, 1889.

Application filed March 16, 1888. Serial No. 267,369. (No model.)

To all whom it may concern:

Be it known that we, JAMES GRACEY and GEORGE W. KEECH, of St. Louis, Missouri, have jointly made a new and useful Improvement in Hydraulic-Cylinder Lubricators, of which the following is a full, clear, and exact description.

This invention relates to lubricating-brushes which move with a piston-rod and lubricate the interior of the cylinder.

The said invention consists in the combination of such a brush and the piston-rod with certain devices for holding said brush, constructed and arranged substantially as hereinafter set forth and claimed.

Figure 1 is a side elevation of a hydraulic cylinder having the improvement, portions of the cylinder-shell being broken away to exhibit the interior construction; Fig. 2, a cross-section of the cylinder, showing one form of the lubricator; Fig. 3, a similar section showing another form of the lubricator; and Figs. 4 and 5, details, being, respectively, sections at right angles to Fig. 2 through the clamping devices, taken at the side of one of the bolts d^3 and at the side of one of the spokes d'. The last four views are upon an enlarged scale.

The same letters of reference denote the same parts.

The cylinder A is of any of the customary forms of a hydraulic cylinder, saving as it is modified or supplemented by the improvement in question.

B represents the piston, and C the piston-rod.

D represents the lubricator. It may assume many forms without departing from the principle of the improvement. In the present instance it is composed substantially of a frame attached to the piston-rod and carrying a brush or analogous construction, which is shaped to fit and to come into contact with the interior surface a of the cylinder, and suited for receiving and holding a lubricant and for applying it to the surface a as the lubricator moves with the piston-rod through the cylinder.

The frame is mainly a collar d, clamped to the piston-rod and having a series of spokes or arms d' inserted in it. The arms d' at their outer ends carry a circular or semicircular rim d^2 d^2, composed of two parts, which, by means of the bolts d^3, are fastened to the arms d', and so as, also, to hold between them the brush d^4.

The brush is of some suitable material—such as felt—for holding a lubricant and for transferring it to the surface a of the cylinder without injuring the surface. The nuts d^5 d^5 aid in holding the rim d^2 d^2 in place upon the arms d'.

The operation of the device is as follows: The piston-rod is drawn to the front end a' of the cylinder, and the lubricator D is thereby brought into position for receiving the lubricant. In practice the lubricator needs to be charged with the lubricant only at extended intervals—say two or three times a week in the case of the ordinary hydraulic cylinder. At every stroke of the piston-rod the brush comes in contact with the surface a, and the lubricant is applied thereto. The lubricant is thus applied easily and regularly. In the case of horizontal cylinders it is not necessary to extend the brush entirely around the cylinder, and the form of brush shown in Fig. 2 answers well, for thereby the lubricant is applied to the upper portion of the cylinder, and enough of the lubricant finds its way downward to lubricate the entire cylinder. In the case of upright cylinders the form of brush shown in Fig. 3 is used—namely, one which extends all around the cylinder.

In some instances the brush is attached directly to the piston, and, while the brush in the present case is attached to the piston-rod, we consider the one substantially the equivalent of the other. The cylinder shown is made open at the end a'. E represents the water in the cylinder.

We claim—

In combination with a cylinder and piston-rod, a series of spokes d', extending outward from the latter and screw-threaded at their outer ends, a curved rim in two parts, nuts d^5 on said rods at the inner and outer faces of said rim, the bolt d^3, for holding the plates together, and a brush d^4, held between the parts of said rim and in contact with the inner face of said cylinder, for the purpose set forth.

Witness our hands this 14th day of March, 1888.

JAMES GRACEY.
GEORGE W. KEECH.

Witnesses:
C. D. MOODY,
GEO. J. CHAPMAN.