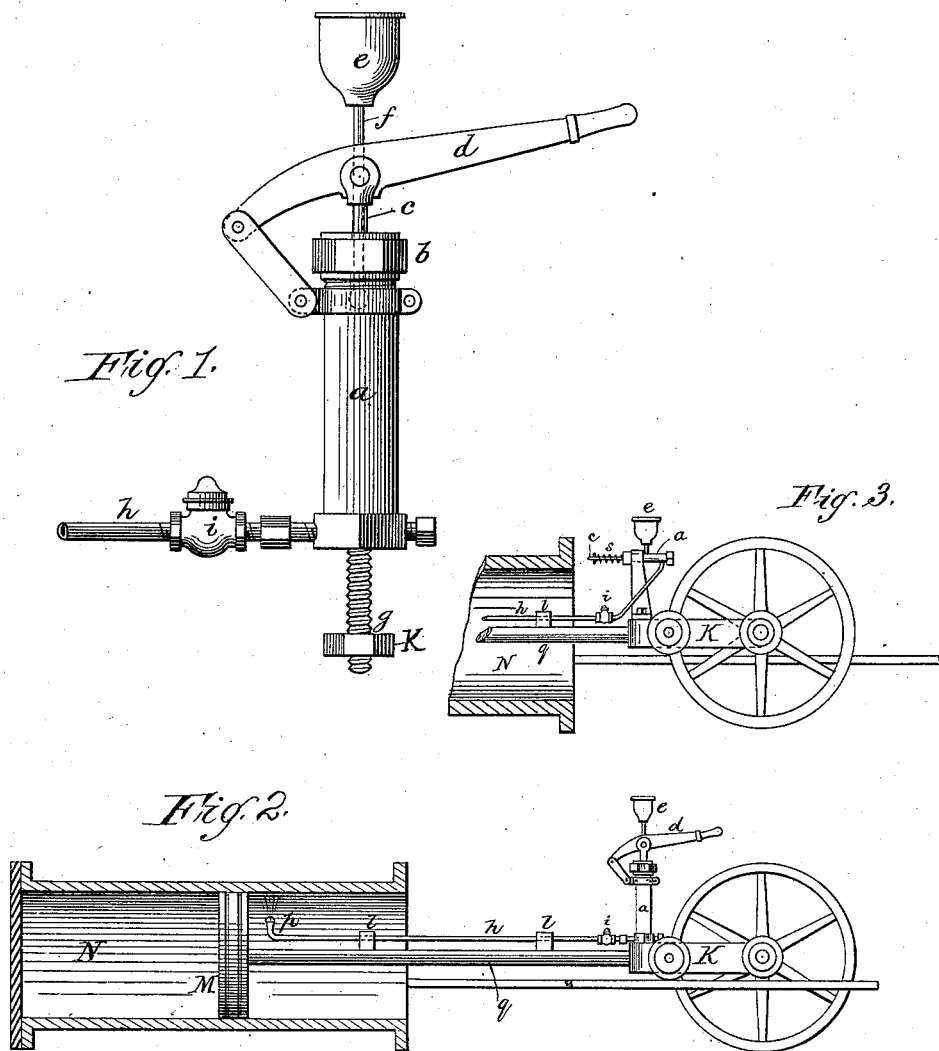


(No Model.)

R. MARSHALL.
LUBRICATOR.

No. 381,804.

Patented Apr. 24, 1888.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT MARSHALL, OF PITTSBURG, PENNSYLVANIA.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 381,804, dated April 24, 1888.

Application filed December 24, 1887. Serial No. 258,998. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MARSHALL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Lubricators for Elevator-Cylinders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the present invention is to provide a simple and efficient self-contained means of lubricating the cylinders of hydraulic elevators; and in pursuance of such object my invention consists in providing the moving or pulley head of the piston with a small force-pump and oil-reservoir and a lubricating-pipe leading to or near the piston, whereby at any time desired the pump may be by hand or automatically worked and oil spurted or sprayed against the interior wall of the cylinder.

Further, the invention consists in the construction and arrangement of parts, all substantially as hereinafter fully described and claimed.

In the drawings accompanying this specification, Figure 1 is an elevation of the form of hand-pump I prefer to use in carrying out my invention. Fig. 2 is a longitudinal section of an elevator-cylinder, showing the piston and moving head with my lubricator attached; and Fig. 3 is a detail showing the automatic arrangement.

The oil-pump consists of a barrel, *a*, cap *b*, an internal piston, piston-rod *c*, and operating-lever *d*, the barrel *a* being connected with an oil cup or reservoir, *e*, of suitable capacity by means of the pipe *f*. At its lower end the barrel ends in an attaching-screw, *g*, by means of which the pump is fixed to moving head *K*. A pipe, *h*, fitted with a check-valve, *i*, leads from the lower end of barrel *a* along on supports *l* to a point near the piston *M*, and turns upwardly, ending near the cylinder *N* in a nozzle or sprayer, *p*, as shown. The supports *l* are carried by the piston rod or rods *q*, and as the pump is carried bodily on the moving head *K* the relation of the nozzle *p* to the piston *M* is constantly maintained.

To lubricate the cylinder *N*, (which is best

done when the piston is at the extreme inward limit of its travel,) it is only necessary to operate the handle *d* one or more strokes, and each stroke downward will throw a spray of oil upwardly from the nozzle *p* against the inner surface of the cylinder *N* at its highest point, whence the oil creeps downwardly and is spread throughout the cylinder by the movement of the piston. Such a device is comparatively inexpensive and fulfills its purpose admirably, and is cleanly in its operation and reliable in action.

The specific form of the pump is not essential, as many forms could be used with similar results.

The whole operation of lubricating may be made automatic by the arrangement shown at Fig. 3, where the pump-barrel *a* is set horizontally, by suitable attachment, on the head *K* and having the piston rod or stem *c* projecting toward the elevator-cylinder *N*, a spring, *s*, acting to return the stem *c* to its extended position after it has been pushed inwardly. The position of barrel *a* and stem *c* is so arranged that on the last part of the inward movement of head *K* the stem *c* meets the flange of cylinder *N*, or a projection thereon, and thus with every complete stroke of the elevator-piston *M* the pump is once operated and oil forced out through nozzle *p*. In this case the pump *a c* may be made of very small dimensions, so as to supply just enough oil for the purpose.

It is to be observed that the result of the operation of my invention is to spray oil upwardly against the interior of the cylinder and in the path of the piston, whence it flows by gravitation downwardly over both sides of the cylinder and is spread endwise by the movement of the piston. I thus avoid waste of lubricant and insure its even distribution. Where the oil is admitted to the walls of the cylinder through peripheral openings in the piston, as much oil goes downwardly as upwardly, and the bottom of the cylinder soon becomes a pool of oil which cannot then be returned upwardly, and part is wasted. Such waste is entirely prevented by my construction.

What I claim as my invention is as follows:

1. The combination, with the open-ended

cylinder N, its piston, and moving head, of an oil pump and reservoir attached to the moving head and fitted with a delivery-pipe, *h*, arranged alongside the piston-rod and terminating in an upwardly-directed nozzle at a point within the cylinder, but outside the piston, substantially as described.

2. The combination, with the cylinder N, its piston, and moving head, of an oil pump and reservoir attached to the moving head, and

a delivery-pipe, *h*, arranged substantially as described, said oil-pump having a spring-retracted piston-rod projecting and adapted to be operated by contact with the cylinder N.

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

ROBERT MARSHALL.

Witnesses:

C. C. LEE,

SAMUEL R. BALLARD.