(No Model.)

F. W. ROCK.

LUBRICATOR.

No. 468,727. Patented Feb. 9, 1892.

Fig. 1

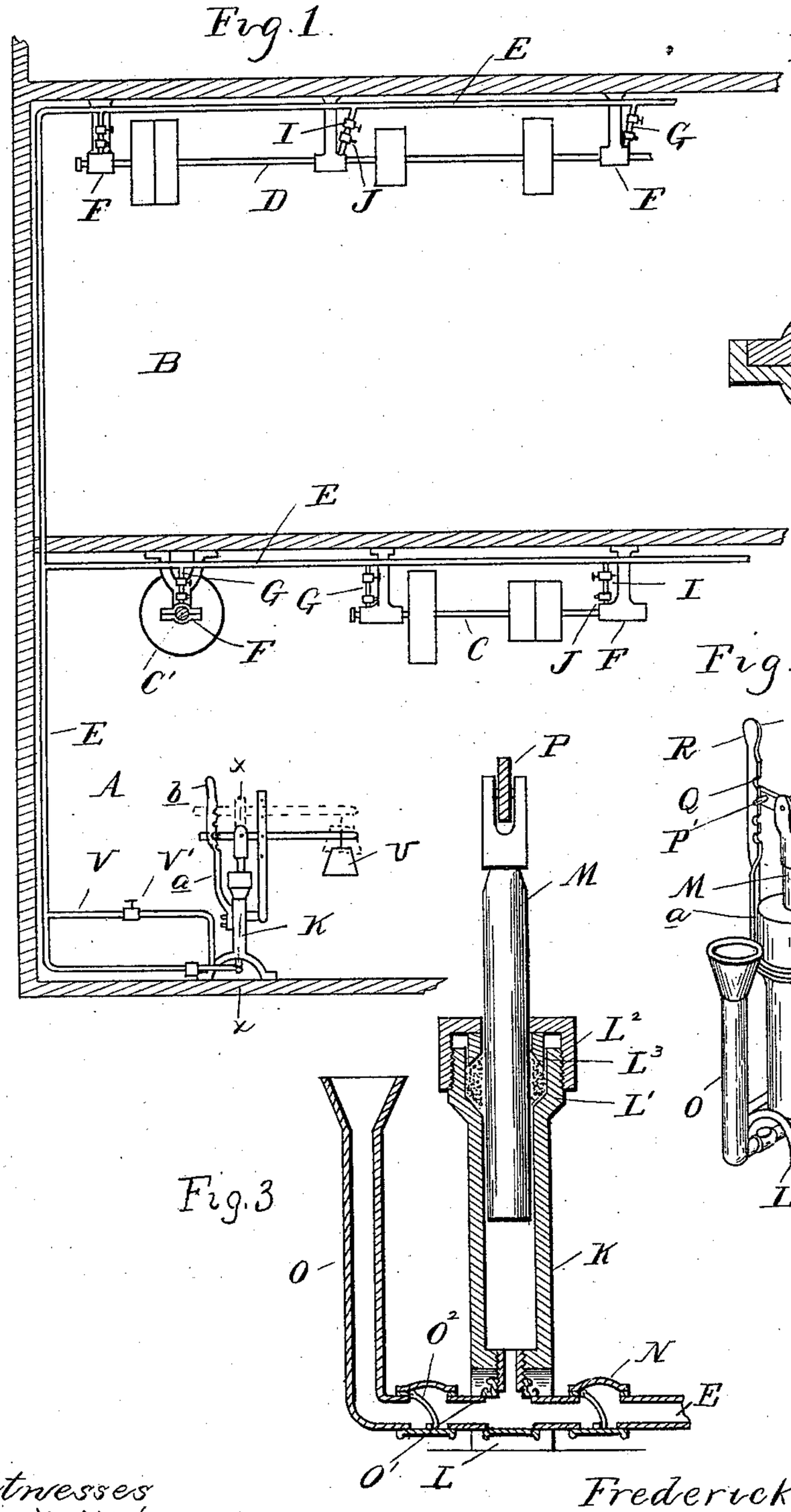

Fig. 4

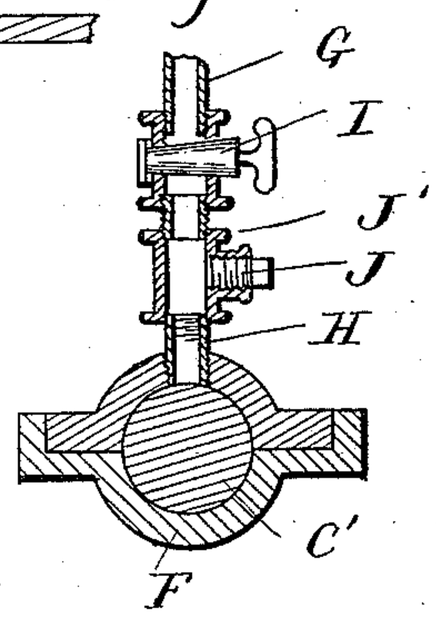

Fig. 2.

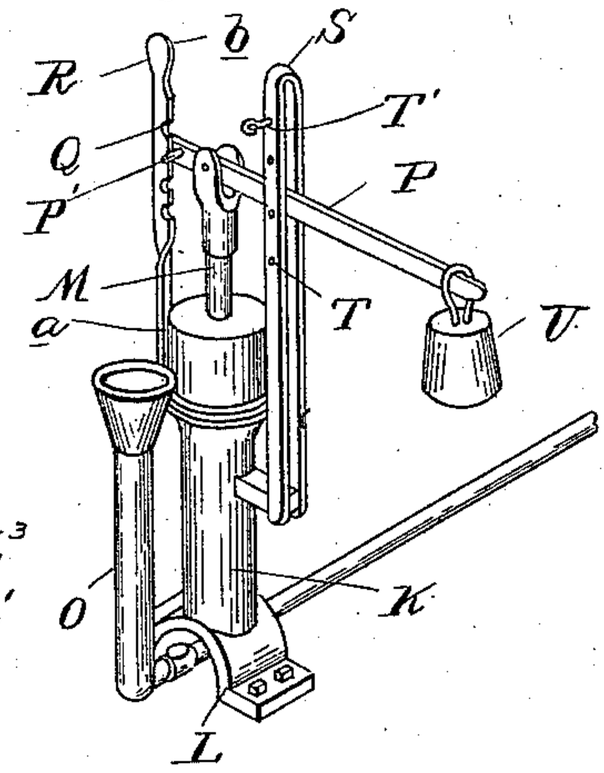

Fig. 3

Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK W. ROCK, OF DETROIT, MICHIGAN, ASSIGNOR TO THE ROCK LUBRICATOR COMPANY, OF SAME PLACE.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 468,727, dated February 9, 1892.

Application filed June 25, 1891. Serial No. 397,538. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. ROCK, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in systems of oil-supply for shaft-bearings, &c.

The invention consists in an oil-supply pipe extending beside a series of bearings, (such as shaft-bearings,) branch pipes connecting the main pipe with the bearing, and a single source of oil-supply, with means to feed the lubricant continuously to the bearing; further, in the peculiar construction and arrangement of the piping system, whereby the pressure may be diminished at any time when the machinery is not at work; further, in the peculiar construction of the feeding mechanism whereby a continuous and even feed is obtained at all times, and the compression-plunger may be used as a suction-pump for filling the cylinder or as a discharge-pump for filling the system in starting, and, further, in the peculiar arrangement, construction, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a diagram elevation of my improved system applied to lines of shafting in different floors of a building. Fig. 2 is a detached perspective view of the feeding mechanism or pump. Fig. 3 is a vertical cross-section on line *x x* in Fig. 1. Fig. 4 is an enlarged detail of one of the branch pipes, shown in section.

In the present state of the art it is customary to apply an oiler to every bearing which requires much attention, and insures unequal oiling of the bearings which often are neglected, and thereby wear or are damaged unnecessarily.

My invention is intended to use a single feed-station with a supply-pipe running from that station to all the lubricators on a certain line of shafting or in a certain building, and all that is necessary is to see that the central pump is supplied with oil, and with a given pressure thereon every bearing will receive its proper proportion of lubricant at all times.

A and B are the first and second stories, respectively, of a building in which are the line-shafts C, C′, and D.

E is a supply-pipe extending from any suitable point in the building in proximity to the bearings F upon the shafting. I preferably arrange this supply-pipe directly above the bearing at the ceiling, and for each bearing I provide branch pipes G, extending from the supply-pipe to the bearing to engage with the nipple H thereon.

Each branch pipe is provided with a valve I, by means of which the supply is controlled, and the plug J in the sleeve J′ is provided to allow of inspecting the interior of the branch pipe to see if the lubricant is being properly fed at any time. This can be done without shutting the valve I in case dope is used, and my system is especially designed to be used in connection with such lubricant. The supply-pipe E connects into the base of the cylinder K of the feeding device. This cylinder I preferably cast integral with the base L, provided at the top with the shoulder L′, adapted to receive the cap L^2. Flange L^3 is a gland for the stuffing-box around a central piston or plunger M, adapted to fit within the cylinder K.

N is a check-valve opening outward from the pump and arranged in the pipe E in proxity to the pump.

O is a supply-pipe extending up beside the cylinder K, slightly above the same, and connected with the branch pipe O′ from the pipe E into the cylinder. This supply-pipe is provided with a check-valve O^2. The upper end of the plunger is bifurcated to receive a lever P, pivoted therein. This lever is provided with a fulcrum-pin P′ at one end engaging with a notch Q in the standard R, and at the other side passing through a standard S, which acts as a guide, and is provided with apertures T to receive a pin T′. The standard R is constructed with a vertical portion, having the notches Q in its inner face, and the yielding support or lower end portion *a*, so that the upper end of the standard may be

drawn back out of engagement with the pin P′. At the outer end this lever is provided with a suitable detachable weight U.

V is a by-pass connected to the pipe E between the check-valve and with the pipe E upon the other side of the check-valve. This pipe is controlled by a valve V′.

The parts being thus constructed, their operation is as follows: The pipes being emptied, to fill the same the operator pours oil in the supply-pipe O. Detaching the weight U from the lever, he raises and lowers that end of the lever which causes the piston to act as a pump, drawing the lubricant from the pipe O and discharging it into the pipe E. This is continued until all of the pipes and branch pipes are filled and the lubricant is at the bearings. This may be ascertained by detaching the plug J. What air is in the pipes to start with will readily pass out through the bearings. When the pipes are filled, the lever P is placed with its fulcrum in the highest notch Q of the standard R and the weight U replaced. As the lubricant is used up, the weight will gradually descend.

In order to keep a constant pressure within the cylinder when the lever is moved down a slight distance, I disengage the fulcrum P′ from its highest notch and arrange it with the next lowest, returning the lever to its horizontal position. This can be repeated until the piston has traveled to its lowest point. To accomplish this easily, I preferably form the standard R of a single piece of flat metal bent to have the spring portion *a* and the handle *b*. It is to be understood that the notches Q in the standard R are of sufficient depth to retain the pin P′ therein until the piston-rod is lowered to a point opposite the adjacent notch. The pin is then placed in the adjacent notch. By this means the lever is held substantially at all times in a horizonal position, which insures a constant regular pressure on the lubricant. Now to raise the piston and at the same time fill the cylinder K, I detach the weight U, raise the outer end of the lever, insert the pin T′ in the aperture T beneath the lever, disengage the fulcrum P′ from its standard, and raise that fulcrum one or two notches by depressing the outer end of the lever which is now fulcrumed upon the pin T′. When the fulcrum P′ has re-engaged with the notch, I withdraw the pin T′, lifting the outer end of the lever as high as I can, using the fulcrum P′ in this instance, and this I continue until the piston has been withdrawn to its highest point, when the pin is replaced, as before described. This makes the work of filling very easy, which otherwise would be a difficult one on account of the viscous nature of the dope.

When the machinery is not in use, I desire to withdraw the pressure from the pipe-line supplying the bearings, and by opening the valve V′ in the by-pass V and lifting the outer end of the lever P and inserting the pin T′ beneath it I put a suction upon the lubricant and sustain the weight upon the pin T′, so that no lubricant is fed until the weight is again applied.

When the device is in use, the valve V′ is normally closed.

While I have shown a specific kind of feed mechanism which I deem the most desirable, I do not desire to be understood as limiting myself to this peculiar kind of feed mechanism, as it is evident that other constructions may be employed.

What I claim as my invention is—

1. In a feeding device for lubricants, the combination, with the supply-pipe for the lubricant, of a cylinder connected at its lower end with the supply-pipe, a piston in the cylinder, a lever for actuating the piston, an upwardly-projecting feed extension on the end of the supply-pipe beside the cylinder, which extends upward to a point above the cylinder, a check-valve in the supply-pipe between the cylinder and upwardly-projecting extension, and a check-valve in the supply-pipe on the opposite side of the cylinder, substantially as described.

2. In a feeding device for lubricants, the combination, with the cylinder and supply-pipe connected with the same, of a piston in the cylinder, a lever P for actuating the piston, a spring-standard R on the cylinder, having a series of notches Q on the inner face thereof, and a pin P′ on the end of the lever for engaging the notches, substantially as described.

3. In a system of oil-supply for shaft-bearings, the combination of a supply-pipe having a feed-opening in its end, a cylinder communicating with the supply-pipe, a piston working in the cylinder, a lever pivoted on the top of the cylinder, a notched standard on one side of the cylinder, a perforated standard on the opposite side, a lateral pin on the short arm of the lever engaging the notches of the notched standard, and a removable pin in the perforated standard arranged to be adjusted to a position below the long arm of the lever when the piston is to be raised, substantially as described.

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

FREDERICK W. ROCK.

Witnesses:
M. B. O'DOGHERTY,
JAMES WHITTEMORE.