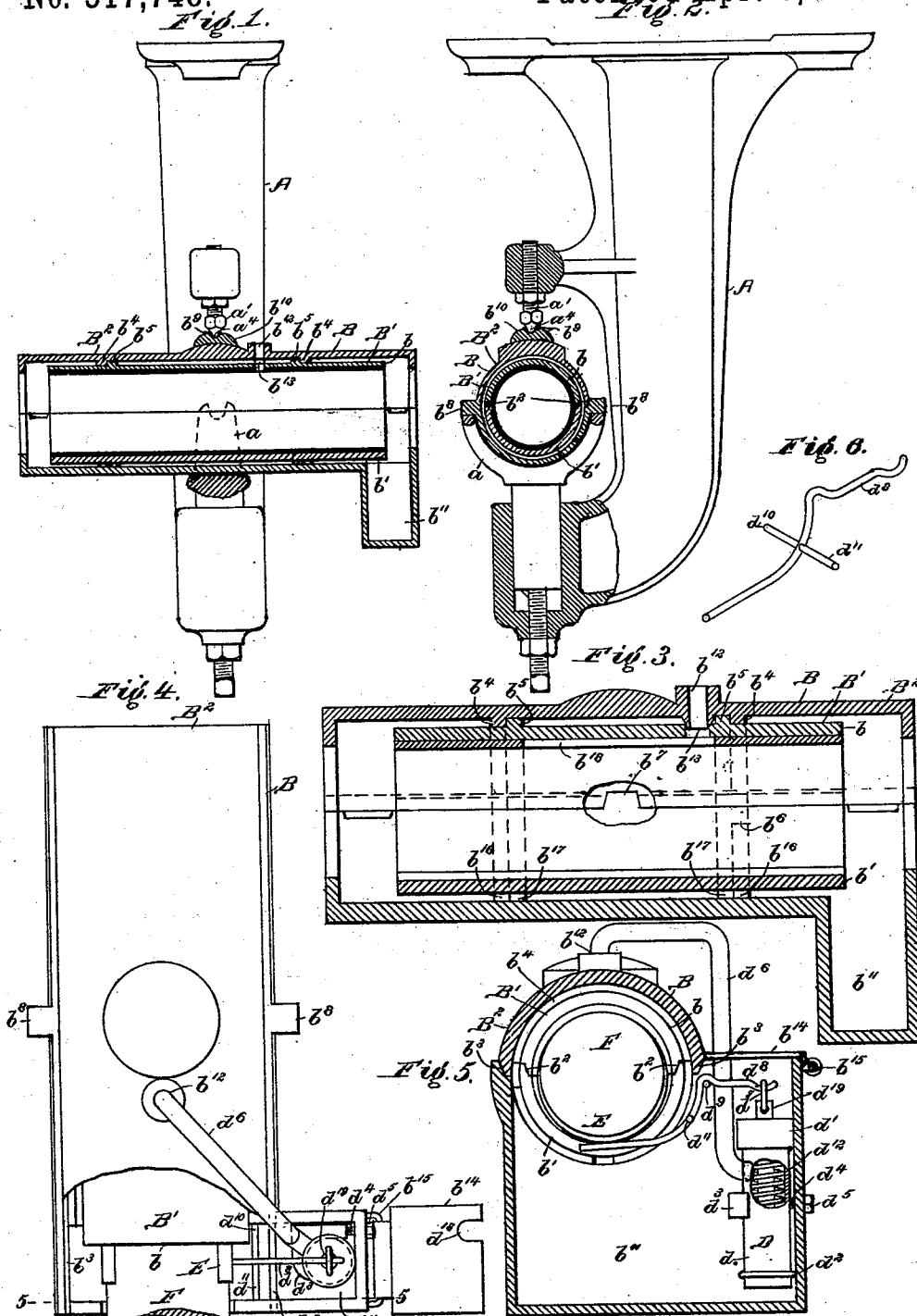


(No Model.)

H. P. HUMPHREY.
LUBRICATING DEVICE.

No. 517,748.

Patented Apr. 3, 1894.



WITNESSES—

Henry S. Hyde.

Myrtie L. Beale.

INVENTOR—
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By Albert M. Moore,
His Attorney.

UNITED STATES PATENT OFFICE.

HENRY P. HUMPHREY, OF NASHUA, NEW HAMPSHIRE, ASSIGNOR TO THE
LOWELL OILER COMPANY, OF SAME PLACE.

LUBRICATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 517,748, dated April 3, 1894.

Application filed April 14, 1890. Serial No. 347,760. (No model.)

To all whom it may concern:

Be it known that I, HENRY P. HUMPHREY, a citizen of the United States, residing at Nashua, in the county of Hillsborough and State of New Hampshire, have invented a certain new and useful Improvement in Mechanical Oilers or Lubricating Devices for Journal-Boxes for Shafting, of which the following is a specification.

My invention relates to mechanical oilers or lubricating devices for journal-boxes for shafting and consists in the devices and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of a shaft-hanger and a central, vertical, longitudinal section of a journal-box adapted to be used with my improved mechanical oiler supported in said hanger; Fig. 2, a side elevation of such a hanger and a vertical, central, transverse section of said journal-box, the lower part of the hanger and the part of the same immediately above the journal-box being also in section in the same plane; Fig. 3, an enlarged vertical longitudinal section of said journal-box showing the reservoir which receives the mechanical oiler and the oil-holes through which oil is introduced by said oiler into said journal-box; Fig. 4, a plan of said journal-box and my improved lubricating devices, a piece of shafting and a cam thereon to operate said devices, a part of the upper half of the outer shell of said journal-box being broken away, to show the internal construction and the cover of the reservoir being open for the same purpose; Fig. 5, a vertical transverse section on the line 5 5 in Fig. 4, showing the mechanical oiler in side elevation, a part of the barrel or cylinder of the pump being broken out to show the piston-rod and the spring; Fig. 6, an isometric perspective view of the lever which operates the pump, detached.

The hanger A is of the usual construction and may represent any hanger or floor-bracket adapted to hold a journal-box in a horizontal position.

The journal-box B is not herein claimed being described and claimed in United States Letters Patent, No. 499,429, granted June 13, 1893, upon a division of this application, but

consists of an inner shell or journal-box, proper B', formed in halves $b b'$ and lined with any anti-friction material, said halves lapping past each other, as shown at b^2 , to prevent a lateral movement of one half upon the other. The outer shell B² is also formed in halves, one of which laps past the other at b^3 , said shell B² surrounding the box B' and the ends of said shell extending beyond the ends of said box. The outer shell B² has annular ribs b^4 on its inner surface between which are arranged external annular ribs b^5 on the journal-box B' to prevent a longitudinal movement of the journal-box proper in said outer shell, said ribs b^5 on the box having lateral extensions b^6 which fit notches in the ribs b^4 to prevent the journal-box proper turning in the shell. A projection b^7 on the lower half of the shell enters a notch in the upper half of the same and prevents said halves from moving endwise on each other. The shell has ears b^8 which rest upon the fork a of the hanger in the usual manner, being held thereon by the set-screw a' and check-nut, the point a^4 of the screw entering a depression b^9 in a cap b^{10} which rests on said shell, as described in said other application. The lower half of the shell B² is provided with a reservoir cast or formed in one piece therewith and extending downwardly and laterally therefrom to receive a pump D, as shown in Figs. 4 and 5, the cylinder d of said pump being provided with annular flanges or enlargements d' d^2 , at or near its ends, said flanges resting against the rear wall of said reservoir, against which they are held by a hook d^3 , adapted to reach partly around said cylinder d , and a bolt d^4 , extending through said wall into the shank of said hook, the head d^5 of said bolt resting against the outside of said wall. This means of securing the pump in the reservoir allows it to be adjusted in height without opening the reservoir, as by loosening the bolt d^4 in the hook, the pump may be raised by raising its spout d^6 and in a similar manner may be lowered and held in any desired height by again turning up said bolt into said hook.

The pump or oiler is of the usual construction having a piston-rod d^{10} provided at its lower end with a piston or bucket (not shown)

and with a spout d^6 , through which oil from the reservoir is lifted by the pump D which discharges through an oil-hole b^{12} in the top of the shell B^2 . The oil-hole b^{12} is arranged concentrically with and above an oil-hole in the box B' , and is surrounded at the inner end thereof by an annular boss b^{13} of less diameter than said last-named oil-hole, to insure the dropping of any oil that may be on the sides of the oil-hole in the shell into the oil-hole in said box. For the same reason, the boss b^{13} is tapered at its lower end to a sharp edge, as shown in Fig. 3. The upper end of the piston-rod d^{19} is provided with a link d^7 , to receive one arm of a lever d^8 which turns upon a rod or wire d^9 , which is supported horizontally in the wall of the reservoir b^{14} . The end of the lever d^8 farthest from the piston-rod reaches under a cam E, supported upon the shaft F, in such a manner that each revolution of said shaft depresses said last-named end of said lever and raises the piston-rod, the piston-rod being thrown downward or restored to position by a spring d^{12} , (Fig. 5,) substantially as shown in United States patent to me, No. 309,953, dated December 30, 1884. The cam E may be secured to the shaft F in any convenient manner, as by the means shown in United States patent to me, No. 333,950, dated January 5, 1886, where the cam is represented as being secured to the shaft by wires, wrapped around said cam and shaft within grooves in said cam, but is preferably held on the shaft by its own elasticity, as shown and described in United States patent to me, No. 329,904, dated November 10, 1885. The lever d^8 is prevented from lateral displacement out of the path of said cam by its connection with the piston-rod, as above described, and also by having arms d^{10} d^{11} , arranged between the fulcrum-rod d^9 and the cam E, said arms being extended sufficiently to fill the space between the opposite side-walls of the reservoir, as shown in Fig. 4. The reservoir b^{11} is covered by the upper half of the shell and by a cover b^{14} , hinged at b^{15} and below said cover and the upper half of the shell are arranged all the parts of the oiler and its operating mechanism, except that the spout d^6 reaches up through a notch d^{18} in the cover. The oiler and the journal-box are thus protected from the entrance of dust and lint and the combined apparatus is made in as compact a form as possible and with as few risks of injury from blows.

When the devices above-described are in operation and the oil is lifted by the pump, said oil passes through the oil-hole in the shell and the oil-hole in the box B' to the shaft to be lubricated thereby and accumulates in a recess b^{18} , formed in the upper half of the box by leaving out the anti-friction lining b^{10} at this place, the surplus oil running out at the ends of said box into said shell, at one end directly into the reservoir, while the oil

discharged from the box at the end thereof farthest from the reservoir, flows through the space between said box and outer shell back to said reservoir, the ribs b^4 b^5 being cut away at the bottom of the shell and box at b^{16} b^{17} , as best shown in Figs. 3 and 5, to allow the oil to pass them. It is obvious that the ribs b^4 b^5 may be replaced by projections suitably arranged to prevent the movement of the box within the shell.

By the above-described improvement, the bearing is virtually running in an oil-bath, thus lubricating the bearing in the most perfect manner known, and the shaft E may be kept sufficiently lubricated at all times, for months or years, without refilling the reservoir.

I claim as my invention—

1. The combination of the journal-box, provided with an oil-hole and the shell surrounding said journal-box and extending beyond the ends thereof and provided with an oil-hole, smaller in diameter than the oil-hole in said journal-box and arranged concentrically with said last-named oil-hole, said shell being also provided with an annular boss, surrounding the oil-hole in said shell and smaller than the oil-hole in said journal-box and arranged concentrically with and above said last-named oil-hole, as and for the purpose specified.

2. The combination of the journal-box and the shell, surrounding said journal-box and extending beyond the ends thereof, said journal-box and shell being each provided with an oil-hole in the top thereof, said oil-holes being concentric with each other, said shell being also provided with a downwardly-tapering annular boss, surrounding the oil-hole in said shell, concentrically therewith, said boss being smaller at its lower end than at the upper end of the oil-hole in said journal-box, as and for the purpose specified.

3. The combination of the journal-box and the shell, surrounding said journal-box and extending beyond the ends thereof, said journal-box and shell being each provided with an oil-hole in the top thereof, said oil-holes being concentric with each other, said shell being also provided with a downwardly-tapering annular boss, surrounding the oil-hole in said shell, concentrically therewith, said boss being smaller at its lower end than at the upper end of the oil-hole in said journal-box and extending into said last-named oil-hole, as and for the purpose specified.

4. The combination of the journal-box, provided with lateral projections and the shell surrounding said journal-box and extending beyond the ends thereof and provided with internal projections, to separate said shell and box, and provided with a reservoir or drip-receiver, to allow oil dripping from said box to flow in the space between said shell and box to said reservoir, as and for the purpose specified.

5. The combination with a journal-box and

a shell having a reservoir, a mechanical oiler,
its lever and operating cam, said lever being
arranged within said reservoir and having
lateral projections to reach across the inside
5 of said reservoir and prevent a lateral dis-
placement of said lever, as and for the pur-
pose specified.

In witness whereof I have signed this speci-
fication, in the presence of two attesting wit-
nesses, this 29th day of March, A. D. 1890.

HENRY P. HUMPHREY.

Witnesses:

ALBERT M. MOORE,
MYRTIE C. BEALS.