

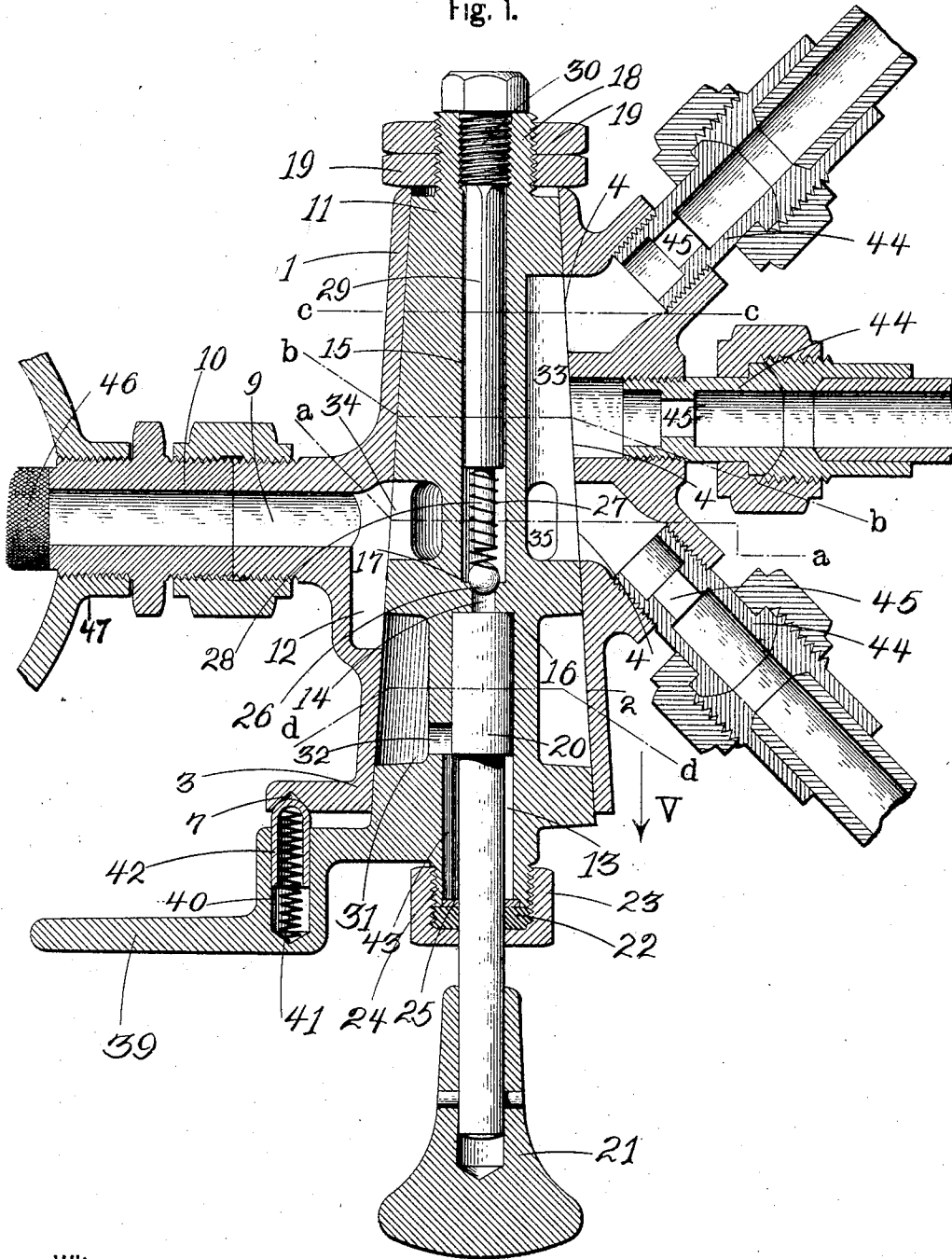
C. W. MANZEL.
HAND PUMP.

APPLICATION FILED JAN. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

L. M. Sangster
Geo. A. Neubauer

Inventor

Charles W. Manzel
A. Sangster

By

Attorney.

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2 SHEETS—SHEET 2.

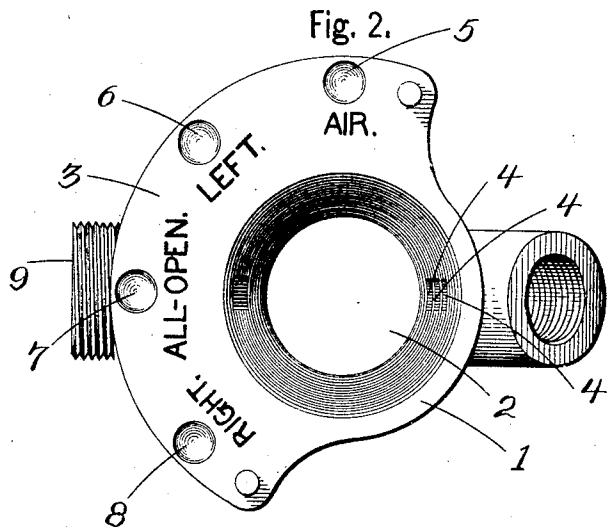


Fig. 6.

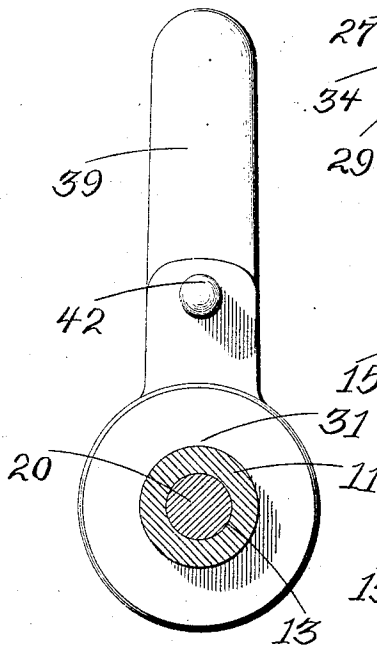


Fig. 3.

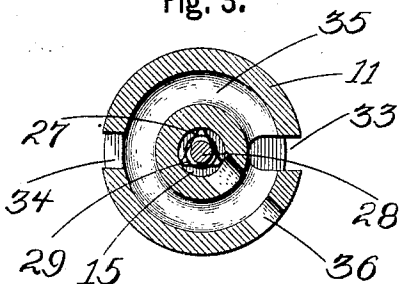


Fig. 4.

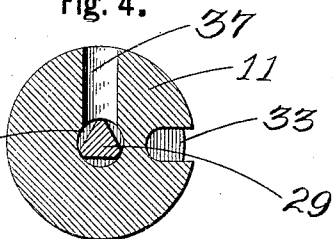


Fig. 5.

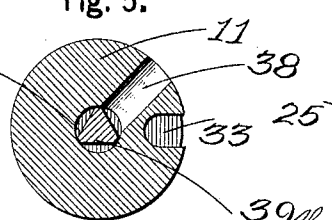


Fig. 7.

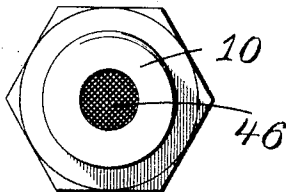


Fig. 8.

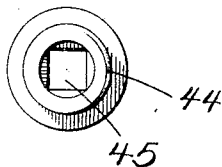


Fig. 9.



Witnesses.

L. M. Sangster.
Geo. A. Neubauer

By

Inventor.
Charles W. Manzel.
 By *A. J. Sangster*
 Attorney.

UNITED STATES PATENT OFFICE.

CHARLES W. MANZEL, OF BUFFALO, NEW YORK, ASSIGNOR TO MANZEL BROTHERS, OF BUFFALO, NEW YORK.

HAND-PUMP.

SPECIFICATION forming part of Letters Patent No. 777,969, dated December 20, 1904.

Application filed January 21, 1903. Serial No. 139,881.

To all whom it may concern:

Be it known that I, CHARLES W. MANZEL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Hand-Pumps, of which the following is a specification.

This invention relates to a hand-pump for pumping oil or similar liquids.

One of the features has reference to a valve mechanism which is arranged so that it can be moved to leave a free passage through the pump to all the outlets or to close all but one of the outlets.

Another feature has reference to the single pump-feeding mechanism.

The object of the invention is to provide an efficient hand-pump which can be used in connection with power-operated lubricating-pumps for supplying additional oil when desired and which can be adjusted so as to leave a free passage for the oil when not in operation.

The invention also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which a preferred adaptation of the invention is shown.

Figure 1 is a central longitudinal section through the hand-pump. Fig. 2 is a detached bottom view of the body. Fig. 3 is a transverse section through the rotary valve element on line *a a*, Fig. 1. Fig. 4 is a transverse section through the rotary valve element on line *b b*, Fig. 1. Fig. 5 is a transverse section through the rotary valve element on line *c c*, Fig. 1. Fig. 6 is a transverse section through the rotary valve element on line *d d*, Fig. 1. Fig. 7 is a detached view of the strainer-nipple. Fig. 8 is a detached view of the tail-pipe. Fig. 9 is a detached view of the metal reinforcing-washer.

In referring to the drawings for the details of construction like numerals designate like parts.

The body or valve-shell 1 has an opening 2 extending entirely around it and tapering from one end to the other and is provided at

its larger end with an outwardly-projecting flange 3, which extends partially around it. A series of oil-outlets 4 are provided on one side, which in the pump shown are three in number and each of which leads to a different lubricating-point. It is obvious, however, that more or less of these outlets may be employed to correspond with the number of parts to be lubricated. A series of shallow depressions are formed in the face of the flange 3, which in number exceed the outlets by one, and as three outlets are shown in the preferred construction four of the depressions are provided. The depressions are numbered, respectively, 5, 6, 7, and 8 on Fig. 2 and designated by the word "Air," "Left," "All open," and "Right." The pump shown is adapted to be used on a locomotive, and the word "Air" means the oil-outlet connecting to the air-pump, the word "Left" means the oil-outlet connecting to the left steam-chest, the words "All open" means that all of the oil-outlets are open, and the word "Right" means the oil-outlet connecting to the right steam-chest.

An oil-inlet 9 is provided, which is preferably arranged on the side of the body opposite the oil-outlets. This oil-inlet is connected by a pipe 10 to any suitable oil reservoir or tank.

A rotary element or plug 11 is in the preferred adaptation shown tapered correspondingly to the tapered opening in the body, so that it will fit snugly therein. A portion of the body is cut away in the vicinity of the oil-inlet, as shown at 12 in Fig. 1, to provide a branch channel to supply oil to the hand-pump. The rotary valve-plug has a longitudinal opening extending entirely through it. This opening has an enlarged portion 13, which forms the oil-feeding chamber or pump-cylinder and merges at its inner end in a short intermediate reduced portion 14, which in turn merges in a part 15, slightly smaller in diameter than the portion 13. Shoulders 16 and 17 are formed at the opposite merging points of the ends of the reduced portion 14 into the larger portions 13 and 15. The smaller end of the tapered valve-plug is re-

duced and screw-threaded, as shown at 18 in Fig. 1, and lock-nuts 19 are fitted thereon and draw the plug snugly into place in the body.

A piston 20 is slidably mounted in the pump-cylinder and has an enlarged handle 21 for the grasp of the operator. The end of the plug is packed around the piston by a bushing 22, which is held in place by a cap 23, which screws upon the screw-threaded portion 24 of the plug. This bushing is held in place on the inside by a metal reinforcing element, such as a washer 25. The shoulder 16 serves as a stop to limit the feeding stroke of the piston, and the shoulder 17 is cut away to form a valve-seat for a valve-ball 26. This ball is held in place by a spiral spring 27, the greater portion of which is fitted around the reduced end 28 of a rod 29. This rod is screw-threaded at its outer end for a short distance, as shown at 30, to screw into a screw-threaded portion of the opening through the plug, and that portion of the rod between the reduced portion 28 and the screw-threaded portion 30 is of triangular or other equivalent form in cross-section to provide a passage for the oil between the rod-surface and the wall of the opening in which it is placed.

The valve-plug is provided with a deep peripheral groove 31, which is always in communication with the branch channel 12, and an opening 32 extends from said groove and provides a passage for the oil from the groove into the pump-cylinder. A straight longitudinal groove 33 is formed in the plug, which is of sufficient length to communicate with all the oil-outlets when the plug is in the position shown in Fig. 1, and a short opening 34 is formed in the opposite side in proximity to the oil-inlet. The channel 33 and the opening 34 are connected by an interior annular channel or chamber 35. A series of openings extend through the side of the plug and connect the valve-chamber 15 with the various outlets. These openings extend in a different direction from the center opening, so that they extend through the outer surface of the plug at different points around the plug, so that the valve-chamber will be connected with but one outlet at a time. The lower one of these openings (numbered 36 and shown in Fig. 3) extends through the plug and affords oil passage into the lower outlet when the plug is turned to bring said opening opposite said outlet. The middle opening 37 (shown in Fig. 4) connects with the middle outlet, and the upper opening 38 (shown in Fig. 5) connects with the upper outlet.

39 represents a lateral arm for turning the valve-plug. This arm is provided with a cylindrical recess 40, in which a spring 41 is placed, and a thimble 42, fitted on the spring, constitutes a spring-tensioning locking device which is adapted to spring into any one of the depressions in the flange and lock the arms in the desired position.

The pump-cylinder is grooved out on one side at 43 (see Fig. 1) to provide a channel to permit the oil behind the piston to flow back as the piston is drawn out.

The tail-pipes 44, fitted in the outlets, may be provided with square interior openings 45, as shown in Fig. 8, for the reception of a suitable turning-tool, such as a wrench.

A screen 46 is placed exterior to the end of the tubular connection 47 of the inlet to strain the dirt from the oil before it passes into the pump.

The operation of this improved pump is as follows: When it is desired to permit the oil to pass freely through without using the pump, the arm 39 is turned so that the thimble springs into the depression designated by the words "All open." This brings the large longitudinal groove 33 opposite all the oil-outlets, as shown in Fig. 1, and permits the oil to flow from the inlet into the branch channel, thence through the short opening 34, into and through the annular channel 35, into the long groove 33, and finally into the outlets. When it is desired to use the pump, the arm 39 is turned to spring the thimble into the proper depression, which brings the proper opening in the rotary plug opposite the desired outlet. The piston is now reciprocated, which draws or sucks the oil in through the branch channel, the peripheral groove 31, and the opening 32 into the pump-cylinder 13 and forces it from said cylinder into the valve-chamber 15 and thence out through the opening through the plug into the desired outlet.

This pump has but few parts and can be easily and quickly dismantled and assembled, is compact and powerful, and is principally adapted to be used as an auxiliary pump in a power-pump system for supplying additional oil when required. It is obvious, however, that it can be used by itself for a variety of purposes or to operate a hand-pump system.

I claim as my invention—

1. In a device of the class described, a body having an inlet-passage and a plurality of outlet-passages, a valve device mounted in the body, means whereby the valve device may be moved to free all the outlets or close all but one of said outlets and pumping mechanism carried by the valve device.

2. In a device of the class described, a body having a tapering opening, an inlet-passage and a plurality of outlet-passages, a correspondingly-tapered tubular valve-plug fitted in said tapering opening and pumping mechanism contained within said valve-plug.

3. In a device of the class described, a body having a tapering opening, an inlet-passage having connection to a suitable source of supply and a plurality of outlet-passages having connection to suitable parts for lubrication, a correspondingly-tapering valve-plug fitting in the tapering opening, and having a longitudinal interior opening, a valve in one portion

of the longitudinal opening in the plug and pumping mechanism in another part of said opening.

4. In a device of the class described, a body
5 having an inlet-passage and a plurality of out-
let-passages, a rotatable plug in said body hav-
ing a longitudinal opening, an opening lead-
ing from said longitudinal opening to the in-
let-passage and openings leading from the lon-
10 gitudinal opening to the outlets, and valve
mechanism and pumping mechanism in the
longitudinal opening.

5. In a device of the class described, a body
having an inlet-passage and at least one out-
15 let-passage, a valve-plug in said body provided
with a longitudinal opening which has an en-
larged portion at one end constituting a pump-
cylinder and merges in an intermediate re-
duced portion which in turn merges in an en-
20 larged valve-chamber, a piston in the pump-
cylinder and a valve in the valve-chamber,
substantially as set forth.

6. In a device of the class described, a body
having an inlet-passage and at least one out-
25 let-passage, a valve-plug in said body having
a longitudinal opening which has an enlarged

portion at one end which constitutes a pump-
cylinder and merges in an intermediate re-
duced portion which in turn merges in an en-
larged valve-chamber, a piston in the pump- 30
cylinder, a valve in the valve-chamber, a bar
in the valve-chamber and sufficiently smaller
than said chamber to permit the passage of
oil, and a spring supported by said bar and
pressing against said valve; substantially as 35
set forth.

7. In a device of the class described, a body
having an inlet and at least one outlet, a valve-
plug in said body having a longitudinal open-
ing which has an enlarged portion at one end 40
which constitutes a pump-cylinder and merges
in an intermediate reduced portion which in
turn merges in an enlarged valve-chamber, a
piston in the pump-cylinder, a valve-ball in the
valve-chamber, a bar in the valve-chamber, 45
and a spring supported by said bar and press-
ing against the ball, substantially as set forth.

CHARLES W. MANZEL.

Witnesses:

L. M. SANGSTER,
GEO. A. NEUBAUER.