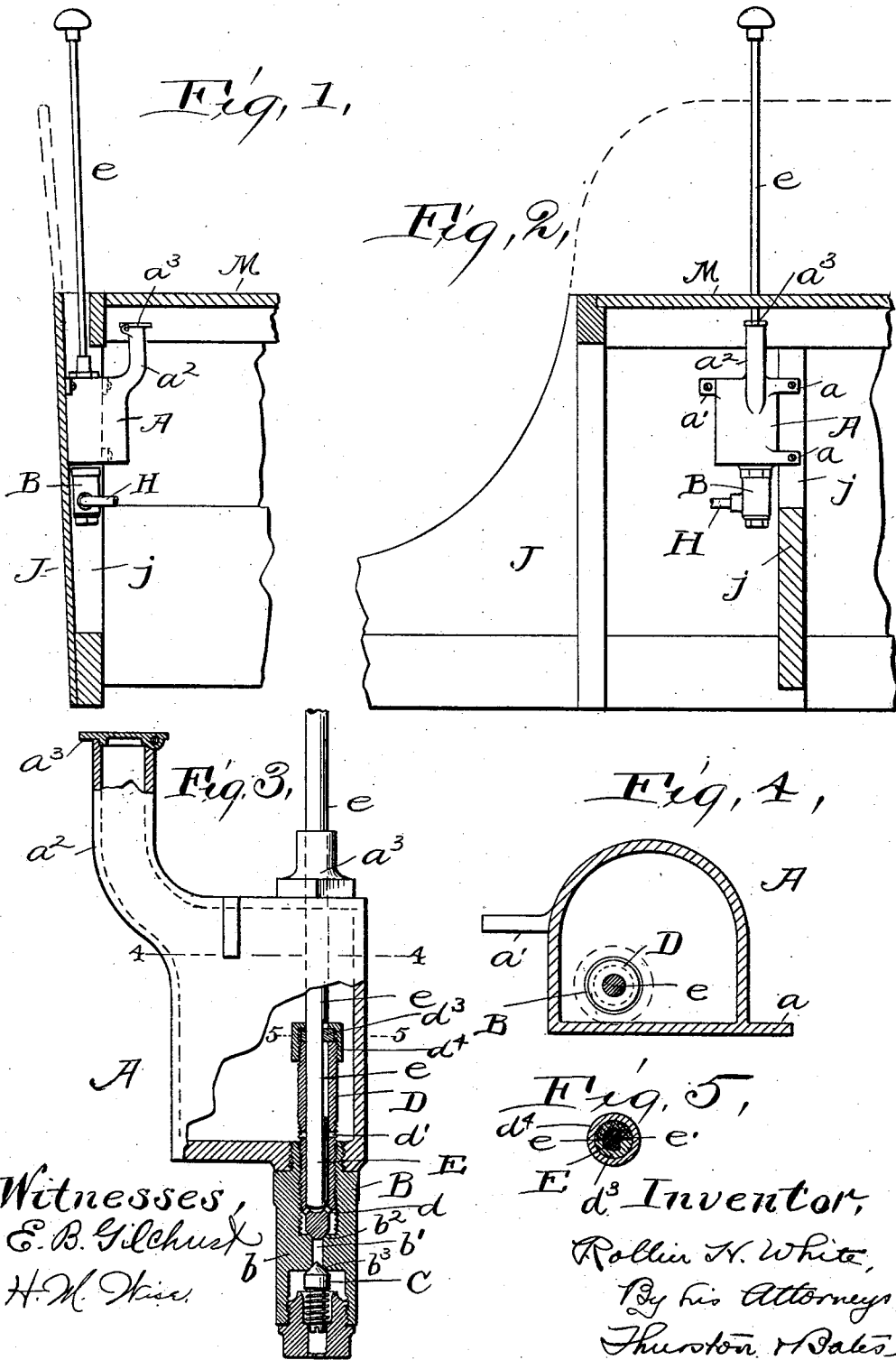


R. H. WHITE.  
HAND PUMP.

(Application filed Apr. 19, 1901.)

(No Model.)



# UNITED STATES PATENT OFFICE.

ROLLIN H. WHITE, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## HAND-PUMP.

SPECIFICATION forming part of Letters Patent No. 697,585, dated April 15, 1902.

Application filed April 19, 1901. Serial No. 56,540. (No model.)

*To all whom it may concern:*

Be it known that I, ROLLIN H. WHITE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Hand-Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to hand-pumps especially adapted for use under conditions wherein it is desirable to reduce to a minimum the number of parts to be operated and to have such parts located conveniently for an operator whose movements are necessarily confined.

The invention is thought to be most useful on a steam-carriage, and in the form shown it has been especially contrived for use as an oil-pump on such a carriage. It may, however, be used in other situations, and with no more than slight modifications it is adapted for use as an air or gas or water pump. Its pronounced utility on a steam-carriage grows out of these facts—viz., that three hand-pumps are necessarily provided—to wit, an oil-pump for lubricating the cylinders, &c., an air-pump for applying pressure to the fluid-fuel tank, and a water-pump to force water to the steam-generator if the power-pump becomes disabled—that all of these pumps must be operable by the driver on the seat, that the discharge-pipe of each pump must have a valve which is not a mere check-valve, that the valve-operating handles must also be within easy reach of the driver on the seat, that the room for such parts is limited, and that said vehicles are frequently under the control of parties relatively unskilled in the use of machinery, wherefore an unnecessary multiplication of parts to be operated is confusing.

As before stated, the invention is shown embodied in an oil-pump which is connected and combined with a steam-carriage. The oil-pump on such a carriage is commonly used more frequently than the other pumps and ought therefore to be most conveniently located. The driver commonly steers with his left hand, wherefore it is desirable that the oil-valve may be opened or closed and the

pump operated by the right hand of the driver when the latter is in a position in which he may watch the road and steer.

The invention consists in the combination of parts hereinafter described, and set forth definitely in the claims.

In the drawings, Figure 1 is a front sectional view of one side of a steam-carriage body with my improved pump attached thereto. Fig. 2 is an inside sectional view of the same parts. Fig. 3 is a rear view, partly in section, of the pump. Fig. 4 is a sectional plan view on line 4 4 in Fig. 3, and Fig. 5 is a sectional plan on line 5 5 in Fig. 3.

Referring to the parts by letters, A represents an oil-receptacle, which has ears  $a a'$ , by which it may be attached to one side J and to one of the substantially vertical frame members  $j$  of the body of a steam-carriage. This receptacle is provided with a short vertical stand-pipe  $a^2$ , through which it may be filled with oil, and the pipe may be closed by a cover  $a^3$ . It may be here stated that if the device were to be used as a water-pump this pipe  $a^2$  might be continued to and connected with the water-supply tank; although, perhaps, that would not be the most practical method of adapting the invention for such use. A valve-casing B is screwed into or otherwise connected with the bottom of this receptacle. A transverse partition  $b$  extends across this valve-casing, and in it an opening  $b'$  is formed. Around this opening are the tapered valve-seats  $b^2 b^3$ , located, respectively, on the upper and lower sides of said partition. In the valve-casing below this partition is an ordinary spring check-valve C, which fits the valve-seat  $b^3$  and closes the opening  $b'$ . The discharge-pipe H is connected with the valve-casing below said partition.

D represents a member (which will be called a "valve-cylinder") which serves both as the pump-cylinder and as a valve to close the opening  $b'$  from its upper side. It is externally threaded and screws onto the valve-casing. Its lower end is closed and externally tapered to fit the valve-seat  $b^2$ . One or more discharge-ports  $d$  are formed through the end of this member outside of its conical end. This valve-cylinder projects into the receptacle A and is therefore surrounded by

oil, and it has one or more inlet-ports  $d'$ , through which oil may pass into the said valve-cylinder.

E represents the pump-piston, which reciprocates in said cylinder. When near the upper end of the stroke, oil flows through the port  $d'$ , which port is, however, covered by the piston during a part of its downstroke. The piston-rod  $e$ , which, as shown, is an integral part of the piston, extends vertically upward to a position above the carriage-seat M at the right side thereof, passing through a stuffing-box  $a^3$  in the top of the receptacle A. Relative rotation of the valve-cylinder and rod E must be prevented by any suitable means which do not interfere with the endwise movement of said rod. This result is attained in the construction shown by flattening off one side of the rod at  $e'$  where it moves through the end of the cylinder B and by making the hole in the upper end of said cylinder through which it moves of corresponding shape. This hole is specifically formed between two metal pieces  $d^3$ , which are clamped on the cylinder D by a screw-cap  $d^4$ .

In case it is desired to adapt the pump for use as an air-pump, the receptacle A as such will be found superfluous and may be dispensed with.

The described mechanism operates in the following manner: The rod E, which is close to the driver's right hand above the seat, is first turned, thereby turning the valve-cylinder and raising it from the valve-seat  $b^2$ . Then the rod  $e$  is reciprocated up and down, thereby operating the piston, which during its upward movement, because the check-valve is closed, produces a partial vacuum in said cylinder below the piston. When the piston uncovers the port  $d'$ , the fluid rushes into the cylinder, and it is forced out past the check-valve when the piston is moving downward and has again covered said port  $d'$ .

Having described my invention, I claim—

1. The combination of a valve-casing having a discharge-opening, a tubular cylinder movably supported and capable of closing and opening said opening and of discharging through it when it is open, and a pump-piston movable in said cylinder, substantially as specified.

2. The combination of a valve-casing containing a transverse valve-seat, a movably-mounted valve-cylinder having a closed end which is shaped to fit said valve-seat and is adapted to be moved against and from it, and which has an outlet-duct near said closed lower end, and a piston movable in said cylinder, substantially as specified.

3. The combination of a valve-casing con-

taining a transverse valve-seat, a valve-cylinder having a screw-threaded connection with said casing, and having a closed end adapted to fit said valve-seat and having also suitable ports, and a pump-piston movable in said cylinder, substantially as specified.

4. The combination of a valve-casing having an outlet-opening surrounded by a valve-seat, a valve-cylinder having endwise movement adapted to cover or uncover said outlet, which cylinder has a screw-threaded connection with said casing, a piston in said cylinder, and a single device capable of reciprocating said piston and turning said valve-cylinder, substantially as specified.

5. The combination of a valve-casing containing a transverse valve-seat, a valve-cylinder which is screwed into said casing and has a closed lower end formed to fit said valve-seat, and has also a lateral perforation through said lower end, a pump-piston movable in said cylinder, and means whereby said plunger may be reciprocated and said cylinder may be turned, substantially as specified.

6. The combination of a valve-casing containing a transverse valve-seat, a valve-cylinder which is screwed into said casing and has a closed end adapted to fit said valve-seat, a lateral perforation through said closed end, and a lateral perforation above said end, with a pump-piston movable in said cylinder, a piston-rod connected therewith, and means preventing the relative rotation of said piston-rod and cylinder, substantially as specified.

7. The combination of a valve-casing containing a valve-seat, a check-valve on one side of said seat, and a valve-cylinder having, first, a screw-threaded connection with said casing; second, a closed end fitting said valve-seat; third, a lateral perforation through said closed end, and, fourth, a lateral perforation above said screw-threaded connection, with a pump-piston in said cylinder, a piston-rod, and means preventing the relative rotation of said rod and cylinder, substantially as specified.

8. The combination of a receptacle having laterally-extended ears, a valve-casing secured to its lower end and containing a valve-seat, a valve-cylinder having a screw-threaded connection with said casing, a pump-piston movable in said cylinder, a piston-rod, and means preventing the relative rotation of said rod and cylinder, substantially as specified.

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

ROLLIN H. WHITE.

Witnesses:

E. L. THURSTON,  
E. B. GILCHRIST.