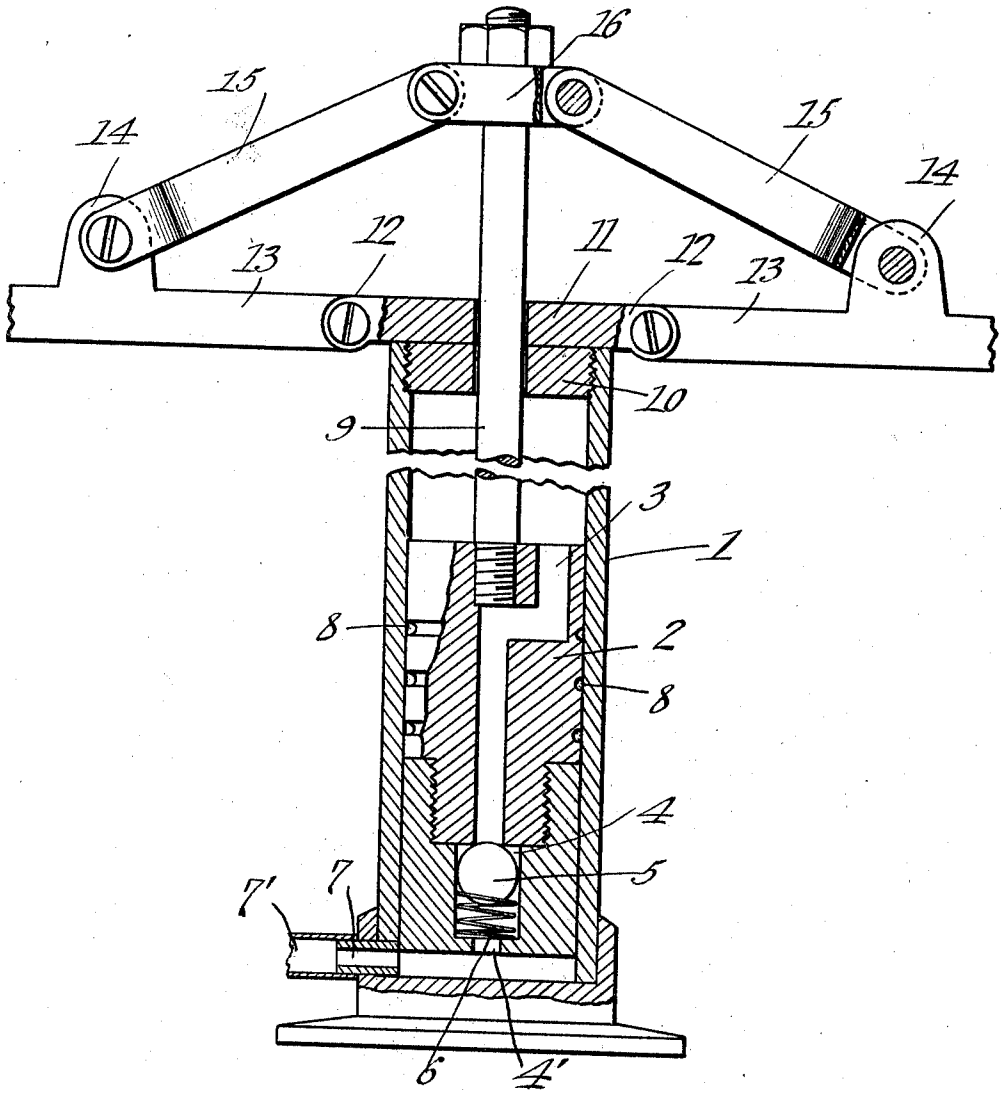
G. L. CAMFIELD AND V. F. SHUTT.

AIR PUMP.

APPLICATION FILED OCT. 9, 1918.

1,315,089.

Patented Sept. 2, 1919.



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AIR-PUMP.

1,315,089. Specification of Letters Patent. Patented Sept. 2, 1919.

Application filed October 9, 1918. Serial No. 257,493.

To all whom it may concern:

Be it known that we, GEORGE L. CAMFIELD and VERNON F. SHUTT, citizens of the United States, residing at Colorado Springs, in the county of El Paso, State of Colorado, have invented a new and useful Air-Pump, of which the following is a specification.

The subject of this invention is an air pump intended primarily for use in inflating pneumatic tires.

The main object of the invention is the provision of means for packing and lubricating the pump piston.

Another object of the invention is the provision of means for operating the pump.

The invention also contemplates generally improving the construction and enhancing the utility of air pumps.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:—

The figure is a fragmentary view, partly in section and partly in elevation, of a pump constructed in accordance with the invention.

Referring to the drawing by numerals of reference:—

In carrying out the invention a cylinder 1 is provided in which a piston 2 is mounted to reciprocate. The piston 2, as herein shown, is elongated, and provided with a passage or duct 3, the upper end of which opens at the upper face of the piston, and the lower end of which terminates in a chamber 4.

A ball valve 5 is mounted in the chamber 4 to seat upwardly against the mouth at the lower end of the duct 3 and close the same. The ball 5 is normally held against its seat at the end of the duct 3 by a compression spring 6 which is positioned within the chamber 4 below the ball. An orifice 4′ extends from the lower face of the piston 2 to the chamber 4, and thus places the chamber 4 and the upper end of the cylinder 1 in communication with the lower end of the cylinder.

In order that air trapped between the piston and the base or lower end of the cylinder may be allowed to escape as the piston approaches the lower end, an outlet nipple is provided in the cylinder, adjacent the base or lower end, and flexible tubing 7′ may be attached to this nipple for the purpose of conducting the expelled air to a tire or other desired point.

Annular grooves 8 are formed in the piston 2 and are spaced longitudinally thereof, and these grooves are provided for the reception of oil which will serve to pack the piston against the escape of air therebeyond, and will also serve to lubricate the piston and the walls of the cylinder and so reduce friction and render the operation of the pump easier.

A piston rod 9 is suitably secured to the piston 2, and is slidable through an aperture formed centrally of the head 10 of the cylinder. The head 10 is threaded into the cylinder and is formed with a circumferentially extending portion 11, having diametrically disposed, spaced ears 12, between which are pivoted the adjacent ends of a pair of lever arms 13.

Each lever arm 13 is formed with an extending lug 14, positioned between the ends of the arm, and adapted to enter between and be pivotally connected to the bifurcated ends of a pair of links 15, the other ends of which links have pivotal engagement with ears formed on a collar 16, which collar is rigid on the outer end of the piston rod 9.

The device operates as follows:—The arms 13 are rocked upon their pivots to bring them into juxtaposition above the head end of the cylinder 1. This will cause, through the links 15, and piston rod 9, an upward movement of the piston 2, that is, a movement of the piston toward the head end of the cylinder. During this movement, the air which is trapped in the upper end of the cylinder, such air gaining access to the upper end of the cylinder through the slight opening about the piston rod where it passes through the cylinder head, will be compressed to a sufficient extent to overcome the tension of the spring 6 and cause the ball to unseat, thereby allowing the air to escape to the lower end of the cylinder.

Upon reverse movement, or rocking of the arms 13 to bring them to the position

shown in the drawing, the piston is caused to descend in the cylinder, or move toward the base thereof, thus trapping the air which has been admitted to the lower end of the cylinder, as just described, and forcing such air through the nipple 7 and flexible tubing 7′ to the desired point.

Having described the invention, what we claim as new and seek by Letters Patent, is:—

An air pump, comprising a cylinder having an inlet and an outlet, a piston reciprocable in said cylinder between the inlet and outlet and having a piston rod extending through the cylinder head, and means for reciprocating said piston, said means comprising a pair of ears formed on the cylinder head, a pair of levers pivotally connected to said ears, a collar secured to the piston rod adjacent to the free end thereof, and links each pivotally connected at one end to one of said levers and at its opposite end to said collar.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

GEORGE L. CAMFIELD.
VERN F. SHUTT.

Witnesses:
ELI H. HARLAN,
H. T. BROOKS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."