

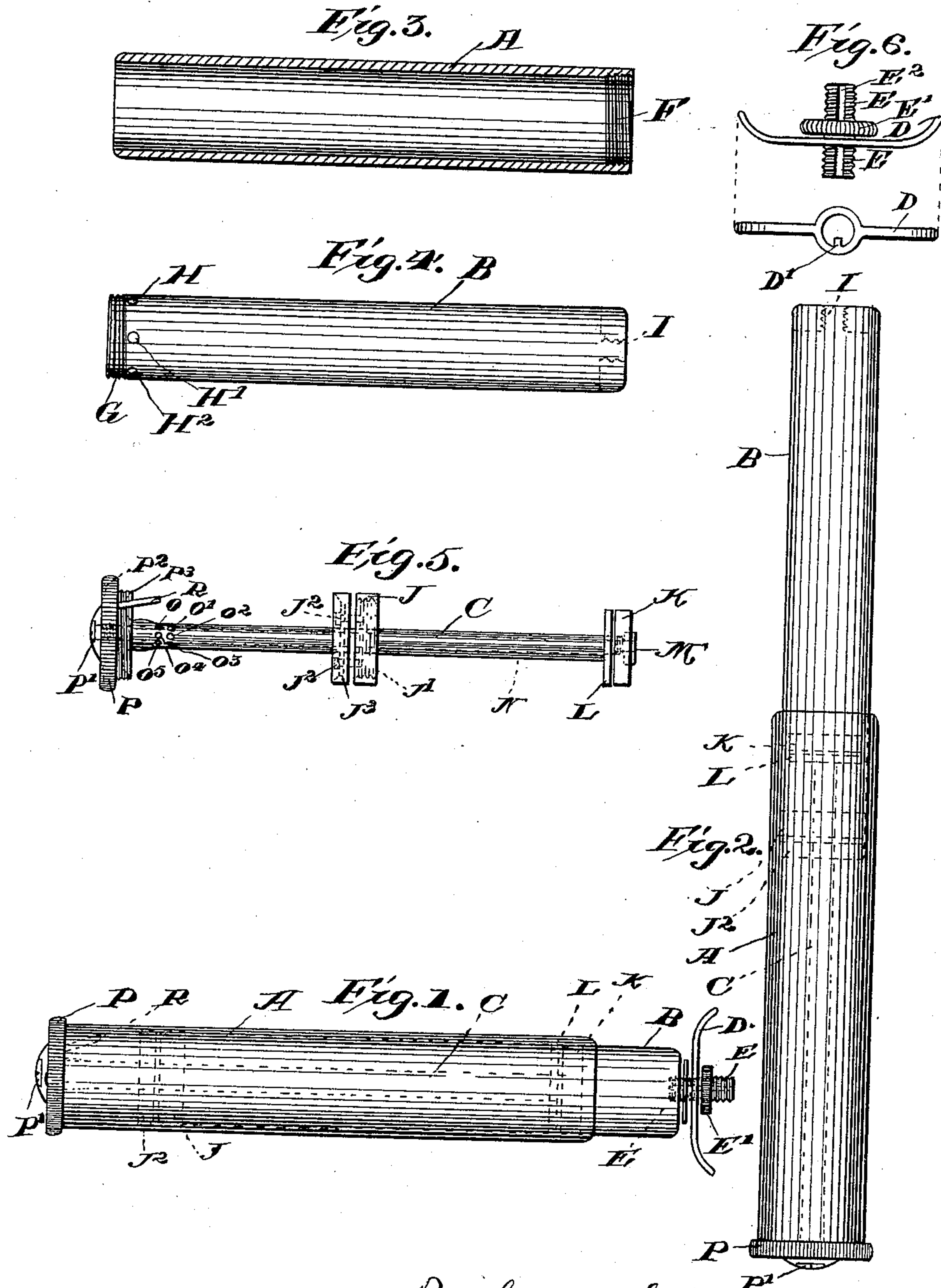
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Patented Dec. 20, 1898.

B. G. LOUDEN & W. R. SHUTE.
HAND PUMP FOR INFLATING BICYCLE TIRES.

(Application filed May 25, 1897.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

BARTHOLOMEW G. LOUDEN AND WILLIAM R. SHUTE, OF VINELAND, NEW JERSEY, ASSIGNORS OF ONE-THIRD TO FELIX JOHNSON, OF SAME PLACE.

HAND-PUMP FOR INFLATING BICYCLE-TIRES.

SPECIFICATION forming part of Letters Patent No. 616,195, dated December 20, 1898.

Application filed May 25, 1897. Serial No. 638,103. (No model.)

To all whom it may concern:

Be it known that we, BARTHOLOMEW G. LOUDEN and WILLIAM R. SHUTE, citizens of the United States, residing at Vineland, in the county of Cumberland and State of New Jersey, have invented a new and useful Portable Telescope Hand-Pump to Inflate Bicycle-Tires, of which the following is a specification.

Our invention relates to collapsible pumps, and more especially to that class known as "portable" hand-pumps for inflating tires; and it has for its object the novel construction and arrangement of the several parts, as hereinafter more fully described and claimed and as illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of our improved pump in a collapsed condition with all of its several parts assembled. Fig. 2 is a side view of the same with the parts distended and with finger-grip and nipple removed. Fig. 3 is a sectional view of the outer cylinder. Fig. 4 is a side view of the inner cylinder. Fig. 5 is a side view of the piston-rod with the stationary and reciprocating piston-head and retaining-cup for holding the rod removably within the outer cylinder. Fig. 6 is a detail view of the finger-grip and nipple separated.

Referring to the drawings, the letter A designates the outside or main cylinder, which is provided at or near its lower end with internal screw-threads F, for a purpose hereinafter stated.

B represents the inner or movable cylinder, which is provided near its lower end with external screw-threads G and also with a series of perforations or holes H H' H² a short distance above the threads to allow the air to enter the cylinder B more freely. This cylinder B is closed at its upper or outer end, which latter is provided near its center with a screw-threaded aperture I.

E represents an externally-screw-threaded nipple, which is of sufficient size at its inner end to engage the screw-threaded aperture I in the cylinder B and has secured midway of its length a milled collar E'. Said nipple is also provided on its outer face with a longitudinal groove E².

D represents the finger bars or grips, which

are preferably inclined outwardly, so as to allow the first and second finger of the operator's hand to rest thereon, as will be understood. The finger-bar is provided at its center with an aperture of sufficient size to loosely surround the nipple below the milled collar E' and has also an inwardly-projecting lug D', which is adapted to enter the groove E² to prevent rotation. Before the nipple is screwed into the aperture I of the cylinder B a washer is placed thereon, so as to produce an air-tight joint.

C represents the piston-rod, which is hollow and is provided with a series of apertures O O' O², &c., for a purpose which will be understood by those skilled in the art. Secured to the lower end of the piston-rod C by means of the axial screw P' is a cap P, which has its lower portion P² milled or serrated and its upper portion P³ externally screw-threaded and reduced to the proper size to allow the external threads to engage with the internal screw-threads F of the cylinder A, while the lower portion P² extends beyond or stands about flush with the periphery of the cylinder A.

R is a projecting lug extending inwardly from the cap beyond the perforations O to limit the downward movement of the head J, described below. Secured to the other end of the rod C by means of the hollow bolt or screw M is the piston-head K, and attached thereto and beneath the same is a washer L. Loosely sliding on and surrounding the piston-rod C between its cap and end is a second piston-head J, which is larger in diameter than the head K and which has attached to its lower side by means of screws J² a washer or packing J³. The reciprocating head J is cup-shaped and is provided with internal screw-threads J', which engage the external screw-threads G on the cylinder B when the parts are assembled, the piston-head K at the end of rod C being somewhat smaller than the reciprocating head J, so that it may enter and snugly fit the cylinder B.

To assemble the parts, the cap P is first attached to the rod C, the reciprocating head J then placed in position, and the head K attached to the free end of the rod. The whole

is then placed within the outer cylinder A so that the threads P^3 on the cap engage the threads F in this cylinder. The reciprocating cylinder B is then passed over the head K until its external screw-thread G engages the internal screw-threads J' of the head J. The various parts of the nipple E are then assembled and the screw-threaded lower end inserted in the screw-threaded aperture I in the free end of the cylinder B.

From the foregoing description it will be seen that the cylinder A, piston-rod C, and head K remain stationary during the operation of inflating the tire, while the cylinder B, attached to the head J, is reciprocated by means of the finger or grip bars D; or the cylinder B, with its various parts, may be held stationary, while the outer cylinder A, with its connected piston rod and head, is reciprocated. In use the inner cylinder B remains stationary usually, for it is connected with the tire. As the outer cylinder A is drawn outward air enters around the inner cylinder and passes the washer J^3 into the chamber formed at the lower end of the outer cylinder. As the latter is again pressed inward the air in this chamber is forced into the holes $O O'$ O^2 , &c., down the length of the tubular rod C, out through the tubular screw M, and through the nipple E into the tire. The ap-

ertures H in the inner cylinder prevent the formation of an air-cushion in the chamber between its lower end and the washer L, as will be clear.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a hand-pump, the combination with an outer cylinder having internal threads at its lower end, a cap engaging said threads to close this end, a tubular rod carried by the cap and extending the length of the cylinder, its remote end being open and its body near the cap being perforated, and a lug projecting from the cap inward beyond certain of said perforations, of an inner cylinder having a closed outer end pierced with a threaded opening, a reciprocating piston-head mounted loosely on the rod and closing the inner end of the inner cylinder around said rod, a valve carried by this head and closing the outer cylinder in one direction of its movement, and a nipple removably engaging said opening in the outer end of the inner cylinder, as and for the purpose set forth.

BARTHOLOMEW G. LOUDEN.

WILLIAM R. SHUTE.

In presence of—

THOMAS R. CAMPBELL,
JOHN G. FRY.