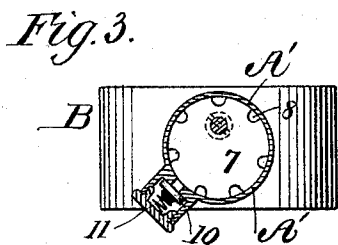
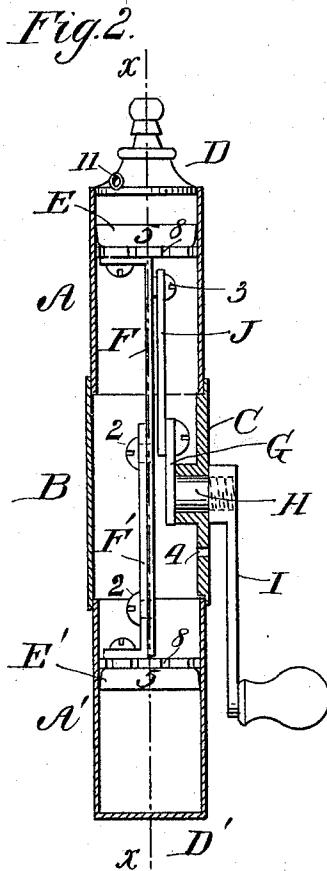
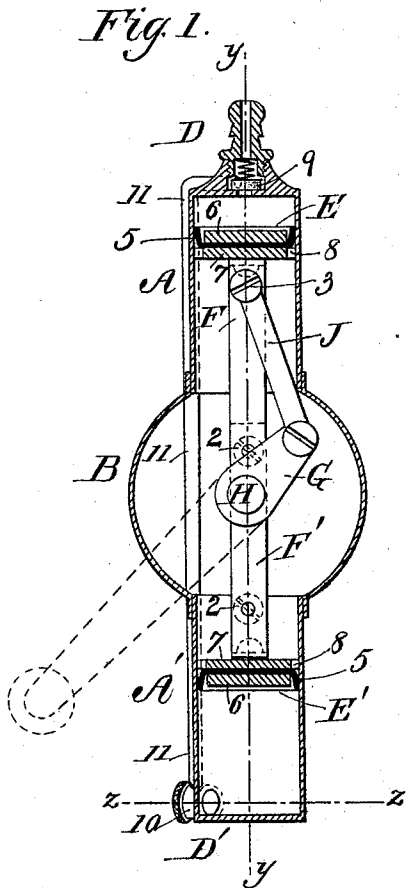


(No Model.)

T. L. MURPHY.
PNEUMATIC TIRE PUMP.

No. 586,199.

Patented July 13, 1897.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS L. MURPHY, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO
DANIEL J. MURPHY, OF SAME PLACE, AND ISAAC HICKS, OF BROOKLYN,
NEW YORK.

PNEUMATIC-TIRE PUMP.

SPECIFICATION forming part of Letters Patent No. 586,199, dated July 13, 1897.

Application filed July 25, 1896. Serial No. 600,482. (No model.)

To all whom it may concern:

Be it known that I, THOMAS L. MURPHY, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Pneumatic-Tire Pumps, of which the following is a specification.

My invention relates to the class of small hand-pumps adapted for inflating pneumatic tires, and especially adapted by compactness of construction to be carried in the tool-bag of a bicycle and adapted for low cost of manufacture and convenient accessibility and removal of parts for cleaning or repairs.

My invention consists in certain novel features of construction hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 is a front sectional elevation taken on the line *x x* of Fig. 2. Fig. 2 is a side sectional elevation taken on the line *y y* of Fig. 1. Fig. 3 is a cross-section taken at *z z*, Figs. 1 and 2, the disk 6 and cup of the piston being removed.

The cylinders *A A'* are rigidly alined and connected by a central connecting-case *B*, forming the pitman-chamber, which is provided with a removable lid *C*. The outer extremities *D D'* of the cylinders *A A'* are provided with permanently-fixed heads, and said cylinders are permanently fixed to the central case *B*, the whole forming a single box with the only opening and means of access at *C*.

Each piston *E E'* is provided with a respective section *F F'* of a connecting-arm, separably connected together by screws 2 2 or other suitable means. By unscrewing the screws 2 2 the pistons may be removed independently by deflecting them with their respective rods at an angle to the axis *x x* of the cylinders and drawing them through the opening of the case *B* after the lid *C* has been removed. Removable cylinder-heads are thereby avoided, the heads being brazed on, affording a point of economical construction. The inner crank *G* is mounted on the shaft *H*, journaled in the plate or lid *C*, and the outer or hand crank *I* is screwed onto the end of the shaft *H*, whereby the same may be re-

moved, permitting the removal of the plate *C*, and the crank *G* may then be detached from its connecting-rod or pitman *J* and removed, and then the pistons can be turned around until the screws 2 2 are accessible, and the pistons can next be removed, leaving the box *A A' B* intact. The pitman *J* is connected to the arm *F F'* at the point 3. The lid *C* is provided with a small perforation at 4 for admitting air.

Each piston *E E'* has a flexible cup-packing 5 5, secured between metallic disks 6 7, and the disks 6 are of diameter sufficiently smaller than the inside of the cup to permit free play of the latter between the disk and the cylinder, forming a valve which is closed when the piston is forced outward to compress air on the concave side of the cup, but opens freely to admit air when the piston is retracted, forming a vacuum back of the piston.

In order to insure a perfect operation, the disk 7 on the convex side of the cup may be made of a diameter to fit the cylinder and center the cup, marginal openings 8 8 being provided on the said disk 7, as seen in Fig. 3, to pass the air. The disk 7 is of such limited thickness as to permit the angular deflection of the piston by the yielding contact of the cup-packing 5, necessary for the removal of the piston, as described.

Delivery-valves 9 10 are provided on the outer extremities of the cylinders, and the delivery sides of these are connected together by a tube 11, the same intersecting the case *B* for convenience, and at one end of the box on one of the cylinder extremities a delivery-nipple is provided for the attachment of a suitable india-rubber tube connection of usual character.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A pump constructed of a single shell comprising two alined cylinders permanently closed at their outer ends and connected by a central case having a lateral opening, in combination with pistons having rods fixed thereto separably connected so as to form a rigid arm, said pistons fitting the cylinders with yielding contact so as to permit the deflection of their rods from the axis of the cyl-

inders when disconnected, whereby the pistons may be removed toward one another and angularly through said lateral central opening of the shell, and rotary means in said
5 connecting-case for operating the pistons.

2. The combination in a pump, of a single shell comprising two alined cylinders permanently closed at their outer ends and connected by a central case having a lateral
10 opening, pistons in said cylinders having rods fixed thereto separably connected so as to form a rigid arm, said pistons fitting the cylinders with yielding contact so as to permit the deflection of their rods from the axis of
15 the cylinders when disconnected, a removable

cover on said lateral opening, a rotary shaft journaled in said cover, an external hand-crank removably attached to said shaft, an internal crank on said shaft, and a pitman separably connecting said internal crank with
20 said rigid arm of the pistons, substantially as and for the purposes described.

Signed at New York city, in the county of New York and State of New York, this 9th day of July, A. D. 1896.

THOMAS L. MURPHY.

Witnesses:

J. KENNEDY,
HENRY F. PARKER.