T. K. BEGG & A. H. MOORE.

TIRE PUMP.

APPLICATION FILED JUNE 25, 1910.

1,067,794.

Patented July 22, 1913.

2 SHEETS—SHEET 1.

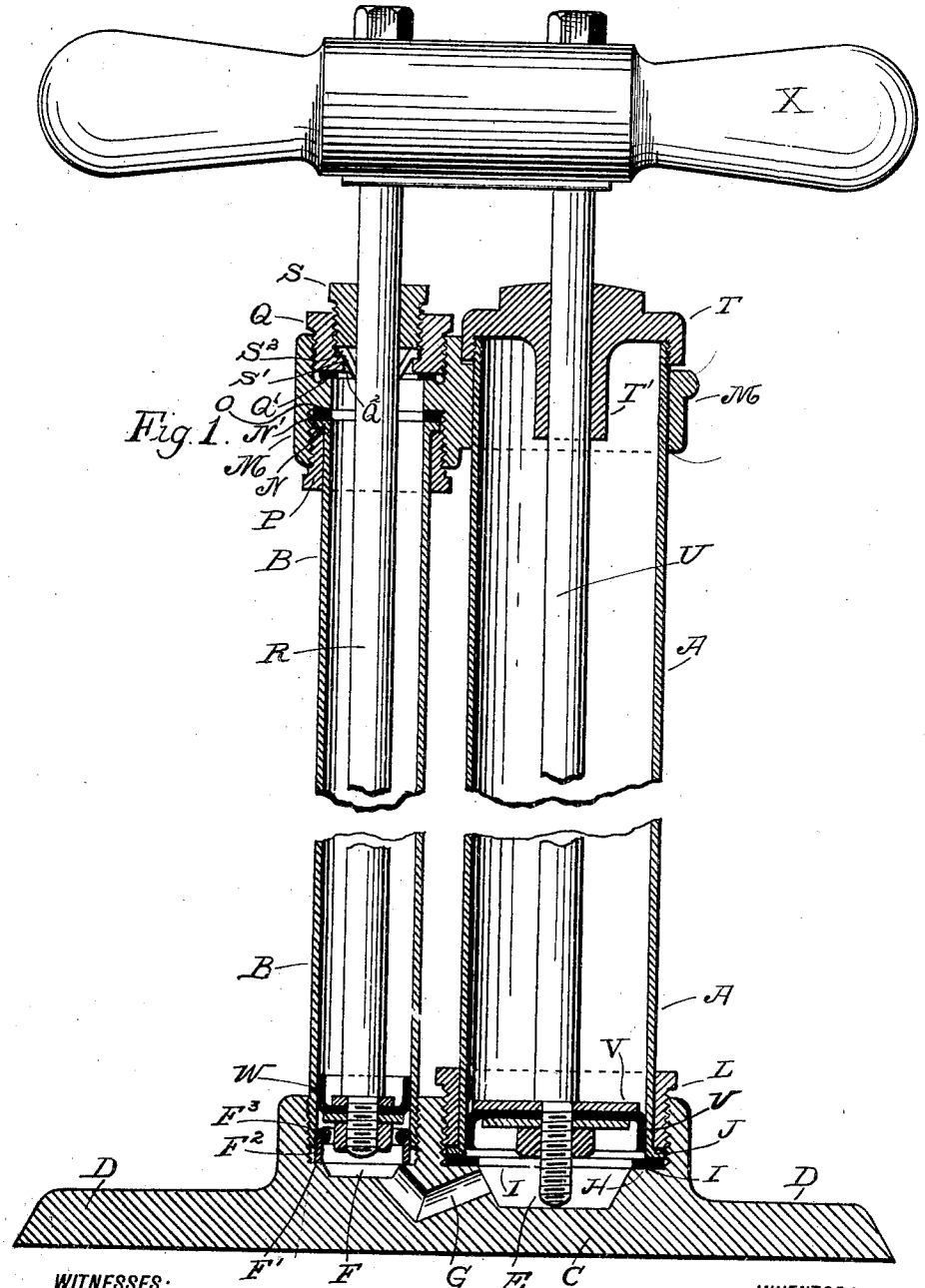


Fig. 1.

WITNESSES:

J. S. Coleman

M. O. Williams

INVENTORS

Thomas K. Begg and

BY Arthur H. Moore

Beach & Fish

ATTORNEYS.

T. K. BEGG & A. H. MOORE.

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2 SHEETS—SHEET 2.

Fig. 2.

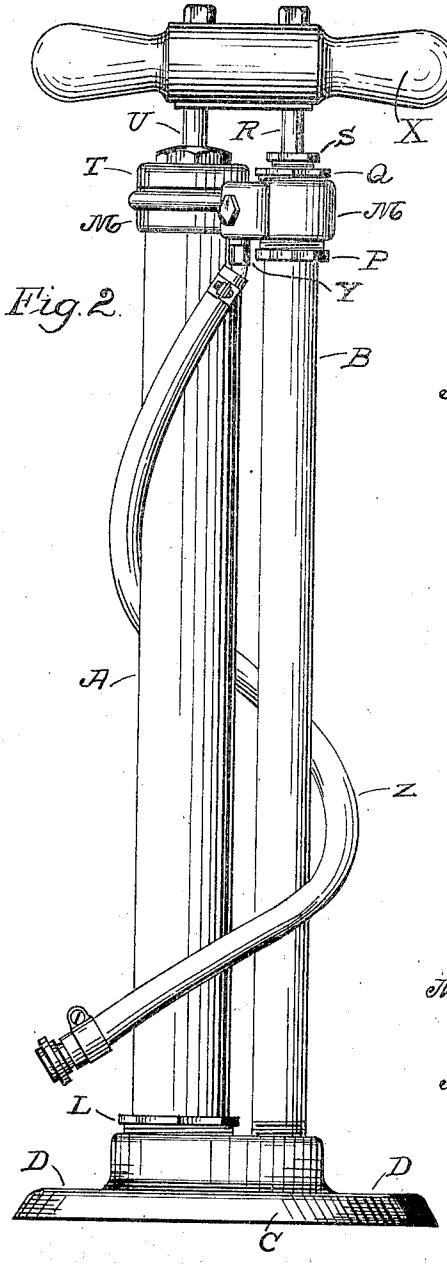


Fig. 4.

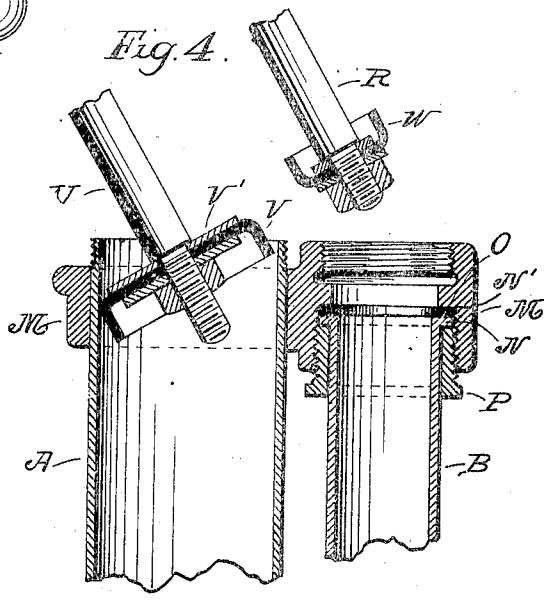
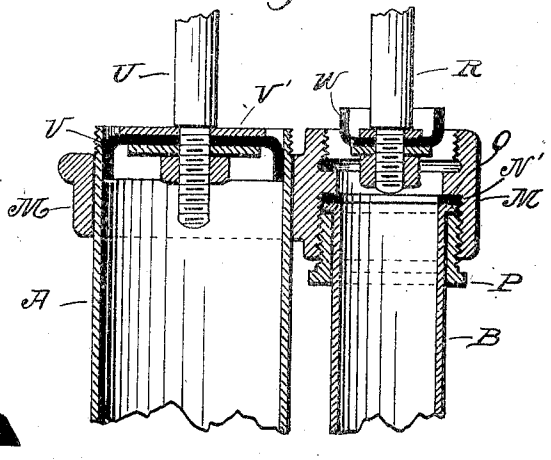


Fig. 3.



WITNESSES:

J. S. Coleman

M. O. Williams

INVENTORS

Thomas K. Begg and

Arthur H. Moore

BY Beachofisher.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS K. BEGG AND ARTHUR H. MOORE, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO THE BRIDGEPORT BRASS COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TIRE-PUMP.

1,067,794. Specification of Letters Patent. Patented July 22, 1913.

Application filed June 25, 1910. Serial No. 568,911.

To all whom it may concern:

Be it known that we, THOMAS K. BEGG and ARTHUR H. MOORE, of the city of Bridgeport, county of Fairfield, and State of Connecticut, have invented new and useful Improvements in Tire-Pumps, of which the following is a full, clear, and exact description, when taken in connection with the accompanying drawings, which form a part thereof.

This invention relates to pumps for pumping air into pneumatic tires by hand or otherwise, and more particularly to that type of pump known as the double acting pump in which two parallel cylinders of different sizes are arranged side by side, the pistons of which are connected together to work in unison while their effective strokes take place in opposite directions.

The invention has for its object the production of a simple and efficient pump of this character which may be readily separated for the purpose of cleaning, inspection, etc., and readily assembled. To this end the pump has two cylinders which terminate on different transverse planes, so that the piston of one cylinder may be inserted before the piston of the other cylinder.

Furthermore, the invention relates to the novel means for closing the cylinders and such other improvements and combinations of parts as are hereinafter set forth and claimed.

Referring to the drawings, Figure 1 represents a vertical central section through a pump embodying the invention, Fig. 2, an elevation of the same, Fig. 3, a detailed sectional view through the open upper ends of the cylinders when the pistons are being assembled, and Fig. 4, a similar view with the pistons shown in a different position.

In all figures, similar letters of reference represent like parts.

In the drawings, the letter A designates the one of two parallel disposed cylinders, which is larger in diameter, and B designates the one smaller in diameter. The cylinders A and B are mounted on a base C, provided with laterally projecting wings or extensions D for the foot or feet of the operator. The base C is provided with two recesses E and F having a communicating vent G. Into the recess F the lower end of the smaller cylinder B is forced or screwed. Resting on a shoulder F′ in the recess F is a cup or ring F^2 of steel or other material, the upper end of which is turned in at F^3 for strengthening purposes, and to make a slight taper, so that as the end of the cylinder is forced downward the cup or ring will enter it and crowd the lower end outward into the internal screw threading of the recess, thus producing an air tight joint. The larger recess E is provided with a shoulder or seat H, on which is adapted to rest a centrally perforated washer I, and on the washer I rests the lower end of the larger cylinder A, which is provided with an outwardly projecting annular flange J, adapted to rest on the washer I. The recess E is internally threaded for the reception of a thimble or nut L adapted to be screwed down into the recess and bind the outwardly turned flange J of the cylinder A tightly on the washer I upon the shoulder H. The upper ends of the cylinders A and B terminate on different horizontal or transverse planes. As more particularly shown in Fig. 4, the small cylinder B terminates at its upper end considerably below the upper end of the large cylinder A, and both cylinders are adapted to take into a collar M. The small cylinder is provided with an outwardly turned flange N, which is adapted to rest on a washer N′ on an internal shoulder or seat O in the collar M, and be held tightly in place by a thimble or nut P, adapted to screw into the recess of the collar M to bind the flange N against the washer on the shoulder O. A cap Q is adapted to be screwed in the upper end of the collar M against a washer Q′, and has a central perforation, Q^2. A centrally perforated plug S surrounds the piston rod R, and screws into the cap Q. A leather packing S′ is adapted to rest on a shoulder or seat S^2 in the cap Q, and is held in place by the plug S as it is screwed down in the cap, thereby making an air tight joint between the plug and cap, and as the packing fits snugly around the piston rod R, it prevents the escape of air through the cap and plug around the piston rod. The unscrewing of the cap permits the removal of the piston rod from the cylinder. The larger

cylinder A is closed at its upper end by a cap T provided with internal threading adapted to engage external threading in the end of the cylinder. The cap T is provided with a central perforation for the piston rod U of the large cylinder, and the center of the cap is prolonged, as shown at T', to give a greater bearing on the piston rod. At the lower end of each of the piston rods are pistons or buckets V and W of leather, or other suitable material, that in the large cylinder being so constructed that it will have its effective stroke when it is being lowered, and that of the small cylinder being so constructed as to have its effective stroke when it is being raised. By this construction upon the downward stroke of the two piston rods, which are operated simultaneously by means of a handle X, to which both are secured, the piston V of the large cylinder will force the air downward through the vent G around the piston W into the small cylinder B. The upward stroke allows fresh air to pass around the piston V in the cylinder A, while the piston W will force the air in the cylinder B upward and out of a suitable outlet Y of any desired construction through a valve (not shown) into the pipe Z. The piston V is provided with a washer V' to protect it from contact with the cap T, at the upper end of the stroke of the piston and to support it. By this construction each cylinder is provided with an effective air tight joint at that end of the cylinder toward which each piston travels during its effective stroke.

To remove the buckets from the cylinders for any purpose, such as to clean or inspect the interior of the cylinders, it is only necessary to unscrew the cap N from the top of the cylinder A and the cap Q from the collar M, whereupon the two piston rods and pistons may be readily removed.

To reassemble the parts, the piston V of the large cylinder is inserted first into the end of the large cylinder at an angle, as shown more particularly in Fig. 4, because the piston or bucket is normally somewhat wider than the diameter of the cylinder, and is liable to spread unless the piston is thus rocked or inserted at an angle. The piston rod is then turned to a position substantially parallel with the axis of the cylinder, when it will assume the position shown in Fig. 3 in which the piston of the large cylinder has been inserted in the cylinder, while the piston W of the small cylinder is still without its corresponding cylinder, but in alinement therewith, after which it is merely necessary to push downward the handle X when the piston W of the small cylinder B will at once pass into the interior of its cylinder. This is a peculiarly efficient and facile method for assembling the pistons within the cylinders, because if the two cylinders were of the same height it would be necessary to see that both pistons entered the cylinders simultaneously, which would not permit the rocking or slanting of the piston of the large cylinder, as above described. In the present construction the larger piston is inserted and the rod brought to a proper axial alinement with the large cylinder before the piston of the small cylinder is ready to enter its cylinder, because the larger cylinder extends up above the plane of the top of the small cylinder.

Having now described our invention, what we claim and desire to secure by Letters Patent, is:—

1. In a pump, the combination of a base, parallel cylinders mounted on and rising from said base and having their upper ends located in different horizontal planes, pistons for said cylinders having a common operating device, a collar in which the upper ends of both cylinders are secured, a cap directly engaging and closing the cylinder having the higher upper end, and a cap directly engaging said collar and closing the upper end of the other cylinder; substantially as described.

2. In a pump, the combination of a base, a collar, a cylinder fixed to said base, and having its upper end extending through and upward beyond said collar, a second cylinder fixed to said base alongside the first and having its upper end disposed within said collar below the upper surface of the latter, a cap directly engaging and closing the upper end of the first named cylinder, a cap directly engaging said collar and closing the upper end of the last named cylinder, pistons in the respective cylinders, and an operating device for said pistons; substantially as described.

3. In a pump, the combination of a base, cylinders of different diameters rising from said base and arranged with the upper end of the larger cylinder extending above the upper end of the smaller cylinder, a collar in which the ends of both cylinders are secured, a cap directly engaging the upper end of the larger cylinder to close the same, a cap engaging said collar and closing the upper end of the smaller cylinder, and connected pistons for said cylinders, the piston of the larger cylinder having its operative stroke downward, and the piston of the smaller cylinder having its operative stroke upward; substantially as described.

4. In a pump, the combination of a base having a bore or socket at the upper face thereof, said bore or socket having a threaded side wall and a closed bottom presenting a seat, an annular sleeve-like member resting at its lower edge on said seat the upper edge of said member being turned in to rein-

force said member and present a slight taper at the outer surface thereof, and a cylinder having its lower end provided with exterior screw threads engaging those of the socket wall, and having its inner surface engaged by the outer surface of said annular member, the latter being of such a diameter as to closely fit the inner surface of the lower end of the cylinder and be compressed thereby to provide a tight closure for the end of the cylinder; substantially as described.

In witness whereof, we have hereunto set our hands on the 6th day of June, 1910.

THOMAS K. BEGG.
ARTHUR H. MOORE.

Witnesses:
C. A. BALDWIN
A. B. LYFORD.