

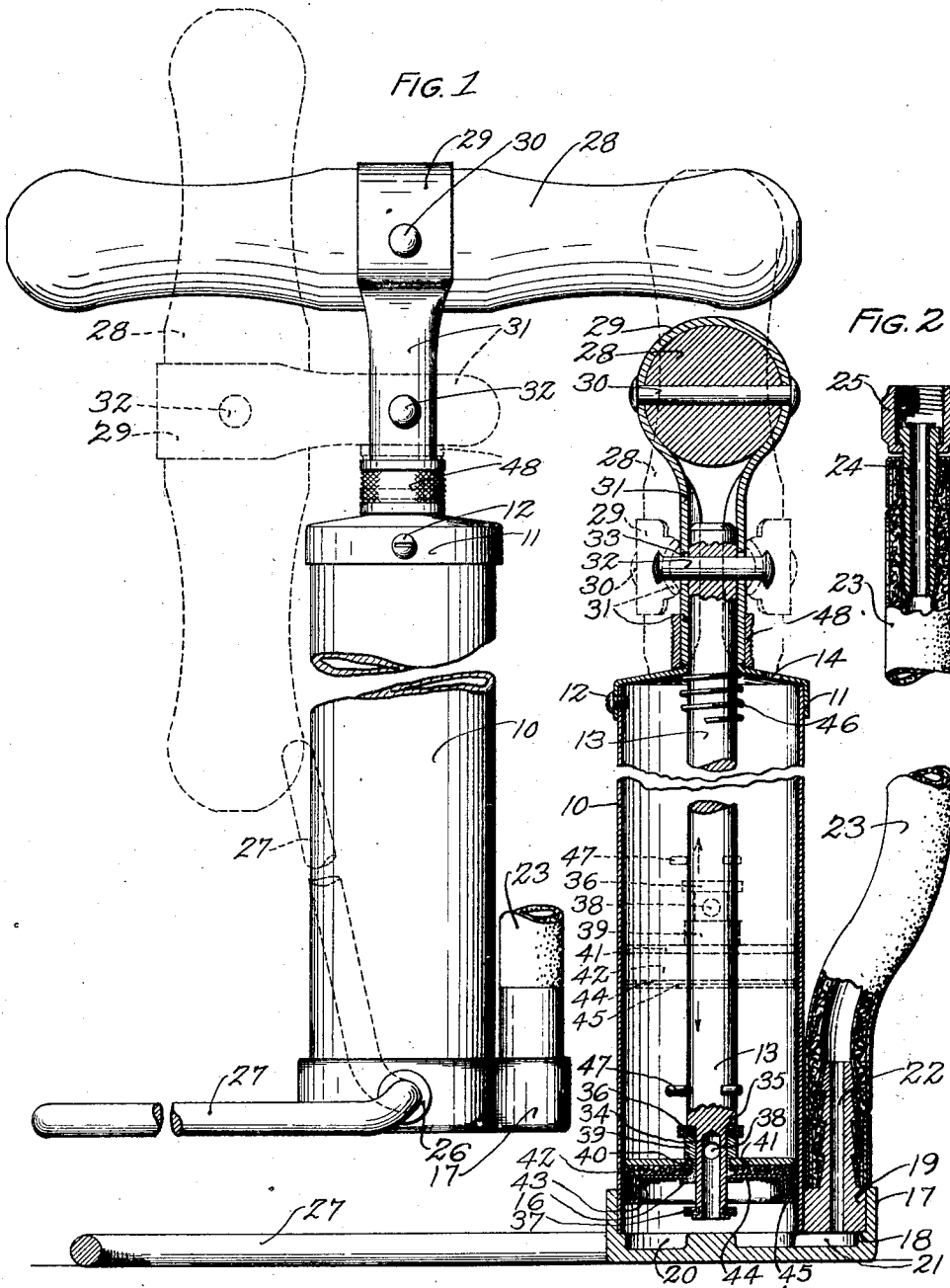
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AIR PUMP

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UNITED STATES PATENT OFFICE.

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AIR PUMP.

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My invention is concerned with air pumps for pneumatic tires, etc., and is designed to produce a pump of the class described that shall be simple in its construction and which can be cheaply manufactured.

It is further designed to produce a pump of the class described which can have its handle and foot piece folded into position parallel with the barrel, so that it can be placed in a smaller bag or receptacle than would otherwise be required.

To illustrate my invention, I annex hereto a sheet of drawings, in which the same reference characters are used to designate identical parts in both the figures, of which,—

Fig. 1 is a side elevation of a pump embodying my invention, portions thereof being broken away; and

Fig. 2 is a central longitudinal section through the same.

In carrying out my invention in its preferred form, I form the barrel 10 of a cylinder of sheet metal, closed at the upper end by the cap 11 secured thereto by the screw 12, and having the centrally located aperture through which the piston rod 13 slides in the customary manner. An aperture 14 in the cap permits the air to enter and escape from the cylinder above the piston, as is necessary in the operation of the device.

The other end is closed by the base piece 15, which preferably takes the form of a casting having the main portion circular in outline, and provided with the annular seat 16 upon which rests the lower end of the barrel. Projecting from and formed integrally with this main portion is the smaller portion 17, likewise circular in outline, and provided with the annular seat 18, touching the annular seat 16 and arranged to have the end of the nipple 19 rest thereon. An annular recess 20 is formed in the portion 15 below the seat 16, and a passage 21 leading from this channel 20 below the bottom of the nipple permits the air from the pump to reach the discharge passage 22 extending through said nipple, which nipple of course will be provided with the customary flexible tube 23 having the nipple 24 secured in its outer end and provided with the customary connection 25 to be screwed onto the nipple of the inflation valve. When the barrel 10 and the nipple 19 have been seated in the base, they are carefully soldered in place,

and thus made air-tight. The base 15 is provided with a pair of ears 26, in which are pivoted the ends of the yoked foot-piece 27, which is composed of spring metal, so that the said ends can be sprung into place, and which when not in use will be folded up to the dotted-line position shown in Fig. 1, to economize on the space occupied by the pump.

The handle 28 is preferably constructed of wood, and is provided with the sheet-metal yoke 29 having the generally annular portion surrounding the handle and secured thereto by the rivet 30, and beyond the annular portion are the extensions 31, which have their interior curved to fit the exterior of the piston rod 13. These extensions 31, being composed of spring metal, clasp the piston rod 13 tightly when the handle is in its operative position, and when the handle is not in use it is swung down to the dotted-line position, the extensions 31 spreading out, as seen in dotted lines in Fig. 2, to permit this movement. The extensions are held in place by the pin 32, which has its ends preferably slightly enlarged, and which has a driving fit in the transverse aperture through the end of the piston rod, and which also passes through the loosely fitting apertures 33 formed in the extensions. The valve mechanism is preferably constructed in the following manner.

A centrally located hole 34 is drilled upward through the bottom of the piston rod, substantially up to the shoulder 35 formed by reducing the diameter of the piston rod from that point downward, and against this shoulder I place the packing disk 36 of any suitable material, such as leather, rubber, etc. At the bottom of the rod I make a still further reduction, forming a shoulder against which is secured the smaller packing ring or abutment 37, preferably by swaging up the reduced end of the piston rod. In the reduced portion I form the port 38, and co-operating with this port is the piston, which is preferably formed with the sliding sleeve 39 as a basis, said sleeve having a shoulder 40 thereon, and against this shoulder 40 is placed a metallic disk 41, against which in turn is placed a leather cup 42, the turned down edges of which co-operate with the inner surface of the tube 10 to make it air tight, it being held outward by the split spring ring 43 placed therein and held

in place by a thin metallic cup 44, which has the outwardly extending flange 45 to hold the split ring 43 in place.

The operation of my improved pump will be readily understood. When the piston is forced down, the parts are in the position shown in full lines in Fig. 2, and the port 38 is closed by the sleeve 39, the complete closure of this port being insured by the employment of the packing ring 36. When the piston rod is pulled up, the parts assume the position shown in dotted lines in Fig. 2, with the sleeve 39 below the port 38, so that air can pass through the port and down through the bottom of the tube and into the barrel to fill it again. The helically-coiled expanding spring 46 placed above the piston rod serves to cushion the outward movement of the piston rod, and it is held from contact with the washer 36 by the cotter pin 47 passed through the piston rod for that purpose. The ring 48, having its external surface milled, serves to clamp the ends of the extensions 31 against the piston rod and hold the handle firmly in place when it is in use.

When it is to be folded, the piston is drawn up by the handle until the distance between the bottom of the ring 48 and the top of the barrel 10 is greater than the width of the ring, which is then slipped downward off of the extensions 31, so that they are free to spring apart, as shown in dotted lines in Fig. 2, when the handle is turned to the dotted line position.

While I have shown and described my invention as embodied in the form which I at present consider best adapted to carry out

its purposes, it will be understood that it is capable of modifications, and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. In a pump, the combination with a barrel, of a piston rod reciprocable therein, a handle, a spring fork carried by the handle with apertures in the fork, a pin secured transversely in the end of the piston rod and entering the apertures, and means for securing the fork in alignment with the piston rod.

2. In a pump, the combination with a barrel, of a piston rod reciprocable therein, a handle, a spring fork carried by the handle with apertures in the fork, a pin secured transversely in the end of the piston rod and entering the apertures, and a sleeve to engage the ends of the fork and hold it in alignment with the piston rod.

3. In a pump, the combination with a pump barrel, of a base having an annular seat for the barrel together with an intersecting seat for a hose nipple and having a passage therein leading beneath the hose nipple seat, so that when the barrel and hose nipple are put in place they are substantially in contact, solder for securing the barrel and nipple in place without affecting the passage, and a nipple in its seat.

In witness whereof, I have hereunto set my hand this 19th day of November, 1921.

WALTER J. RUDOLPH.