July 10, 1928. 1,676,527

J. A. CRIMP

AIR PUMP

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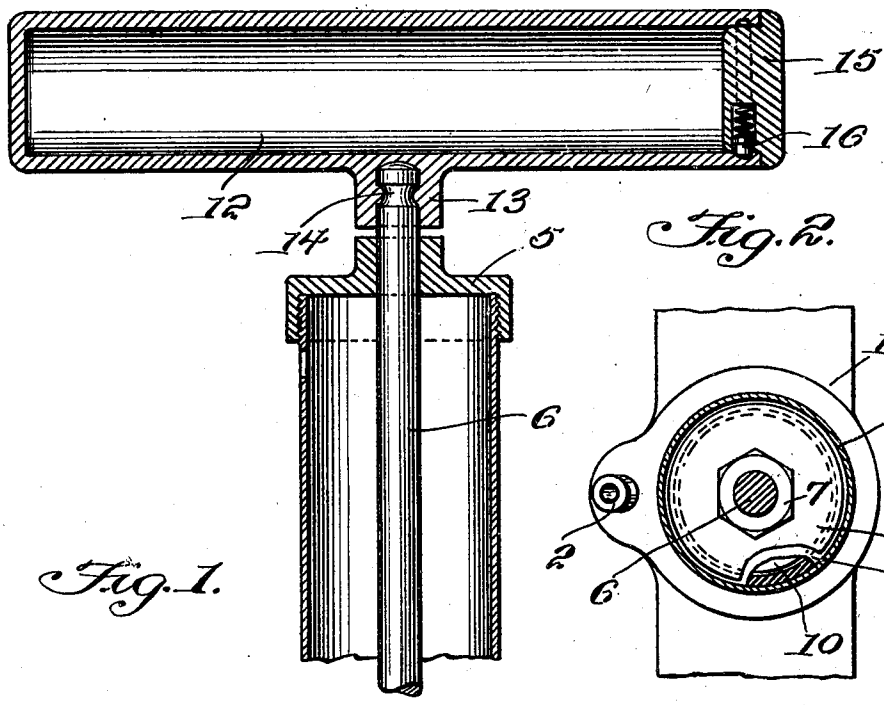


Fig. 1.

Fig. 2.

Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## AIR PUMP.

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This invention relates to an air pump for inflating tires and the like, the general object of the invention being to so form the pump that it will have great wearing qualities and it can be manufactured to sell at low cost.

A further object of the invention is to so form the piston of the pump that all the air will be expelled from the pump on the down stroke and the cup washer will readily collapse on the up stroke to permit air to pass from the upper part of the cylinder to the lower part thereof, with means for preventing the washer from striking the bottom of the pump.

A further object of the invention is to make the handle of the pump in the form of a holder so that the same can be used for holding patches for tubes and other articles.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a longitudinal sectional view through the improved pump.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a fragmentary sectional view showing the piston on its up stroke.

In these views, 1 indicates the base of the pump which is preferably formed of aluminum or other soft metal and which is cast with a tube 2 therein which communicates with the recess 3 in the base and acts as a discharge for the pump. The walls of the recess are threaded to receive the threaded lower end of the cylinder 4 which is preferably formed of steel so that the screwing of the cylinder into the soft metal base will make a tight joint without the use of solder or the like. If desired, the parts may be heated so that the cylinder can be forced farther into the base to secure a shrink fit when the parts cool, which will result in a perfect airtight coupling.

A cap 5 is screwed on the upper end of the cylinder and has a hole therein to receive the piston rod 6. The lower end of the piston rod is threaded and a nut 7 is first screwed on this end of the rod, then a washer 8 is placed against the nut, then the cup washer 9 is placed on the rod and finally a block or disk 10 is threaded on the end of the rod. This disk has its upper corner rounded, as shown at 11, and said disk is so arranged that it will prevent the edge of the cup washer 9 from striking the bottom of the recess in the base and thus prevent the washer from being injured. The rounding of the upper part of the disk also permits the washer to readily collapse on the up stroke of the piston, as shown in Figure 3, so that air can pass from that part of the cylinder above the piston to the lower end of the cylinder. This construction of piston will result in the total expulsion of the air from the cylinder on the down stroke of the piston and the cup washer will have long life as it is prevented from striking the bottom of the pump and is held in shape by the disk.

The handle 12 is formed with a depending part 13 which is cast on the upper end of the piston rod, said rod having a groove 14 therein which is filled by the metal of the handle. I prefer to make said handle hollow, with one end open, as shown, and close said end by a plug 15 which is detachably held in place by the spring plunger 16. This hollow handle will provide a holder for tube patches and the like.

The outer end of the tube 2 is shaped to receive a hose, in the usual manner.

Thus it will be seen that I have provided a pump of simple construction so that it can be manufactured to sell at low cost and one which will have long life, as the parts are firmly connected together and the cup washer is protected from wear.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several

parts, provided that such changes fall within the scope of the appended claim.

What I claim is:—

In combination, a pump including a piston rod, a hollow handle supported by said rod and open at one end, said handle having a depression adjacent its open end, a plug adapted to be removably fitted in said end, and a spring pressed plunger carried by the plug and adapted to be received by said depression for the purpose specified.

In testimony whereof I affix my signature.

JOHN A. CRIMP.