J. T. FIESE.

TIRE PUMP.

APPLICATION FILED OCT. 27, 1919.

1,414,808. Patented May 2, 1922.

Fig. 1

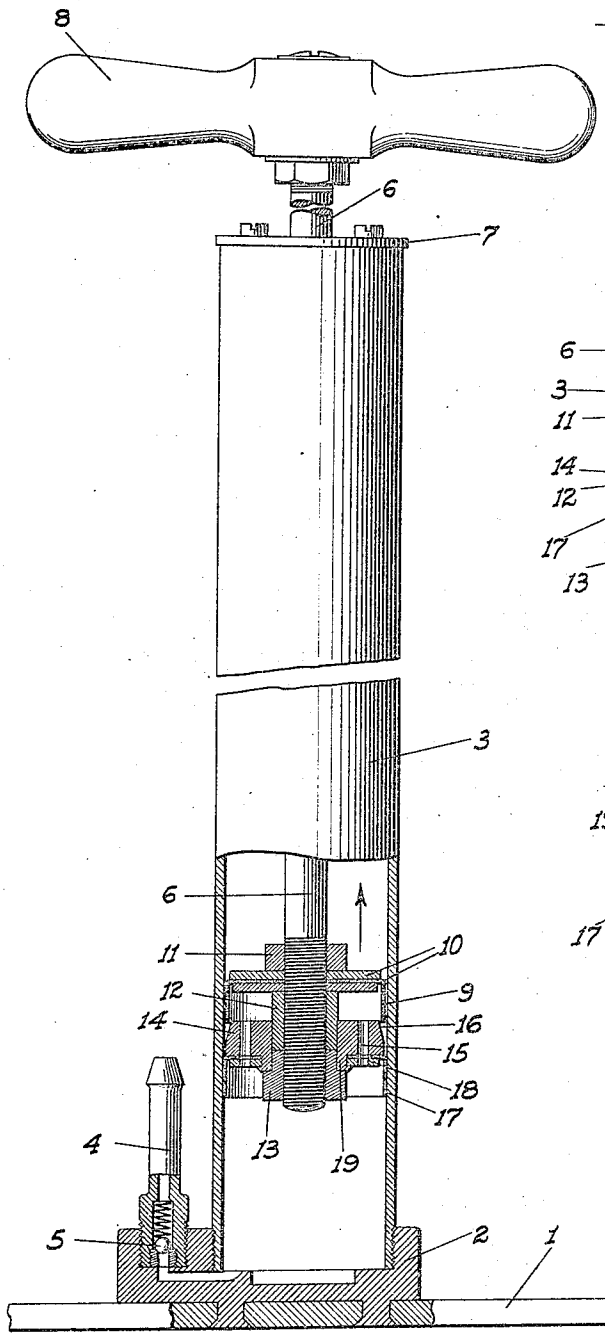


Fig. 2

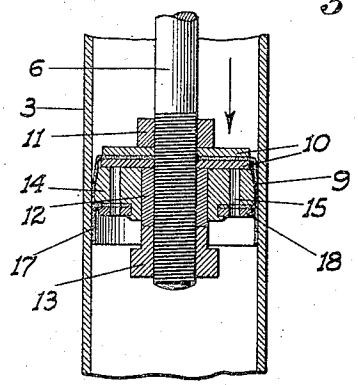
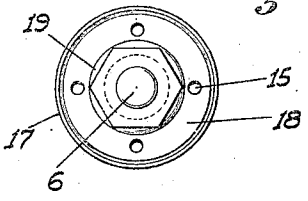


Fig. 3



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TIRE PUMP.

1,414,808. Specification of Letters Patent. Patented May 2, 1922.

Application filed October 27, 1919. Serial No. 333,656.

To all whom it may concern:

Be it known that I, JESSE T. FIESE, a citizen of the United States, residing at Fresno, county of Fresno, State of California, have invented certain new and useful Improvements in Tire Pumps; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to manually or mechanically operated tire pumps, and is intended to incorporate certain features of improvement over Letters Patent No. 1,301,242 issued to me the 22nd day of April, 1919.

The principal features of improvement in my present form of pump are mainly in the plunger mechanism, the main object of the invention being to so construct the said plunger mechanism that there will be a positive expansion of the leather plunger-cup on the downward or force stroke.

On the upward or suction stroke this expansive pressure is relieved, thus keeping the cup from contact with the sides of the pump barrel, and so prolonging the life of the cup, since the wear effect due to friction only occurs during one stroke.

This freedom from contact of the cup with the barrel during the suction stroke also permits a free and unobstructed passage of air past the plunger, and therefore lessens the physical exertion necessary to operate the pump.

The parts of the plunger mechanism are so arranged as to permit of great ease of assembly thereof, and allow the main wearing cup to be quickly replaced if necessary.

In the majority of pumps having leather cup plungers, if the pump has been idle for any length of time, the leather becomes dried out, and the effectiveness of the pump is lost until a new cup can be supplied.

With my improved form of construction, this will seldom if ever be necessary, since as before stated, as soon as the downward stroke of the pump is begun, the cup is positively expanded.

A further object of the invention is to produce a simple and inexpensive device, and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Fig. 1 is a side elevation of the pump, partly in section to show the plunger mechanism, the pump rod being on the upward stroke.

Fig. 2 is a fragmentary section through the plunger, showing the pump rod on the downward stroke.

Fig. 3 is a bottom plan view of the plunger.

Referring now more particularly to the characters of reference on the drawings the numeral 1 denotes a foot plate, 2 the pump base, and 3 the barrel screwed into the base. The base is preferably secured to the foot plate in the manner set forth in my copending application for patent Serial No. 333,355 filed Oct. 27, 1919.

The base 2 is provided with an upstanding nipple 4 to one side of the barrel and communicates therewith through the base, being adapted for connection to a tube or hose. A ball check 5 is positioned in the nipple to prevent pressure or suction therethrough from the hose to the barrel.

A pump or piston rod 6 extends into the barrel, and is slidable through a closure plug 7 on top of the barrel, the construction of the closure being preferably the same as that shown in the above mentioned Letters Patent.

A handle 8 is of course secured to the rod above the plug 7.

On the lower end of the rod is mounted my improved piston or plunger mechanism. This comprises an inverted leather cup 9, normally spaced slightly from the sides of the pump barrel. The horizontal portion of this cup is braced by metal washers 10 on each side. A nut 11 is threaded on the rod 6 above the upper washer, while a spacer sleeve 12 is on the rod below the under washer, which spacer is held against the

washer by a sleeve nut member 13, the nut portion of which is of larger diameter than the sleeve.

By this construction the cup 9 is firmly held in place, while at the same time it may be readily removed when necessary.

Slidable easily on the sleeve 12 is a disc 14 having perforations 15 therethrough. This disc is slightly smaller at its lower end than the barrel 3, and tapers somewhat to its upper end as at 16, so that such upper edge is always just inside the inner edge of the cup 9.

An inverted leather cup 17 adapted to bear always against the barrel is held against the lower face of the disc by means of a washer 18, the disc having an extension 19 projecting past the washer, which extension is then headed over on to the washer so that it cannot be displaced.

Since this latter cup has no function other than to hold the disc momentarily stationary when the rod is pushed downwards, it will in all probability never need replacing.

The extension 19 on the disc normally rests against the nut 13, thus preventing further downward movement of the disc. The washers 18 and cup 17 of course have holes in alignment with the holes 15 in the disc, and the latter is slipped over the sleeve before screwing the nut 13 onto the rod.

In the operation of the pump, an upward stroke of the pump rod, as shown in Fig. 1, allows the air in the barrel above the plunger to pass the cup 9, when it then passed through the holes 15 in the disc, the disc then resting on the lower nut 13.

On reversing the motion of the rod 6, the disc is momentarily held stationary by the clinging action of the cup 17 against the barrel. This causes the disc to enter the upper cup 9, and the tapered edge of the disc will cause the cup to be expanded and firmly impinged against the walls of the barrel. As soon as the air in the barrel is compressed slightly, this force is then sufficient to firmly hold the disc against the cup.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the object of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:—

1. A piston mechanism for pumps including an expansible cup fixed on the piston rod and normally spaced slightly from the walls of the pump-barrel, a disc below the cup and adapted to expand the same, the disc being arranged for limited sliding movement of a predetermined extent on the rod, another cup fixed to the disc and bearing constantly against the walls of the barrel, said latter cup and the disc being orificed, whereby when the rod is moved upwardly on the suction stroke the expansible cup is drawn away from the disc and air may pass therearound and through the orifices, but when the rod is pushed down on its pressure stroke the expansible cup will be forced against the walls of the barrel and the air passageways are stopped up.

2. A piston mechanism for tire pumps including a leather cup mounted on the piston rod of the pump, and normally spaced slightly from the walls of the pump barrel, a disc on the rod below the cup and arranged for limited vertical movement relative thereto, the disc tapering inwardly toward the cup and being substantially the same diameter as said cup, and another leather cup secured to the disc and bearing constantly against the walls of the pump barrel, the disc and cup thereon being perforated to admit air therethrough during the suction stroke of the piston rod.

3. A piston mechanism for pumps including a piston rod, a fixed expansible cup thereon normally spaced slightly from the walls of the pump-barrel, another cup below the first named cup bearing constantly against the barrel-walls and arranged for limited vertical movement on the rod, said last named cup having orifices through that portion which extends across the barrel, and means whereby when rod is forced down on the pressure stroke the expansible cup will be forced into close contact with the barrel walls.

In testimony whereof I affix my signature in presence of two witnesses.

JESSE T. FIESE.

Witnesses:
CARL O. SISENBY,
G. N. NUTWELL.