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1,649,530

AIR PUMP

Filed Nov. 30, 1925

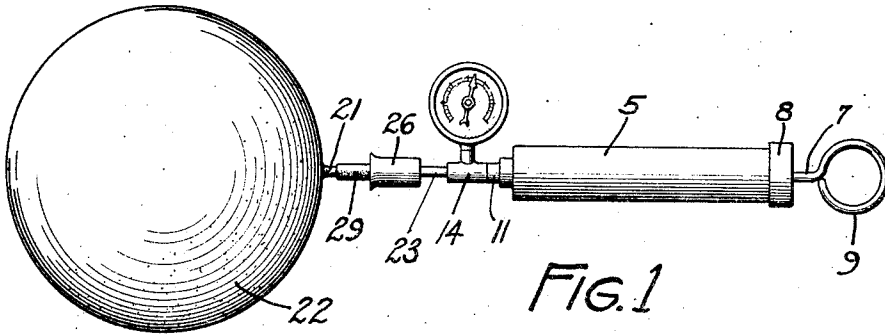


FIG. 1

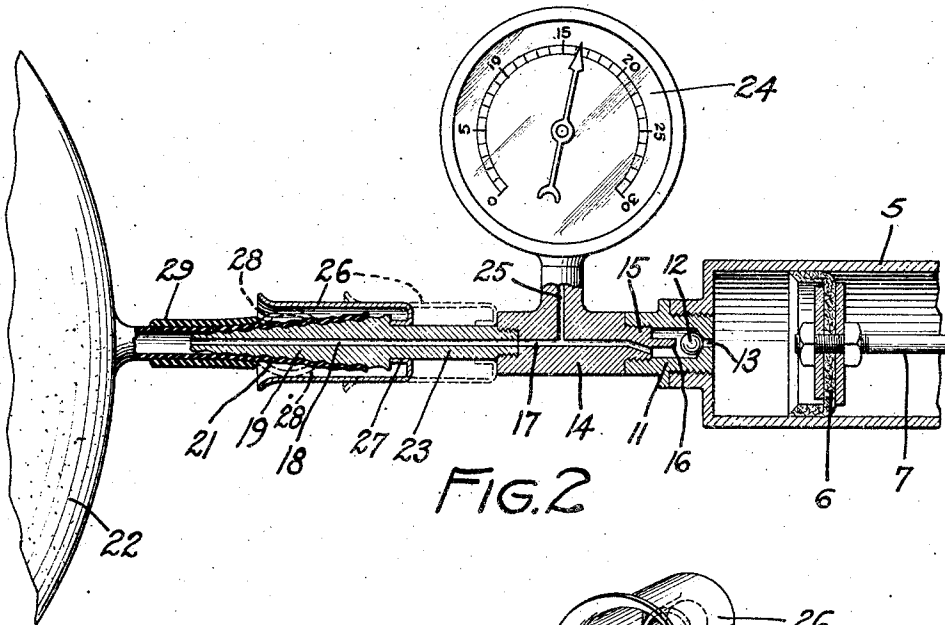


FIG. 2

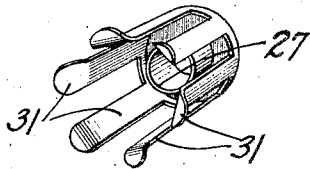


FIG. 4

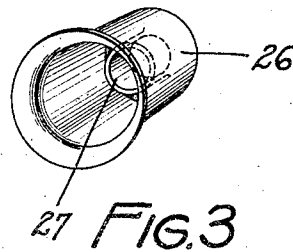


FIG. 3

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AIR PUMP.

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This invention relates to new and useful improvements in pneumatic pumps and more particularly relates to such pumps adapted for use to inflate air bags such as 5 are commonly employed in connection with basket balls and foot balls.

An object of the invention is to provide a pump having a nozzle adapted to be inserted into the neck of the bag and having 10 a pressure gauge interposed between the nozzle and the pump adapted to register the pressure in the bag, whereby the bag may be pumped to a predetermined pressure without danger of overloading it, which is a 15 common occurrence at present when inflating bags with pumps having no pressure gauge connected therewith.

A further object of the invention is to provide an air pump having a check valve 20 interposed between the gauge and the pump whereby, when the operation of actuating the pump is interrupted, the exact pressure in the bag will be indicated on the pressure gauge.

A further object is to provide a pump having means slidably mounted thereon adapted to partially inclose the nozzle inserted in the neck of the bag, thereby preventing the neck from bursting when inflating the bag. 30

The particular object of the invention, therefore, is to provide an air pump adapted for use to inflate such devices as basket balls, foot balls, etc.

Other objects of the invention will appear from the following description and accompanying drawings and will be pointed out in the annexed claims. 35

In the drawings there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown, as various changes may be made within the scope of 40 the claims which follow.

In the accompanying drawings forming part of this specification,

Figure 1 is a side elevation of the improved pump connected to an air bag;

50 Figure 2 is an enlarged detail sectional view showing the connection between the nozzle, pump and gauge, and also showing the guard slidably mounted upon the nozzle to protect the neck of the bag when inflating it; 55

Figure 3 is a perspective view of the guard removed from the nozzle; and

Figure 4 is a perspective view of a modified form of guard.

In the selected embodiment of the invention here shown, there is illustrated a pump comprising a barrel 5 having the usual piston 6 reciprocally mounted therein which is provided with the usual rod 7 outwardly projecting through the cap 8 and having a 60 hand grip 9 thereon as shown in Figure 1. A valve cage 11 is terminally mounted in the pump barrel and has a ball check valve 12 mounted therein adapted to close the discharge port 13 of the pump when the movement of the piston is interrupted. A T-shaped head 14 is secured to the valve cage 70 by means of a threaded extension 15 having a pin 16 terminally provided thereon adapted to be engaged by the ball 12 when air is discharged from the pump into the valve cage. A duct 17 is provided in the head 14 and connects the interior of the valve cage 11 with an air passage 18 provided in a 75 tapered nozzle 19 adapted to be inserted into the neck 21 of the air bag 22, as particularly shown in Figure 2. The nozzle 19 has a cylindrical portion 23 connecting it to one end of the T-shaped head 14 as shown. A 80 pressure gauge 24, of ordinary construction, is mounted in the T-shaped head 14 and communicates with the branch 25 provided in the head 14, whereby the air pressure in the bag 24 may be indicated upon the gauge 85 when the operation of the pump is interrupted. Thus it will be noted that when inflating a bag, the air will be forced from the pump barrel through the valve cage 11, duct 17, passage 18 and into the bag. Upon 90 the return stroke of the piston 6, the ball valve will close the port 13 so that the gauge 24, which is in direct communication with the interior of the bag, may record the pressure contained in the bag.

A feature of the invention resides in the novel means provided for protecting the neck 21 of the bag during the operation of inflating the bag. Such means preferably consists of a sleeve-like guard 26 having a reduced bore 27 adapted to be slidably 105 mounted upon the cylindrical extension 23 of the nozzle. The inside diameter of the sleeve 26 is such as to permit it to be longitudinally moved upon the extension 23 over the adjacent end of the tapered nozzle 19, 110

thereby inclosing that portion of the bag neck in which the nozzle is inserted, as shown in Figure 2. By the use of this guard, therefore, it will readily be noted that it will be impossible for the neck of the bag to expand beyond a predetermined degree, indicated by the dotted lines 28 in Figure 2. The necks 21 of such bags are usually provided with a reinforcement 29 adjacent the bag, but this reinforcement does not usually extend the full length of the neck 21, and it is therefore desirable that means be provided to reinforce or protect the outer portion of the neck from bursting or from expanding sufficiently to permit the air to escape between the wall of the neck and the nozzle, during the inflating operation. The extension 23 of the nozzle is of sufficient length to permit the guard 26 to be moved from the full to the dotted line position in Figure 2, when inserting or removing the nozzle from the neck. The overhanging end of the guard 26 is preferably outwardly flared as shown to prevent it from engaging the neck when sliding it thereover.

The particular construction of the pump here shown is therefore such as to render it well adapted for use in gymnasiums, and the like, for inflating such devices as basket balls, foot balls, etc. In tournament games such bags are usually required to be pumped to a predetermined pressure, and this has heretofore been found practically impossible as a result of ordinary pumps such as are commonly employed for this purpose, not being equipped with means for indicating the pressure in the bag.

Figure 4 illustrates a guard of modified construction comprising a plurality of fingers 31 having their ends outwardly flared as shown, so that it may readily be moved over the neck of the bag without danger of injuring it.

The general construction of the nozzle and pump here shown is such that it may readily be taken apart for repairs or cleaning, if desired. It will also be noted that by removing the nozzle 19 from the T-shaped head 14, the guard 26 may be removed from the extension 23, after which the nozzle may be secured to the T-shaped head and the

pump used without the guard. Other types of check valves may also be used in place of the ball valve shown without departing from the invention.

I claim as my invention:

1. A pneumatic pump having a nozzle adapted to be inserted into the neck of a bag, means slidably mounted on said nozzle to protect said neck when mounted thereon, and means for indicating the pressure in said bag when being inflated.

2. An apparatus of the class described, comprising in combination, a pump, having a nozzle connected thereto and adapted to be inserted into the neck of a bag, a pressure gauge in the connection between pump and nozzle, and means mounted to partially inclose said nozzle to prevent said neck from expanding beyond a predetermined degree when said bag is being inflated.

3. A pneumatic pump for inflating air bags, comprising a nozzle, a cylindrical extension between said nozzle and said pump, a guard slidably mounted on said extension and adapted to be moved over that portion of the neck of the bag into which said nozzle is inserted, and means for indicating the pressure in said bag when being inflated.

4. A pump for inflating air bags, comprising a tapered nozzle demountably secured to the pump and adapted to be inserted into the neck of an air bag, and demountable means interposed between said nozzle and said pump adapted to be moved over a portion of said nozzle to protect the neck of the bag into which the nozzle is inserted.

5. A pump for inflating air bags, comprising a nozzle adapted to be inserted into the neck of an air bag, and a slide adapted to be moved over a portion of said neck when said nozzle is inserted therein and permitting a limited expansion of said neck.

6. A device for inflating basket and foot balls, comprising in combination, a pump having an extension at one end, a nozzle terminally provided upon said extension and adapted for connection with an air bag, and means connected with said extension for preventing accidental over-inflation of said bag.

In witness whereof, I have hereunto set my hand this 24th day of November, 1925.

LLOYD HOLSINGER.