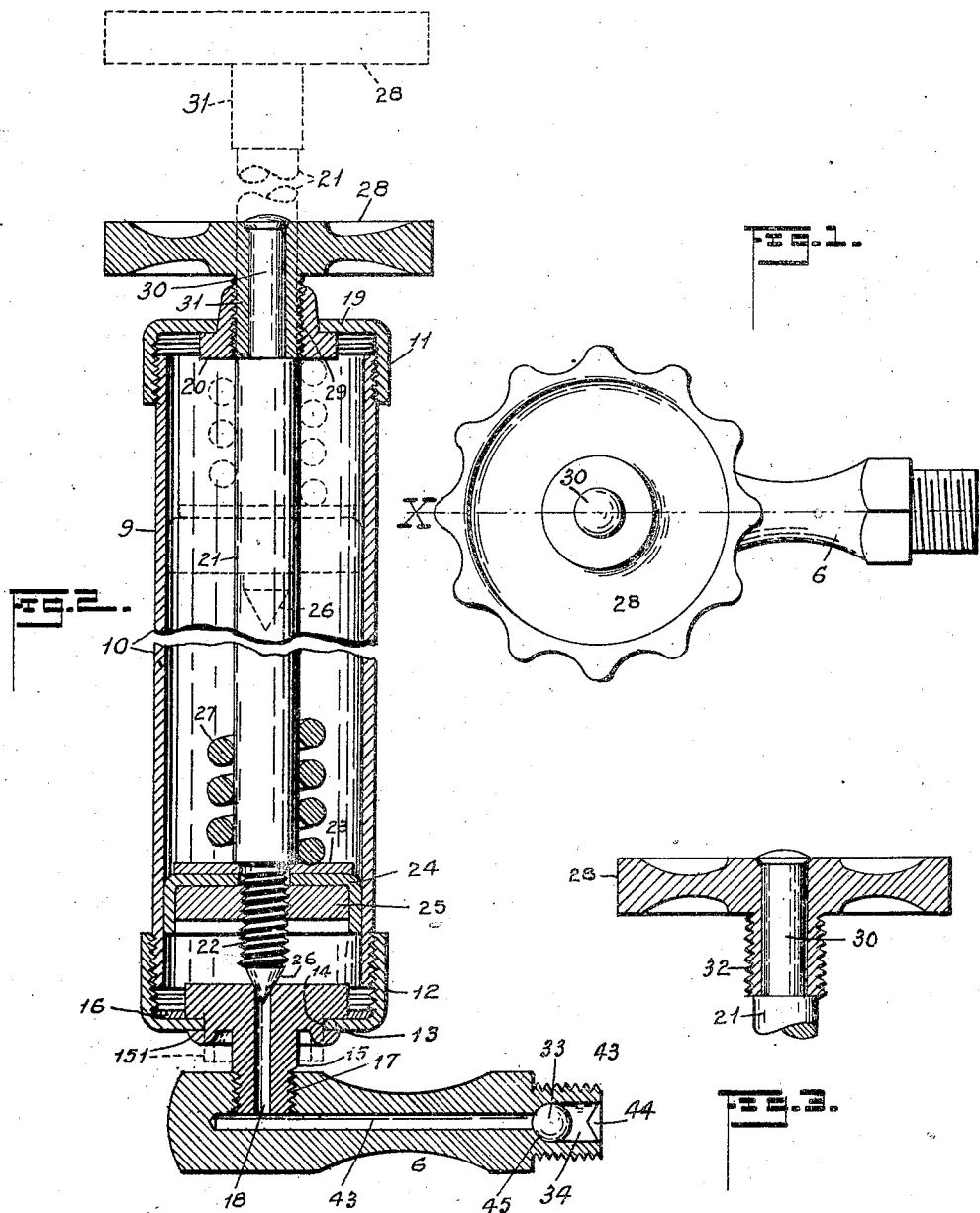


O. BERNZ.
AIR PUMP FOR BLOW TORCHES.
APPLICATION FILED JULY 22, 1907.

937,757.

Patented Oct. 26, 1909



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AIR-PUMP FOR BLOW-TORCHES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, OTTO BERNZ, a citizen of the United States, residing at Newark, in the county of Essex, in the State of New Jersey, have invented certain Improvements in Air-Pumps for Blow-Torches, of which the following is a specification.

The objects of the invention are to secure improved means for obtaining the necessary air pressure in the body of the torch; to secure a construction of pump which shall not leak, and in which the plunger is always out of the way; to secure a safe and practical pump for ordinary usage; to obtain a simple and inexpensive construction throughout, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is an end view of my improved pump, looking at the handle end; Fig. 2 is a central longitudinal section of the pump in line X, Fig. 1, and Fig. 3 shows in section similar to Fig. 2 a modified construction of pump handle sometimes employed.

The pump cylinder 9 comprises a piece of tubing 10, the opposite ends of which are exteriorly threaded to screw into top and bottom caps 11 and 12 respectively. The bottom cap 12 provides a flange 13 extending radially inward at the end of the cylinder, and receiving at its inner edges the circular head 14 of a spud or end-piece 15, a firm connection being preferably obtained by bending over a rib 151 upon the flange 13 and soldering as at 16. This end piece or spud 15 has a central longitudinal passage 18 which forms the discharge from the cylinder 9. The top cap 11 of the cylinder provides a radially disposed annular flange 19, which receives a centrally disposed block 20 affording a central slideway for the plunger or piston rod. This piston rod 21 has a reduced and threaded inner end 22 which receives a washer 23, leather cup 24 and follower 25 screwed upon the piston rod end 22 to hold said cup and washer in place. The extremity of the rod is then pointed or conical as at 26, to fit into the entrance or mouth of the passage 18 of the end piece 15, and forming therewith a valve. A coiled spring 27 is placed upon the piston rod above the piston head to prevent the

latter from hammering against the top cap of the cylinder when the piston is reciprocated, it being understood that the air ahead of the piston will prevent detrimental engagement of the pointed end of piston rod and its valve seat in the opposite direction.

At the upper end of the piston rod or outside the cylinder, said rod is provided with a handle 28 of any convenient form to provide a secure grasp, and adjacent to said handle, at the lower side thereof, is a series of screw threads 29 extending longitudinally of the piston rod and adapted to screw into the block 20, as shown in Fig. 3. It will be understood that by unscrewing the piston outwardly, it is free to be reciprocated to work the pump, but after pumping, the piston can be screwed inward as shown in said Fig. 3, both to tightly and imperiously close the valve at its inner or lower end and to prevent outward escape or displacement of the piston.

Preferably the upper or outer end of the piston rod is reduced as at 30, to receive thereon the handle 28, and said handle is provided with an integral sleeve 31 upon the outside of which the screw threads 29 are formed. The said handle may then be fast upon the piston rod, as shown in Fig. 3, so as to turn said piston rod as the handle is rotated and twist or scour the valve extremity 26 into its seat,—or the said handle and its sleeve may be loose upon the reduced end of the piston rod as shown at 32 in Fig. 4. By this last described construction, the piston can be reciprocated and afterward locked in its innermost position simply by turning the handle and without imparting any rotary motion to the piston rod. This construction obviously provides a cut-off which absolutely prevents any gas from escaping into the pump when the latter is not in operation, and therefore insures a torch which in ordinary usage is thoroughly safe and practical.

The stem 17 of the end piece or spud 15 is shown screwed into the side of a tubular bracket 6, as is common in air pumps for blow torches, and the passage 43 of this bracket forms an extension of the discharge duct leading from the cylinder 9 to the reservoir into which air is to be pumped. A ball valve 33 is arranged in the radially enlarged end portion 34 of the passage 43 of the pump bracket 6, and held against escape by a transverse sheet metal wedge 44 driven

into the end of said end portion 34. This ball valve seats against the shoulder 45, and prevents back leakage, when the pump piston is in operation.

5 Having thus described the invention, what I claim as new is:

1. The combination of a pump cylinder exteriorly threaded at the discharge end of the pump, an end cap comprising an annular body portion with a marginal skirt or flange 10 interiorly threaded to screw onto said cylinder, a spud having a disk-like head of larger diameter than the opening of the end cap and lying within the cylinder, an annular rib upon said head projecting outward 15 through the said opening of the end cap and bent over upon the outside of said end cap, said spud having a central discharge passage, a piston having the inner end of its rod adapted to close the entrance to said passage 20 of the spud, and means for holding said piston seated in said entrance.

2. The combination of a cylinder having discharge means at one end and at its opposite 25 end an interiorly threaded aperture, a piston in said cylinder having a rod extending slidably through said aperture, a handle on the outer end of said piston rod, and a sleeve around the piston rod exteriorly threaded to 30 screw into the said threaded aperture of the cylinder head, said sleeve being fast to said handle.

3. The combination of a cylinder, a piston 35 in said cylinder having its rod extending through one end of said cylinder, locking

means on said end of the cylinder, a sleeve rotatably loose on the piston rod but held against longitudinal movement thereon, locking means on said sleeve adapted to cooperate 40 with the said locking means on the cylinder head to lock the piston against longitudinal movement, and means for turning said sleeve.

4. The combination of a cylinder, a piston in said cylinder having its rod extending 45 through one end of said cylinder, locking means on said end of the cylinder, a handle rotatably loose on the outer end of the piston but held against longitudinal movement 50 thereon and adapted to reciprocate the piston, and locking means upon said handle adapted to cooperate with the said means on the cylinder head to lock the piston against longitudinal movement.

5. The combination of a cylinder having 55 at its end an interiorly threaded aperture, a piston in said cylinder having a rod extending slidably through said aperture and reduced at its extremity, and a handle rotatably loose on said reduced end of the piston 60 rod and having at its side next the cylinder a centrally disposed sleeve inclosing the piston rod and being exteriorly threaded to screw into the said threaded aperture of the cylinder head and hold the piston against reciprocation. 65

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In the presence of—

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