

UNITED STATES PATENT OFFICE.

BENJAMIN T. BABBITT, OF LITTLE FALLS, AND SHULER C. HIGBEE AND PETER W. PLANTZ, OF OPPENHEIM, NEW YORK.

PUMP AND FIRE-ENGINE.

Specification of Letters Patent No. 2,801, dated October 7, 1842.

To all whom it may concern:

Be it known that we, BENJAMIN T. BABBITT, of Little Falls, Herkimer county, SHULER C. HIGBEE, of Oppenheim, Fulton county, and PETER W. PLANTZ, of the same place, all of the State of New York, have invented a new and improved mode of constructing a pump by attaching air-chambers to the supply-pipe and may be used for fire-engines and other like purposes, also the manner in which the pump is cast, and do hereby declare the following to be a full and exact description.

The nature of our invention consists in constructing two air vessels in connection with the supply pipe one on each side or it may all be in one as the case may require for the purpose of giving elasticity to the reaction of water in the supply pipe so as to not check the velocity of the water while the pump is operating on the dead centers thereby giving ease to the supply pipe as when lead is used it is subject to be broken or soon chafed off, also causing the main cylinders to file much faster than they otherwise could thereby producing a steady stream from the pump and a steady and uniform current through the supply pipe while the pump is operating. To enable others skilled in the arts to make and use our invention we proceed to describe its construction and operation we construct a pump made of cast iron with two cylinders each forcing water into an air chamber standing between the two cylinders as shown in the draft Figure 1, letter A, showing the inside as one half of the pump which is cast in connection with the supply pipe, C, and two air chambers, Figs. 4 and 5, letters B, B, together with the knobs as shown in Figs. 1, 4, and 5, letters g^2 , g^2 , g^2 , g^2 , for the purpose of keying the cylinders Figs. 2 and 3 letter d , d , to the supply pipe, C, and the air chamber Fig. 1, letter A.

The air chamber Fig. 1 letter A is sixteen inches long $4\frac{3}{4}$ inches square at the base the square part extending up 6 inches the balance turned off round as shown in the draft which draft is on a scale of 3 inches to the foot. It also serves as a stand with two cheeks on the top for the purpose of connecting the lever and a place for the fulcrum with a discharge hole K in front.

The air chambers Figs. 4 and 5, letter B, B, stand 4 inches from the large air cham-

ber A, and serve as stands for keying the two cylinders, Figs. 2 and 3, letter d , d , to the main air chamber letter A. They are $5\frac{1}{4}$ inches long $2\frac{1}{2}$ inches in diameter cast hollow and in connection with the supply pipe C. The supply pipe is 17 inches long having a hole of $1\frac{1}{4}$ inches throughout—with hooks at the bottom for connecting additional supply pipe the cylinders Figs. 2 and 3 letter d , d , are packed with leather and keyed to the connecting pipe c , and the air chamber A, by means of the keys O, O, the one between the main cylinder and the main air chamber serves to key down while the key between the small air chamber B, B, and the cylinders d , d , serves to key both ways by resting on the flange of the cylinders, the cylinders are 10 inches long 3 inches diameter with a valve S, S, at the bottom shutting down, and a valve between the cylinder d , and the air chamber A shutting against the cylinders. The valve is formed of leather cut to shut the hole while the balance serves for packing.

The hooks c' , c' , on the supply pipe C, are used for keying on additional supply pipe by means of a collar E and keys n , n . There are two pistons i i one in each cylinder packed with leather sufficiently tight to form a vacuum or move the water they are $2\frac{1}{2}$ inches long of cast iron and hollow within $\frac{3}{8}$ of an inch of the bottom with a hole through the bottom in which is a bolt fastened to the connecting rod f in the inside and a screw and nut on the bottom. The connecting rods f , f , are cast iron 12 inches long attached to the lever h and are 10 inches apart on the lever, the lever h is made of cast iron 2 feet $9\frac{1}{2}$ inches long.

In the operation of the pump you now perceive by the draft that the piston i as shown in Fig. 3 is moving down. Therefore the supply valve S, S, shown in Fig. 3 at the bottom is shut and the valve w , shown in Fig. 1, letter A, is open allowing the water to pass in to the air chamber A and out at the discharge pipe K at the same time the cylinder d , Fig. 2, has the piston i sliding up and the valve S, S, at the bottom is open allowing the water to pass in from the supply pipe C, and more water is furnished from the air chamber B, Fig. 4, to the supply pipe than there is from the air chamber B, Fig. 5, as may be seen by the draft by reason of the air chamber B, Fig. 4, being

nearer the cylinder *d*, Fig. 2, which is drawing water although the air chambers connected with the supply pipe, C, have no valve when the pistons are on their dead center, the current of the water in the supply pipe is not checked.

The air in the air chambers B, B, being exhausted, by their connection with the cylinder *d*, in proportion to the height the water is raised, allows the water to rush in and supply the partial vacuum the momentum of which compresses the air in the upper portion of the chamber B, B, which by its reaction causes the water to rush into the cylinder *d*, *d*, Figs. 2, 3, when required sufficiently fast to fill the cylinders when the pump is worked quick thereby remedying the evil so much complained of in pumps and fire engines that when worked quick the cylinders do not fill.

The above mentioned air chambers to the supply pipe can be attached to any pump, fire engine, or steam boilers the air chambers on the supply pipe are of greater utility when there is but one piston or cylinder yet it adds to the fire engine one quarter of water and enables it to throw the water one quarter farther.

What we claim as our invention and desire to secure by Letters Patent is—

The application of air chambers B, B, to the supply pipe of pumps or engines together with the manner in which the pump is cast as herein before described.

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SHULER C. HIGBEE.
PETER W. PLANTZ.

In presence of—

GEORGE PETRIE,
JAS. H. BOWEN.