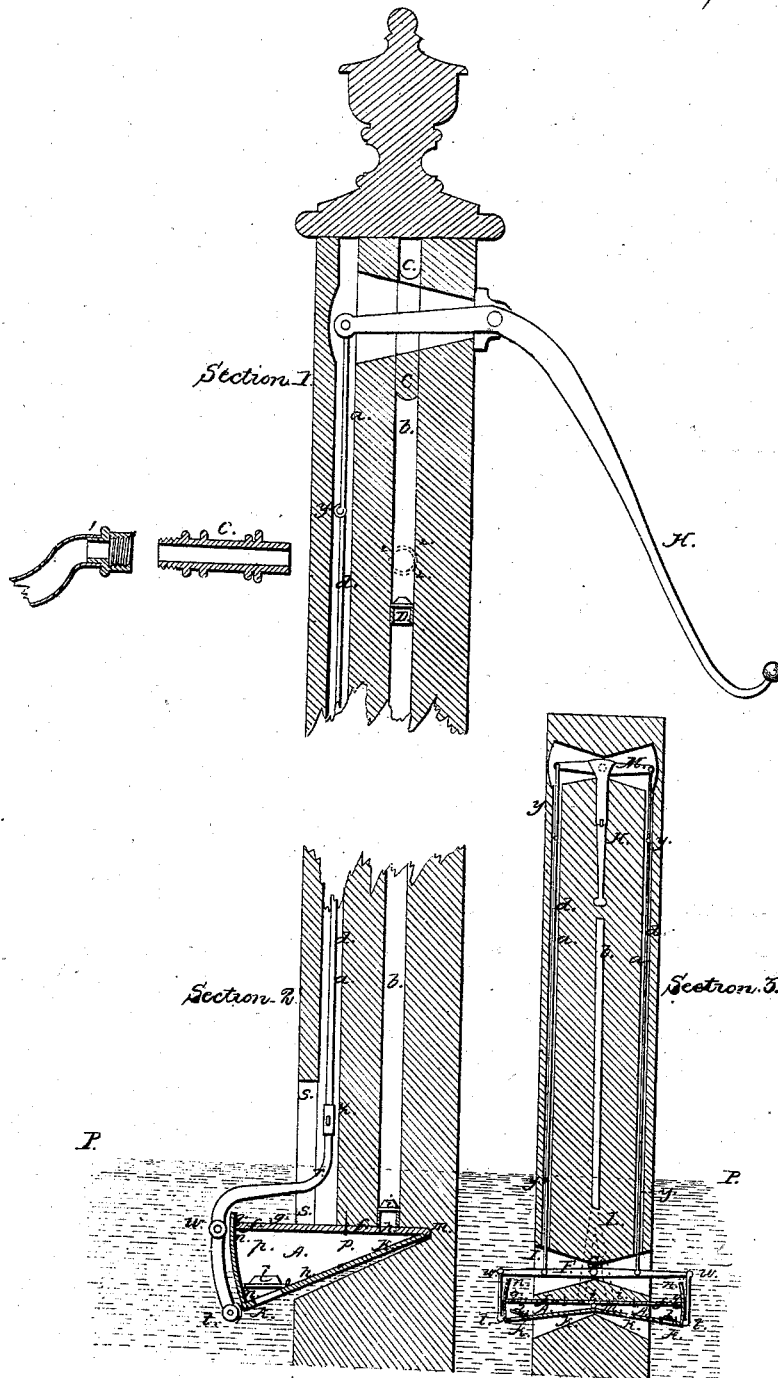


T. J. Wolfe,

Bellows Pump,

N^o 3529.

Patented Apr. 10, 1844.



UNITED STATES PATENT OFFICE.

T. J. WOLFE, OF BALTIMORE, MARYLAND.

PUMP.

Specification of Letters Patent No. 3,529, dated April 10, 1844.

To all whom it may concern:

Be it known that I, T. JEFFERSON WOLFE, of the city of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Pumps, and that the following is a full and exact description of the construction and operation of the same.

In the annexed drawings Figure 1 represents a vertical section of the upper part of the pump, and Fig. 2 a vertical section of the lower part of the same.

The pump has two cylindrical bores, one near the center represented by *b, b*, through which the water is forced to the spout of the pump when in operation. It is stopped at the upper end by a plug *c*, to prevent the introduction of stones, &c., and the other *a, a*, through which the rod passes, from the handle to the forcing chamber.

H, is the handle similar to those in ordinary use, and *d, d*, the rod attached thereto.

A is the forcing chamber the general form of which is the sector of a hollow cylinder. I construct it of cast iron, which I prefer. It consists of two parts: First, the upper or stationary plate *f, f*, which is cast with a flange *g* on the upper side for attaching it by nails or screws to the pump stock to which it is adapted. For still greater security nails or screws may likewise be driven through the plate from the underside into the stock, as partly shown in the drawing. This plate is perforated at *h*, immediately under the bore *b, b*, and is furnished with a clapper valve *i*, of common construction which opens upward; *k, k*, is the lower plate perforated in two or more places, with valves at each of common construction opening upward, one of which is shown at *l*; these plates *f, f*, and *k, k*, are united together at *m*, by a wrought iron pin and water tight hinge cast on the edges of the plates. A cylindrical plate *n, n*, (of the radius *m, n*), and two sector-shaped end plates one of which is seen in a direct view at *p, p*, are attached by screws or otherwise to each other and to the edges of the lower plate *k, k*, (or they may be cast solid with the latter,) and complete the chamber. The plate *n, n*, is made true on the inner surface so as to keep it throughout its motions as close as possible in contact with the edge *q*, the stationary plate *f, f*. The foot of the pump stock rests on the bottom of the well and is notched out under the water line *P, P* as shown in the drawing, to receive the

forcing chamber (which is wholly emersed in the water) at a sufficient height above the bottom of the well to prevent the sediment being agitated, and any interference with the valves from that cause.

The lower part of the rod is bent at *r*, and passes out through *s, s*, at the foot of the stock. It is then bent over the side of the forcing chamber and attached by a joint, *t*, to the edge of the lower plate it likewise has a joint at *w*, to prevent strain, for a similar purpose the rod is jointed near the upper end at *y*, and has a slip joint and band at *z*, for unshipping the bent portion.

The spout *C*, (which is represented detached from the pump so as to be better understood) is cast with a male screw so that a hose, No. 1, may be attached and used for various purposes. Its point of insertion into the pump is shown by the dotted circles 2, 2, 2. Immediately below it an extra valve *D* of common construction opening upward, is fixed stationary in the bore of the pump, the use of which is to catch any matters passed through the spout to injure the pump, from which point they may be removed without much trouble.

Section No. 3 is a section of the material parts of the pump when adapted to the double action, the same letters used in the description of the other sections refer to similar parts in this. The chambers *A, A* however are narrower than the stock and pass entirely through it, and the plates *f, f*, as also *k, k*, of each chamber are made in one piece the latter *k, k* working in a common center at *m*. Likewise for the bent portion of the rod a lever *F* having its center of motion at *G*, is substituted, which works in an angular slot or mortise *I, I*, in the stock and is attached to the lifting rods at *w, w*, and to the rods *d, d*. The water bore *b* is branched at *L* as shown by the dotted lines and the handle *H* is attached to the center of motion of a short lever *M* to the extremities of which the rods *d, d* are made fast and are worked by moving the handle from side to side. The operation of this pump is similar to the single action, except that while one chamber is filling in this the other is forcing, thus producing a continuous stream at the spout, and causing the pump to work lighter in consequence of one chamber being nearly a counter-poise to the other through all their motions.

The drawings Figs. 1 and 2 represent the

pump during the upward stroke or while the chamber A is filling. When the handle H is raised the lower part (*n n k k*) of the chamber A, is depressed, and the chamber 5 is filled through the valves *l, l*, by bringing the handle down again, the valves *l, l*, close, the valve *i* opens, and the water is forced up through the bore *b b*, the valve D, and the spout. When a hose is attached, the water 10 can be thrown to the top of a high three story house by the force of one man.

My pump possesses great advantages over those in common use for city purposes. There is less friction, they are not so liable 15 to get out of order, and the working part being made of iron is more durable. The pressure of the atmosphere not being used, the water may be forced at any height only limited to the strength of the materials to 20 bear the pressure, in which latter respect it differs materially in its principle of operation from the bellows pump, as it is called, introduced into France many years since, in which the water is raised by at- 25 mospheric pressure, and which is made in part of leather, canvas or other flexible but

perishable materials. Moreover the rod being placed in a separate bore from that made for the water, it is better preserved and the water in the stock is not impregnated with 30 iron as in common pumps.

What I claim as my invention in the above for which I ask Letters Patent of the United States, is—

1. The mode in which I have constructed 35 my forcing pump, that is to say, by placing the forcing chamber constructed substantially as described under the water line, the valves and piston or connecting rod being arranged and operating substantially as set 40 forth.

2. I also claim in combination with the above, placing the piston or connecting rod, and the discharging passage for the water 45 in separate bores of the pump log.

In testimony whereof I have hereunto set my hand this 27th day of March A. D. 1844.

T. JEFFERSON WOLFE.

Witnesses:

WM. T. STEIGER,
B. K. MORSELL.