



# UNITED STATES PATENT OFFICE.

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## PUMP.

Specification of Letters Patent No. 21,801, dated October 12, 1858.

*To all whom it may concern:*

Be it known that I, HENRY W. REGAN, of Cressona, in the county of Schuylkill and State of Pennsylvania, have invented certain  
5 new and useful Improvements in Double-Acting Pumps; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the ac-  
10 companying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the pump, and Fig. 2 represents on an enlarged scale a vertical section through the  
15 air chamber which embraces the elements of the invention.

I am aware that, a series of air chambers have been arranged in connection with a series of pumps, and I am also aware that,  
20 two single acting pumps have had a divided air chamber in common, but in this case the pumps each had its own air chamber, the water that was forced into it by its pump, passing out by a separate exit, and thus the  
25 water that was raised by each single acting pump, did not unite with that of the other pump. Such an arrangement could only be considered as two single acting pumps, with two distinct air chambers in close proximity  
30 with each other, but not communicating.

My invention consists in combining with a double acting pump, an air chamber that keeps the two columns of water separated so far as the elasticity of the confined air is  
35 concerned, but which allows said two columns to unite before they arrive at the nozzle or spout, thus separating the columns for one purpose, and again uniting them for another purpose, which makes a compact,  
40 cheap, and efficient pump and one in which the two columns do not influence or effect each other, which causes the pump to work without the least jar or reaction.

To enable others skilled in the art to make  
45 and use my invention, I will proceed to describe the same with reference to the drawings.

*a*, is the inlet pipe communicating with the two water ways *b, b*, which water ways  
50 are separated by the two flap or other valves *c, c*, from the two chambers *d, d*, which are contained within the dome or globe A, said chambers being formed by a partition *e*,

dividing the said globe. On the flange *f* that is formed on top of the globe (and  
55 with suitable packing between them) is placed, a plate *g*, that has fastened tight to it, two tubes *i, i*, which should extend down into the respective chambers *d, d*, as low, as  
60 the line of water should ever get in said chambers, or rather below that line. In the central portion of this plate *g*, on its upper side there is a rod or pin *k* over which is  
65 slipped a washer or collar *n*, and then a cross bar *m* and over the cross bar a nut *o*, that keeps the bar and washer on said pin, but allows them to be adjusted thereon. In the  
70 ends of this cross bar *m*, the stems or shanks *r*, of two valves *s s* move, said valves fitting into seats in the tops of the tubes *i, i*. On top of the plate *g*, (with packing between  
75 them) is placed a cap or dome B, into which the water from both the air chambers *d, d*, passes, before it enters the nozzle or exit *t*. Screws *u*, pass through the flanges *v, f*, and  
80 plate *g*, to hold them and the packing between them firmly together. C, is the pump cylinder in which the plunger D, works, and E, is the other water way, connecting the pump cylinder, with one of the passages *b*,  
the cylinder itself connecting with the other passage.

F, is the brake or pump lever, it is pivoted at *w* to the plunger D, and at *y* to an arm *x*,  
85 that supports it in place.

The advantage of this construction of pump consists mainly in this, that while it has but one inlet, and one exit, yet the two columns of water have each their own air chambers, and their own cushion of air, and  
90 thus the expansion of one volume of air to drive out its column of water, shall not in the least affect the compression of the other volume of air, when it is receiving its column of water. The consequence is that  
95 there is no jar, no slamming of valves, and the water flows out of the nozzle with the same regular stream, as though the head or pressure were uniform, instead of intermittent. So far as I know or believe, I am the  
100 first to apply to double acting pumps an air chamber that first divides, and then unites the two columns of water in their transit through the pump, as herein shown.

Having thus fully described the nature  
105 and object of my invention, what I claim



therein as new and desire to secure by Letters Patent is—

Combining with the water ways of a double acting pump, an air chamber divided  
5 by a partition *e*, so that each of the water ways, shall have its own air chamber, but the water from each be transmitted into a

common chamber B before its exit from the pump, substantially in the manner, and for the purpose set forth.

HENRY W. REGAN.

Witnesses:

A. B. STOUGHTON,  
THOS. H. UPPERMAN.