J. Q. ADAMS.

COMBINED PUMPS AND WELLS.

No. 182,143. Patented Sept. 12, 1876.

Fig. 1.

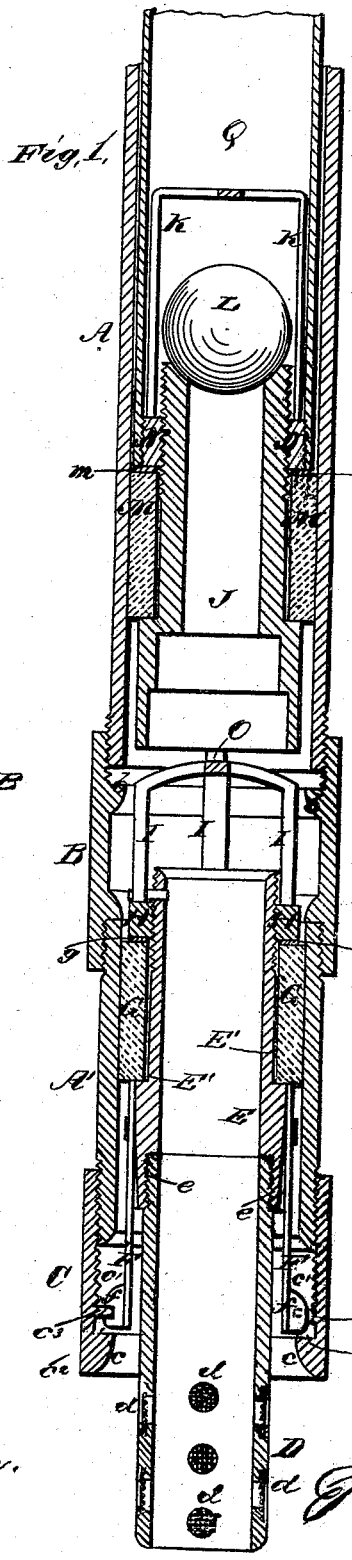


Fig. 2.

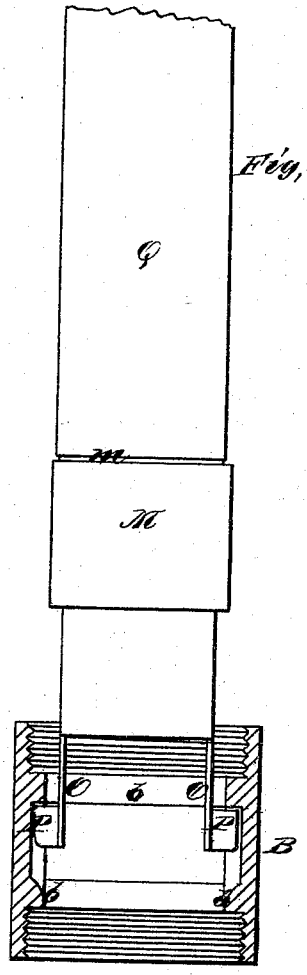
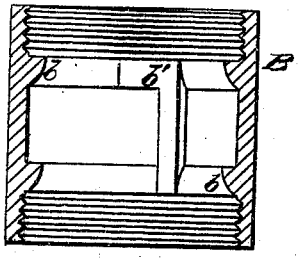


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN Q. ADAMS, OF KALAMAZOO, MICHIGAN.

IMPROVEMENT IN COMBINED PUMP AND WELL.

Specification forming part of Letters Patent No. **182,143**, dated September 12, 1876; application filed July 29, 1876.

To all whom it may concern:

Be it known that I, JOHN Q. ADAMS, of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a new and valuable Improvement in Combined Pump and Well; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of central vertical section of my pump and well, and Figs. 2 and 3 are detail views of the same.

This invention relates to tubes for combined pumps and wells; and it consists, first, in the combination, with the lowermost pipe-section, of a beveled cylindrical bottom piece, which is large enough to open a hole that will allow the passage of the couplings that follow; also, in the employment of spring-clamps for attaching a tubular filter or screen to the inside of the pipe proper; also, in the employment of a coupling, provided with internal ribs, to receive the lugs of spring-catches, whereby I secure in place an inner tube supporting a ball-valve, which communicates with the pump-tube proper; and, finally, in certain auxiliary devices, hereinafter particularly described.

A and A′ designate, respectively, upper and lower sections of well-tubing, which are united by a coupling, B, the connection being made by screw-threads in the usual manner. C designates a cylindrical sleeve or bottom piece, secured by screw-threads on the bottom of lowest tube-section A′, and beveled on the inside at *c* to facilitate its entry into the soil. Said sleeve extends some distance below the lower end of section A′, and it is made of as great diameter as coupling B, so that said coupling can pass down through the hole after it. D is a tubular filter or screen, provided with filtering-openings *d d*, and extending downward below bottom sleeve C, so as to allow the ingress of the water through said filtering-openings. E is an upward tubular extension of said tubular screen or filter, the two forming sections of an interior pipe connected by screw-threads at *e*. F F are two plate-springs, provided at their bottoms with beveled lugs or catches *f f*, and secured at their upper ends to the outside of tubular extension E. The office of these catches is to prevent the screen D and connected devices from descending too far, and from twisting injuriously. To effect this the inside of bottom sleeve C is recessed at c^1, and provided with shoulder c^2 just above bevel *c*, and also with studs c^3 c^3. Springs F F, in descending, throw catches *f f* into recess c^1; shoulder c^2 prevents them from descending further, and when said catches are turned they engage with studs c^3 c^3, which stop their rotary motion. The outside of section or extension E is recessed at E′, just above said springs F, to receive a rubber packing, G. Above said packing sets a metal washer, *g*, and above that a screw-threaded collar, H, which screws tightly down upon said rubber packing, so as to completely fill the space between the inner and outer tubes, and to clamp them tightly together. To the top of said collar are secured (or they may be made in one piece therewith) the arched rods I I. J designates a supplementary tube, having a ball-valve seat on its upper end, and provided with arched rods or grating K K above ball L. It has also packing M, washer *m*, and collar N, for compressing said washer, as well as springs O O and catches P P. Parts K, *m*, M, N, O, and P are similar in construction to the corresponding ones already described as attached to tube section or extension E. Tube-sections E and K are each provided with a stud, *e*, to prevent the separation of the packing compressing collars. Coupling B is provided on its inner face with circumferential beads *b b* and with L-shaped lug *b′*, which engages with catches P P, and thereby locks inner tube J to the outer tube, so that it can only be withdrawn by first slightly turning said inner tube, with its springs and catches, so as to disengage the latter from said lug. Said lug and beads also perform the same offices as the studs and shoulder on the inside of bottom sleeve C, already described. Q designates the lower end of the pump-tube proper, which is connected, by screw-threads, to collar N on inner ball-valve tube J. To the upper end of tube Q any ordinary form of pump is to be applied.

The operation is as follows: The outer tube A A′, with joint B and bottom sleeve C, is first worked down to the desired depth by driving, drilling, and sand-pumping. Then tubular filter or screen D, tubular extension or section E, rubber packing G, and collar H are secured together. Then springs F are compressed, to enable them to enter tube A, and lowered until catches *f f* enter recess c^1 of bottom sleeve C, and rest against shoulder c^2. A wrench is then attached to a rod and lowered into the tube, and collar H is turned thereby until packing G is properly compressed. The remaining parts of the apparatus are then inserted and secured in a similar manner. Any other suitable packing may be substituted for rubber, if desired. The springs F F and O O are useful for guiding the inner tubes, to which they are respectively attached, in their descent, as well as in fastening them, as hereinbefore described.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a tubular well and pump, the cylindrical bottom sleeve or piece C, having bevels *c*, recess c^1, shoulder c^2, and inner studs c^3 c^3, substantially as and for the purpose set forth.

2. The combination of springs F F, having lugs or catches *f f*, with tubular filter or screen D, and bottom sleeve C, substantially as and for the purpose set forth.

3. The combination of rubber-packing G with tubular filters D, recessed tubular extension E, screw-threaded collar H, and outer tube A′, substantially as and for the purpose set forth.

4. The combination of rubber-packing G with metal washer *g*, tube section or extension E, screw-threaded collar H, and outer tube A′, substantially as set forth.

5. The combination of coupling B, having circumferential beads *b b*, and L-shaped lug *b′*, with ball-valve tube J, having springs O O and catchers P P, substantially as set forth.

6. Tubular extension E, having top lug *e*, in combination with screw-threaded collar H, substantially as and for the purpose set forth.

7. The combination of the ball-valve tube J with the compressible packing metallic washer, double screw-threaded collar, and the pump, pipe, or tube proper, substantially as as and for the purpose set forth.

8. An inner tube, provided with downwardly-extending springs, which serve to guide its descent and to clamp it to the outer tube, substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN Q. ADAMS.

Witnesses:

RUFUS H. GROSVENOR,

A. A. BLAKEMAN.