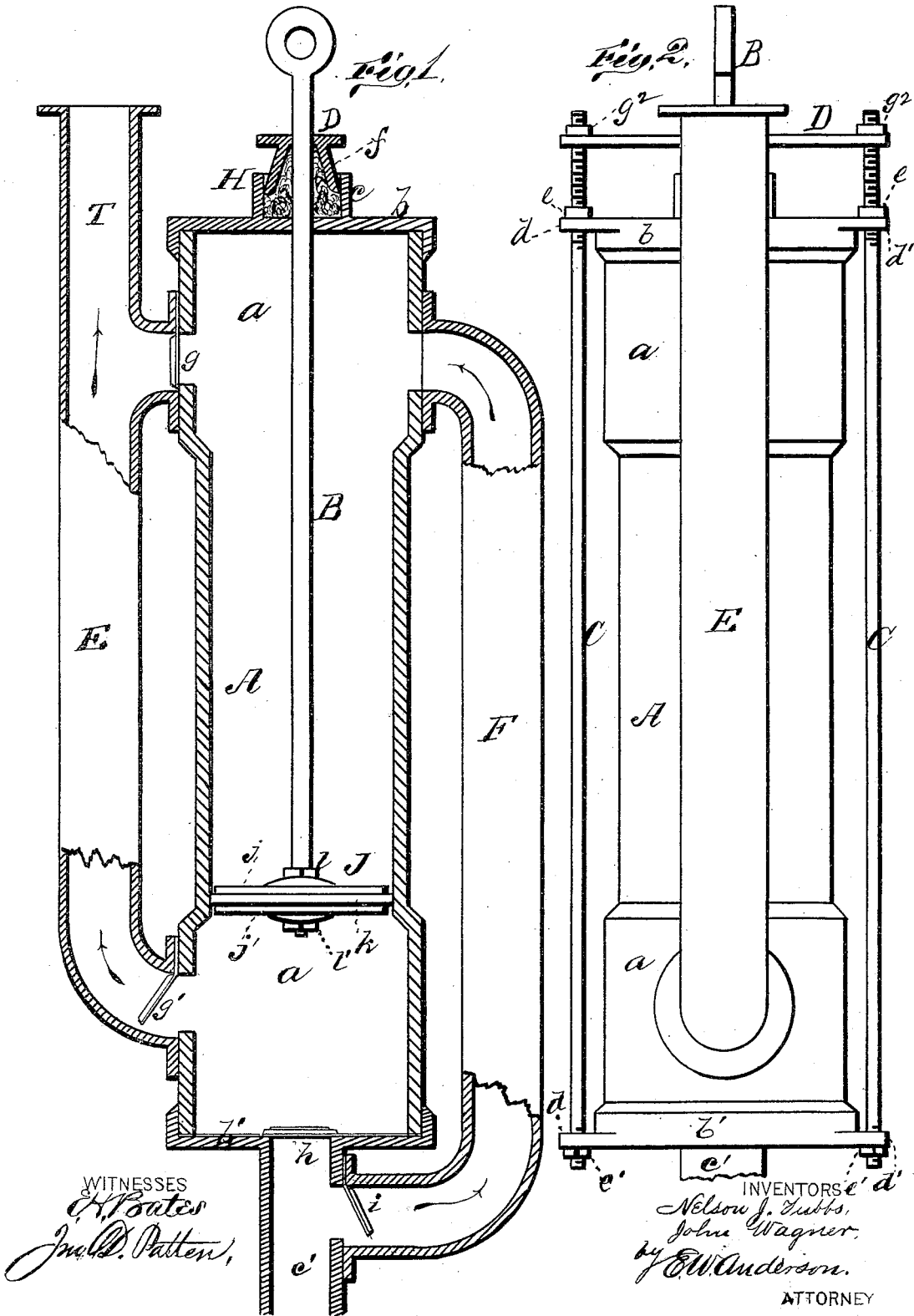


N. J. TUBBS & J. WAGNER.
 Combined Suction and Force Pump.

No. 205,700.

Patented July 2, 1878.



WITNESSES
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NELSON J. TUBBS AND JOHN WAGNER, OF ST. JOSEPH, MISSOURI.

IMPROVEMENT IN COMBINED SUCTION AND FORCE PUMP.

Specification forming part of Letters Patent No. 205,700, dated July 2, 1878; application filed May 25, 1878.

To all whom it may concern:

Be it known that we, NELSON J. TUBBS and JOHN WAGNER, of St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and valuable Improvement in Combined Suction and Force Pumps; and we 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 vertical central section of my improved pump, and Fig. 2 is a side view of the same.

This invention has relation to improvements in double-acting and force pumps.

The nature of the invention will be fully set forth and claimed hereinafter.

In the annexed drawings, the letter A designates the pump-barrel, having at each end a somewhat larger chamber, *a a*, closed by the caps *b b'*, respectively. The cap *b* has around the central opening for the piston B a cup, *c*, cast or formed thereon, and the cap *b'*, a pipe, *c'*, leading down into the water.

The caps are provided with opposite offsets *d d'*, through which extend the rods U, having screw-threads upon their ends, designed to receive above and below the caps the nuts *e e'*, which, being forcibly set up, clamp the caps against the barrel. These rods extend through a strong metallic plate, D, having on its under side a funnel-shaped cup, *f*, adapted to enter the cup *c*. The cup *c* being filled with waste or other packing, the compressor *f* is forced down thereon by setting up the nuts *g*. By this means the waste is compressed around and against the rod B, forming a perfectly air-tight joint.

The upper and lower chambers are connected together by means of a pipe, E, which is continued upward to form a discharge-tube, T. At the joint of the pipe E with the chambers *a a* are placed the valves *g g'*, opening outward from the said chambers. The supply-pipe *c'* is closed by the valve *h*, opening upward,

F represents a second pipe opening into the upper chamber *a*, and into the feed-pipe *c'* below valve *h*. This pipe F has at its junction with pipe *c'* a valve, *i*, opening outward.

B indicates the piston-rod extending through the packing-box H and the plate D, and provided upon its lower extremity with a piston, J. This latter is made of two disks, *j j'*, and an interposed leather or other packing, *k*. The rod B is screw-threaded at its end, and extends through the disks *j j'*, these latter being compressed so as to clamp the packing between them by means of the nuts *l l'*, respectively, above the plate *j* and below the plate *j'*. When the piston ascends in the barrel, the valve *h* of the feed-pipe opens, the valve *g* opens, and valve *g'* closes, and the valve *i* of pipe F also closes. Water rushes up the feed-pipe through valve *h* into the pump-barrel. At the same time any water in the barrel above the piston is forced through valve *g* out of the discharge-pipe. Upon the descent of the piston, valve *h* closes, valve *g'* opens, valve *g* closes, and valve *i* opens, water is forced through valve *g'* out of the discharge-pipe, and water rushes up the pipe F into the space above the said piston. Thus, as the space above the piston is emptied, that below it is filling up, and the reverse, and a double-acting force-pump of exceptional excellence is obtained.

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

The barrel A, having the side pipes and valves, as described, in combination with the caps *b b'*, the former having the packing-cup *c*, to receive the compressing-cup *f*, attached to the plate D, all secured together by through-bolts and fastening-nuts, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

NELSON J. TUBBS.
JOHN WAGNER.

Witnesses:

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