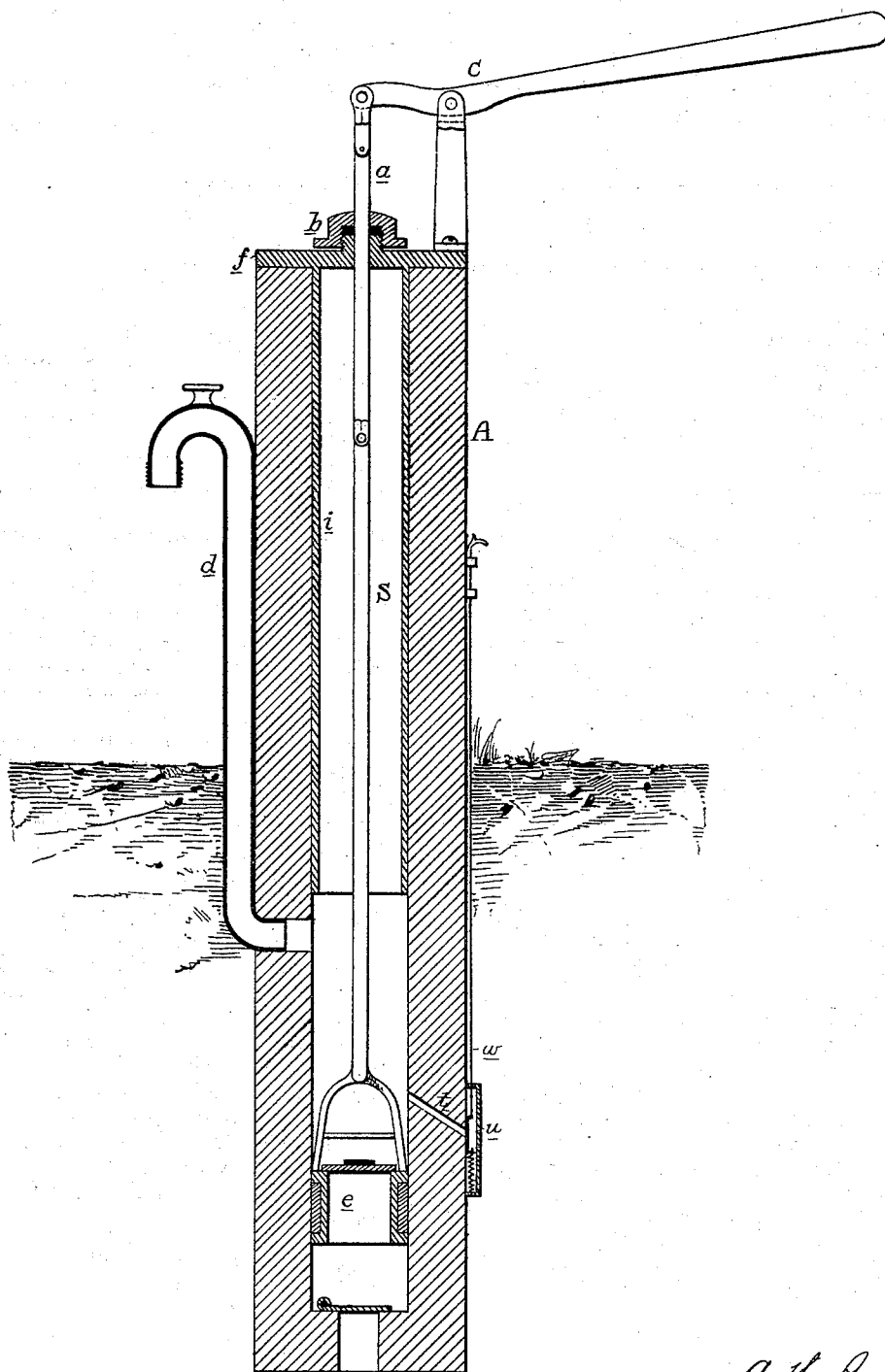


A. H. POWELL.
Lift and Force Pumps.

No. 134,927.

Patented Jan. 14, 1873.



Witnesses
W. Asgord
J. Williams

A. H. Powell
By his attys.
Horsman & Son

UNITED STATES PATENT OFFICE.

ASHTON H. POWELL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, JOSEPH WOOD, OF RED BANK, NEW JERSEY, AND EDWIN R. BENNET, OF NEW YORK, N. Y.

IMPROVEMENT IN LIFT AND FORCE PUMPS.

Specification forming part of Letters Patent No. **134,927**, dated January 14, 1873.

To all whom it may concern:

Be it known that I, ASHTON HENION POWELL, of Philadelphia, county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Lift and Force Pumps, of which the following is a specification:

My invention relates to pumps in which water is forced, on the upward movement of the bucket, into a chamber, the continued flow of water being maintained on the descent of the bucket by the expansion of the air in the chamber; and the object of my invention is to simplify the construction of the pump, reducing its first cost and rendering it more durable and easy to repair than those constructed in the ordinary manner. These objects I attain by closing the bore of the body *A* of the pump at the upper end, inserting a tube or lining, *e*, in the latter, passing the bucket-rod *a* through a stuffing-box, *b*, and arranging the discharge pipe or nozzle *d* at some distance below the closed end, thus converting that portion of the box within the tube or lining into an air-chamber. The air compressed in the said chamber on the upward movement of the bucket *e* expands on the descent of the bucket, and maintains a continued flow of water, in the same manner as the air in pumps supplied with the usual metallic casings or air-chambers, which are expensive, and, being exposed, are extremely liable to be injured. The lining *i* is preferably a thin metal tube secured to and closed at the top by a plate, *f*, which also covers and is secured to the top of the case, and is provided with a stuffing-box for packing the rod *a*. To a standard on the plate may be hung a lever, *c*, for operating the bucket-rod, which is connected to the

lever by a link. When the lining or tube *i* is employed the delivery-tube *d* should communicate with the bore below the lower end of the lining, which, being protected by the wooden case, may be of very thin metal, and will cost but little, while, owing to the presence of the lining, the case may be made of an inferior quality of timber unsuitable for a case which must of itself be water-tight in order to retain its contents.

As the outlet-pipe is independent of the lining, and as all the operating parts of the pump are secured to the plate *f*, the whole of these parts, without altering their relative position or disturbing the case, may be withdrawn.

An opening, *t*, near the bottom of the case for discharging the water to prevent it from freezing, is covered by a slide or valve, *u*, which may be operated by a rod, *w*, extending above the ground.

Claims:

1. The combination of the wooden case *A*, lining or tube *i* extending to the discharge-pipe and closed at the top, and bucket-rod extending through a stuffing-box at the top of the tube.

2. The cap or plate *f*, lining *i*, and bucket-rod *a*, connected together and adapted to and detachable from the case *A*, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

A. H. POWELL.

Witnesses:

EDM. F. BROWN,
CHARLES E. FOSTER.