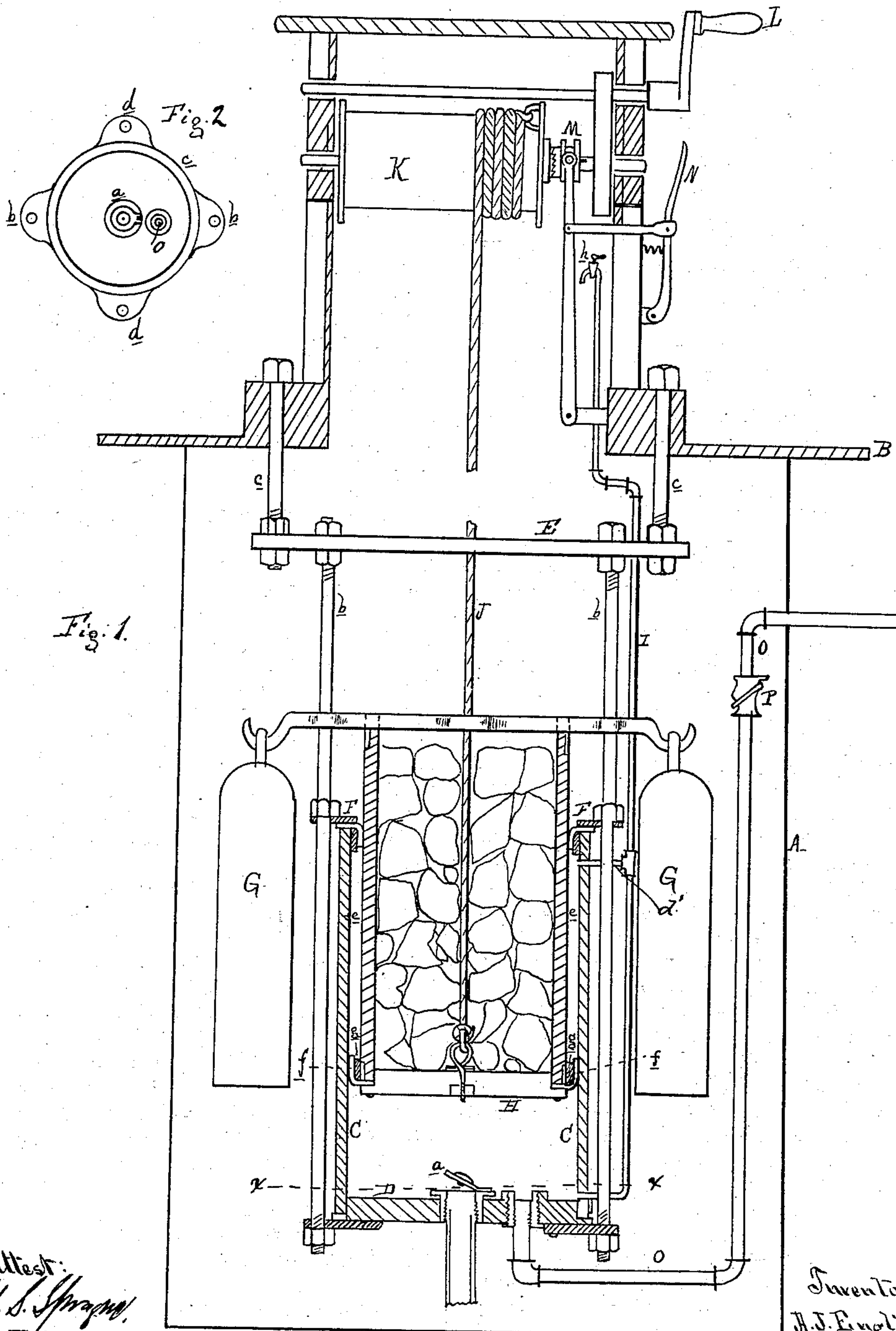


(No Model.)

A. J. ENGLISH.
WATER ELEVATOR.

No. 268,086.

Patented Nov. 28, 1882.



Attest:
N. S. Sprague,
E. W. Andrews

Inventor:
H. J. English
By *Thos. S. Sprague*
Att'y..

UNITED STATES PATENT OFFICE.

ANDREW J. ENGLISH, OF DETROIT, MICHIGAN.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 268,086, dated November 28, 1882.

Application filed August 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. ENGLISH, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful
5 Improvements in Water-Elevators; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 The nature of this invention relates to certain new and useful improvements in water-elevators of that class where the water is raised by the pressure of the piston working by gravity upon its downward stroke, and is elevated
15 in its forward stroke by artificial means.

The invention consists in the peculiar construction, combination, and operation of the parts, as more fully hereinafter set forth.

20 Figure 1 is a sectional elevation of a well with my elevator. Fig. 2 is a cross-section on the line X X in Fig. 1.

In the accompanying drawings, which form a part of this specification, A represents a well or cistern, and B represents the top thereof,
25 at or about the surface of the ground.

C represents a tubular pump-barrel, made of any suitable material, although the peculiar construction of my whole device enables wood to be used for this barrel with just as much
30 efficiency as though made of iron. The bottom of this barrel is provided with a clap-valve, through which the water is admitted. In the drawings a suction-pipe is added, which, when desired, may be attached to the top of a drive-
35 well tube, the pump itself being lowered into the ground a sufficient distance to bring the upper operating parts within easy reach. This barrel is provided with a bottom, D, suspended by means of the bolts *b* and *d* from the yoke
40 E, which in turn is supported by bolts *c* from the platform B. The bolts *b* *d* secure the head F of this barrel to the bottom and to the barrel itself. A hollow piston, H, of a sufficient smaller diameter than the interior of the bar-
45 rel C to leave an annular space, *e*, between the two, and with a tight bottom, reciprocates within the barrel, and is filled with stone or any other suitable material to give it great weight, and if more weight is required to lift the col-
50 umn of water desired additional weights, G, may be attached in the manner shown in the drawings, outside the pump-barrel. At or

near the lower end of this hollow piston there is secured a cup-leather, *f*, which, before the piston is inserted in the barrel, is of much
55 larger diameter than the interior of such barrel, and immediately above such leather ring there is secured around the piston a rubber gasket, *g*, the two rings forming a packing for that end of the piston, of such a character that
60 the water-pressure from below will force water upward into the annular space *e*, between such piston and the barrel, and a similar arrangement of rings, (the upper leather ring preferably being cone-shaped,) reversed, how-
65 ever, in position, is secured near the top and upon the inner side of the barrel to form a packing at that point which will prevent the water in the annular space *e* from escaping up-
70 ward. By this arrangement of packing the piston is always kept in working order and never becomes dry—a condition which prevails in other devices of this character, and which renders it necessary frequently to charge the
75 pump by pouring water in from the top, wet and soften the upper valve and make it operative, for there are none of them provided with the annular space between the piston and bar-
80 rel adapted to operate as and for the purposes of this invention.

In order to prevent an undue water-pressure in the annular space, I provide a pipe, *d'*, lead-
ing from the upper portion thereof and connecting by a suitable T-coupling with a verti-
85 cal pipe, I, provided with a valve, *h*, at its upper end, through which any air that may be found in the annular space *e* may escape. This pipe extends downward and enters the
bottom of the barrel C to allow any over-pressure of water to escape and return to the bar-
90 rel below the piston. This piston is attached to a rope, J, secured to and running over the windlass K, which is operated by the crank L and girt-connections. This windlass is pro-
95 vided with a clutch, M, actuated by a lever or treadle, N.

In practice, the piston, being attached to the windlass and at the bottom of the barrel, is elevated so that the bottom of the piston comes
nearly to the top of the barrel by means of
100 the windlass, and as the packing of the piston is sufficiently tight a suction is created, which fills the barrel with water up to the bottom of the piston. The clutch M is then disengaged,

so that the piston has no support from above. A water-delivery pipe, O, leading from the bottom of the chamber upward, affords a means for carrying the water to the point where it is
5 desired to discharge the same, and this pipe is supplied with a suitable valve, P, which, when opened, allows the water to be discharged by the descending force of the piston. When a
10 sufficient amount of water has been drawn the cock is closed and the descending motion of the piston arrested, to be resumed whenever the cock is opened for obtaining more water, and this operation is repeated until the contents of the barrel are discharged, when the
15 clutch should be re-engaged and the piston drawn upward again to fill the barrel. By this construction and arrangement of parts a water-elevating device is obtained which is always ready for use, never requires priming,
20 and which will discharge a volume of water only limited by the size of the barrel, by means of the downward pressure of the piston working by its own gravity.

What I claim as my invention is —

1. In a pump, substantially as described, the
25 combination, with a weighted piston packed above and below to form an annular water-space between, with valved air-outlet and water-connection with the well, of a well having
30 inlet-aperture and valve, as set forth.

2. The combination of the weighted piston
35 H, having annular water-space *e*, formed by packing *f*, with the pipe I, valve *h*, and pipe *d'*, and with the well having valve *a* and outlet-pipe O, as set forth.

3. In a water-elevator wherein the water is elevated by the gravity-pressure of the weighted
40 piston, the combination of the barrel, the piston, the suction and delivery pipe, and safety-pipe communicating with the annular space between the barrel and piston, the parts being constructed, arranged, and operating substantially as and for the purposes described.

ANDREW J. ENGLISH.

Witnesses:

H. S. SPRAGUE,
E. W. ANDREWS.