J. M. GRILLENBERGER.

Pump.

No. 209,673. Patented Nov. 5, 1878.

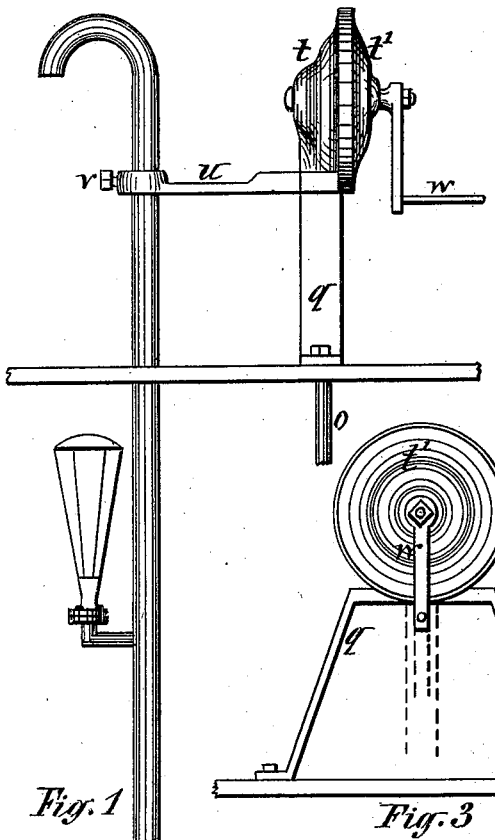

Fig. 1

Fig. 3

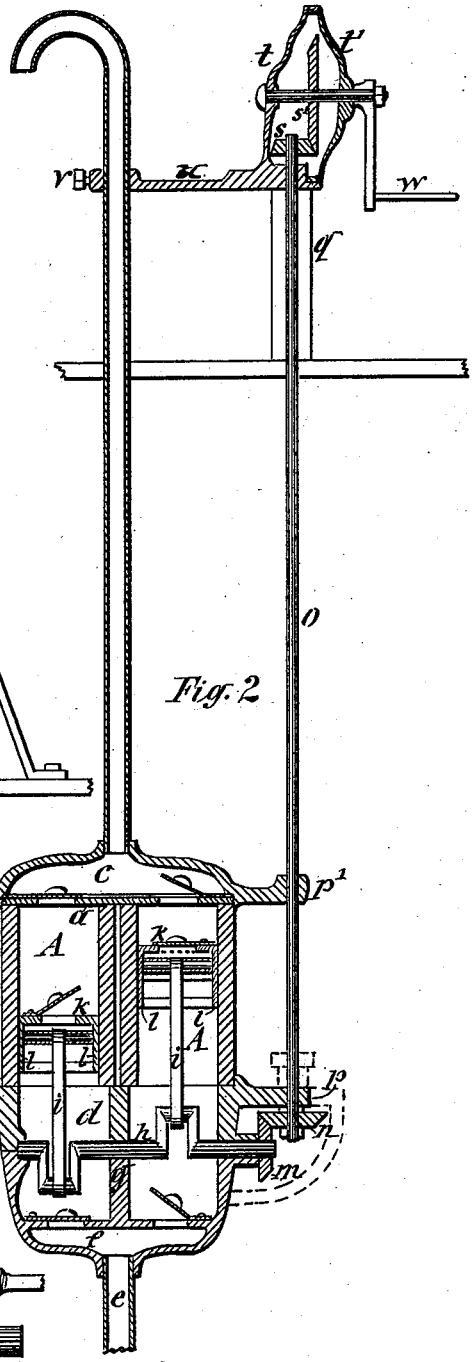

Fig. 2

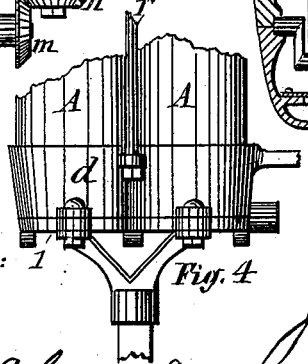

Fig. 4

WITNESSES: 1

A. Bell

C. R. Holmes Jr.

INVENTOR:

John M. Grillenberger

per E. Laass, his Atty.

UNITED STATES PATENT OFFICE.

JOHN M. GRILLENBERGER, OF SYRACUSE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENT, TO ROSINA GRILLENBERGER, OF SAME PLACE.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **209,673**, dated November 5, 1878; application filed October 15, 1878.

To all whom it may concern:

Be it known that I, JOHN M. GRILLENBERGER, of the city of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Pumps, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Figure 1 is an exterior view of my invention; Fig. 2, a vertical section of same; Fig. 3, a side view of the standard which supports the upper extremity of the discharge-pipe, and the means by which the pump is operated, and Fig. 4 illustrates modifications in some of the details of my invention.

Similar letters of reference indicate corresponding parts.

A A represent two cylinders, preferably of hard-burnt or vitrified potter's clay, and arranged side by side. They are open at both ends, and upon the top of them is fitted a plate, *a*, provided with a port for each cylinder. Upon the top of this plate is secured a sheet of rubber or leather, extending to the outer edges of said plate, to form a packing for the joint between it and the cap *c* mounted on top thereof. Over the ports in the plate *a* are formed valves in the usual manner—viz., by making in the rubber or leather sheet aforesaid segmental excisions concentric with the ports and of greater circumference than same, so as to form a seat for the valve formed by the central part of the said segment. To the bottom of the cylinders is fitted an air-tight case or chamber, *d*, formed of two horizontal sections, the upper of which is secured to the cylinders by a rod, *r*, at opposite sides of the cylinders, connected with a lug on the cap *c*, and passing through a lug on the chamber *d*, and provided with a nut on the under side of the latter. The lower section of the chamber *d* is attached to the upper section of same by bolts passing through lugs on the respective parts. To the bottom of the lower section is connected the suction-pipe *e*, and the two cylinders A A are made to communicate with this pipe, separately and independent of each other, by a horizontal diaphragm, *f*, near the bottom of the chamber *d*, and a vertical partition, *g*, extends from said diaphragm to the cylinders, the diaphragm *f* being provided with a valve for each cylinder.

In bearings cast on the adjacent edges of the two sections of the chamber *d* is fitted a horizontal crank-shaft, *h*, having under each cylinder a crank standing in opposite direction from the other. To the cranks are connected rods *i*, which extend into the cylinders and are hinged or pivoted to a plunger, *k*, which is provided with a valve and maintained in proper horizontal position by guides *l* extending from its sides and fitted to slide on the interior of the cylinders. One end of the crank-shaft protrudes through the chamber *d*, and is provided at the outside thereof with a miter-pinion, *m*, into which meshes a miter-gear, *n*, fixed on the lower extremity of a rod, *o*, which passes through bearings in lugs *p* and *p'*, respectively, on the chamber *d* and cap *c*, and is extended to the top of the well or locality where the pump is to be operated.

The upper extremity of the rod *o* passes through the cap-piece of a standard, *q*, and is provided above same with a bevel-gear, *s*, which is engaged by a bevel-gear wheel, *s'*, mounted on a shaft, to which a crank, *w*, is connected. In order to protect the said gears from ice and from being tampered with, and also to guard against accident from collision with same, the gears are inclosed in a case formed of two concave circular plates, *t t'*, joined with each other by peripheral flanges on their respective concave sides. The plate *t* is firmly attached to the standard *q*, and the plate *t'* is secured to the fixed plate by the crank-shaft passing through the two plates and having a head on one end and the hand-crank upon the opposite end. From the standard *q* is extended a horizontal arm, *u*, the free end of which is provided with an orifice, through which the discharge-pipe passes, and by means of a set-screw, *v*, the arm is clamped to the said pipe, and thus both the standard and pipe braced in a simple and effectual manner.

With pumps designed for localities where they are exposed to sand and grit, I incase the lower gears, *m* and *n*, as indicated by dotted lines in Fig. 2 of the drawing; and in case the pump is to be partly or wholly submerged, I dispense with the lower section of the cham-

ber *d* and substitute therefor a plate, 1, secured to the upper section of the chamber *d* in the same manner.

The pump is supported by means of a post driven in the bottom of the well, and having secured to its top a cap which has arms extended to the lugs on the plate 1, and is connected thereto by the bolt which secures the said plate to the chamber *d*, as illustrated in Fig. 4 of the drawing.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the cylinders A A, having on top the plate *a*, provided with valves, and the cap *c*, mounted on top of said plate, of the chamber *d*, provided with suction-pipe *e*, horizontal diaphragm *f*, and partition *g*, the crank-shaft *h*, rods *i i*, and plungers *k k*, provided with valves, all constructed and arranged substantially in the manner described and shown.

2. In combination with the cylinders A A, crank-shaft *h*, and rod *o*, the cap *c*, provided with lug *p'*, and the chamber *d*, provided with lug *p*, substantially as specified and shown.

3. The combination of the cylinders A A, cap *c*, rod *r*, chamber *d*, divided horizontally at the axial center of the crank-shaft *h*, and provided on their respective adjacent edges with bearings for the said shaft, all constructed and combined substantially as described and shown.

4. In combination with the rod *o*, provided with pinion *s*, the standard *q*, provided with case *t t'*, the gear-wheel *s'*, mounted on a shaft extended through the said case, and the crank *w*, all substantially as specified and shown.

5. In combination with the rod *o*, gears *s s'*, and discharge-pipe, the standard *q*, provided with the case *t t'* and the arm *u*, and set-screw *v*, substantially in the manner described and shown, for the purpose set forth.

In testimony whereof I have hereunto set my hand this 9th day of October, 1878.

JOHN M. GRILLENBERGER.

Witnesses:
E. LAASS,
A. BELL.