

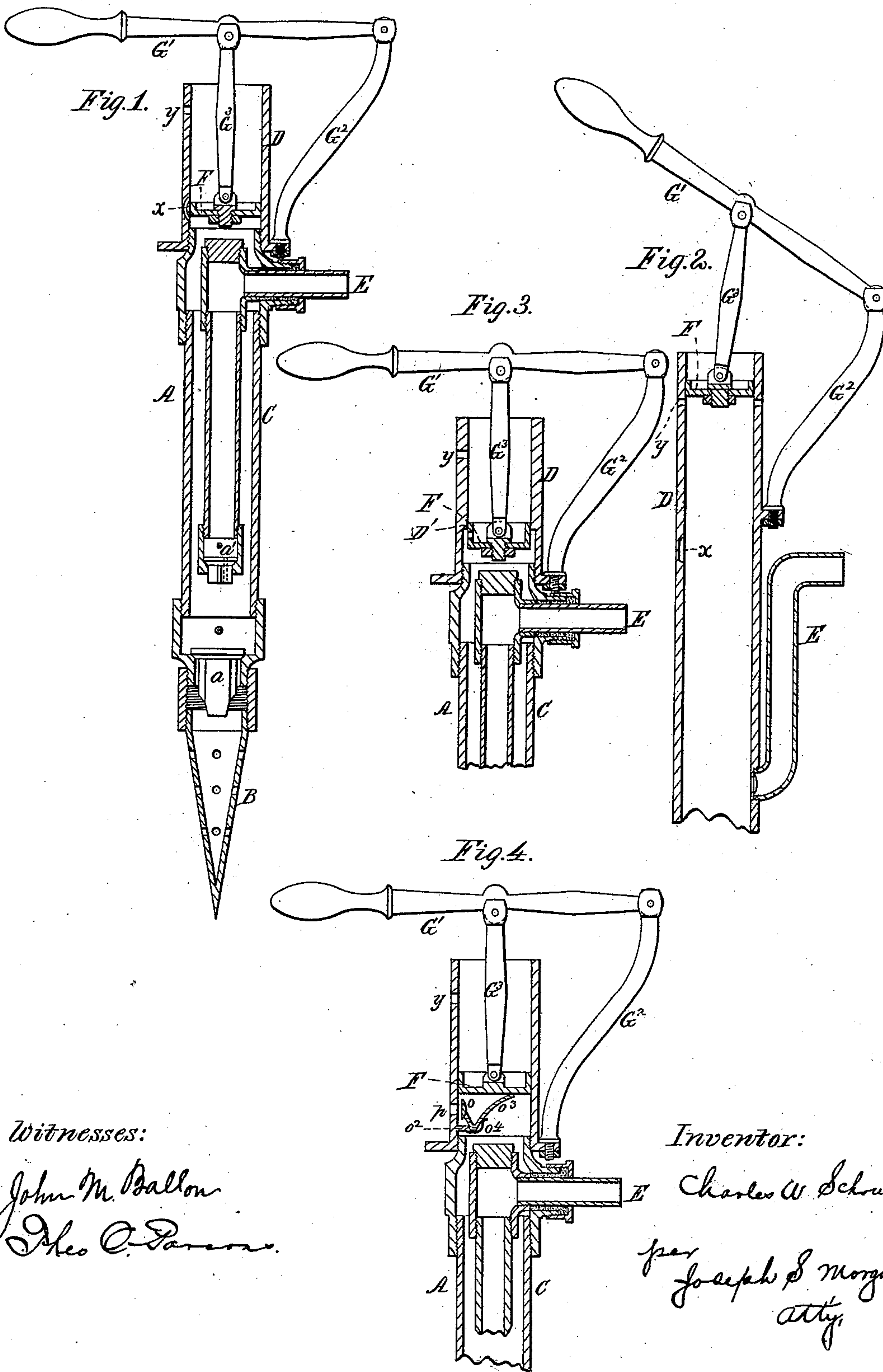
(No Model.)

C. W. SCHREIBER.

PUMP.

No. 300,903.

Patented June 24, 1884.



UNITED STATES PATENT OFFICE.

CHARLES W. SCHREIBER, OF DUBUQUE, IOWA, ASSIGNOR OF ONE-HALF TO
JOSEPH S. MORGAN, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 300,903, dated June 24, 1884.

Application filed July 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. SCHREIBER, a citizen of the United States, residing at Dubuque, in the county of Dubuque, State of Iowa, have invented a new and useful Pump, of which the following is a specification.

My invention constitutes an improvement on the apparatus patented by me September 6, 1881, No. 246,692.

10 The drawings represent in Figure 1 a vertical section of my pump with the piston at the end of its compressing or downward stroke, and in Fig. 2 a vertical section with the piston at the end of its upward stroke. Figs. 3 and
15 4 represent modifications in vertical section.

A represents a valved tube, consisting of the perforated point B, the check-valve *a*, the air and water chamber C, and the piston-cylinder D.

20 E represents the discharge-tube provided with check-valve *a'*. This tube is shown in Fig. 1 as extending down the bore of the valved tube A, and in Fig. 2 as extending up outside said tube. In practice I prefer to use
25 the internal discharge shown in Fig. 1.

F represents the piston, which may be reciprocated in any suitable way.

As shown, G' is the operating-lever, supported by the post G² and connected to the
30 piston by the rod G³.

The pump is sunk into the ground or connected to a water-receptacle, so that the valve *a'* is below the water stratum or level, whereby the water will run through the perforated
35 tube B by its gravity and rise through the valve *a* into the chamber C until the valve *a'* is submerged. If, now, the piston be depressed, the air beneath it will be compressed on the surface of the water in chamber C and force
40 it out through the discharge E, the check-valve *a* preventing the water from returning through the point. So far the construction and operation of the device are the same as in the patent referred to.

45 My improvement consists in providing an automatic escape or automatic means to permit the discharge of the air compressed beneath the piston at the end of its downstroke, whereby the valved tube being relieved of air-
50 pressure the water can again run into it, or on

the next upstroke of the piston be drawn into it. In Fig. 1 I have shown the piston-cylinder provided with a channel, *x*, opening into the bore of the cylinder at two points a little farther apart than the width of the piston. The
55 cylinder is also formed with an opening, *y*. When the piston is on its highest position, as in Fig. 2, it is above the opening *y*, which permits the valved tube to fill with air. On the downstroke when the piston passes the open-
60 ing *y* the air is compressed beneath it to discharge the water, as before described. When the piston reaches the end of the compressing-stroke, it is in a position between the inlets of the channel *x*, as shown in Fig. 1, which
65 permits the compressed air to escape from beneath the piston into the open cylinder above. The pressure being removed from the valved tube, it can again fill with water, as described, when the operation is repeated. The channel
70 *x* may be of any form desired, as I consider within the scope of this feature of my invention any arrangement or combination whereby a communication is formed above and below
75 the piston to permit the compressed air to escape at the end of the compressing-stroke. For instance, in Fig. 2 the pump-cylinder is provided with a groove or recess, *x*, instead of with a channel in the wall of the cylinder,
80 as in Fig. 1, and in Fig. 3 a hole is inside in the piston, which passes below the enlargement D' of the cylinder. I consider as within the scope of my invention, as expressed in the first claim, the construction shown in Fig. 4,
85 wherein the escape or automatic means consists of a valve, *o*, pivoted to a bracket, *o*², and provided with a stem, *o*³, which the piston strikes at the end of its compressing-stroke, thereby tilting up the valve and opening a
90 port, *p*, in the valved tube, which allows the compressed air to escape immediately from the pump and not merely into the chamber above the piston. On the upstroke the valve *o* returns to its seat by gravity, or may be forced
95 to its seat by a spring, *o*⁴, attached to the bracket instead of the opening *y*. The air may be admitted to the valved tube through a valve in the piston.

What I claim is—

1. The combination of a valved tube hav- 100

ing a discharge, a piston for compressing the
air on the water therein, and an escape for the
compressed air brought automatically into
operation at the end of the compressing-stroke
5 of the piston.

2. The combination of a valved tube hav-
ing a discharge, a piston for compressing air
on the water therein, and a channel for the
escape of the compressed air opened by the
10 piston at the end of its compressing stroke.

3. The combination, with a piston for com-
pressing air, of a valved tube provided with
a communication, substantially as described,
to permit the escape of the compressed air
15 from one side of the piston to the other.

4. The combination of the valved tube, the
internal discharge-pipe, the piston for com-
pressing air, as described, and means for au-
tomatically discharging the compressed air at
the end of the piston-stroke.

5. The combination of a valved tube hav-
ing a discharge, a piston for compressing air
on the water therein, and a channel opened
by the piston at the end of its compressing-
stroke, to permit the escape of the compressed
25 air from one side of the piston to the other.

CHARLES W. SCHREIBER.

Witnesses:

LOUIS G. HURD,
B. F. FOWLER.