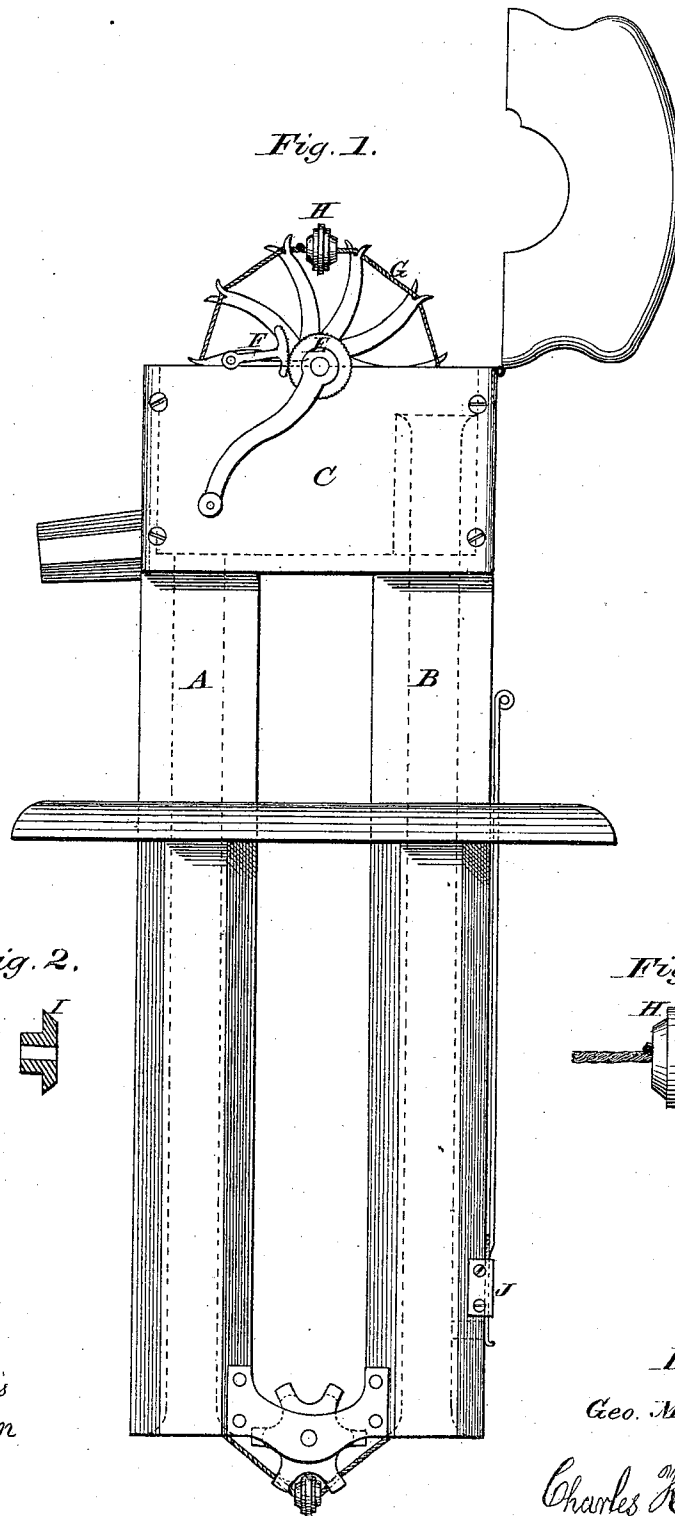


G. M. HATHAWAY.
Chain-Pumps.

No. 148,453.

Patented March 10, 1874.



Witnesses.
John L. Lewis
Charles Ketchum

Inventor.
Geo. M. Hathaway
by
Charles Ketchum
his Atty.

UNITED STATES PATENT OFFICE.

GEORGE M. HATHAWAY, OF HAVANA, NEW YORK.

IMPROVEMENT IN CHAIN-PUMPS.

Specification forming part of Letters Patent No. **148,453**, dated March 10, 1874; application filed December 26, 1873.

To all whom it may concern:

Be it known that I, GEORGE M. HATHAWAY, of Havana, in the county of Schuyler and State of New York, have invented certain Improvements in Pumps, of which the following is a specification:

The first part of my invention relates to the construction of the body of the pump with two stocks, one for raising the water through it, and the other to conduct air down into the well, and connecting their upper ends together in such manner that they will support the wheel and axle and the other parts of the pump. The second part, to making collars for the buckets; also, making the bucket, and the method of fastening the chain and collars together.

Figure 1 is a side elevation. Figs. 2 and 3 represents the bucket and collars for the same.

A is the pump-stock that the water is brought up through. It extends up above the platform of the well high enough to have the side pieces that support the upper wheel at convenient height. Above the bottom that is placed between the side pieces C about half the stock is removed, and to the outside of it the spout is applied, and to it the side pieces C are securely fastened. The lower part below the platform extends down into the well any required distance, and to it and the air-stock the supports for the lower wheel are fastened. B is an air stock or tube that conveys air down into the well. It is made similar to the stock A and with the same-sized hole through it. Its use is to convey air down into the well while the buckets are passing down through it. To the upper end the pieces C are fastened the same as they are to the stock A. Between the lower ends of the stocks an ordinary wheel may be applied, if necessary, (with some kinds of rope or chain it may be well to apply one.) This stock is provided with a hole and a valve to slide over it, that may be used to discharge the air above the water when preferred. C is one of the side pieces that supports the upper wheel. They must be securely fastened to the sides of the stocks A and B, as shown in Fig. 1, and must be provided with a bottom piece between the stocks that will hold water. On their upper edges the journal-boxes of the wheel-shaft are fastened, and the whole is provided with a hood, which may be made and put on in any

ordinary or ornamental style. D is the upper wheel. It is provided with the ordinary winch and axle. The outer ends of the arms are made forked, and the prongs are alternately bent outward in opposite directions, one in advance of the other, so that they will more firmly clasp the rope when a wire rope is used. E is a ratchet-wheel. It is fastened to the axle of the upper wheel. It is made round, and the periphery is slightly ribbed instead of with teeth, as in the ordinary wheel. F is a pawl that holds the wheel E, and prevents it being turned backward. Its shape is shown in Fig. 1. It is pivoted to the end of the journal-box. That portion of it that is applied to the wheel E is made eccentric in form, so that its own weight will cause it to fall against the wheel and prevent it turning backward. G is a wire rope. It may be made any required size or length. It may be made in as many pieces as there are buckets required. The ends of two pieces are put through the collars I in opposite directions and then hitched, so that, by the aid of the collars, the rope cannot part, and by the aid of the knots formed by the ends of the ropes the buckets are securely held in place. H is a series of rings, the same in diameter as the size of the hole through the pump-stock. They are made of leather next to the flange of the collars, and a rubber ring is placed between them, thus forming a compound bucket. I and I are the collars for the buckets. They are made alike, and two are required for each bucket. They are made with a cylindrical part on which the rings H are placed, and a flange smaller than the rings. They may be made of cast-metal. They must have a hole through them that will correspond with the size of the two pieces of rope that is put through them. The holes must be made obliquely through them, so that the ropes will draw straight after they are hitched. J is a sliding valve, that is made to slide over a hole in the air-tube. It is provided with a stem that extends upward above the platform of the well, so that with it the valve may be raised to allow the air to be discharged above the water, or lowered to cause the air to be discharged beneath the surface of the water, the object of which is to aerate the water to remove the gas that usually collects upon the surface, es-

pecially in deep wells. It will also disturb the sediment that accumulates on the bottom of the well, which is, therefore, drawn up through stock A.

I do not claim as my invention the air-stock B; but

What I claim is—

1. In combination with stock A, collars I, rope G, with its buckets, the air-stock B pro-

vided with the valve J, substantially as and for the purpose described.

2. The rope G, collars I, and rings H, when made and united as and for the purpose herein specified.

GEORGE M. HATHAWAY.

Witnesses:

JOHN L. LEWIS,
CHARLES KETCHUM.