J. M. FATE.
Bucket-Pump.

No. 208,080. Patented Sept. 17, 1878.

Fig. 1.

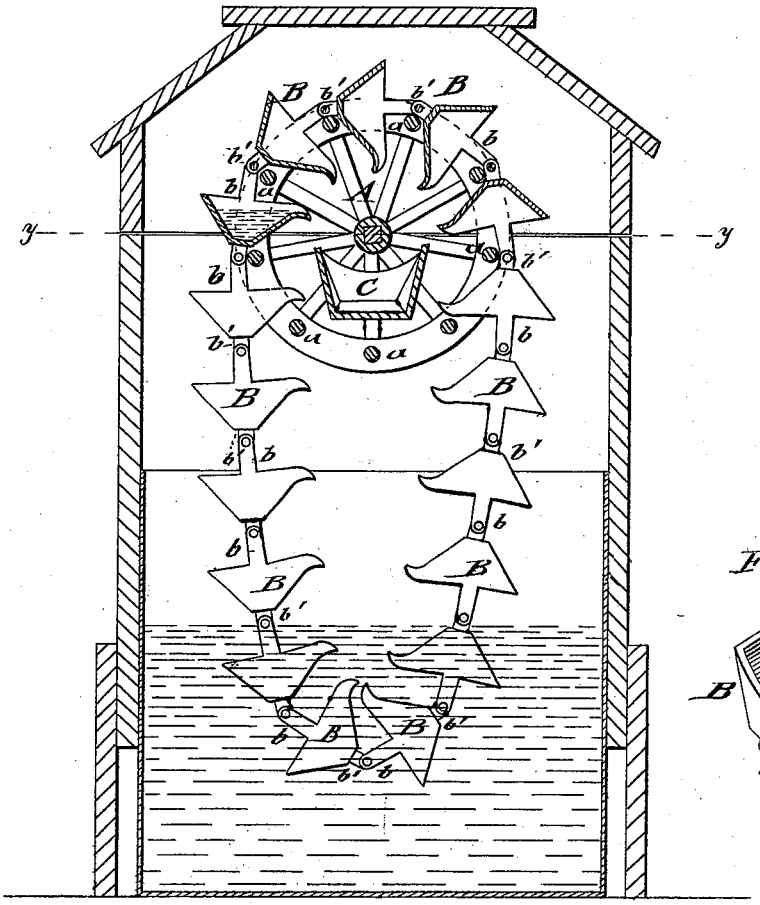


Fig. 3.

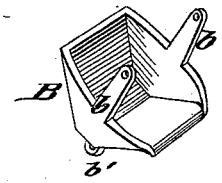
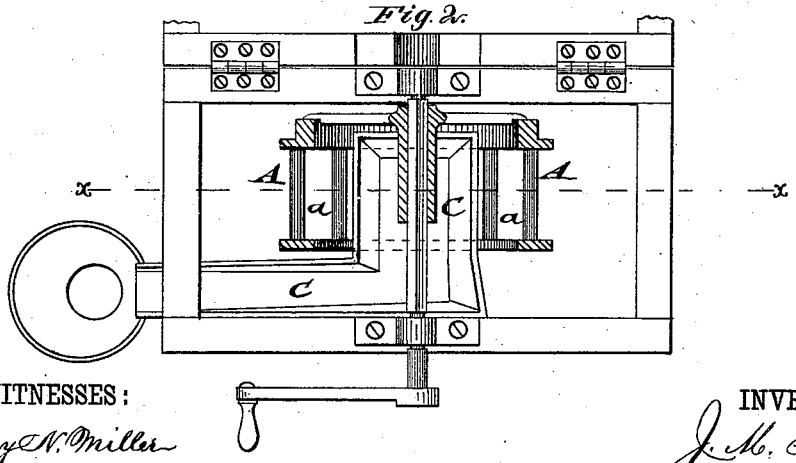


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES M. FATE, OF WEBSTER CITY, IOWA.

IMPROVEMENT IN BUCKET-PUMPS.

Specification forming part of Letters Patent No. **208,080**, dated September 17, 1878; application filed May 20, 1878.

To all whom it may concern:

Be it known that I, JAMES M. FATE, of Webster City, in the county of Hamilton and State of Iowa, have invented a new and Improved Bucket-Pump, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved bucket-pump on line *x x*, Fig. 2. Fig. 2 is a top view of the same, partly in horizontal section, on line *y y*, Fig. 1; and Fig. 3, a perspective view of one of the buckets detached.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved bucket-pump that may be worked effectively with slow motion in easy manner and without any loss of power or leaking, as is the case in the too-tightly or too-loosely fitted plungers of the suction-pumps, or in chain or other pumps used for raising water.

The invention consists of the combination, with a revolving reel, of an endless chain made of connected and pivoted buckets, and of a trough extending crosswise in the reel below the center of the same, for taking up and conducting off the water delivered by the buckets. Each bucket is made with longer side arms and shorter bottom arms, and with a spout-shaped end toward the inside of the reel, which end slightly contracts in width and extends in upward direction, so as to discharge the water with little loss.

Referring to the drawing, A represents the revolving reel of my improved bucket-pump, which reel is constructed of two spider-frames, keyed to the common crank-shaft, and stiffened by cross-rods *a* extending between the circular flanges of the reel. The cross-rods are equidistant from each other and parallel with the center shaft, and the space between the flanges wide enough to allow the buckets B to work freely in and out between the flanges.

An inclined trough, C, is arranged below the center shaft of the reel and projected at both sides far enough beyond the flanges to receive all the water from the buckets. The trough is extended at right angles to the center section along the pump-casing and through an opening to the outside of the same, where it discharges into a funnel of a returning drain-pipe.

The buckets B are made of triangular shape, with longer side arms, *b*, and shorter bottom arms, *b'*, the arms being connected by pivot-rods, the shorter bottom arms of one bucket being pivoted with the longer arms of the bucket next below.

The distance between the pivot-holes of the longer and shorter arms is made to correspond with the space between the cross-rods of the reel, so that the arms of the buckets may break evenly and freely upon, and swing thereby the spout of the bucket into the space within the reel, so as to discharge the water to the center trough.

The size of the buckets corresponds to the distance between the flanges and to the distance of the cross-arms of the reel.

The buckets B are made at the side toward the reel with a spout-shaped end, that is made slightly narrower than the middle part, from which the side arms rise, so that it will guide itself in between the flanges of the reel.

The spout is made slightly higher where the water pours over than the remaining parts, so that the water does not commence to pour until the spout end is projected sufficiently over the trough to discharge its contents into it.

The pump works with great facility and with equal advantage even with very slow motion, as it saves the power that is necessary to raise the water by the slow motion in chain-pumps, also the time and power necessary to lift the plunger in suction-pumps. It dispenses with the wear and friction of the tube in chain-pumps, and is readily worked, even by children, who would not be able to work the other pumps.

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

1. In bucket-pumps, the combination, with a revolving reel having lateral and equidis-

tant cross-rods and a center trough below the shaft, of an endless chain of buckets connected by pivoted longer side arms and shorter bottom arms, substantially as and for the purpose specified.

2. For bucket-pumps, a bucket made of triangular shape, with contracted spout at the side toward the reel, the spout being slightly raised above the remaining parts, substantially as and for the purpose set forth.

JAMES MARTIN FATE.

Witnesses:

O. K. EASTMAN,

P. M. BANKS.