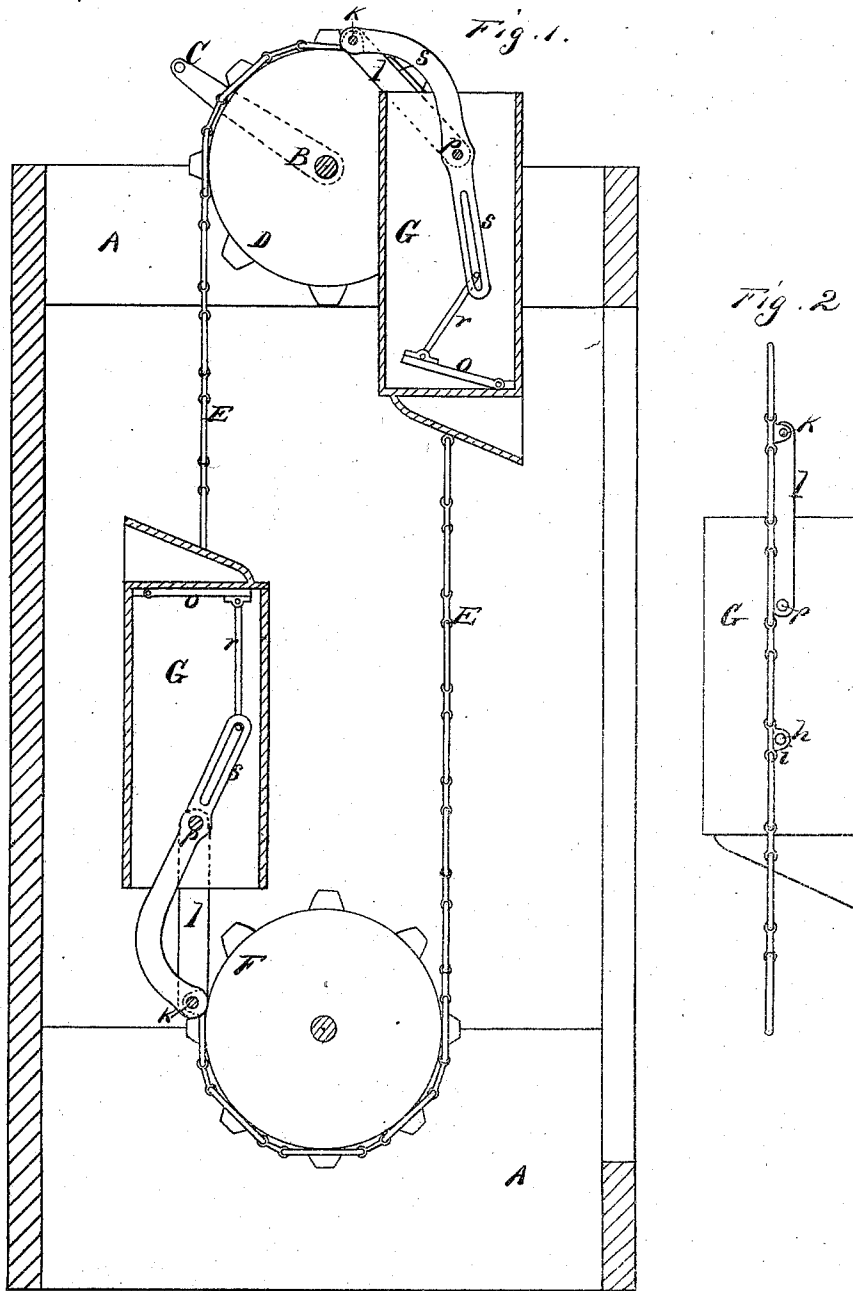


J. A. BALL.
Water-Elevator.

No. 130,688.

Patented Aug. 20, 1872.



Witnesses

J. L. Dorn
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Inventor

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attys

UNITED STATES PATENT OFFICE.

JOHN A. BALL, OF GRASS VALLEY, CALIFORNIA.

IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. 130,688, dated August 20, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, JOHN A. BALL, of Grass Valley, county of Nevada, State of California, have invented an Improved Water-Lifter; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to that class of water-lifters in which an endless chain is arranged to carry one or more buckets down into a well or other reservoir, and afterward lift them to the surface again and empty them automatically; and it is an improvement upon the Letters Patent which were issued to me on the 16th day of November, 1869, and reissued June 18, 1872, and numbered 4,947. My present improvement relates to the device for automatically discharging the bucket after it has been lifted from the well full of water.

In order to explain my invention so that others will be able to understand its construction and operation, reference is had to the accompanying drawing forming a part of this specification, in which Figure 1 is a side elevation, showing a section of buckets and the operating devices. Fig. 2 is a side view of one of the buckets and a section of the chain.

For convenience I have mounted my water-lifter inside of a frame, A, which will represent both the well and the curb around its mouth. The shaft B passes across the upper end of the curb, bearing in boxes on its sides, and can be turned by a crank, C, or by other suitable means. The chain-pulleys D D are secured to this shaft at the desired distance apart, and an endless chain, E, passes over each one, extending down into the well or other reservoir. These chains are herein represented as passing around other chain-pulleys F, at their lower end in the reservoir or well; but these latter pulleys can be dispensed with, if desired, as the weight of the buckets will keep the chain taut upon the upper pulleys, and much trouble will be saved in applying the lifters to a well when they are not used. The buckets G G are made of the proper width to pass between the pulleys D D, and consequently they will hang between the two endless chains. At each side of the

buckets, below their middle line, is a journal or trunnion, *h*, which is secured in a box, *i*, to one of the links of the endless chains upon each side, and upon which the buckets swing in their movements around the pulleys. A rod, K, connects the two chains just above each bucket, and a link, *l*, has one end pivoted to each side of each bucket by a rod, *p*, which passes across inside of the bucket near the upper end. The opposite end of the link is connected with the advance rod K.

By this means the bucket, as it rises with its load, hangs perfectly true from the link, and in passing over the pulleys at the top, the rod K, being in advance of the buckets, causes the links *l* to serve as braces to hold the bucket perpendicular until it has been emptied by the following device: In the bottom of the bucket is an upward-lifting valve, O. A link, *r*, is attached to its free end and connects with the lower end of the lever S, which is secured at its middle to the rod *p*, while its upper end is attached to the advance rod K. Thus the same movement of the rod K over the pulleys which causes the links *r* to hold the bucket perpendicular draws forward the upper arm of the lever S, causing the lower arm to lift the valve O, through which the water escapes into a spout, *t*, and thence can be conducted as desired.

This arrangement for operating the valve and holding the bucket in the proper position until it is discharged is extremely simple and effective, and renders the buckets self-discharging.

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

1. In combination with a swinging bucket, G, having the valve O, the links *r* and lever S, substantially as and for the purpose above described.

2. The lever S, pivoted at its middle, and having its upper end attached to the advance rod K, while its lower end is connected with the valve O, substantially as and for the purpose above described.

In witness whereof I hereunto set my hand and seal.

JOHN A. BALL. [L. S.]

Witnesses:

N. D. CLARK,
A. H. EVANS.