C. E. LYKKE.

WATER ELEVATORS.

No. 189,761. Patented April 17, 1877.

Fig. 1.

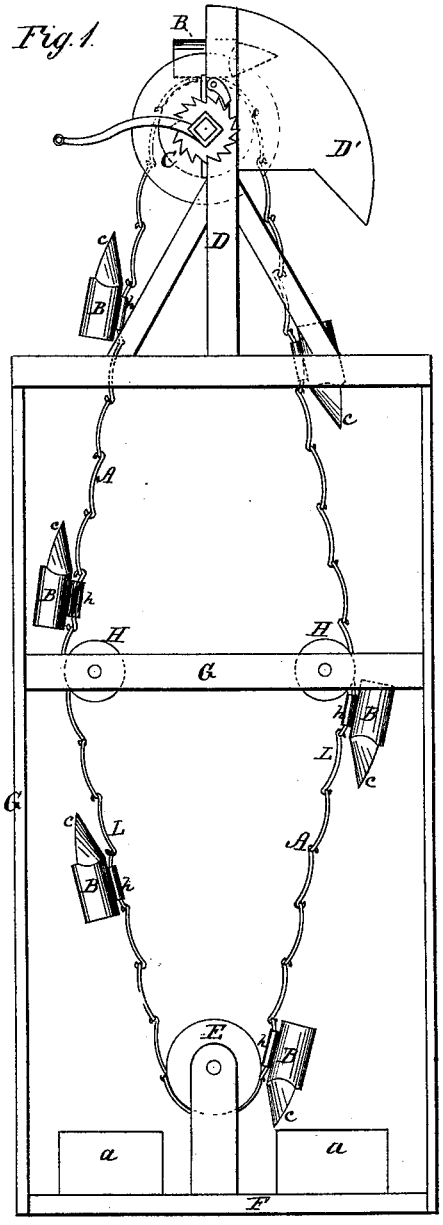


Fig. 2.

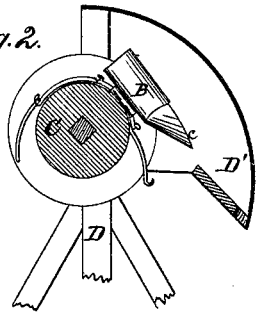


Fig. 3.

Fig. 4.

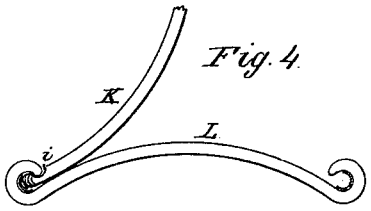
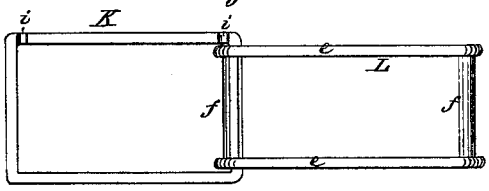


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHRISTIAN E. LYKKE, OF GRAND ISLAND, NEBRASKA.

IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. **189,761**, dated April 17, 1877; application filed February 24, 1877.

To all whom it may concern:

Be it known that I, CHRISTIAN E. LYKKE, of Grand Island, in the county of Hall and State of Nebraska, have invented a new and Improved Water-Elevator; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention is an improvement in water-elevators composed of an endless chain having buckets attached, and passing around cylinders or shafts placed, respectively, at the top and bottom of a well.

The improvement relates to the construction and arrangement of parts, as hereinafter described and claimed.

In the accompanying drawing, forming part of this specification, Figure 1 is a side elevation of the elevator. Fig. 2 is a detail sectional view. Figs. 3, 4, 5 represent the links and the manner of connecting and disconnecting them.

The endless chain A, with buckets B attached, passes around or over a large crank-shaft or cylinder, C, journaled in the frame or curb D, and around a cylinder or shaft, E, journaled in standards attached to a weighted platform, F, which is submerged in the well. Either or both the shafts C and E may be provided with teeth to engage the links of the chain A, and prevent slipping when the elevator is being operated.

The stand F is provided with boxes *a* to receive weights, which may be varied in amount according to the depth of the well, or other conditions determining the required tension of the chain A.

In deep wells I employ a frame, G, in which rollers H are journaled, the same being placed as far apart as the diameter of the well will permit, for the purpose of preventing the opposite portions or sections of the chain coming in contact.

The buckets B have a cowl or hood shaped top, *c*, which subserves two functions. First, it prevents the water escaping when the buckets are passing up the front side of the shaft C; second, it forms a nozzle for delivering the water into the fixed spout D′ when the buckets have assumed a horizontal position on the shaft C, or begun to descend on the other side of the shaft.

The chain A is composed of two forms of links, K and L. One form, K, is constructed of a small rod or stout wire bent into rectangular form, and having its ends welded together, thus forming a closed link. A notch, *i*, Figs. 3 and 4, is formed in the link on the concave side, near the ends, to adapt them to be readily detached from the links L. The latter consists of two bars, *e*, Fig. 5, having hooked ends, to which grooved spacing-bars *f* are attached for holding the bars *e* rigidly connected and parallel. The hooks formed on the ends of said bars *e* are left open.

When it is desired to disconnect the links K and L, the former are turned back, as shown in Fig. 4, and then slid laterally, the hooks of link L in such case passing through the notches *i* of link K. Thus the chain is made up of detachable pairs of links, and a break may hence be made in the chain whenever such pairs of links are united.

The buckets B are each provided with loops *h* on the back, through which the links L are passed for the purpose of attaching the buckets to the chain. Thus any desired number of buckets may be quickly attached to the chain, or the number may be lessened whenever occasion requires.

The general operation of the elevator is obvious from the foregoing description of its component parts.

What I claim is—

1. The buckets B, each provided with the transverse loop *h*, in combination with the detachable link-chain, as shown and described.

2. In combination with the bucket-chain and shaft E, the stand F, provided with boxes *a* to receive weights, as and for the purpose specified.

CHRISTIAN E. LYKKE.

Witnesses:

C. IPSON,

H. HALD.