

J. CLOSE.
Pump.

No. 214,103.

Patented April 8, 1879.

Fig. 1.

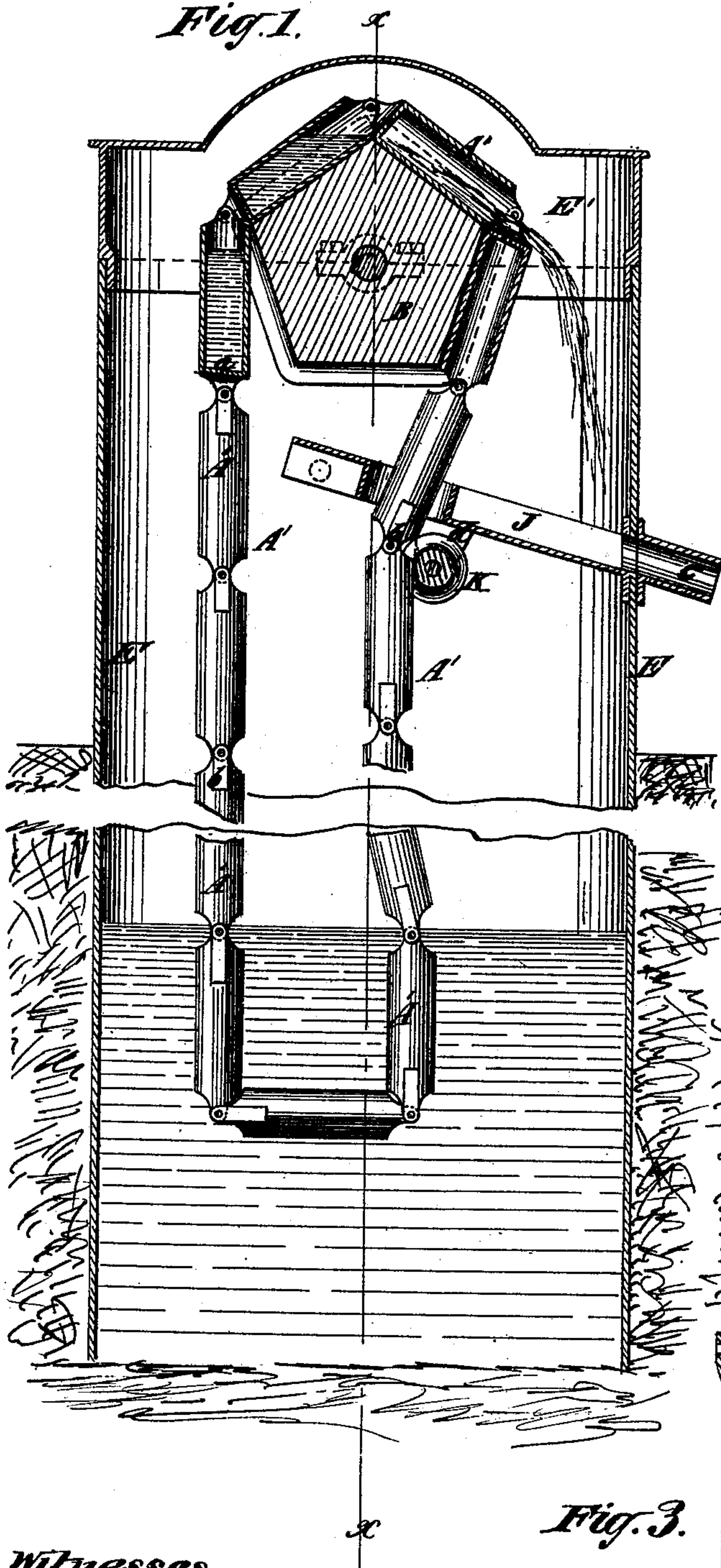


Fig. 2.

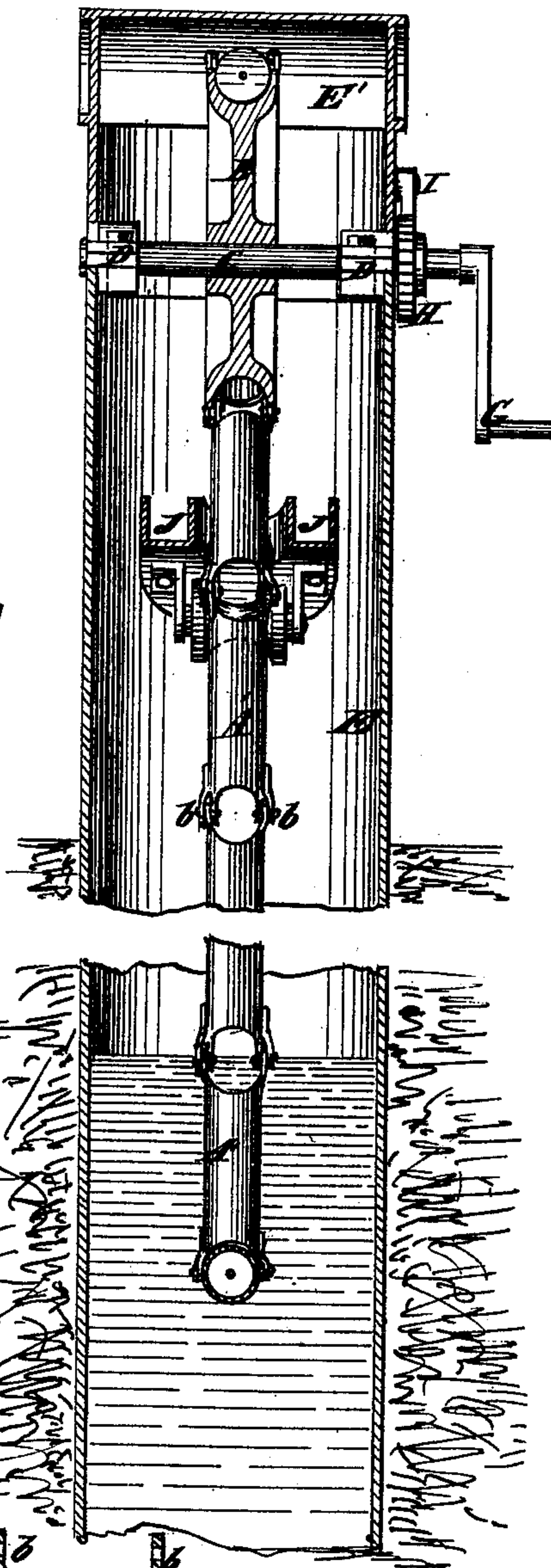
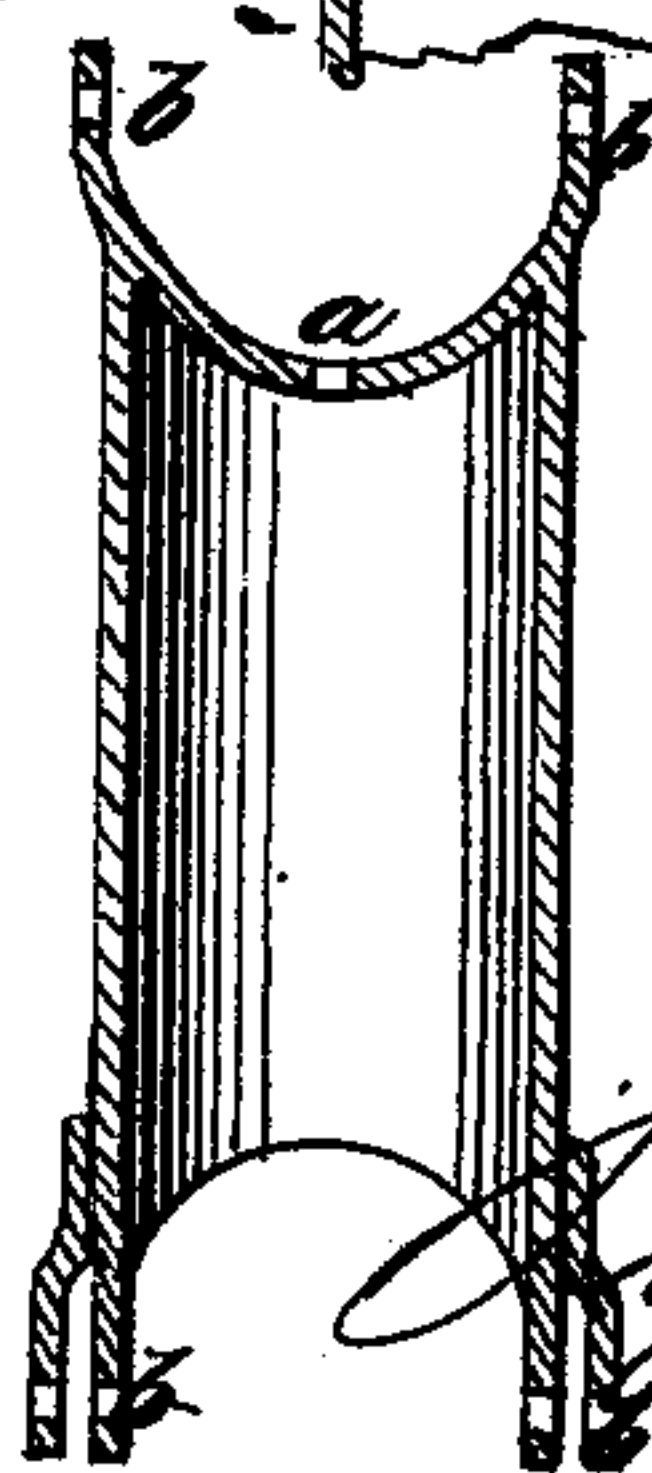


Fig. 3.



Witnesses
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JEREMIAH CLOSE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **214,103**, dated April 8, 1879; application filed January 7, 1879.

To all whom it may concern:

Be it known that I, JEREMIAH CLOSE, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

My invention consists in an endless series of jointed buckets, each having two ears or lugs projecting from diametrically-opposite points at each end, the bottom lugs or ears of one bucket being pivoted to the top ears of the succeeding bucket, whereby is formed a joint enabling the use in a chain of buckets of uniform dimensions from top to bottom, as hereinafter described; also, in the novel combination of a guide-roller with the chain and its carrying-wheel, whereby the descending buckets are guided out of the way of each other while discharging their contents.

In the accompanying drawings, Figure 1 represents a central vertical section of a well casing or curb, certain of the buckets composing the combination being shown in section. Fig. 2 is a vertical section on the line *x x*, Fig. 1; and Fig. 3 is a detail view on an enlarged scale, showing the concave or curved bottom of the buckets and the means employed to fasten them together.

Similar letters of reference designate corresponding parts in all the figures.

A' are the buckets, which, as here shown, resemble sections of pipe closed at one end. These buckets, which are connected to form the links of a chain, pass over a polygonal wheel, B, mounted on the shaft C, which is carried in suitable bearings D in the casing or curb E. The wheel B is here shown as pentagonal in form, and as having each of its sides corresponding in length to the length of the buckets A'.

If a larger diameter of wheel is required it may be advisable to form it with a greater number of sides. The periphery of the wheel B is preferably formed concave or hollow in its cross-section, and corresponding in shape to that of the buckets A', as clearly represented in Fig. 2.

A crank, G, fixed upon the shaft C, affords means for operating the pump, and a ratchet-

wheel, H, and pawl I preclude backward movement of the shaft, wheel, and buckets.

The buckets are provided with ears or lugs *b*, as clearly shown in Fig. 3, through which pins pass to form hinges for connecting the several buckets together, said lugs being preferably formed by casting them in the same piece with the buckets themselves. The bottoms of the buckets are preferably concave externally or rounded, as clearly represented in Fig. 3, so that when one bucket is deflected in passing over the wheel B its bottom forms a continuation of the next bucket, as clearly represented in Fig. 1, whereby the water therein is guided in its outward flow.

J designates a trough or spout, into which the water is delivered by the buckets, and from which it flows through the mouth or outlet *c*.

In order that each bucket as it leaves the wheel B shall be drawn inward out of the line of travel, so as not to interfere with the flow of water from the next bucket, I employ a guide-roller, K, which is supported in bearings *d*, extending from the trough J. As the buckets pass downward they are pressed inward out of the way of the water pouring from the next bucket, as represented in Fig. 1.

E' designates a cover, which may be removed when it is desired to have access to the buckets or their appurtenances.

By my invention the vertical trough or pipe and chain usually employed in chain-pumps are dispensed with, and, as the buckets themselves are so connected as to form a continuously hinged or jointed endless-chain-like series, the pump is rendered very simple and effective.

The buckets may be of any form in their transverse section.

I am aware that chain-pumps provided with a series of buckets, wide at the top and tapering to the bottom, have been employed in a chain, the bottom of one bucket being pivoted at one side to the top of the succeeding bucket, and this construction I do not claim.

I claim—

1. The endless series of jointed buckets A' A', each having the two ears or lugs project-

ing from diametrically-opposite points at each end, the bottom lugs or ears of one bucket being pivoted to the top ears of the succeeding bucket, whereby is formed a joint enabling the use in a chain of buckets of uniform dimensions from top to bottom.

2. The combination, with the connected series of buckets and the carrying-wheel B, of the guide-roller K, by which each descending bucket is in turn pressed inward or backward out of the way of the water discharging from

the next bucket, substantially as and for the purpose herein described.

3. The combination of the connected series of buckets A', the wheel B, shaft C, crank G, trough or spout J, and guide-roller K, substantially as specified.

JEREMIAH CLOSE.

Witnesses:

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