

(No Model.)

J. H. BEERS & J. RIDGE.

WATER ELEVATOR.

No. 244,975.

Patented Aug. 2, 1881.

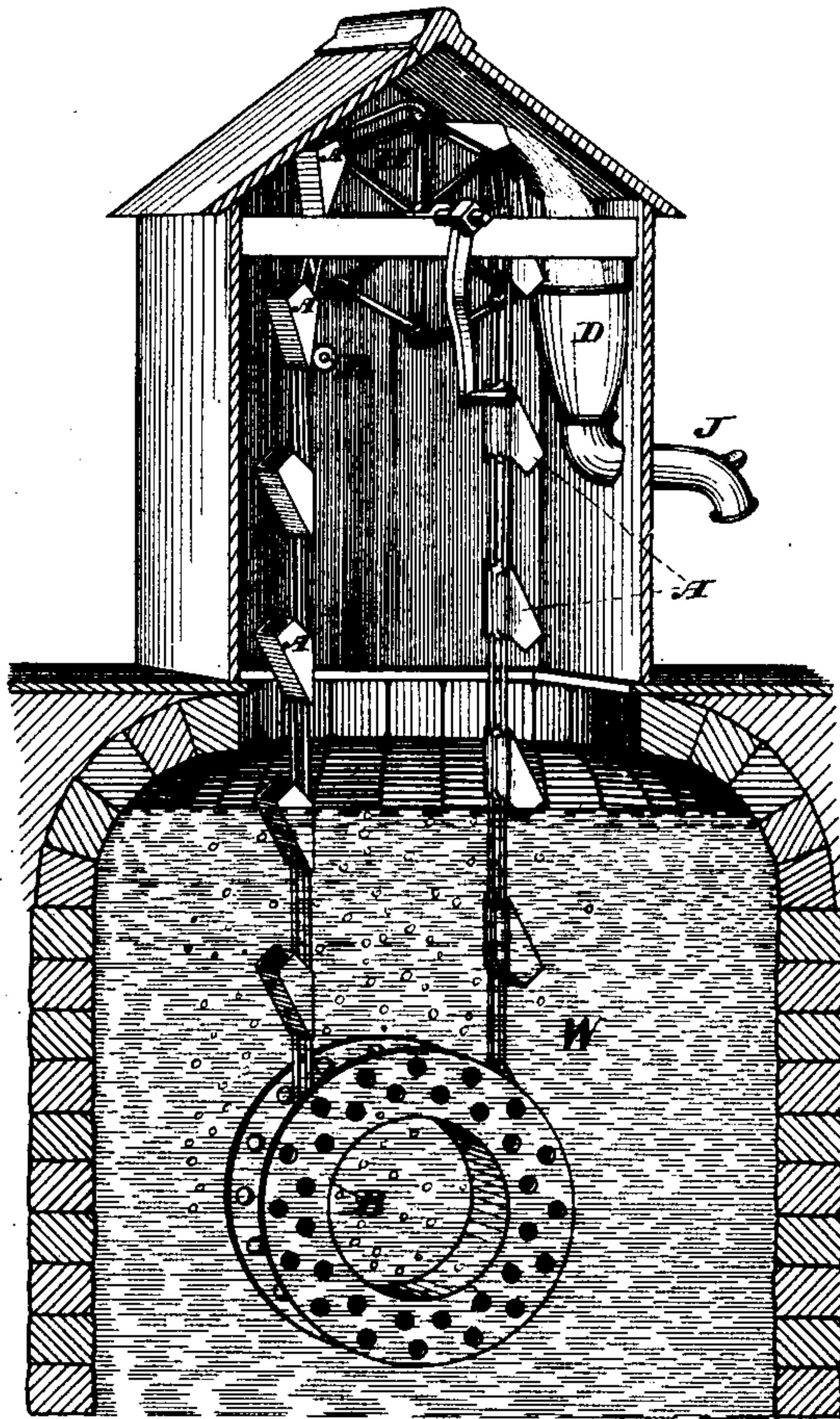


Fig. 1

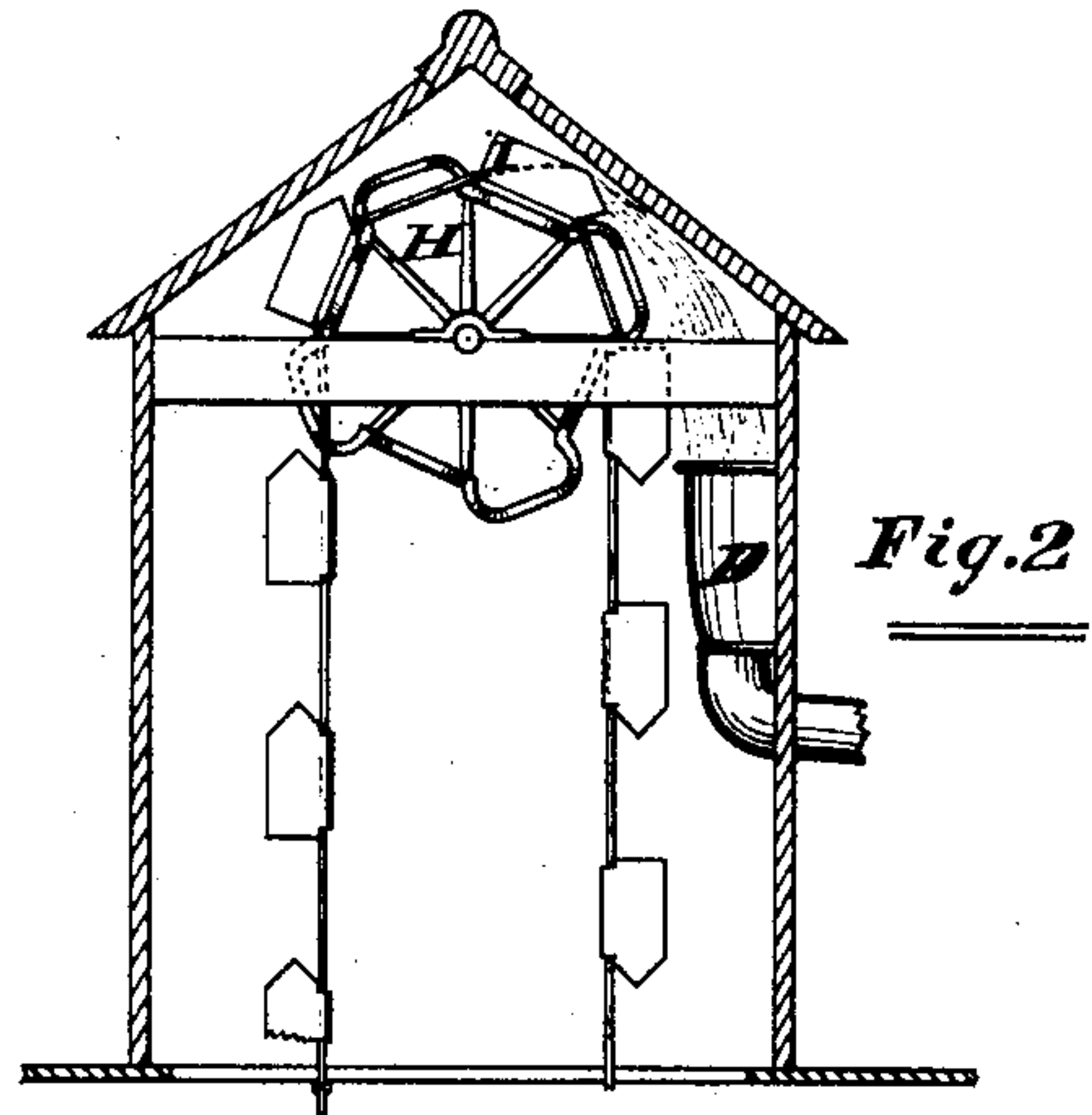


Fig. 2

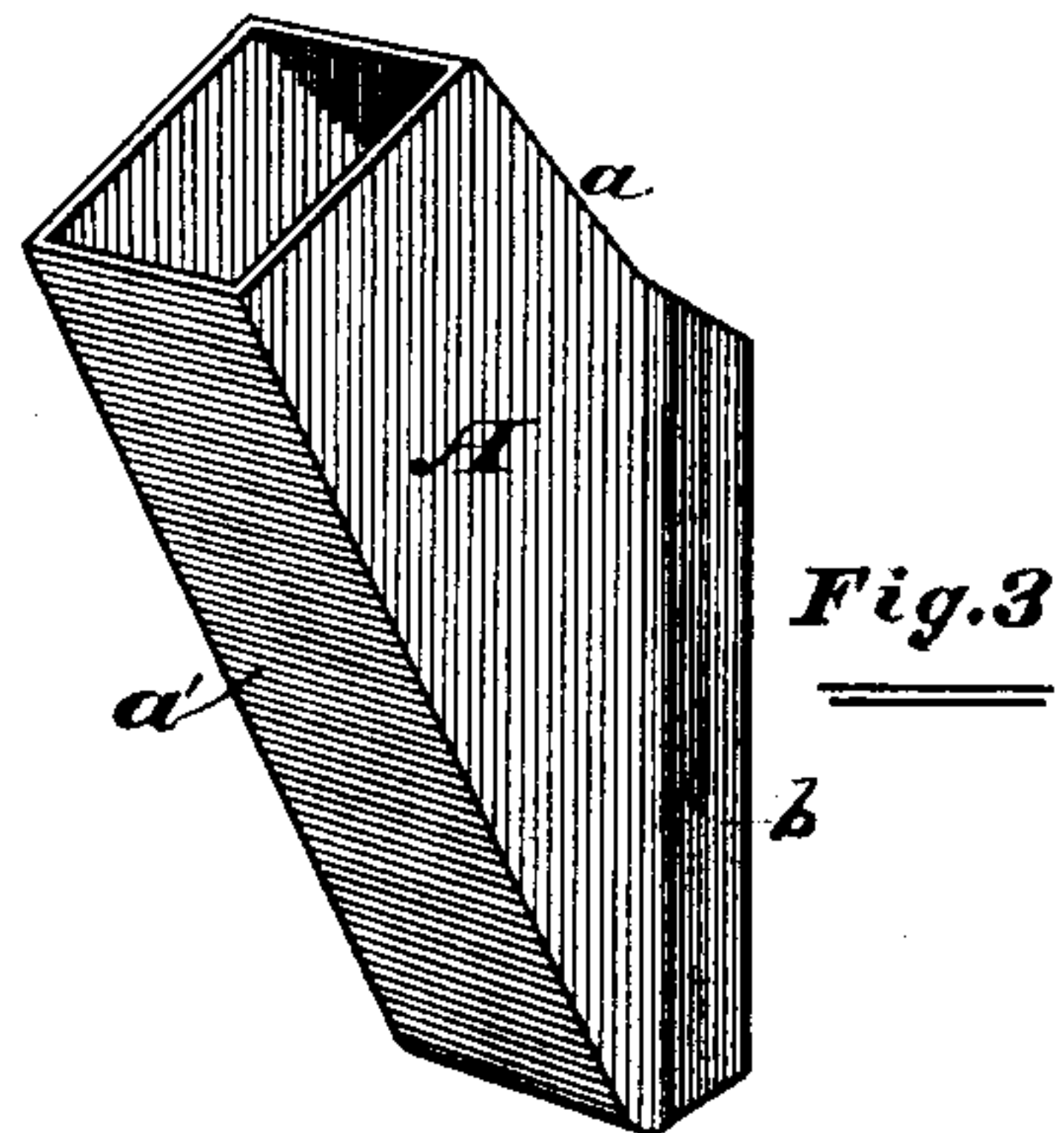


Fig. 3

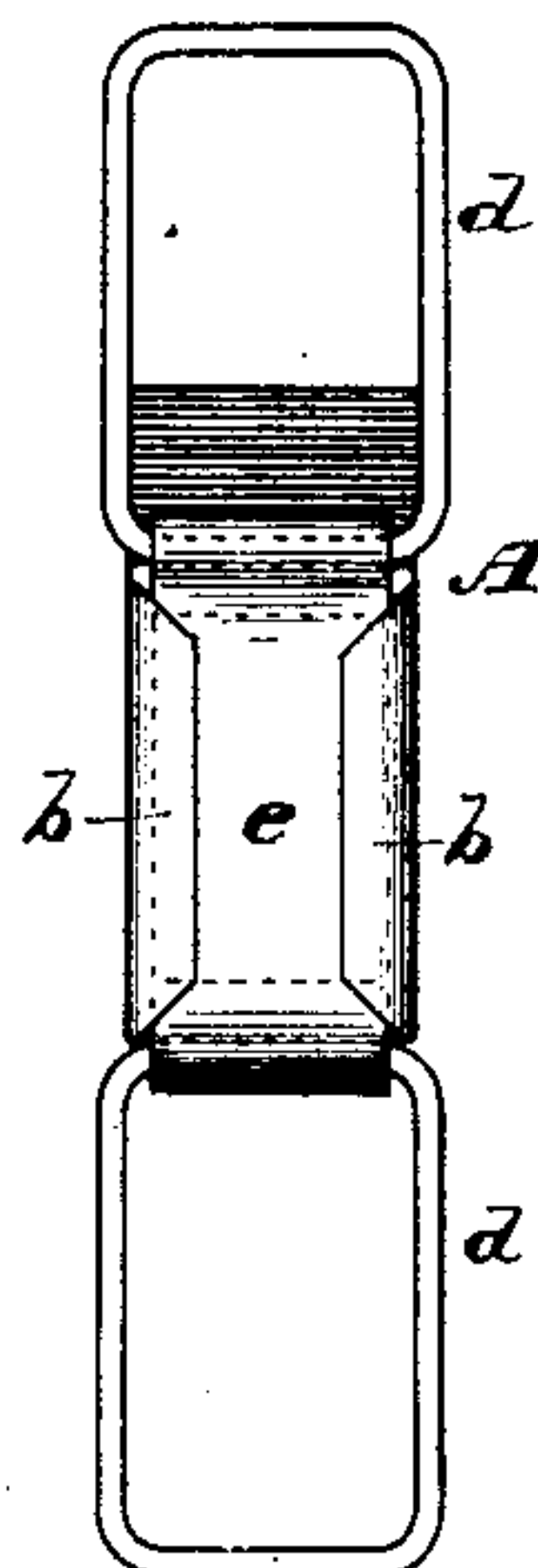


Fig. 4

Attest:

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UNITED STATES PATENT OFFICE.

JOHN H. BEERS AND JOSEPH RIDGE, OF CHICAGO, ILLINOIS; SAID RIDGE
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WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 244,975, dated August 2, 1881.

Application filed April 15, 1880. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. BEERS and JOSEPH RIDGE, of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Water-Elevators, of which the following is a full and complete description, reference being had to the accompanying drawings.

Our invention relates to improvements in water-elevators; and the objects of our invention are to provide certain combinations which shall remove the objections existing to such devices as at present constituted. We attain these objects by the combinations illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of our elevator, having one side of the curb omitted to give a view of the interior, a vertically sectional view of a well or cistern also being given. Fig. 2 is a side elevation, designed to show the buckets as heretofore constructed. Fig. 3 shows the form of our improved bucket. Fig. 4 shows sections of the chain.

It has been the custom to construct the bucket of uniform dimension in its cross-section, excepting a short angle near the top, hereinafter referred to. A difficulty arises from this mode of construction, in the fact that in a reasonably rapid motion, in turning the crank, a free discharge of the water from the bucket is prevented. Owing to the front or outer wall of the bucket being parallel to the rear, the water, or that portion contained in the lower part of the bucket when the motion is rapid, is caught in the angle *i*, Fig. 2, and held until it has passed centrifugal action, and, consequently, also passed the proper place of discharge, (receiver D,) and is emptied into the well mostly, instead of into the receiver.

The manner of constructing our improved bucket is to incline the outer face or wall, thereby diminishing the bottom and enlarging the mouth of the bucket, thus permitting the discharge of the water tangentially, however rapid the motion, the water being caught in the receiver D, from which it empties through spout J into a vessel placed for its reception. A diminution of the bottom of the bucket and enlargement of its mouth by inclining its sides

would aid the discharge of water by reason of the bulk of the water being held near the mouth, and consequently having less distance to travel in its escape from the bucket; but the inclination of the front and rear is found sufficient.

The chain on which the buckets are carried is in the present example composed of alternate rod-links *d* and flat links *e*. The buckets are secured to the flat links by means of extensions or flanges *b* of the sides, which extensions are pressed down over the edges of said links, as shown in Fig. 4, and thus permitting the buckets to be easily removed or replaced.

B represents a terra-cotta or iron wheel, having flanges of sufficient breadth to hold it in position, and which is suspended in the lower part of the chain, near the bottom of the well, for the purpose of steadying said chain. The air carried down by the buckets in their descent is of course discharged beneath the surface of the water as the buckets are filled, and impure water is thus aerated and purified.

H is the drive-wheel, the periphery of which is composed of alternate straight and outwardly-curved divisions, which latter engage with the rod-links of the chain, as evidenced by the drawings, and thus prevent said chain from slipping on the wheel. The short inclined face *a* at the top of the bucket is for the purpose of preventing contact of the latter with the curved part of the wheel when brought together.

In consequence of the chain not being held very taut by suspended wheel B the buckets in their ascent are somewhat unsteady, and when permitted to ascend perpendicularly, as in Fig. 4, the sudden contact with wheel H results in considerable jar and consequent slopping of water. To obviate this we place a roller, R, (having journal-bearings in each side of the curb,) in such a position on the inner side of the chain that the latter is diverted from its perpendicular direction, and comes in contact with the wheel at an angle, whereby the forcible contact is in a great measure prevented and the difficulty almost entirely obviated.

The bottoms of the buckets are each pro-

vided with a small perforation, whereby the water is permitted to escape when the buckets are stopped, and thus prevent freezing.

It will be perceived from the foregoing description, and from reference to the drawings, that in our construction the outer faces, *a'*, of the buckets A A are inclined, with relation to their rear or attaching faces, and to the links respectively to which the buckets are applied, and that the angular space I, hereinbefore referred to, does not exist, and hence that a superfluous amount of water is not raised, or raised and discharged back into the well, instead of into the receiver D. In other words, the lower part of the bucket is so contracted or diminished that the bulk of the water will stand near the mouth, ready to be discharged at the proper time into the receiver.

Having thus fully described our said improvements, what we claim, and desire to secure by Letters Patent, is—

The combination, in a water-elevator, of buckets A A, having contracted lower parts or bottoms, their outer faces being inclined, as shown, while their inner faces are parallel with the chain, to which they are attached, the chain *d e*, a windlass over which the chain passes, and the wheel B, suspended by the chain, substantially as described, and for the purpose set forth.

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JOSEPH RIDGE.

Witnesses:

S. B. CLARK,
E. H. KOENIG.