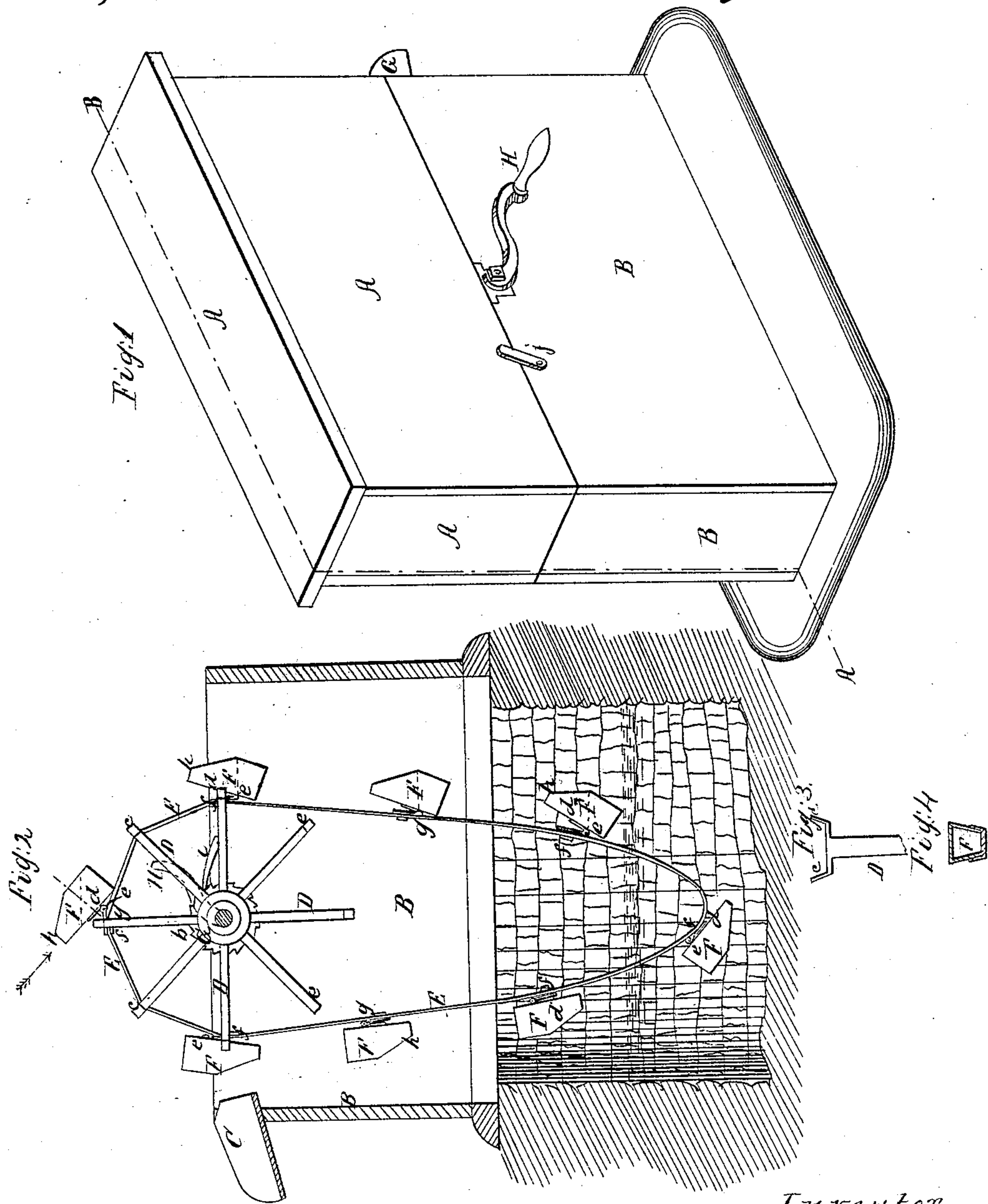


*A. Coates*  
*Chain Pump.*

*N<sup>o</sup> 29,466.*

*Patented Aug. 7, 1860.*



Witnesses  
*Wm. McKee Allen*  
*A. C. Woodruff*

Inventor  
*Amos Coates*  
 By his Attorney  
*Thos. H. Dodge*



# UNITED STATES PATENT OFFICE.

AMOS COATES, OF MARLBORO, OHIO.

## CHAIN-PUMP.

Specification of Letters Patent No. 29,466, dated August 7, 1860.

*To all whom it may concern:*

Be it known that I, AMOS COATES, of Marlboro, in the county of Stark and State of Ohio, have invented a certain new and useful Improvement in Chain-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1, represents a perspective view of the pump box, and Fig. 2, represents a section of the box and well on line A B, Fig. 1, with the cover or top A, of the pump box removed.

In the drawings A, represents the top or cover of the box which rests on the bottom or base B.

Near the top of the base B, is arranged a shaft *a*, upon which is rigidly secured a ratchet wheel *b*, and main pump wheel C, the latter being provided with arms D, each of which has two projections *c*, *c*, at the top, as fully shown in Fig. 3, and between which runs the chain or rubber band E.

Upon the chain or rubber band E, are attached the water buckets F,—the buckets or water-lifters F, being made in a peculiar manner as shown in the drawings. To the long side of the buckets or water-lifters are attached pieces *d*, which in turn are hinged to pieces *e*.

The buckets or water-lifters are attached to the rubber band E, by rivets passing through the pieces *e*, band E, and lifting cleats *f*, on the under side of the band. The buckets or water-lifters are attached to the rubber band so that the cleats *f*, will come against every other arm D, whereby all slipping of the buckets is obviated, while at the same time the weight of the water in the buckets is well back of the hinge *g*, thus keeping each bucket from falling forward, until the point *h*, has advanced past the center of the wheel, the water being prevented from running out by the projecting part *h*, until the hinge *g*, has passed by the center of the wheel, when the buckets F, suddenly fall forward and empty the water into the spout G.

The mode of hinging the buckets, in connection with cutting off one corner of the end *h*, and making the backs wider than the

fronts, as shown in Fig. 4, (which is a cross section of one of the buckets,) so as to give the buckets the form of a wedge at one end, and also a tapering form from back to front, constitute great practical advantages, in this class of pumps, since the tapering of the buckets, from back to front, enables them to force the water off laterally as they pass through the same, similar to the sides of a boat, while the water is retained in the buckets until they have passed well by the center of the wheel, thus insuring all of the water going into the spout G, while in passing down into the water, there is less agitation caused by the buckets in entering the water, while the air in the buckets is allowed to escape more gradually, and consequently there is much less agitation from this cause, the air in the buckets being prevented from escaping from the same, until they have passed by the center of the bottom of the well, and then allowed to rise up against the projecting part *h*, while the bottom of the bucket is being filled with water.

It will thus be seen that my pump can be used in wells so as to bring up the water fresh and cool from the bottom, and that too, without causing so much agitation of the dirt at the bottom of the well, as to render the water impure and dirty. Again the long ends *h*, of the buckets or water-lifters serve the further purpose of ventilating the well, since a considerable quantity of air is really raised from the bottom of the well by the long scoop ends *h*, of the buckets.

In warm weather the buckets or water-lifters F, can be let down into the well, so as to keep the water in them cool, and there held by a dog *i*, which works into the ratchet wheel *b*. The dog *i*, can be worked by the piece *j*, on the outside of the box B, since the dog *i*, and hand piece *j*, are fastened to the same journal.

The shaft *a*, is operated by crank H, upon its end, as shown in the drawing. The chain E, can pass around a guide roll in the bottom of the well, when desired. The buckets can be made of zinc or any other suitable material.

Having described my improved chain pump, what I claim as new, and desire to secure by Letters Patent, is—

The combination with the rubber band E,

of the buckets, or water lifters F, constructed with long wedge or scoop ends *h*, and their cross sections being of a boat or wedge like form, as shown in Fig. 4, with  
5 pieces *d*, *f*, hinges *g*, arms D, and projections *e*, *e*; the whole constructed and operating conjointly, as shown and described.

In witness whereof I have hereunto signed my name.

AMOS COATES.

Witnesses:

JOHN CROZER,  
RIDGWAY COATES.