(No Model.)

L. A. BRIGEL.

WATER ELEVATOR.

No. 342,325. Patented May 25, 1886.

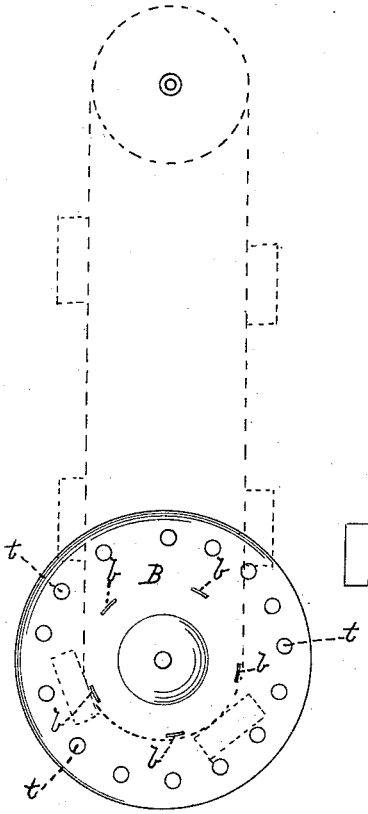

Fig. 1.

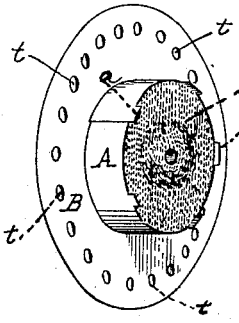

Fig. 2.

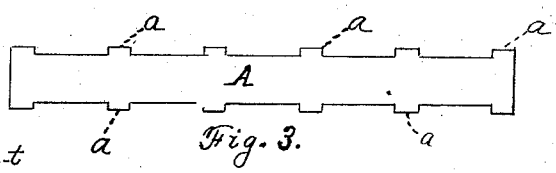

Fig. 3.

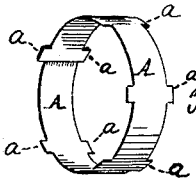

Fig. 4.

Fig. 5.

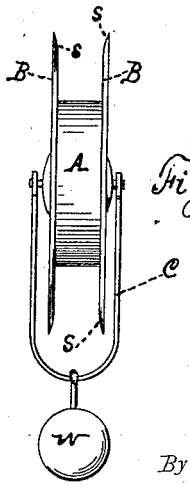

Fig. 6.

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UNITED STATES PATENT OFFICE.

LEO A. BRIGEL, OF CINCINNATI, OHIO.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 342,325, dated May 25, 1886.

Application filed January 30, 1886. Serial No. 190,339. (No model.)

To all whom it may concern:

Be it known that I, LEO A. BRIGEL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Water-Elevators, of which the following is a specification.

This invention relates to water-elevators or a means for raising water with an endless chain having a number of buckets attached. The chain and buckets are carried at the top by a wheel revolving in bearings in a curb, and at the bottom by means of a heavy wheel with flanges suspended in the chain near the bottom of the well or cistern.

The object of this invention is to make a better construction for the lower wheel, so as to make it less liable to break by handling while in course of manufacture or trade, and to reduce the cost to a much lower amount than has been hitherto attained; also to reduce the freight-rates in shipping by the compact form in which they can be packed while in the knockdown state.

The ordinary cast-iron wheel for holding the elevator chain and buckets in position in the water has been a continued source of annoyance by the frequent breakage of the flanges, if not handled with extra care, they and are expensive, and take up considerable room in shipping. To obviate these difficulties the combination of form and materials hereinafter shown and described has been devised, which in practice gives more satisfactory results than any other form yet tried.

Similar reference-letters refer to like parts in all the drawings.

Figure 1 is a view of the side of the wheel, showing position when hung in the chain. Fig. 2 is a view of one of the side flanges and the cylindrical portion with the other flange removed to show the filling and general construction. Fig. 3 is a view of the central cylindrical portion straightened out to show its form. Fig. 4 is a view of the central cylindrical portion separate from the flanges, and showing projections at the edges, solid with the sheet metal of which it is made, for the purpose of attaching it to the side flanges. Fig. 5 is a sectional view of one of the side flanges through the center, to show the bulge and the bevel of the outer edge. Fig. 6 is an edge view of the wheel complete with a weight attached.

This wheel is made of three parts of sheet metal, consisting of two side pieces, B B, and a central cylindrical-shaped part, A, in combination with a composition filling, D, to give weight. The sides are made about fourteen inches in diameter, and are bulged at the center, *n*, and the circumference, *s*, is pressed in an outward bevel, as shown by Figs. 5 and 6. Near the circumference of each side flange are holes *t*, to permit the distribution of the air laterally from the inverted buckets as they pass around the wheel between the flanges, and for the purpose of providing places to attach a grapple in case the chain breaks, or for any reason the wheel is dropped in the well. The central cylindrical portion, A, is made of a strip of metal having projections *a*, as shown in Figs. 2, 3, and 4. The sides B have slots *b* punched through them, to match the projections *a* on the cylindrical part when it is in shape like Fig. 4.

In constructing this wheel the projections *a*, on one side of the cylindrical part are inserted in the slots *b* in one flange, and the projections, being longer than the thickness of the side, are clinched, which secures the two parts together. The cylindrical part is then filled with a heavy composition, D, to increase the weight, when it will appear like Fig. 2. The other flange is now placed in position with the projections *a* through the slots *b* and the projections clinched, which completes the wheel, when it will appear like Fig. 6, which also shows a yoke, *c*, and weight *w*, to additionally increase the weight of the wheel when it is used in very deep wells.

Wheels made in this manner can be shipped in the knockdown state. The sides B can be nested one against the other in a very compact form, and the strips A, which are used to make the cylindrical part, can be placed together in a separate pack. The parts, being made of sheet metal, cannot be broken, even when roughly handled in shipping or in course of manufacture.

These wheels cost much less than when made of cast-iron, and this, combined with the other qualities before mentioned, gives it

important advantages over any form of wheel yet devised for a similar purpose. The central cylindrical portion may be made of more than one piece, and the sides can be attached to it by other means—such as bolts, rivets, &c.—instead of the projections *a;* or bolts, rivets, &c., may be used in combination with the projections *a* without changing the general intention or usefulness of the wheel for the purpose hereinbefore stated.

I claim as my invention—

1. The bottom wheel of an endless-chain and bucket water-elevator, composed of the sheet-metal sides B and sheet-metal cylindrical portion A and a filling, D, to give the necessary weight required for the purpose intended.

2. The bottom wheel of an endless-chain and bucket water-elevator, composed of the sheet-metal sides B and sheet-metal cylindrical portion A, secured together by means of projections *a* of the cylindrical portion A, passing through slots in and clinched on the outsides of the sides B.

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