(No Model.)

J. G. DENGLER.

WINDLASS WATER ELEVATOR BUCKET.

No. 263,871. Patented Sept. 5, 1882.

FIG. 1

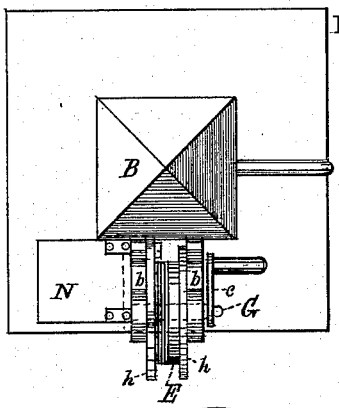


FIG. 2

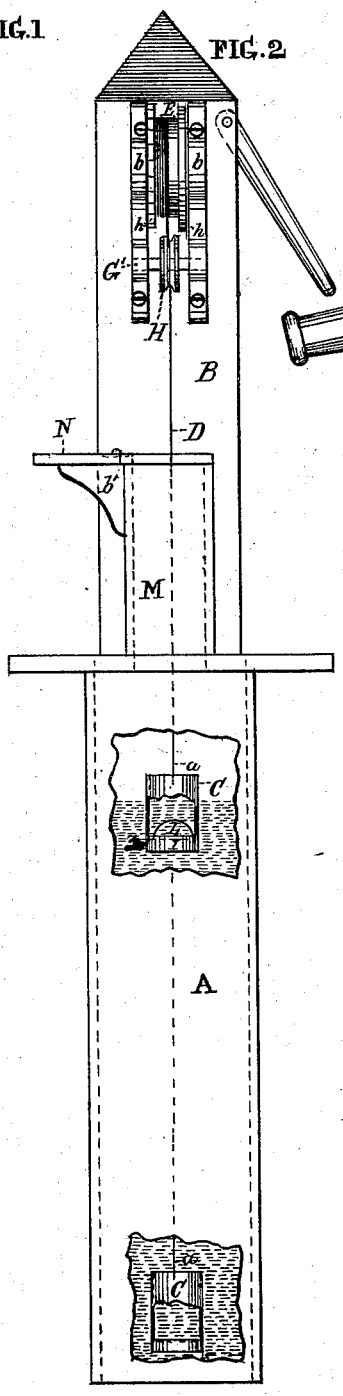


FIG. 3

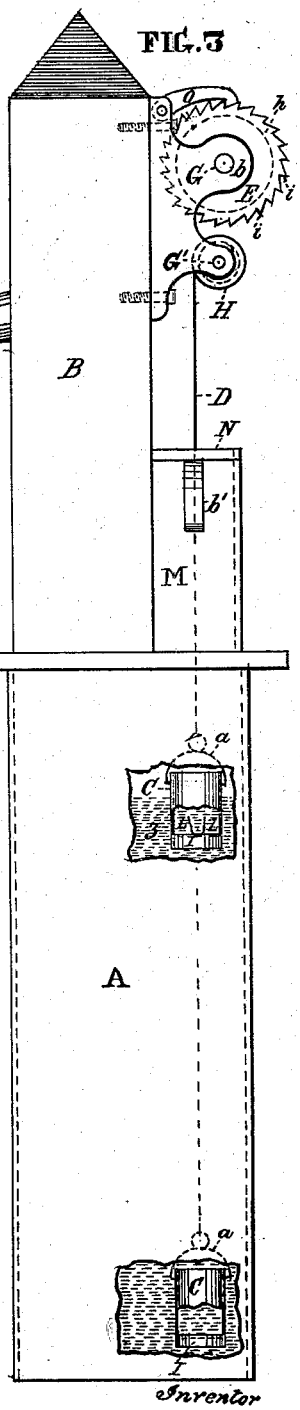


FIG. 4

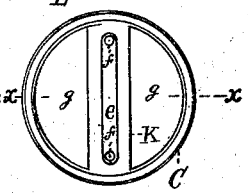


FIG. 5

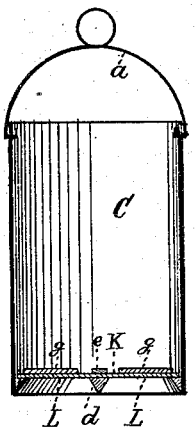
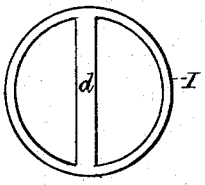


FIG 6



Witnesses

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JAMES G. DENGLER, OF SELLERSVILLE, PENNSYLVANIA.

WINDLASS WATER-ELEVATOR BUCKET.

SPECIFICATION forming part of Letters Patent No. 263,871, dated September 5, 1882.

Application filed May 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. DENGLER, a citizen of the United States, residing at Sellersville, in the county of Bucks and State of Pennsylvania, have invented a new and useful Improvement in Windlass Water-Elevator Buckets, of which the following is a specification.

The nature of my invention consists of a bucket, either round or square, having for its bottom a valve or valves seated on a ring or frame fixed in the lower end of the bucket and hinged to a cross-bar in the middle of said ring when the bucket is round; but when the latter is square the valve or valves may be hinged to either the cross-bar or to a side or sides of the frame. The latter, or the ring, as the case may be, and its cross-bar are beveled, so as to cut the water with the least possible resistance as the bucket descends through the water. The valve or valves are so hinged as to open inward the moment the bucket strikes the water, thereby rendering the bucket practically bottomless; and the instant it is on its upward course the pressure of the water closes them, and thus forms a tight bottom to retain the water it secures at the bottom of the well, as hereinafter fully described.

In the accompanying drawings, which make a part of this specification, Figure 1 is a plan view of my improved bucket C, the well A, and pump B. Fig. 2 is a front elevation of the same and of the well A, the latter and the bucket being broken away to show the valves L L in both their open and closed positions. Fig. 3 is a side elevation of the well A and parts connected therewith. Fig. 4 is a plan view of the bucket A on an enlarged scale, the bail *a* being omitted. Fig. 5 is a vertical section at the line *x x* of Fig. 4. Fig. 6 is a plan view of the ring I.

Like letters of reference in all the figures indicate the same parts.

A represents the well, and B an ordinary pump, such as is used for drawing water from the top of the well for culinary and other purposes which do not require cool water.

C is a bucket for drawing water from the bottom of the well, so as to procure it as cool as practicable for drinking.

D is the chain, connected at one end to the bail *a* of the bucket C, the other end being connected to the flanged wheel or drum E in the usual manner, the shaft G of the same having bearings in the brackets *b b*. One end of the shaft is provided with a crank, *c*. The bracket at this end may be left off or omitted in the use of a small bucket, in which place a handle connected with the free end of the drum will be used instead of the crank.

H is a grooved pulley, by which the chain D is held inward toward the pump as it is wound over the drum E toward the front of the same, so as to cause the chain to hang down in about the central vertical plane of the draft-box, described below. The grooved pulley is adapted to slide on the shaft G′, the ends of which are permanently connected in the brackets *b b*, above mentioned, its sliding being automatically effected by the changes in the positions of the chain on the drum E as it is wound or unwound, the main object being to prevent the riding of the chain over the wound part.

The bucket C is provided with a ring, I, and valves L L, which constitute its bottom. The ring has a cross-bar, *d*, to which the disk K is confined by means of the strap *e* and rivets *f f*. The disk is of india-rubber or gutta-percha, or other suitable material, to form the valves L L, which are stiffened by means of the plates *g g*.

M is a box, open above and below, communicating with the mouth of the well for the passage of the bucket C. It is provided with the shelf N for the support of the bucket when drawn up. It is hinged to the box M for the purpose of being turned over to cover the mouth of the box when required, it being turned back into the position seen in the drawings when required for the passage of the bucket into the well, and rests upon the bracket *b′*. One of the flanges, *h*, of the drum E has ratchet-teeth *i*, as represented, with which the pawl O is caused to engage for arresting the movement of the drum when required.

The operation is as follows: When the bucket C is lowered, as soon as its bottom strikes the water the reaction of the latter upon the valves L L, which form the bottom of the bucket, opens them, as seen at *z*, and the valves remain in such position until the bucket has descended to the lowest point of its passage. The valve or valves being open, but little resistance is

given to the descent of the bucket, which is amply compensated for by its weight, and hence it has a free and easy downward passage without any tendency to vary from its vertical position, especially as the valve-ring I and its bar *d* are beveled to an edge on their lower side, as seen in the sectional view, Fig. 5. When the ascending movement of the bucket commences the pressure of the water within it and the superincumbent column of water forces the valve L tightly upon the ring I, as shown in Figs. 2 and 3, whereby to form a water-tight bottom and effectually prevent the escape of the cool water which has filled the bucket as soon as it has reached the lowest point of its passage at the bottom of the well. When the bucket is drawn up through the well and the box M it is placed on the shelf N, with its bail *a* parallel with the shelf, for convenience in tilting for emptying it of the water into the receiving-vessel; and in order that the tilting shall not open the valves L the bar *d*, to which the disk K (which constitutes the valves) is connected, is arranged at right angles to the bail in the fastening of the ring in the bottom of the bucket.

When water is not to be drawn from the top of the well the pump B is omitted, and the attachment made to a post instead.

The drawings and the above description referring thereto relate to a round bucket; but when desired the bucket may be of square form, having a corresponding frame instead of the valve-ring I at its bottom, in which case the valves may be hinged to the bar *d* in the same manner as shown in the drawings, or at the sides of the bucket; or a single valve may cover the whole area of the bottom of the bucket and be hinged at one side thereof.

I claim as my invention—

1. A bucket provided with a valve or valves composing its entire bottom, and so hinged as to open upward when they strike the water in the descent of the bucket, to admit of the free downward movement of the latter and to instantly close when it begins to ascend, and thus to prevent the escape of the water obtained at the end of the downward stroke, substantially as described.

2. The combination of the valves L L with the valve-ring I, having a cross-bar, *d*, for forming the bottom of the bucket when the valves are closed and for forming an open bottom when open, substantially as described.

3. The combination of the ring I and cross-bar *d* with the lower edge of the bucket C, the ring and bar being beveled on their lower edge, whereby to cut the water in the downward movement of the bucket, substantially as described.

4. The combination of the shelf N with the box M, the shelf being hinged so as to be turned down over the mouth of the box for closing the well, or reversed to rest upon the bracket *b'* to receive the bucket, substantially as described.

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