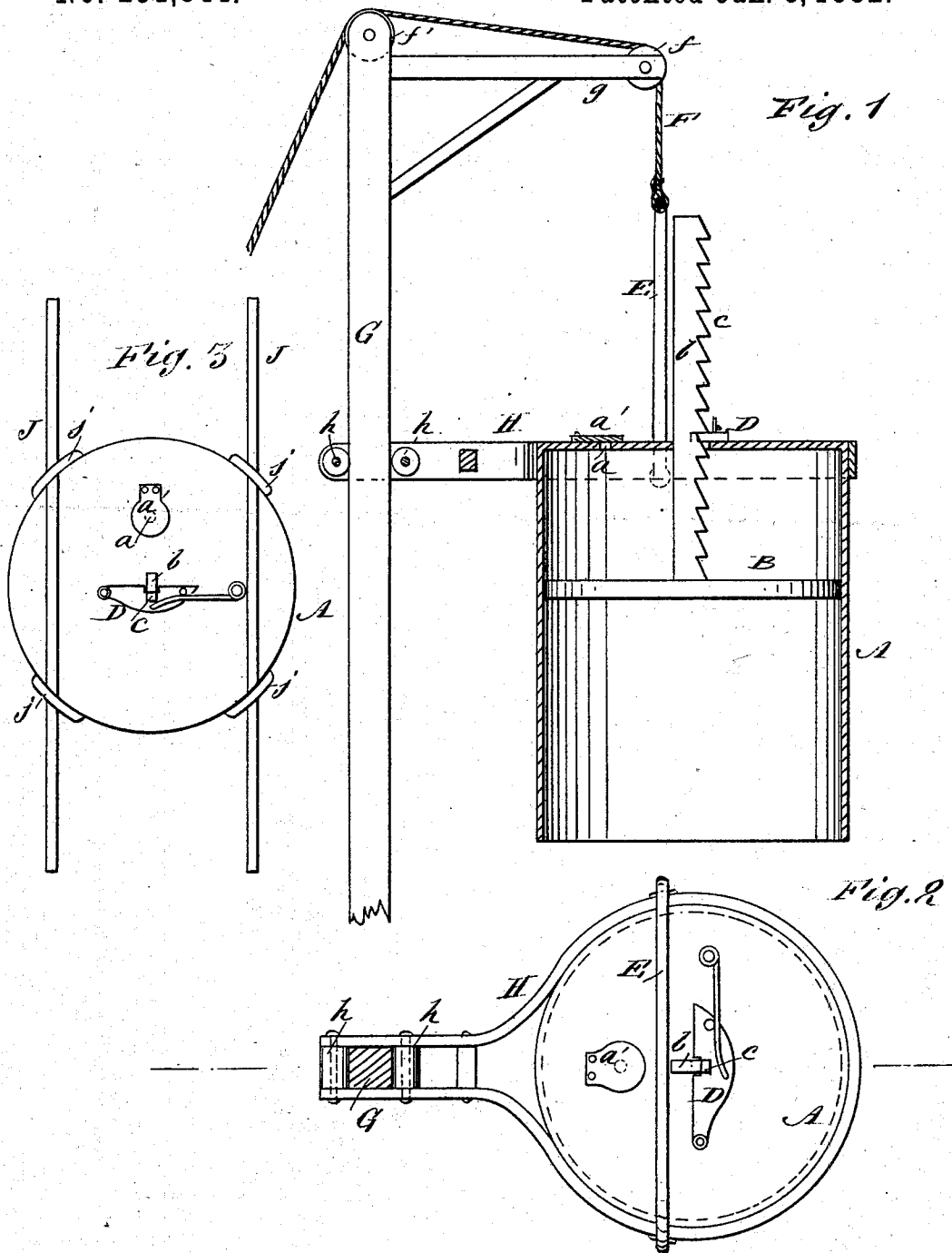


(No Model.)

H. R. DULANY.
SUCTION ELEVATOR.

No. 251,844.

Patented Jan. 3, 1882.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY R. DULANY, OF ALEXANDRIA, LOUISIANA.

SUCTION-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 251,844, dated January 3, 1882.

Application filed August 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. DULANY, of Alexandria, in the parish of Rapides and State of Louisiana, have invented a new and Improved Suction-Elevator, of which the following is a full, clear, and exact description.

The object of my invention is to provide a suction device for elevating sand, or for elevating sugar, mortar, or similar substances from large vats, holes, or tanks, which device shall be self-acting.

The invention consists principally of a large inverted bucket provided with a piston-head, the vessel being provided at the top with suitable air-valves, the piston-rod passing through the center of the top of the vessel, and being provided with notches adapted to engage with a spring-actuated clutch for holding the piston-head when forced up by the material to be raised.

The invention further consists in the details of construction of the device, whereby the same is adapted for hand use for raising flour, butter, lard, and similar substances; and also in the combination and arrangement of parts, as hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 represents a vertical section of my improved suction-elevator built upon a large scale. Fig. 2 is a plan view of the same, and Fig. 3 is a plan view of the vessel built upon a small scale for hand use.

Similar letters of reference indicate corresponding parts.

A represents the bucket, which is preferably cylindrical in form, and B represents the piston-head placed in the vessel. The top of the bucket is perforated at *a*, which perforation is closed from the outside by the valve *a'*. The piston-rod *b* passes up through the top of the bucket, and is formed with the notches *c*, with which the spring-actuated catch D engages for holding the piston-head at any desired point, or for holding it when pressed up by the material, as hereinafter described. The spring-actuated catch D is made close-fitting, so as to close the central opening in the top of the bucket, to prevent the admission of air into the vessel after the piston-head has been raised and before the discharge of the load.

When built upon a large scale the bucket is

provided with the bail E, to which the rope F may be attached for raising and lowering the bucket, which rope may pass over the pulley secured at the end of the horizontal arm *g* of the upright post or way G, which is provided at the top with the pulley *f'*. When this post G and the pulley and rope are used the yoke H, which clasps the post, should be secured around the vessel, as shown, and the friction-rollers *h h* should be provided for guiding the bucket and for reducing the friction upon the post.

When built upon a suitable scale for raising sugar from vats by hand, in place of the yoke H, the top of the bucket is provided with the loops *j j*, through which the cross-bars J J pass, to serve as handles for lowering and raising the bucket.

In use the bucket is to be lowered into the material to be raised, which, as it enters the bucket, will force the piston B up into the bucket, causing the air above it to be forced out through the valved opening *a*. When the bucket has sunk a sufficient depth into the material the bucket has then only to be raised, the load being retained in the bucket by atmospheric pressure exerted at the mouth of the bucket.

In order to discharge the load from the bucket, the spring-catch is moved out of engagement with the notches of the piston-rod *b* and the valve *a'* lifted, which will admit air above the piston to fill the vacuum formed by the downward movement of the load out of the bucket. In raising the valve the piston-head may be forced down and the load discharged by pressure upon the piston rod *b*.

When made on a small scale for hand use the piston may be omitted, if desired, using only the valve for retaining and discharging the load; and when constructed in this manner the buckets or cups may be made of different sizes to contain different quantities, as a pound or two pounds, or a quart or two quarts, as desired; but when the piston is used in small buckets or cups, by graduating the piston-rod different measured quantities may be raised with the same bucket by the setting of the piston by means of the spring-catch and the notches of the piston at different positions in the bucket or cup as the piston is forced up.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The device herein shown and described for elevating substances, consisting of the inverted bucket or cup A, containing the self-acting piston B, the top of the bucket or cup being provided with the valved opening *a*, substantially as and for the purposes set forth.

2. The inverted bucket or cup A, provided with the valved opening *a*, and with the spring-actuated catch D, in combination with the self-acting piston B, provided with the notched

piston-rod *b*, substantially as and for the purposes set forth.

3. The inverted bucket or cup provided with the self-acting piston B, in combination with the yoke H, post G, arm *g*, pulleys *f* and *f'*, rope F, and bail E, substantially as and for the purposes set forth.

HENRY ROZIER DULANY.

Witnesses:

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