2 Sheets--Sheet 1.

A. BOSCHKE.
Dredging-Machines.

No. 141,752. Patented August 12, 1873.

FIG. 1.

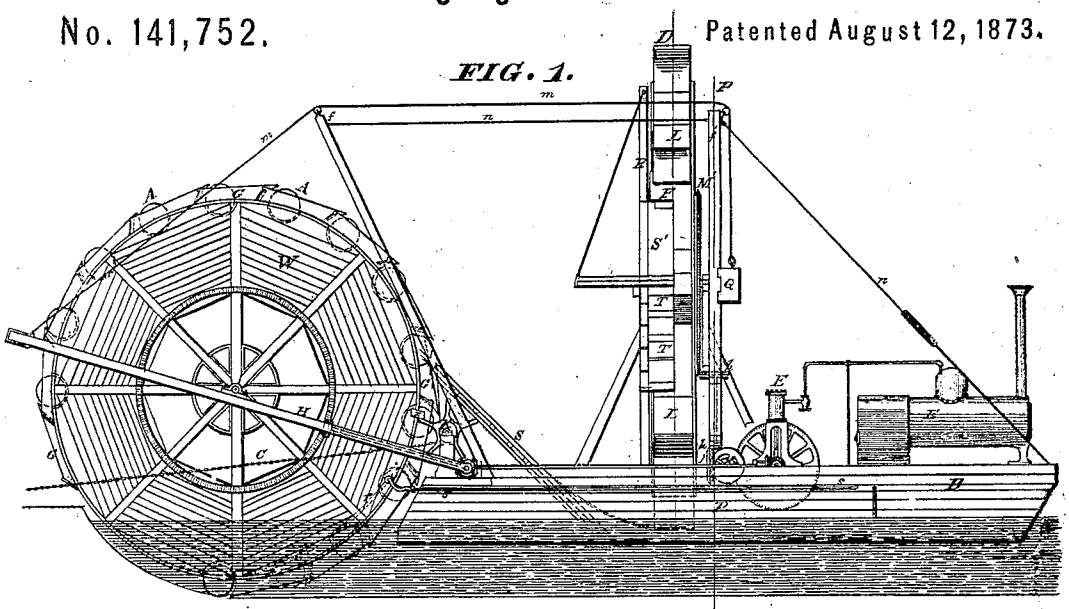
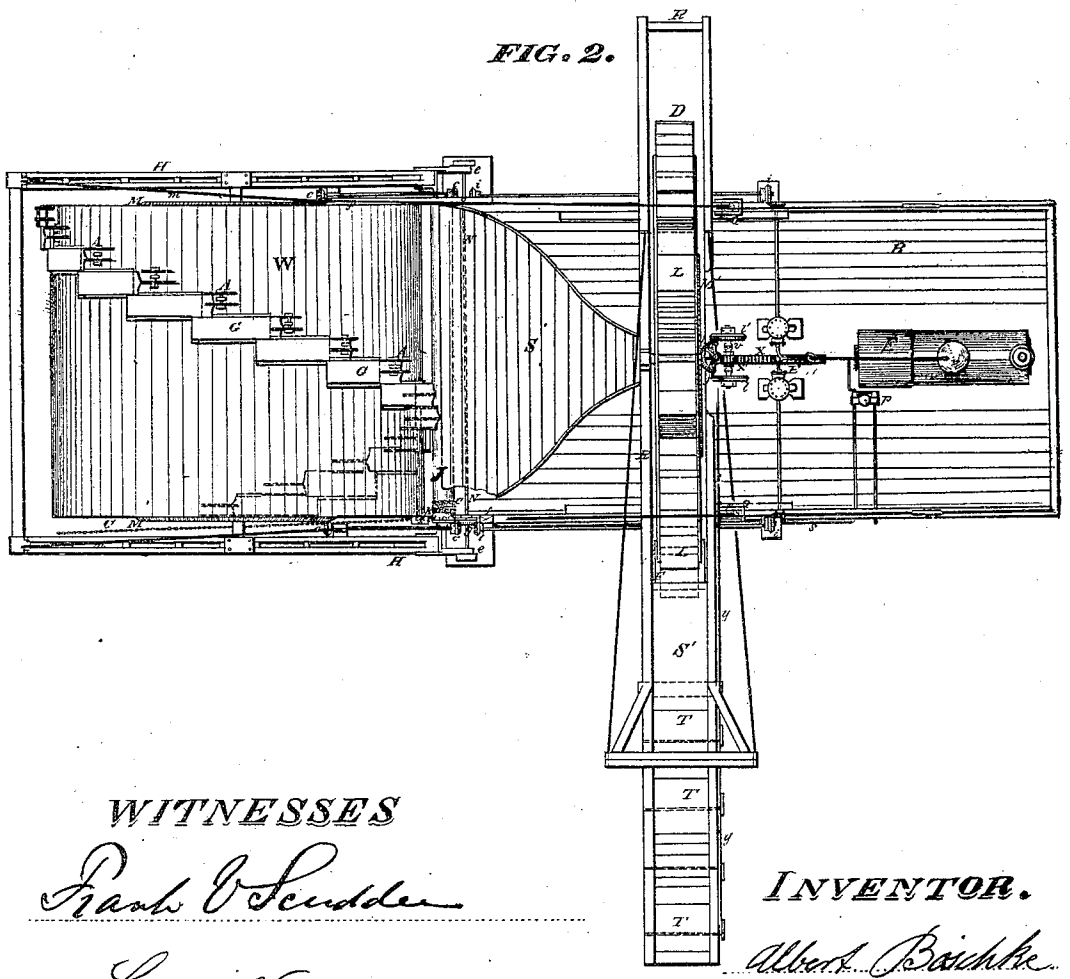


FIG. 2.



WITNESSES

Frank P. Scudder

Lionel Varicas

INVENTOR.

Albert Boschke

2 Sheets--Sheet 2.

A. BOSCHKE.
Dredging-Machines.

No. 141,752. Patented August 12, 1873.

FIG. 3.

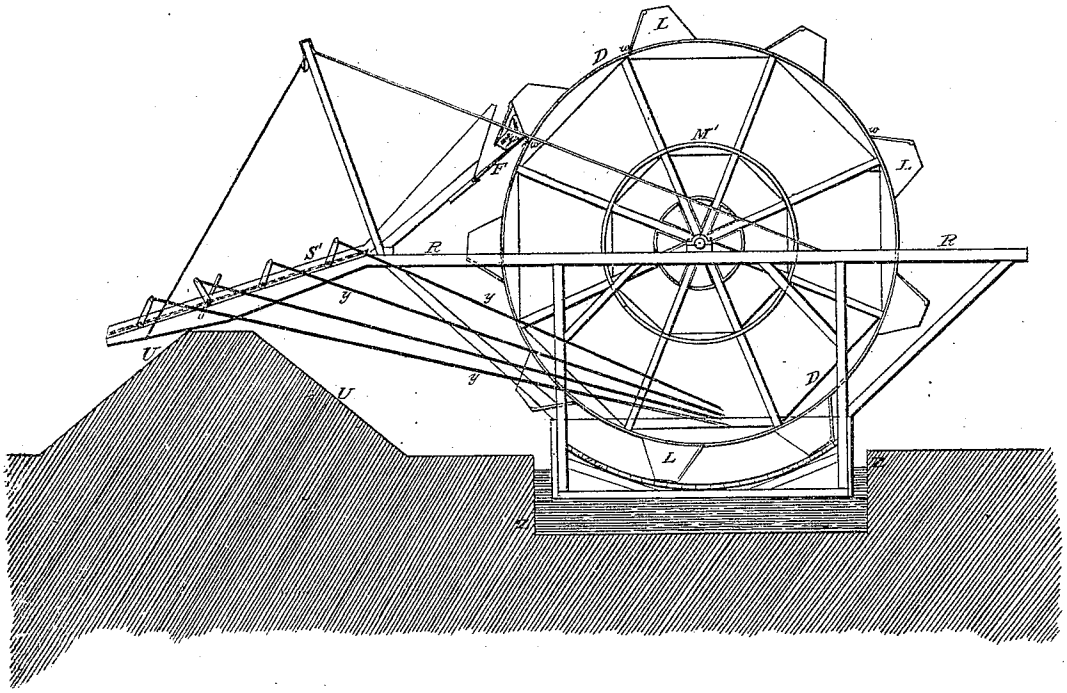


FIG. 4.

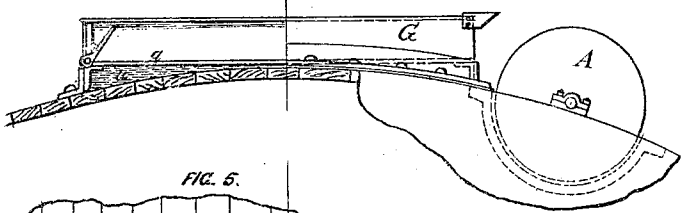


FIG. 5.

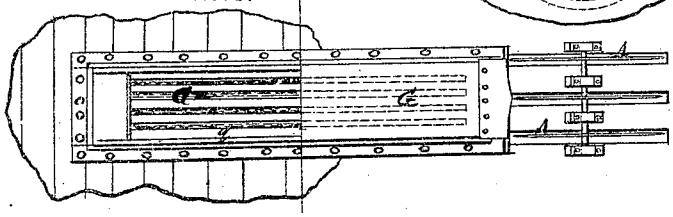


FIG. 6.

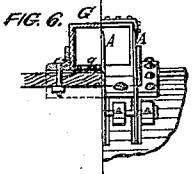
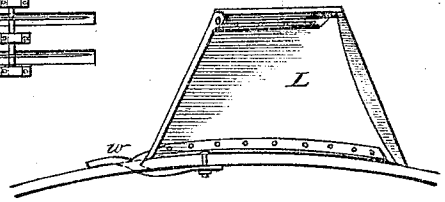


FIG. 7.



WITNESSES.

Louis J. Scudder

Lionel Tavicas

INVENTOR,

Albert Boschke

UNITED STATES PATENT OFFICE.

ALBERT BOSCHKE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. **141,752**, dated August 12, 1873; application filed March 11, 1872.

To all whom it may concern:

Be it known that I, ALBERT BOSCHKE, of the city and county of San Francisco, State of California, have invented certain Improvements in Dredging-Machines, of which the following is a specification, and which I have designated as "Albert Boschke's Improved Dredger."

My invention relates, first, to the employment, for reclaiming tule lands and for dredging purposes, of a rotary floating wheel, fitted to a suitable barge, and supplied with buckets armed with cutters, arranged around its face in a spiral form, in such manner that by the admission of water as a ballast into its water-tight compartment it can be floated at any level, according to the depth of the cutting required. The second part of my invention relates to a wheel, fitted to the same barge, working transversely to the floating wheel, and also supplied with cutting-buckets, but of a different form, so as to divide up the soil or material received from the floating wheel, and throw it onto a chute for deposit in the formation of a levee on either side of any canal that may thus be cut by the machine. The third part of my invention relates to the automatic motion of the barge, directed by means of the floating wheel, which actuates the spokes on a drum, thereby winding up chains anchored to a shore, thus bringing the barge in nearer each revolution, and keeping the dredge-buckets fully supplied. The fourth part of my invention relates to the facility with which the material is discharged from the dredge-buckets by means of grating bottoms and water-reservoirs, preventing adhesion of the material to their interior walls, together with the revolving knives placed in advance, which save power in cutting to size the soil dredged by these buckets.

Drawing 1—Figure 1 is a longitudinal elevation of a dredger embodying my invention. Fig. 2 is a plan of Fig. 1.

Drawing 2—Fig. 3 is a sectional transverse view of Fig. 1 through the line P P, showing the elevator-wheel. Fig. 4 is a longitudinal elevation of one of the buckets G. Fig. 5 is a plan of Fig. 4, with part of top taken off. Fig. 6 is an end view and transverse section through the middle of a bucket, G. Fig. 7 is a longitudinal sectional view of one of the cutting-buckets L.

B is an ordinary barge, provided with a steam-engine, E, rotary floating and dredging wheel W with chute S, elevator-wheel D with chute S′, windlass-drum K J, and anchor-chains C C. The rotary floating wheel W has considerable breadth of face, and has its sides above its immersion planked up so as to form a water-tight barrel, into which, by immersion of the opening O, water may be admitted to ballast the wheel, and may likewise be withdrawn by means of the donkey-pump *p*, connecting-pipe *s*, and rubber joint, so as to regulate this depth of immersion. The wheel-frame H H, at one end, hinges onto the barge at *e e*, and at the other is connected with the wire-ropes *m m*, which pass over the pulleys of the shears *f f′*, and suspend the counterbalance-weights Q Q, which slide up and down on *f′*, and counterbalance the material that may be taken up or retained by the dredge-buckets G G, the shears *f f′* themselves being firmly secured by the guys *n n* to the farther end of the barge. On each side of the wheel W bevel-wheels M M are provided, connecting with the gearing *c c*, miter-gear *g g*, bevel-wheels *i i*, and driving-wheel X of the engine E, from which it derives its motive power in any position in which it may be balanced in the arc which it describes, with the miter-gearing shaft N as the center. On the periphery of this wheel W are placed the dredge-buckets G G, arranged in a spiral form along the breadth of its face, a certain space being allowed between the first and last bucket. (See Figs. 1 and 2.) The top portions of these buckets are made of steel; and the interior bottoms are gratings *q*, which cover reservoirs of water *a*, secured at the ends, front and back, by angle-iron pieces. This water serves to prevent the adhesion of the material to the walls of the buckets G G, and in advance of each bucket are revolving knives A A, which, in part, revolve in water-tight casings let into the body of the wheel W, and by their revolution cut the soil to the proper sizes to easily fill these buckets, one knife cutting in the center and one on each side, and these interior grating bottoms are tangent at the center of the bucket to the circumference of the wheel, so as to

throw off the material taken up as readily as possible. The sides of the wheel W have also projections *x x*, which, at every revolution, strike the spokes of the wheels K K attached to the drum J, and cause it to make equal portions of a revolution, and wind up the chains C C, which are on the drum J and anchored to the shore, thus automatically drawing the barge in equal distances each time nearer, and thus keeping the dredge-buckets G G continually up to their work.

The soil or material, on being cut and taken up by the wheel W, is thrown onto the curved chute S, where it falls by its own gravity within reach of the elevator-wheel D, where it is cut up to the proper sizes by the cutting-buckets L L, arranged around its circumference, each bucket having a door so fixed as to allow of the contents being discharged as it ascends by the chute S′ striking the spring-latch *w* attached, thus freeing them of their material, and allowing it to slide out onto the chute S′ by its own gravity, there to be distributed by the drop-doors T T, so as to form a regular levee, U U, on one side of the excavation Z Z, the poles *y y* attached to the levers or arms of the doors T T regulating the position and amount of the distribution. This elevator-wheel D is supported in a frame-work, R R, and connects with the engine E, from which it derives its motive power by means of the large bevel-wheel M′, gearing *h h*, bevel-wheel *j*, and forward and reversing gear *l l′*, under control of the clutch *v*, and gearing X X′, so that the direction of its motion may be changed from right to left, and a levee formed on either side of the canal cut by the floating wheel W. In the case of simply dredging, this elevator-wheel D may be entirely dispensed with, the material being thrown into lighters on both sides of the barge B by means of a double chute.

The chute S′ has a hinged platform, F, which is lifted up by the ascent of the buckets L L, and in the fall of the platform F the spring-latch *w* opens the door and releases the material.

I claim as my invention—

1. The floating wheel W, adjustable in its immersion by water-ballast admitted through the opening O, provided with dredging-buckets G G, arranged around its face in a spiral form, in combination with the counterbalance-weights Q Q, engine E, and connecting-gearing M M, *c c*, *g g*, *i i*, and X, substantially as and for the purpose hereinbefore set forth.

2. The elevator-wheel D, furnished with buckets L L for cutting the soil, in combination with the chute S′, distributing drop-doors T T, engine E, forward and reversing gear M′, *h h*, *l l*, *v*, and X X′, substantially as and for the purpose hereinbefore set forth.

3. The projections *x x* on the floating wheel W, which actuate the spokes of the wheel K K, drum J, and chains C C, for the automatic movement of the barge B, substantially as and for the purpose hereinbefore set forth.

4. The dredging-buckets G G, provided with grate-bottoms inclosing water-reservoirs, arranged around the floating wheel W, in the manner described, substantially as and for the purpose hereinbefore set forth.

ALBERT BOSCHKE.

Witnesses:

FRANK V. SCUDDER,

LIONEL VARICAS.