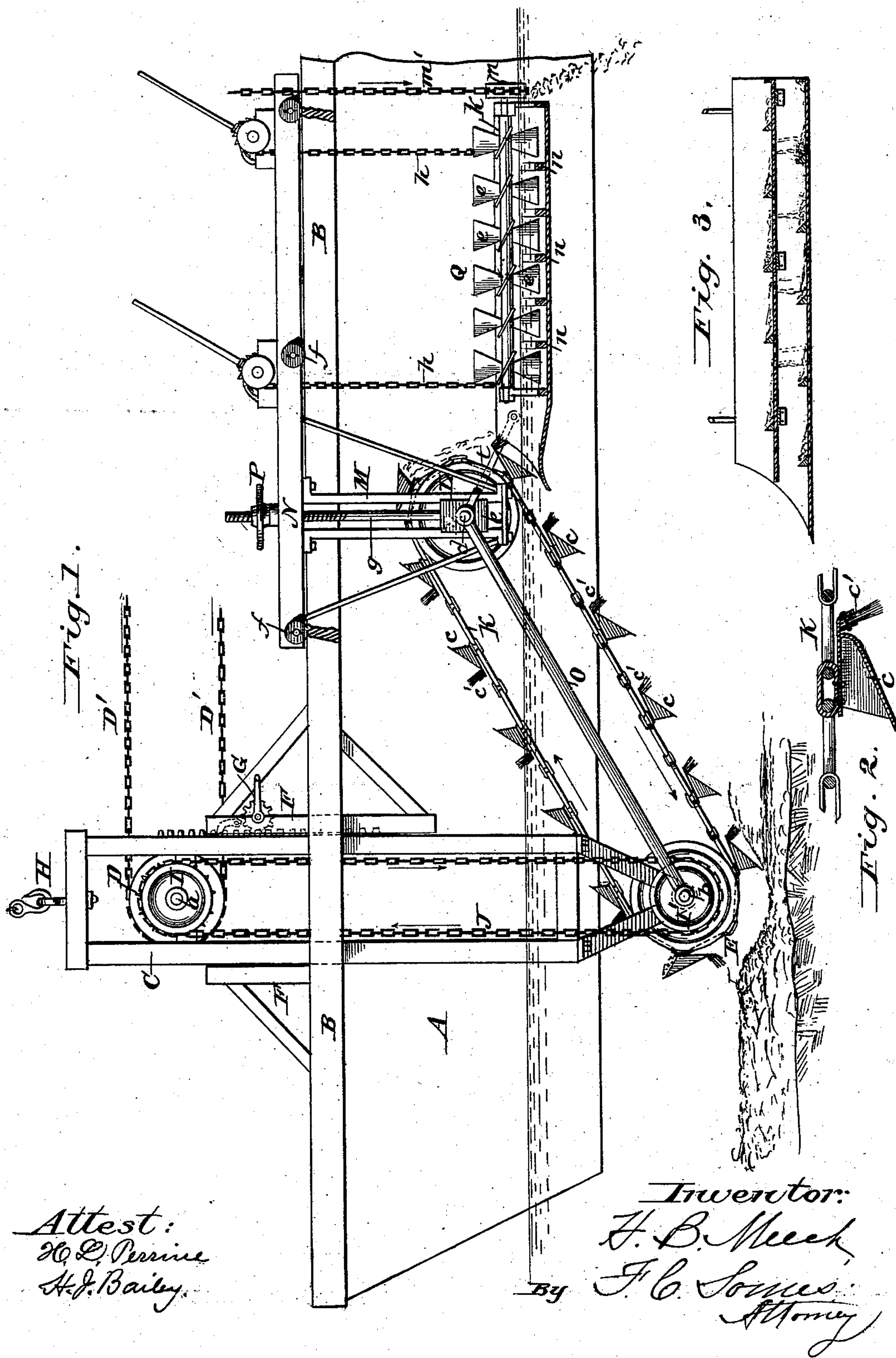


H. B. MEECH.

Apparatus for Dredging and Separating Gold.
No. 227,988. Patented May 25, 1880.



Attest:
W. D. Perrine
H. J. Bailey

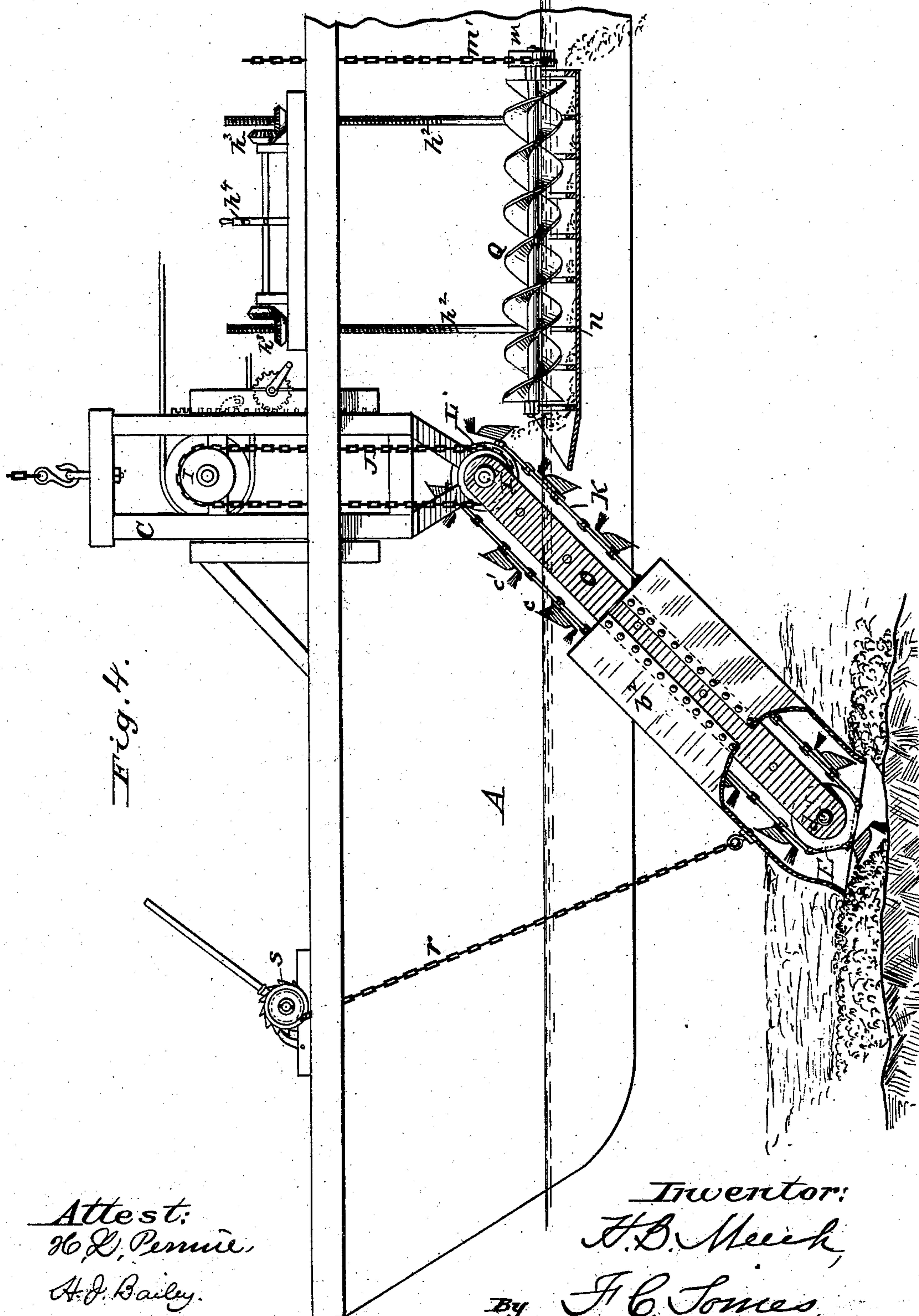
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H. B. Meek
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(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

HARRISON B. MEECH, OF CHATHAM VILLAGE, NEW YORK.

APPARATUS FOR DREDGING AND SEPARATING GOLD.

SPECIFICATION forming part of Letters Patent No. 227,988, dated May 25, 1880.

Application filed April 29, 1880. (No model.)

To all whom it may concern:

Be it known that I, HARRISON B. MEECH, a citizen of the United States, residing at Chatham Village, in the county of Columbia and State of New York, have invented certain new and useful Improvements in Apparatus for Dredging and Separating Gold; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The object of this invention is to provide an apparatus for effectually and economically mining the beds of rivers having deposits of the precious metals.

The invention consists in an apparatus designed to be attached to a boat, scow, or raft, which apparatus embraces a vertically-adjustable dredging mechanism worked by steam-power, and adapted to operate in water of various depths, for excavating and elevating the gravel and detritus, in connection with an amalgamator, for separating and amalgamating the precious metals contained in the said gravel and detritus.

The invention consists, further, in the combination, with the scooping-buckets forming a part of the dredging mechanism, of a brush adapted to sweep the loose gold into position to be taken up by the succeeding bucket.

The invention consists, further, in certain combinations and arrangements of parts, as hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation, partly in section, of this improved apparatus. Fig. 2 is a sectional view of one of the scooping-buckets with its brush attachment. Fig. 3 is a longitudinal vertical section of the amalgamator in a modified form. Fig. 4 is a side elevation, partly in section, of the apparatus in a modified form.

The boat A may have a longitudinal opening in its center, through which the dredging mechanism may be lowered; or the latter may be duplicated and placed upon either side of the boat; or the dredging mechanism may be attached to one side of the boat, and the steam-engine and boiler be placed on the other side;

or the dredging mechanism may be arranged between two scows or boats.

In the drawings, B is a frame which projects from the side of the boat and serves to support the gold dredging and separating mechanism.

A vertically-adjustable frame, C, carries the driving-wheel D upon a shaft, *a*, at its upper end and a rotary drum, E, on a shaft, *b*, at its lower end. This frame is supported between two standards, F F, by means of a rack and ratchet and pawl, F G, or by hook H, which is designed to be attached to a crane.

The shaft *a* is provided with a chain-pulley, I, and the shaft *b* with a chain-pulley, I', the said pulleys being connected by a chain-belt, J.

The drum E, in connection with drum L, carries an endless chain, K, provided with scooping-buckets *c*, which buckets are steel-pointed and firmly bolted to the said chain. The drum L is attached to shaft *d*, which is supported in sliding boxes *e* in the frame-standards M. This frame is attached to a horizontal frame, N, which slides, by means of rollers E, upon the frame B. The drums E and L are connected by a rod, O, which unites the ends of their shafts.

The endless chain K, with its buckets *c*, forms the excavating and elevating device. The buckets are provided with broom-brushes *c'*.

The drum L may be raised and lowered by means of the rod *g*, which projects through the frame N, is screw-threaded at its upper end, and is provided with a wheel, P.

In the rear of the drum L is the amalgamator Q, supported by means of chains *h*, attached to the sliding frame N, and connected to the elevator by means of rods *t*. This amalgamator is semi-cylindrical in form, with both ends open, so that the water will pass freely through the same. Said amalgamator is provided with a shaft, *k*, which has a series of wings or vanes, *l*, arranged spirally. This shaft *k* is operated by means of a chain-pulley, *m*, and the chain *m'*. The amalgamator is also provided with a series of transverse strips, *n*, which form riffles. The bottom of the amalgamator is lined with copper and the mercury placed therein. The wings or vanes *l* rotate between the riffles. The amalgamator is designed to be partially submerged, and the

movement of the vanes will produce a current, and the gold will be washed from the slimes and be deposited in the amalgamator.

In Fig. 3 I have shown a modification of the amalgamator, in which, in lieu of the rotating spiral wings, I substitute a reciprocating or rocking jigger, provided with a perforated false bottom, *p*, which bottom is also provided with transverse strips, as shown. The amalgamator is located beneath the said perforated false bottom.

In Fig. 4 I have shown a modification of the excavating and elevating mechanism, in which the drum *L* is supported in the frame *C*, and the drum raised and lowered to or from the bed of the river by means of a chain, *r*, wound upon a winch, *s*. In this case the lower end of the elevator is shown inclosed in a casing, *b*², for the purpose of keeping the quicksand from fouling the buckets and enabling the buckets to work in the gravel near the bed-rock. In this case the amalgamator is shown as provided with a continuous spiral conveyer in lieu of the separate vanes or wings. The amalgamator is here shown as supported by means of rods *h*², secured to the frame at their upper ends, and raised and lowered by means of beveled gears *h*³, operated by means of a hand-wheel, *h*⁴.

The gold-bearing bed is sometimes composed of talcose slate beneath the sand and gravel, which slate is easily broken up. When such is the case I can use a series of picks at the end of a bar dropped from the boat-frame *B* in front of the digger after the gravel has been cleared away.

The power for operating the apparatus is derived from a steam-engine located upon the scow or boat, and is communicated to the driving-wheel *D* by means of chain-wheel *D'*.

The operation of the apparatus is as follows: The frame *C* being lowered so as to bring the buckets at the lower end of the elevator in contact with the river-bed, the elevator is put in operation, and the buckets *c* scoop up the gravel and sand containing the precious

metals, and convey the same to the amalgamator *Q*, wherein the gold is washed, separated, and amalgamated. The brushes *c'* at the rear end of each bucket brush the loose gold from the crevices of the bed-rock, and bring the same into position to be taken up by the succeeding bucket. The sand and pay-gravel may be elevated sufficiently high to be washed in sluices; but I do not consider this preferable.

In an application filed by me March 6, 1880, I have described an apparatus for dredging and separating gold. I do not claim in this application the features shown in that.

What is claimed as the invention is—

1. The combination, with a dredging apparatus embracing an excavating and elevating mechanism, of a separator and means for raising and lowering the latter, whereby, when in use, it will be submerged below the water-line and operate in unison with the water, substantially as described.

2. The combination, with the buckets forming a part of the dredging mechanism, of brushes attached to the several buckets, substantially as described.

3. The combination of a vertically-adjustable frame, *C*, the drums *D* and *E*, the horizontally-adjustable frame *N*, the drum *L*, the endless excavator and elevator *K*, a separator, and means for raising and lowering the latter, whereby, when in use, it will be submerged below the water-level and operate in unison with the water, substantially as described.

4. The combination, with a dredging apparatus embracing an excavating and elevating mechanism, of a separator provided with means for inducing a current therein, and means for raising and lowering said separator, whereby, when in use, it will be submerged below the water-line and operate in unison with the water, substantially as described.

HARRISON B. MEECH.

Witnesses:

F. C. SOMES,
H. J. BAILEY.