No. 754,611. PATENTED MAR. 15, 1904.

R. G. RILEY.

SUBMARINE DREDGING AND SLUICING DEVICE.

APPLICATION FILED DEC. 1, 1902.

NO MODEL.

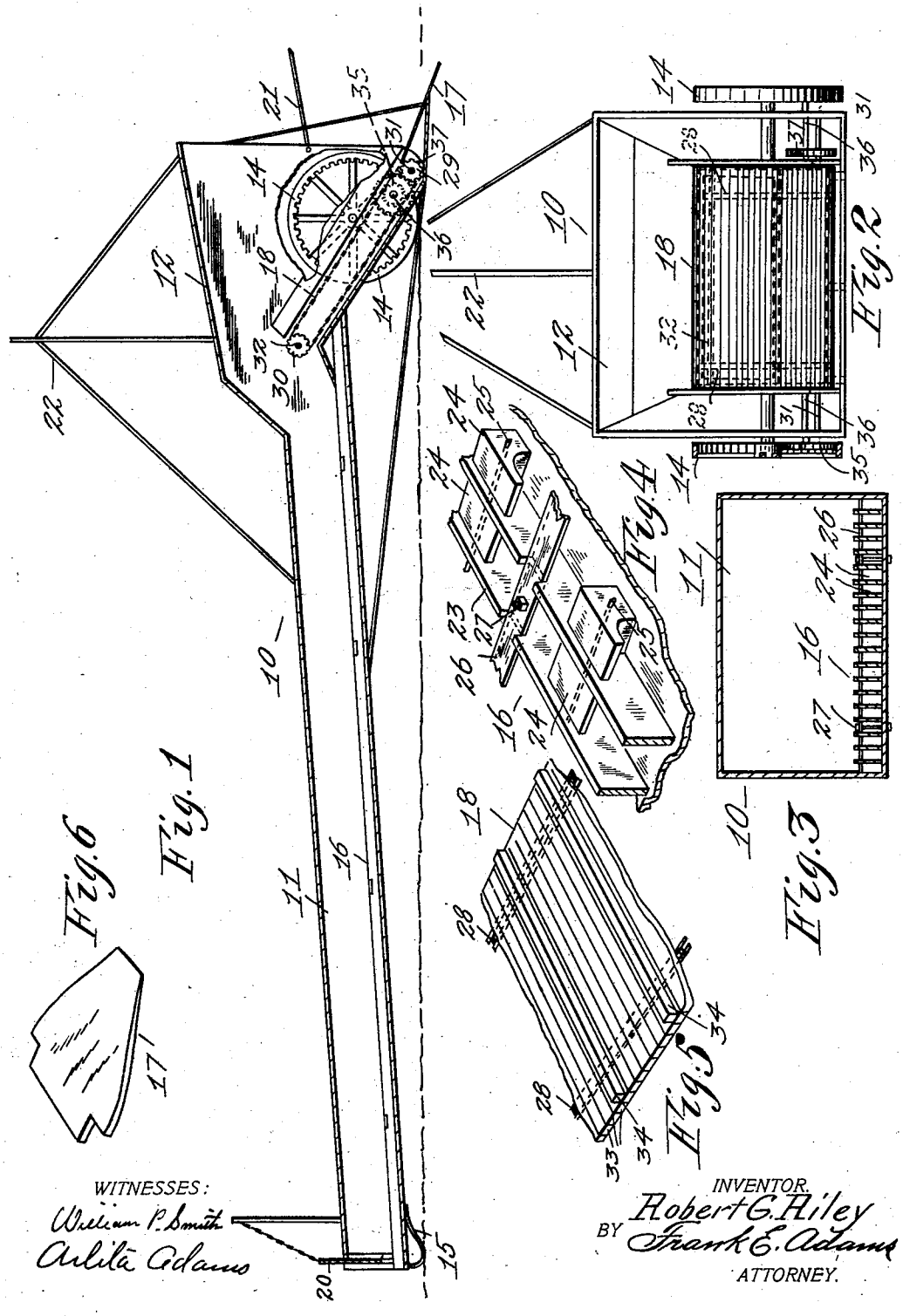


Fig. 1

Fig. 6

Fig. 2

Fig. 4

Fig. 3

Fig. 5

WITNESSES:

William P. Smith

Arlita Adams

INVENTOR.

Robert G. Riley

BY Frank E. Adams

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 754,611. Patented March 15, 1904.

UNITED STATES PATENT OFFICE.

ROBERT GEORGE RILEY, OF SEATTLE, WASHINGTON.

SUBMARINE DREDGING AND SLUICING DEVICE.

SPECIFICATION forming part of Letters Patent No. 754,611, dated March 15, 1904.

Application filed December 1, 1902. Serial No. 133,510. (No model.)

To all whom it may concern:

Be it known that I, ROBERT GEORGE RILEY, a citizen of the United States of America, and a resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Submarine Dredging and Sluicing Devices, of which the following is a specification.

My invention relates to improvements in submarine mining devices, and has special reference to a combined dredging and sluicing machine.

Among numerous objects attained by this invention and readily understood from the following specification and accompanying drawings included as a part thereof is the production of a simple and efficient submarine gold dredging and sluicing apparatus embodying essential features of adaptability, utility, and general efficiency, which greatly facilitates mining operations in the bottoms of bodies of water.

The above-mentioned and numerous other objects equally as desirable are attained by the constructions, combinations, and arrangements of parts, as disclosed on the drawings, set forth in this specification, and succinctly pointed out in the appended claim.

With reference to the drawings filed herewith and bearing like reference characters for corresponding parts throughout, Figure 1 is a vertical longitudinal section of my combined dredging and sluicing apparatus. Fig. 2 is a view in elevation of the head end of same with the scoop removed. Fig. 3 is a view in transverse section of the sluice-box. Fig. 4 is a view in perspective of a portion of the bottom of the sluice-box, showing the preferred form of riffle used. Fig. 5 is a view in perspective of a portion of the endless conveyer preferably employed to transport the earth from the scoop to the riffles in the sluice-box, and Fig. 6 is a perspective view of the scoop employed.

This invention includes a movable tubular sluice-box 10, preferably rectangular in cross-section and formed with the wall at the head end flaring outwardly entirely about the box to provide an expanded mouth, as 12, which is also preferably formed rectangular in cross-section, with the walls diverging outwardly from each other and converging inwardly to the walls of the box. This sluice-box is suitably movably mounted on traction-wheels, as 14, arranged at the head end thereof, and shoes or runners 15, arranged at the tail end of the throat, and suitable riffles, as 16, Fig. 4, are placed in the box along the bottom wall to collect the precious metals as they pass therethrough.

At the lower edge of the mouth of the sluice-box a scoop, as 17, is conveniently disposed as the preferred means for excavating or plowing up the earth over which the apparatus is drawn, and this scoop is arranged at a suitable incline to cause the excavated materials to pass upwardly into the mouth of the box as it progresses. Between the inner end of the scoop and the forward end of the sluice-box an endless conveyer 18 is conveniently mounted to carry the earth away from the scoop and deposit it upon the riffles at the head end of the box, and an adjustable gate, as 20, is mounted at the tail end of the box to regulate the volume of discharge therefrom.

As now considered the sluice-box 10 is inclined or pitched downwardly toward the tail end to facilitate the passage of the earth over the riffles by the water admitted at the mouth, and a suitable bail, as 21, or the like is connected to the head end to facilitate the attachment of a draft-chain or the like, and a lifter, as 22, is attached to the box adjacent the head end, to which a rope or the like can be fastened, by which the device is raised when desired to make a clean-up and allowed to sink gradually into the water for operation.

In the present embodiment the sluice-box is preferably constructed of suitable plate metal, so that it will more readily sink into the water, and riffles 16 are composed of longitudinally-disposed bars, as 23, set on edge in the box and separated by blocks 24, arranged along the bars at suitably-separated points and set in alinement transversely the box. One side surface of each of these blocks is undercut at the lower corner to promote agitation of the material passing through the sluice, and they are set with this side toward the tail end of the box and are secured in place by rods, as 25, disposed transversely the box in

suitable apertures formed in the blocks and bars 23, and these riffles are secured in place by transversely-disposed clamping-plates 26, placed across the top of bars 23, and bolts 27, which are passed through suitable apertures formed in said plates and the bottom wall of the passage-way 11 of the box.

The conveyer 18, as now considered, includes oppositely-disposed endless chains, as 28, mounted on suitable respective sprocket-wheels, as 29 and 30, the former of which are fixedly mounted on a drive-shaft 31, suitably journaled at the lower edge of the mouth of the sluice-box beneath the upper end of the scoop, and the latter wheels are mounted as idlers on a shaft 32, journaled above the upper end of the riffles in throat 11. To the links of chain 28 are secured suitable slats 33, arranged to form an endless belt, and ribs, as 34, are secured to these slats at suitable separation to insure a positive feed of the materials gathered up by the scoop.

To conveniently drive the conveyer, the traction-wheels 14 are formed with internal gear-teeth, and spur-gears, as 35, are engaged with these teeth and serve to drive the conveyer through the medium of a shaft 36, on which they are mounted, and a pair of spur-gears 37, one of which is mounted on said shaft and the other on shaft 31.

This device is intended for operation along the bottom of a body of water, as a river or the like, and may be drawn by any suitable power, as a steam-tug, donkey-engine, or the like. As it is forced to move along the bottom the scoop serves as a plow to loosen the earth and cause it to pass to the conveyer, which in turn delivers it to the riffles in the sluice-box, where it is acted upon by the water which enters through the mouth and passes down the box.

It is obvious that the expanded mouth of the sluice-box serves to gather a greater volume of water than the normal capacity of the passage-way 11, and consequently as the device is forced forward a strong current of water passes through the box and acts to sluice the materials deposited on the riffles by the conveyer. When desired to make a clean-up, the apparatus is raised to the surface so that access may be had to the riffles.

The device is simple of construction and operation, has few parts likely to get out of order, and can be operated at little cost.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States of America, is—

A submarine dredging and sluicing device comprising a tubular sluice-box adapted to be dragged along a subaqueous bottom and having the wall at the head end flaring outwardly entirely about the box to provide an expanded mouth, traction-wheels supporting the box at the head end, a scoop at the lower edge of said mouth, an endless conveyer in said mouth and extending between said scoop and box, means to operatively connect said wheels with said conveyer, and a gate mounted at the tail end of said box.

Signed at Seattle, Washington, this 22d day of October, 1902.

ROBERT GEORGE RILEY.

Witnesses:
ERNEST B. HERALD,
R. U. CULBERSON.