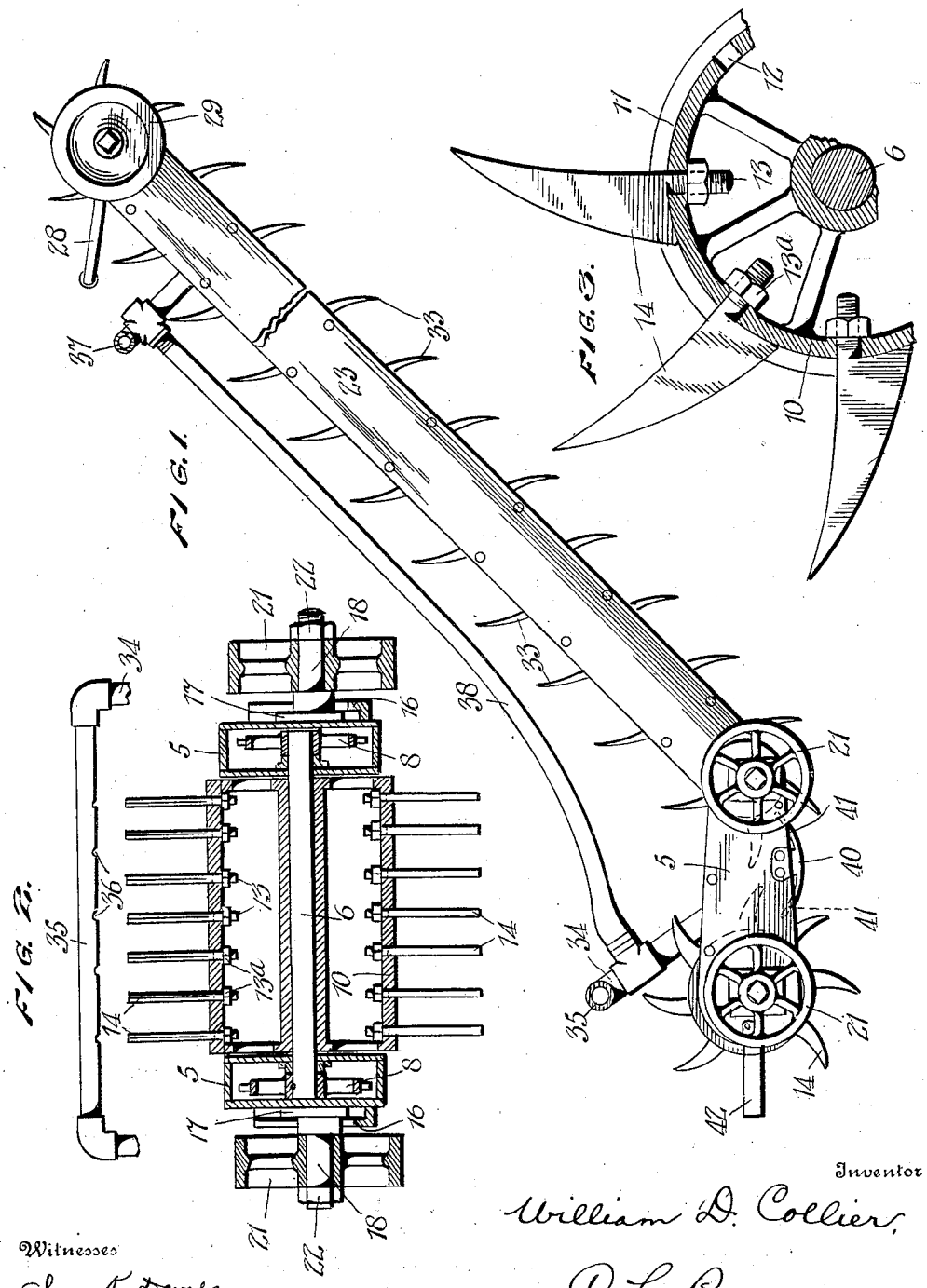
No. 897,351. PATENTED SEPT. 1, 1908.

W. D. COLLIER.

CLAM DIGGER.

APPLICATION FILED MAR. 23, 1908.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

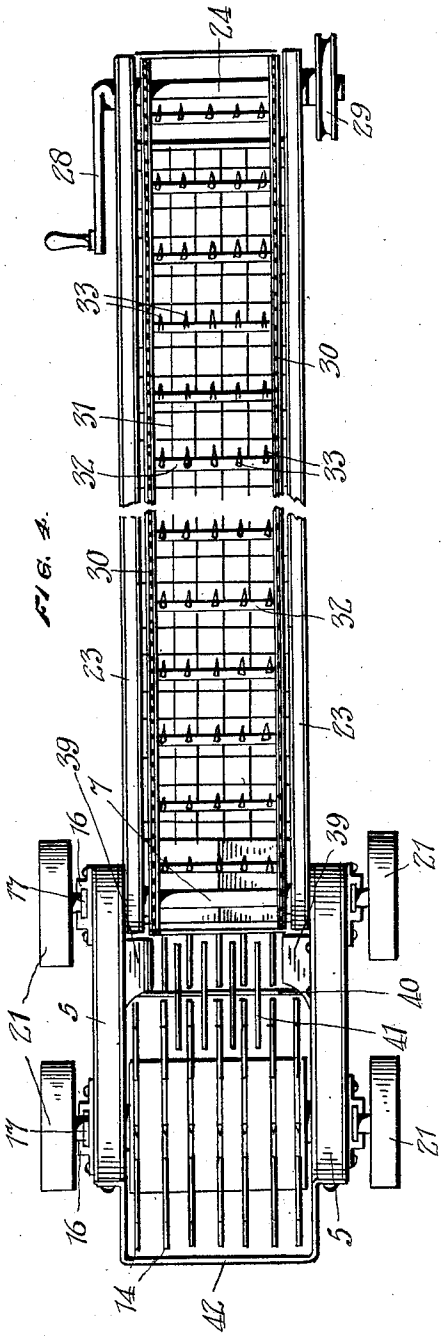


FIG. 4.

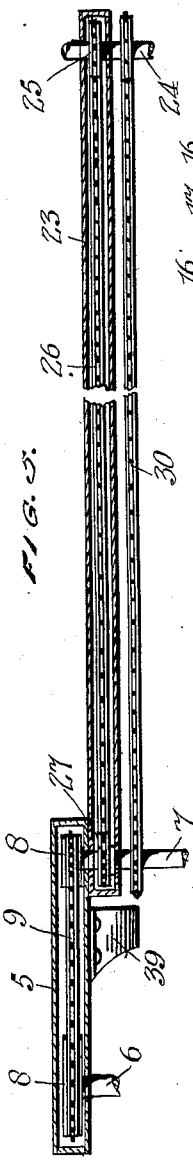


FIG. 5.

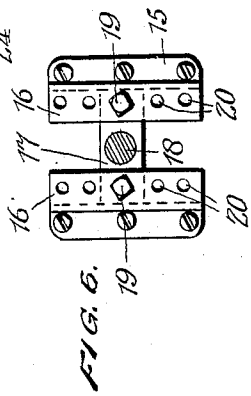


FIG. 6.

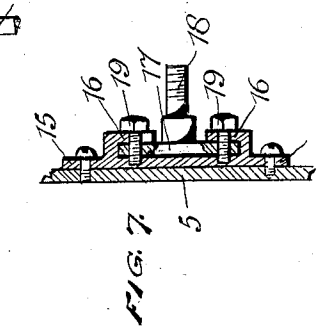


FIG. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM D. COLLIER, OF MARCO, FLORIDA.

CLAM-DIGGER.

No. 897,351. Specification of Letters Patent. Patented Sept. 1, 1908.

Application filed March 23, 1908. Serial No. 422,785.

To all whom it may concern:

Be it known that I, WILLIAM D. COLLIER, citizen of the United States, residing at Marco, in the county of Lee and State of Florida, have invented certain new and useful Improvements in Clam-Diggers, of which the following is a specification.

My invention relates to clam diggers and particularly contemplates the provision of a novel and useful construction by which clams may be dug up and removed in a simple manner and without danger of injuring same.

One of the objects of my invention is to provide a novel and highly efficient form of digging-wheel, comprising a drum having digging fingers secured in a novel manner thereto, and so arranged that the clams may be undermined and removed from their bed without cracking the same.

Another object of my invention is to provide a novel frame within which the digger-wheel is mounted, having wheels adjustably connected thereon in such manner that the digger-wheel and said frame may be adjusted vertically in order to regulate the bite of the digger-wheel fingers.

Another object of my invention is to provide a handle or conveying frame pivotally connected within the digger-wheel frame to drive the same, and embodying a novel form of conveyer to receive the clams from said digger-wheel, having means to weed out and discharge the smaller clams therefrom during their travel.

Another object of my invention is to provide means for dislodging the mud from the clams, as the same are raised by the digging-wheel, to prevent the said wheel from becoming clogged by the mass.

A further object of my invention is to provide a balanced driving mechanism, in which the driving parts are protected from the water and from consequent rust and wear therefrom.

Further objects and advantages of my invention will appear in the course of the following description, in which reference is made to the accompanying drawings, forming a part of this specification, in which like numerals are used to designate like parts throughout the several figures thereof, and in which,

Figure 1 is a side elevation of my improved construction of clam digger. Fig. 2 is a transverse sectional view taken through the digger, and its wheeled frame, and on an enlarged scale. Fig. 3 is a fragmentary vertical view through the digger-wheel and on an enlarged scale. Fig. 4 is a plan view of the entire apparatus, shown in Fig. 1. Fig. 5 is a longitudinal sectional view taken through the driving train boxes at one side of the apparatus, and broken away. Fig. 6 is a front elevation of one of the wheel axle boxes removed from the digger-wheel frame, and Fig. 7 is a horizontal sectional view taken therethrough and showing the same attached to the frame.

In the practical embodiment of my invention, I provide a substantial horizontal digger-wheel frame, comprising spaced parallel side boxes 5, connected adjacent their forward and rear ends by shafts 6 and 7 respectively, journaled within said boxes and provided on their ends therein with sprocket wheels 8, connected by sprocket chains 9. Between the side boxes 5 of the frame and upon the forward shaft 6 is fixed the digger-wheel comprising a cylindrical drum 10, having circular grooves 11, cut in its peripheral face and provided with radial openings 12, cut therethrough from the base of said slots 11, and at equidistant points therearound. The openings 12 are alined in series longitudinally of the drum 10, and are adapted for the reception therethrough of the reduced circular threaded shanks 13, of the digger fingers, consisting of blades 14 slightly curved and tapering to outer pointed ends, said blades being constructed of a shape triangular in cross section and locked within the peripheral slots 11 with their broad flat edges foremost with relation to the direction of movement of said drum 10. The threaded shanks 13 of the digger fingers are adapted to receive nuts 13^a thereon, bearing against the internal surface of the drum 10, to lock said fingers in position. Mounted upon the outside of the boxes 5, and adjacent the forward and rear ends thereof, and connected thereto, are plates 15 having spaced overhanging brackets 16 formed thereon, and providing a channel therebetween and under the same, for the reception of a plate 17 therein, having short axles 18 rigidly connected centrally thereof, and extending therefrom. The plate 17 is provided with central openings adjacent each end thereof, adapted for the reception of

threaded locking bolts 19, adapted to extend through selected horizontally alined pairs of openings 20 vertically arranged in series through each of the overhanging brackets 16, the inner ends of the threaded bolts 19 being designed for threaded engagement within threaded openings in the plate 15, alined with the said openings 20 of the brackets 16. The axles 18 are adapted to receive freely rotatable wheels 21 thereon, and are threaded at their ends for the reception of nuts 22 to prevent displacement of such wheels 21. Thus by virtue of the adjustment vertically of the wheels 21, which travel upon the surface of the clam bed, the depth of the bite of the digger fingers, within the clam bed, may be regulated, so that the said fingers will be sure to undermine and scoop up the clams. Adjacent the ends of the rear transverse shaft 7 of the digger-wheel frame, and immediately within each of the side boxes 5 thereof, are journaled the lower ends of the side boxes 23, of the upwardly extending handle or conveying frame, having a transverse shaft 24, rotatedly journaled through said side boxes 23, adjacent their upper ends, and having sprocket wheels 25 mounted thereon, within said side boxes 23 and connected by a sprocket chain 26 to sprocket wheels 27, mounted therein upon the shaft 7 of the digger-wheel frame. The upper transverse shaft 24 of the conveyer frame constitutes the driving shaft of the apparatus and may be driven manually by means of a crank 28, or from any suitable source of power, by a pulley 29. Mounted between the side boxes 23 of the conveyer frame, is a conveyer comprising endless side chains 30, traveling over sprocket wheels mounted upon the shaft 7 and the shaft 24, to which side chains 30 is connected an endless apron 31, of wire mesh in order to allow the smaller sized clams to drop therethrough and therefrom, during the travel of the same. Extending between the side chains 30 are transverse bars 32, equidistantly spaced in parallel relation, and each provided with a series of upwardly extending conveying fingers 33, extending angularly and slightly curved toward the direction of movement of said conveyer, said conveying fingers 33, in rounding the lower shaft 7, being adapted to receive the clams from the digger teeth traveling in the opposite direction.

In order to loosen the mud from the clams removed by the digger fingers, a U-shaped pipe frame 34, may be secured transversely above the digger-wheel frame, with its horizontal pipe 35 parallel with and immediately above the digger-wheel 10, and provided with a plurality of spray openings 36 for jetting a fluid downwardly upon the material carried between the digger fingers, said pipe 38 being provided with a jetting fluid from a supply pipe 37, which may be secured upon the conveyer frame adjacent the upper end thereof, and connected to the pipe frame 34 by a flexible hose or the like 38. Thus, the clams and the clayey material dug therewith may be loosened from the digger fingers.

In order to insure a complete and proper discharge of the clams from the digger fingers 14, to the conveying fingers 33, I provide angular downwardly extending deflector plates 39 connected to the inner sides of the boxes 5 of the digger-wheel frame, and I further provide a bar 40 or the like, connected transversely between the side boxes 5, and alined beneath the space between the ends of the digger fingers 14 and the conveying fingers 33 where the same approach one another. The bar or the like 40, is provided with laterally extending fingers 41 projecting therefrom on either side thereof, and between the said digger fingers 14 and the said conveying fingers 33.

In operation, the digger frame is pushed slowly along the surface of the clam bed upon its wheels 21, and the driving shaft 24, being rotated, power will be transmitted through the sprocket chains 26 and 9 to the digger-wheel 10, which by means of its fingers 14, undermine and remove the clams and transfer the same to the conveying fingers 33, which carry the clams upwardly within the conveyer frame to the upper end thereof, where they may be received within a suitable receptacle, any vibrations or movements caused by the water, being taken up by virtue of the movable pivotal connection of the conveyer frame to the digger-wheel frame.

In order to prevent injury to the digger-wheel or its fingers, through contact with rocks or logs upon the surface of the clam bed, I provide a fender forwardly thereof comprising a U-shaped metal frame 42, secured to and extending forwardly from the forward ends of the digger-wheel frame boxes 5.

Having thus described my invention, I claim:

1. In a clam digger of the character described, the combination of a digger-wheel having digger-fingers, and means to force fluid against said digger-wheel to loosen the material between said digger-fingers, substantially as described.

2. In a clam digger of the character described, a digger-wheel comprising a cylindrical drum having a plurality of circular slots in its peripheral face, and having openings extending therethrough from the base of said slots, digger fingers for engagement within said slots and having reduced threaded shanks projected through said openings and nuts for engagement upon said threaded shanks within said case, and against the internal surface thereof, substantially as described.

3. In a clam digger of the character de-

scribed, the combination of a digger-frame comprising spaced side boxes, front and rear shafts journaled between and within said boxes, sprocket wheels mounted upon the ends of said shafts within said boxes, a digger wheel mounted upon the forward shaft between said boxes, a conveyer frame comprising spaced side boxes journaled at the lower ends upon said rear shaft and extending upwardly therefrom, said rear shaft being provided with sprocket wheels within said conveyer frame side boxes, a driving shaft journaled through said side boxes at the upper ends of the conveyer frame and provided with sprocket wheels journaled thereon within said boxes, sprocket chains connecting said upper and lower sprocket wheels, and an endless conveyer traveling about said driving shaft and said rear shaft of said digger-frame to receive the clams from said digger-wheel, substantially as described.

4. In a clam digger of the character described, the combination of a digger frame, a digger wheel mounted to rotate therein, a conveyer frame extending upwardly from said digger frame, vertical channel plates secured upon said digger wheel frame, and wheel shafts adjustably carried within said channel plates whereby the bite of said digger wheel may be regulated, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM D. COLLIER.

Witnesses:
SIGMUND J. BLOCK,
C. L. PARKER.