

UNITED STATES PATENT OFFICE.

EPHRAIEM CHAQUETTE, OF NEW ROCHELLE, NEW YORK.

CLAM FOR DREDGES.

SPECIFICATION forming part of Letters Patent No. 706,221, dated August 5, 1902.

Application filed January 10, 1902. Serial No. 89,103. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIEM CHAQUETTE, a citizen of the United States, and a resident of New Rochelle, county of Westchester, State of New York, have invented certain new and useful Improvements in Clams for Dredges, of which the following is a specification.

My invention relates to that class of dredges in which the dredging apparatus is known as a "clam;" and the object of my invention is to provide a clam of novel construction which can be opened and closed more effectively than has heretofore been the case, the operation of opening and closing not requiring any more space than that occupied by the clam in its closed position. My improved clam, therefore, can excavate material nearer a fixed object or obstacle than is possible where the clam has to spread laterally in order to open and close. The operative means for opening and closing the clam may be steam, water, air, gas, or electricity, although the latter is to be preferred.

My invention consists, therefore, in a clam for dredges in which one half of the shell is provided with an outside segmental rack and the other half of the shell with an inside segmental rack, a pinion engaging both said racks, and means for turning said pinion, whereby the rotation of the pinion in one direction opens the clam and in the other direction closes the clam.

In the accompanying drawings I have shown my improved clam as electrically operated; but it is understood that instead of the electrical motor therein shown hydraulic or pneumatic motors may be substituted, the special kind of power applied to the pinion-shaft not being material to the carrying out of my invention.

Figure 1 is a vertical section showing the motor in side elevation. Fig. 2 is a vertical section at right angles to Fig. 1.

Same letters indicate similar parts in the different figures.

The shell of the clam is preferably hemispherical, being composed of the two sectors A B, pivoted at *a* to a triangular frame C. The bottom of this frame supports the watertight motor D. The whole structure is supported by ropes *b b b'*, which are connected to the cross-bar E at the top of the frame C.

The outer ropes *b b* are attached directly to the cross-bar E and are preferably continued beyond the cross-bar, as shown in Fig. 1, so that their lower ends may be attached, as shown at *c*, to the bottom bar of the frame C. The middle rope *b'* is attached to a slide-rod F, which passes through the cross-bar E and terminates in the flange *d*. This slide-rod is surrounded by a coiled spring *e*, the normal tendency of which is to expand and keep the flange *d* away from the bar. This tendency is overcome by the weight of the clam when otherwise unsupported. To the flange is secured one end of the tripping-lever G, pivoted to the shoulder *f*, which projects from the cross-bar E. The other end of the tripping-lever is swiveled to the sliding contact-point *g*, the function of which will be hereinafter explained.

The opening and closing of the clam are brought about as follows: The swinging half A is provided with the extension-pieces J J, armed with internal teeth in the nature of a segmental rack. The swinging half B is provided with extension-pieces H H, armed with external teeth in the nature of a segmental rack. These racks engage with the pinions K K, mounted upon the shaft H, which is journaled in the triangular frame C, and may also have the central bearing *j*, which is also mounted on the triangular frame. Revolution of the pinions in one direction moves both halves to open the clam. Revolution in the opposite direction closes the clam. Revolution is imparted to the pinions K K when desired, as follows: The motor-shaft *k* carries the pinion *l*, which engages with the gear *m* on the shaft *h*. An electric current is supplied to the motor D through the wire *p* when the motor is to be driven in one direction and through the wire *q* for the other. On the triangular frame C are carried two contact-points *o o'*. When contact is made through *o*, the clam opens. When contact is made through *o'*, the clam closes. Contact is made through *o* by means of a switch *r*, mounted upon the frame C, when the switch is deflected by striking against a fixed stop (not shown) mounted upon the dredge from which the clam is raised and lowered. This happens when the full clam has reached the top of its ascent. Contact is made through

o', by means of the circuit-closer *g*, under the action of the trip-lever *G* and spring *e*. This takes place when the rope *b'* slackens by reason of the fact that the clam in its descent strikes the bottom. The clam thereupon closes. When the clam is at the bottom of the sea and has sunk into mud to a sufficient depth to fill the clam, the engineer in charge is notified as follows: Inside the clam there is a contact-button *s* on the motor-frame and a contact point or finger *t*, secured to the swinging half *B*, normally out of contact. These are connected by wires (not shown) with an alarm-bell located in convenient hearing distance of the engineer. When the clam closes, the contact-finger *t* pushes aside the button *s* and the alarm is sounded, the finger passing beyond and out of contact again. The engineer thereupon raises the clam. As soon as the rope *b'* becomes taut the spring *e* is compressed, drawing the circuit-closer *g* away from the contact-point o'

through the agency of the tripping-lever *G*, thus breaking contact and allowing the clam to remain closed during the ascent.

I claim—

The above-described clam for dredges which consists of an electric motor mounted upon a suitable frame, a shell inclosing said motor and composed of two hinged portions pivoted to said frame, one of said portions having an outside segmental rack and the other an inside segmental rack, a pinion driven by said motor and engaging both said racks and suitable circuit-closers mounted upon said clam whereby a direct or reverse current may be automatically transmitted to said motor to open or close said clam when required.

EPHRAIEM CHAQUETTE.

Witnesses:

W. P. PREBLE, Jr.,
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