

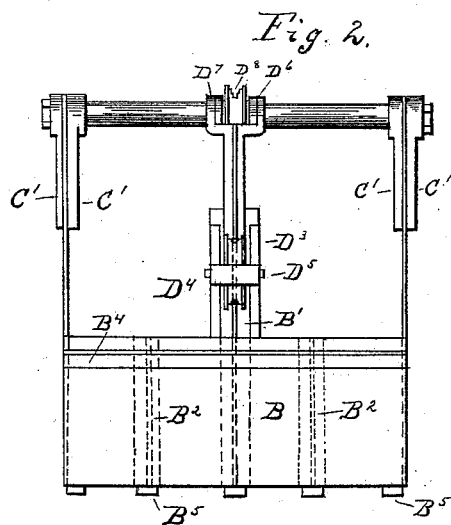
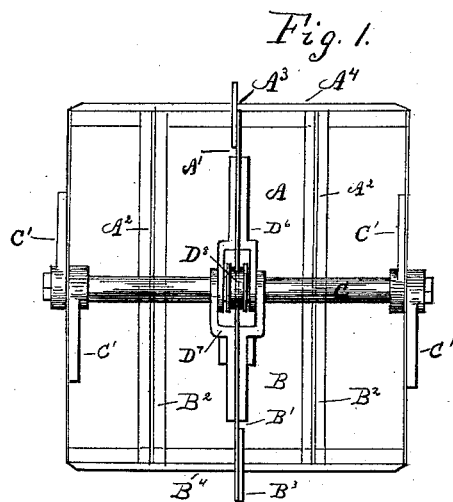
(No Model.)

3 Sheets—Sheet 1.

E. Y. HARRISON.
GRAB OR CLAM SHELL DREDGER.

No. 423,427.

Patented Mar. 18, 1890.



Witnesses:—
E. H. Sturtevant.
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(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

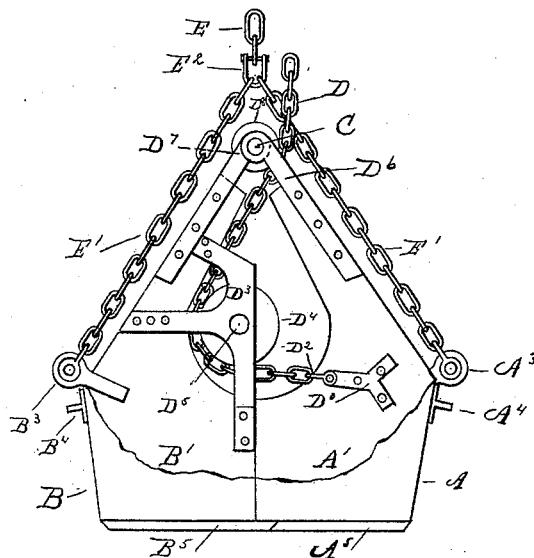
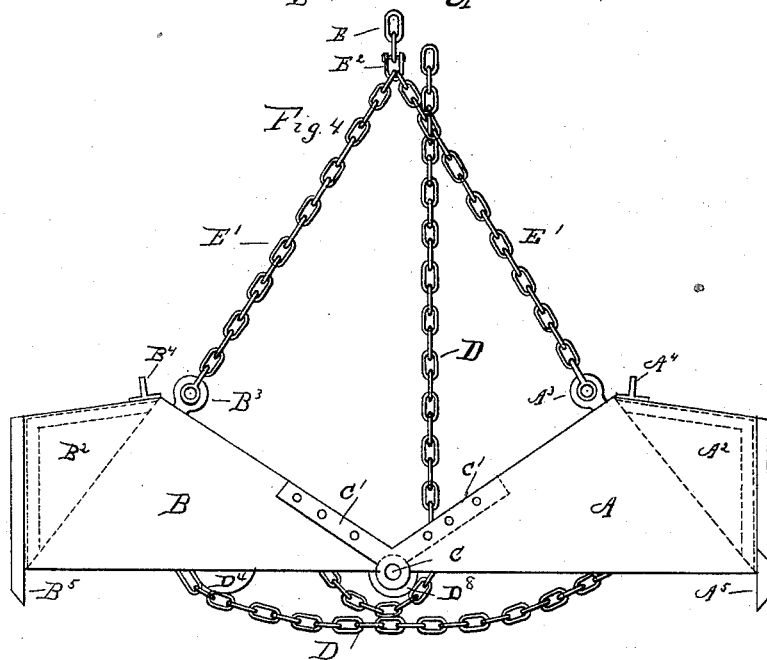


Fig. 4C



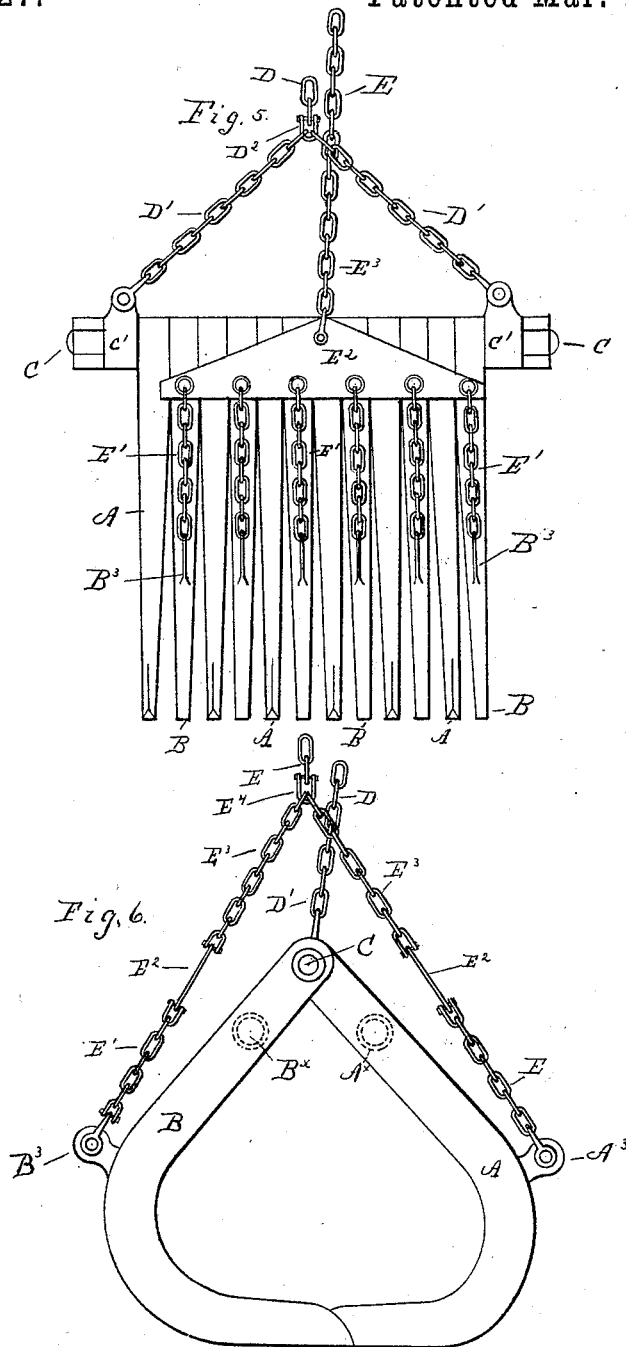
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UNITED STATES PATENT OFFICE.

EDWARD YOUNGMAN HARRISON, OF BALLINA, RICHMOND RIVER,
NEW SOUTH WALES.

GRAB OR CLAM-SHELL DREDGER.

SPECIFICATION forming part of Letters Patent No. 423,427, dated March 18, 1890.

Application filed July 22, 1889. Serial No. 318,340. (No model.)

To all whom it may concern:

Be it known that I, EDWARD YOUNGMAN HARRISON, master and engineer of the steam-dredger "Zeta," a subject of the Queen of Great Britain, residing at Ballina, Richmond River, in the British Colony of New South Wales, have invented new and useful Improvements in Grab or Clam-Shell Dredger-Buckets, of which the following is a specification.

This invention has reference to improvements in grab or clam-shell dredger-buckets, whether for lifting silt or mud, or of open construction for lifting stone and ballast, such buckets having two jaws and being worked by chains arranged to control the closing and opening of such jaws. It has been specially devised in order that, compared with the buckets heretofore constructed, the complication in working the closing and opening chains may be considerably reduced, that they may be manufactured of comparatively lighter material and yet retain as great strength, and that they may be used with greater success in obtaining their load, and that they may be more simple in make and in use.

These improvements in grab or clam-shell dredger-buckets will now be described in detail by reference to the drawings, in which—

Figure 1 is a plan of a grab dredger-bucket constructed according to my invention; and Fig. 2 is a side elevation of same, (both with chains unattached.) Fig. 3 is a sectional elevation, and Fig. 4 is an end elevation, of the same, with the jaws opened and the closing and hauling chain slack. Figs. 5 and 6 are respectively a side and end view in elevation of a modified form of grab dredger-bucket.

A and B are the jaws; C, hinge-shaft; D, hauling and closing chain; E, opening-chain.

A' B' are central partitions; A² B², diagonal stays.

A³ B³ are lugs or eyes.

A⁴ B⁴ are strengthening pieces or bars.

A⁵ B⁵ are bottom teeth.

C' are hinge-plates or straps; D⁰, strengthening-piece on partition A'; D², shackle; D³, ase or jaws fixed to partition B'; D⁴, sheave illey on pin D⁵ in jaws D³; D⁶ and D⁷,

hinge plates or straps fixed, respectively, to partitions A' and B' and taking over shaft C.

D⁸ is a sheave or pulley.

E' are slings; E², junction-shackle.

In operation the grab dredger-bucket is slung and lowered in the position shown in Fig. 4. When chain E tightens, slings E' keep the jaws A and B fully distended. To fill the bucket, the opening-chain E is slackened and the hauling and closing chain D is wound up, when it, pulling around sheave D⁸ and sheave D⁴, will close the jaws A and B, and when they have closed over a load will raise such load to where required, and when it is slackened, chain E being tight, the jaws A and B will open and discharge the contents of the bucket.

In the modified form of my invention a stone and ballast lifter, instead of a silt or mud lifter, is shown. A and B are prongs or jaws; C, hinge-shaft; D, hauling and closing chain; E, opening-chain. A³ B³ are lugs or eyes. A^x B^x (dotted) show where joints in prongs A and B might be placed. C' are lugs on hinge C. D' are slings; D², junction-shackle; E', slings; E², rack-plate; E³, slings; E⁴, junction-shackle. In this bucket similar operations to those described will have like effect—that is, by hauling on chain E the jaws or prongs A and B will open and become distended, and by hauling on chain D the jaws or prongs will grasp and lift a load.

Although I have shown the preferable construction of bucket for their respective uses, it is to be understood that I might dispense with the use of sheaves or pulleys for guiding the hauling and closing chain, as explained in the first-described bucket, and attach such chain to brackets on the hinge-shaft, as explained in last-described bucket; and it is also to be understood that I do not confine myself to the precise mechanical means by which my invention may be carried out so long as the nature of the same be retained.

Having now particularly described and explained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a grab dredger-bucket, the combination and arrangement, with partitions, brackets, or braces within the sides or jaws, of an

attachment for the hauling and closing chain, and of jaws or casings for guiding sheaves or pulleys, and of such guiding sheaves or pulleys, substantially as described.

2. In a grab dredger-bucket, the combination, with the shaft and the jaws hinged thereto, of hinge-plates or straps secured to said shaft and extending outward therefrom, one

for each jaw, and the angle-pieces and bottom teeth thereon, substantially as set forth.

EDWARD YOUNGMAN HARRISON.

Witnesses:

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F. M. Inst. P. A.

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