(No Model.)

M. C. LAWTON.

DREDGER DIPPER.

No. 381,257. Patented Apr. 17, 1888.

Fig. 1.

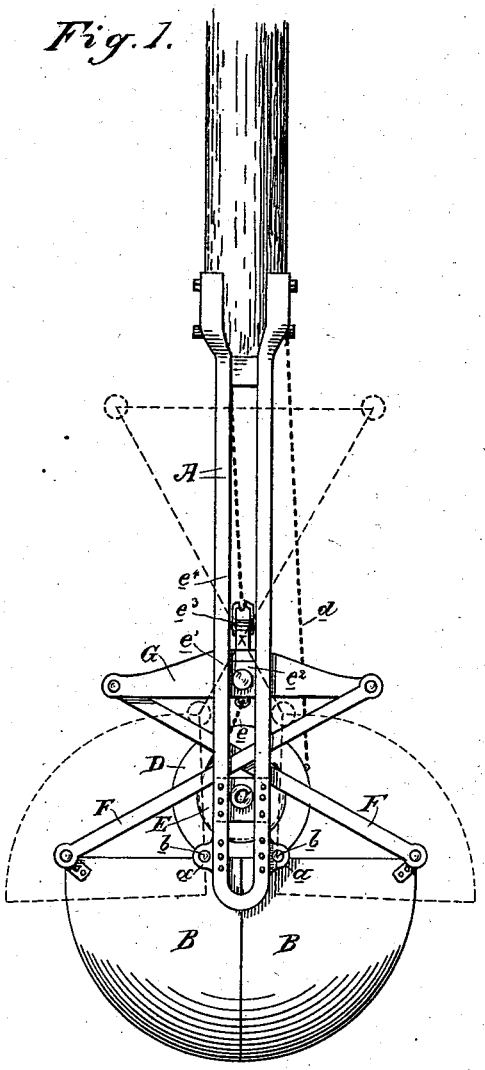
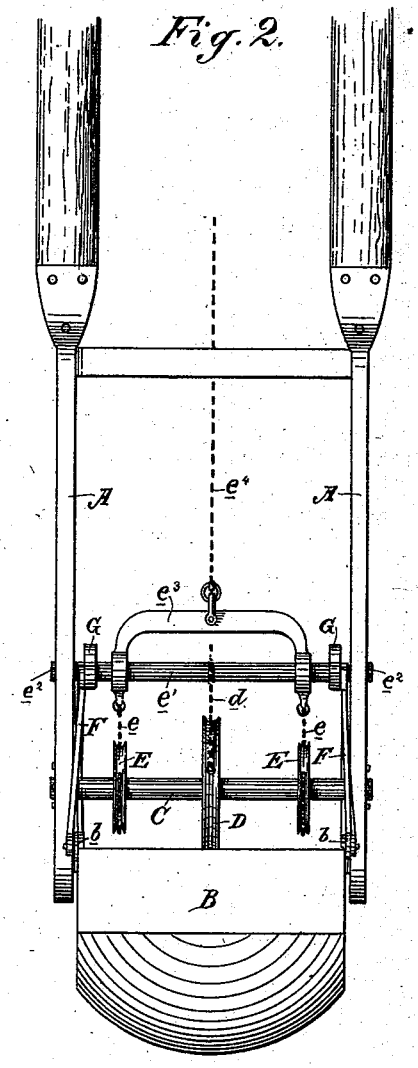


Fig. 2.



Witnesses,
Geo. H. Strong
J. H. Munse.

Inventor,
M. C. Lawton
By Dewey & Co.
Attys.

UNITED STATES PATENT OFFICE.

MANLEY C. LAWTON, OF STATEN ISLAND, CALIFORNIA.

DREDGER-DIPPER.

SPECIFICATION forming part of Letters Patent No. 381,257, dated April 17, 1888.

Application filed February 8, 1888. Serial No. 263,420. (No model.)

To all whom it may concern:

Be it known that I, MANLEY C. LAWTON, of Staten Island, San Joaquin county, State of California, have invented an Improvement in Dredger-Dippers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of dredger dippers or buckets in which two oppositely-located jaws are operated to close together to carry the load and to separate to dump it, said dippers being of what is commonly known as the "clam-shell" in type.

My invention consists, in connection with the jaws of the dipper, of the crossing links by which they are operated and the sliding cross-heads to which the upper ends of the links are pivoted.

The object of my invention is to provide a construction by which a much greater leverage may be obtained to increase the power of the jaws in closing, so that said dippers may be used in harder material than they have heretofore been found adapted for.

Referring to the accompanying drawings, Figure 1 is an end elevation of my dipper. Fig. 2 is a side elevation.

A are the slotted guide-frames, to a bracket, *a*, on the lower end of which are pivoted at *b* the opposing jaws B of the dipper. Fixed in the lower portion of the guide-frame is a shaft, C, which carries at its center a chain pulley or sheave, D, and on each side a smaller chain pulley or sheave, E. Secured to the larger and central sheave is a chain, *d*, and secured to each of the smaller sheaves and winding in an opposite direction to the chain *d* is a chain, *e*, the upper ends of said chains *e* being connected with the cross-shaft *e'*, which is mounted in the slotted guide-frames by means of sliding bearing-blocks e^2, and has a yoke or bail, e^3, to which the lifting-chain e^4 is attached.

F are the operating-links of the dipper, said links being pivoted at their lower ends to the jaws of the dipper, as shown.

The parts heretofore described constitute a dipper of a well-known pattern and used quite extensively, the links F, however, in the old dipper extending directly from their lower attachments and without crossing each other to the sliding block on each side. Instead of this construction, I have the following, which constitutes my present improvement: Secured to the cross-shaft *e'* on each side is a cross-head, G, to the ends of which the links F are pivoted, said links being made to cross, as shown.

The operation of the dipper is as follows: When the jaws are open and the dipper is lowered right down onto the bed in which it is to work, the chain *d* is drawn up, so as to turn its sheave D, and through said sheave and the shaft C to rotate the smaller sheaves, E, on each side, whereby they wind up their chains *e*, thus pulling down the cross-heads G, which as they move down effect the closing of the jaws of the dipper through the links F. During this operation the chain e^4 is of course slackened up, as the dipper is on the ground. To open the dipper after it is raised by the chain e^4, the chain *d* is slacked up, whereby the jaws are relieved. In the ordinary bucket, wherein the links extend directly without crossing and are each attached to the sliding shaft, there is very little leverage, the angle being small, and consequently the jaws in closing, instead of digging into the material, have a tendency to lift the dipper out of the bed; but with my construction the cross-head furnishes a greater leverage, and consequently the jaws may be made to dig into much harder material.

I am aware that in the other forms of the clam-shell dipper the jaws are provided with upwardly-extending lever-arms or bail-like frames, which cross each other and are pivoted together at their crossing-points, chains being employed to draw the arms together to close the jaws; but this construction, it will readily be seen, differs from my improvement, which is applied to an entirely different form of dipper.

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

1. In a dredger, the combination of the guide-frame, the cross-heads sliding therein, the pivoted jaws, and the links F, said links crossing each other and having their ends se-

cured to the jaws and to the ends of the sliding cross-heads, whereby said jaws are operated, substantially as herein described.

2. In a dredger-dipper, the pivoted jaws, the sliding cross-shaft with its lifting-chain, the rotary shaft with its larger sheave and smaller sheaves, and the oppositely-wound chains whereby the cross-shaft is made to move down, in combination with the cross-heads carried by the cross-shaft, and the crossing links attached to the jaws of the dipper and to the ends of the cross-heads, substantially as herein described.

In witness whereof I have hereunto set my hand.

MANLEY C. LAWTON.

Witnesses:
WM. F. BOOTH,
S. H. NOURSE.