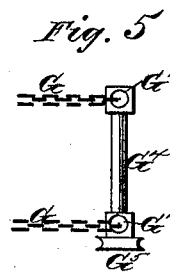
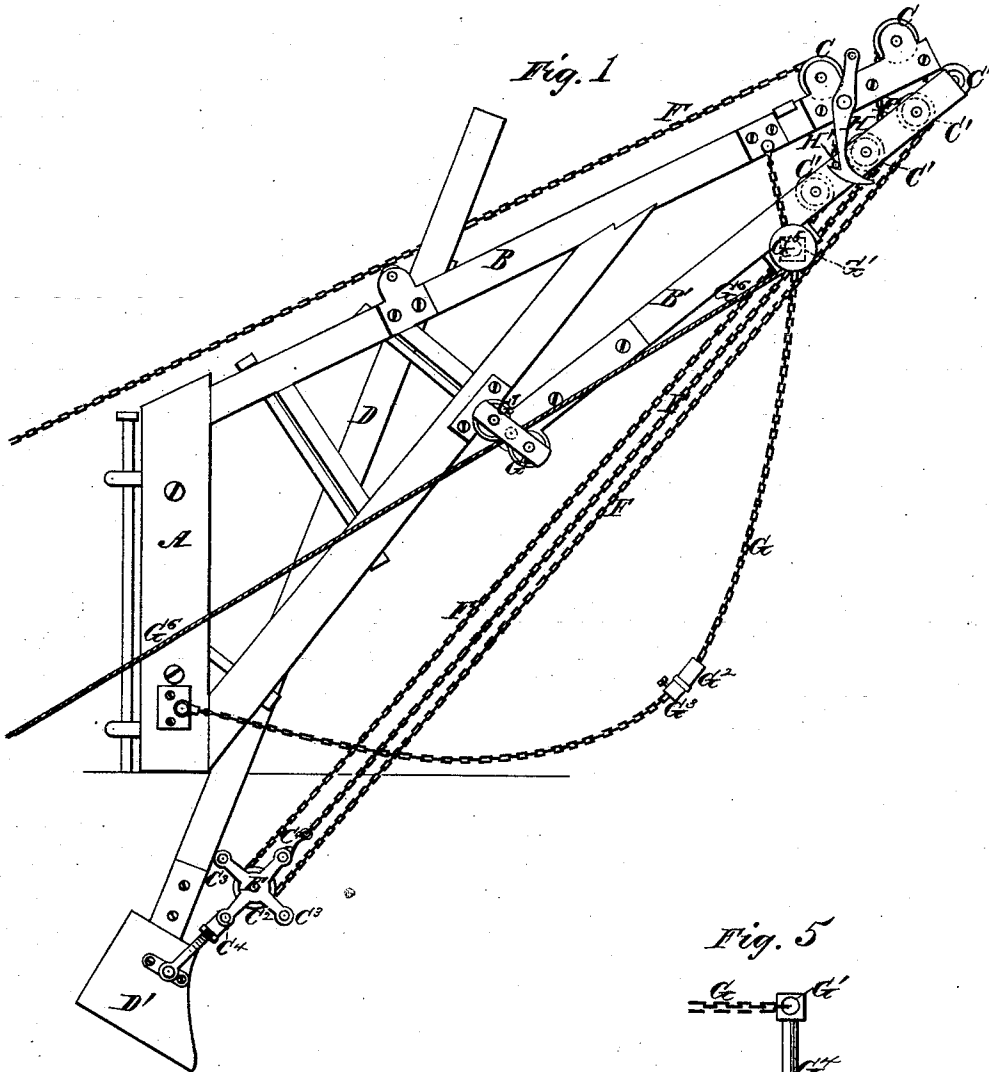


R. R. OSGOOD.
Dredging-Machines.

No. 157,101.

Patented Nov. 24, 1874.



Witnesses.
James Martin for
J. H. Rutherford

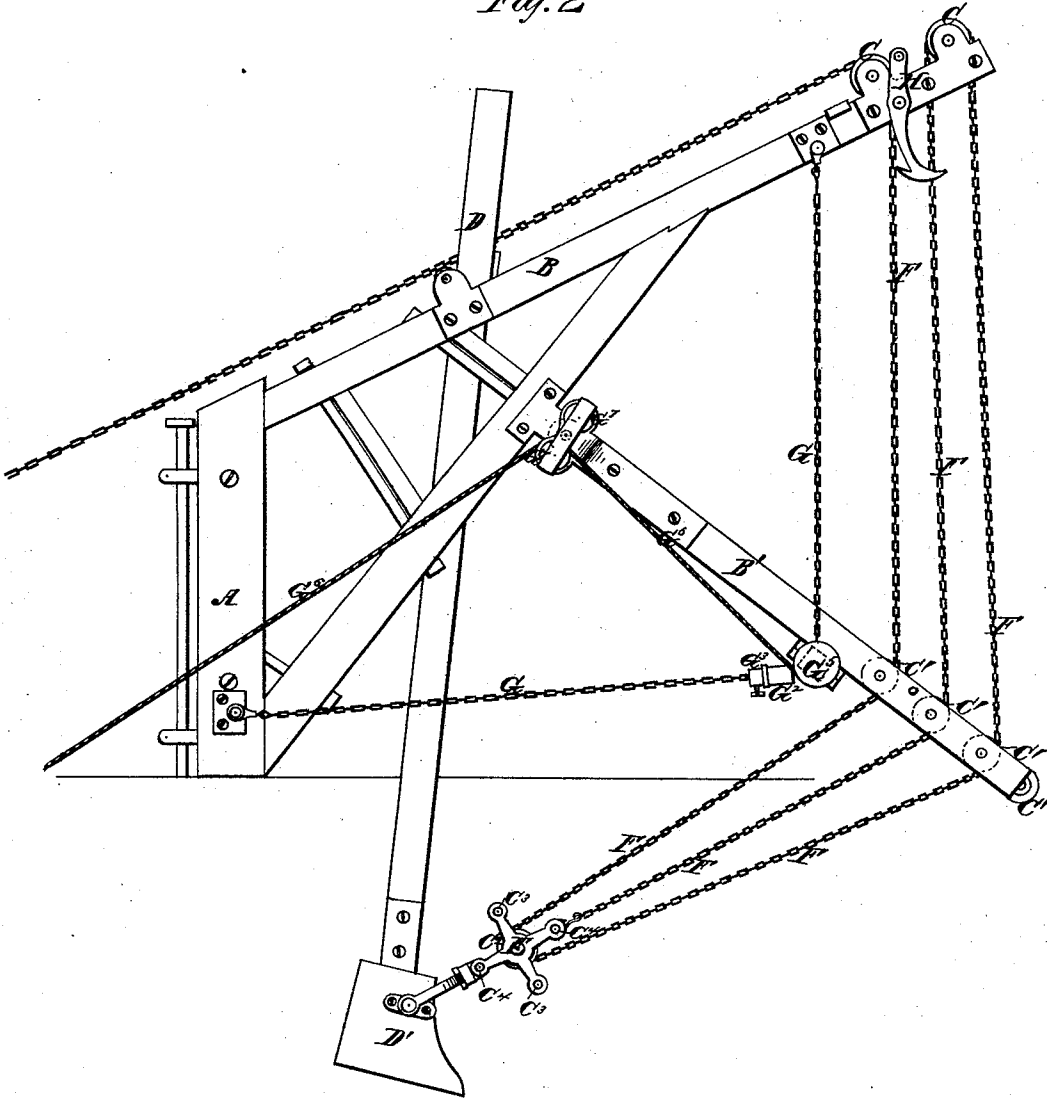
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Fig. 2



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Fig.3

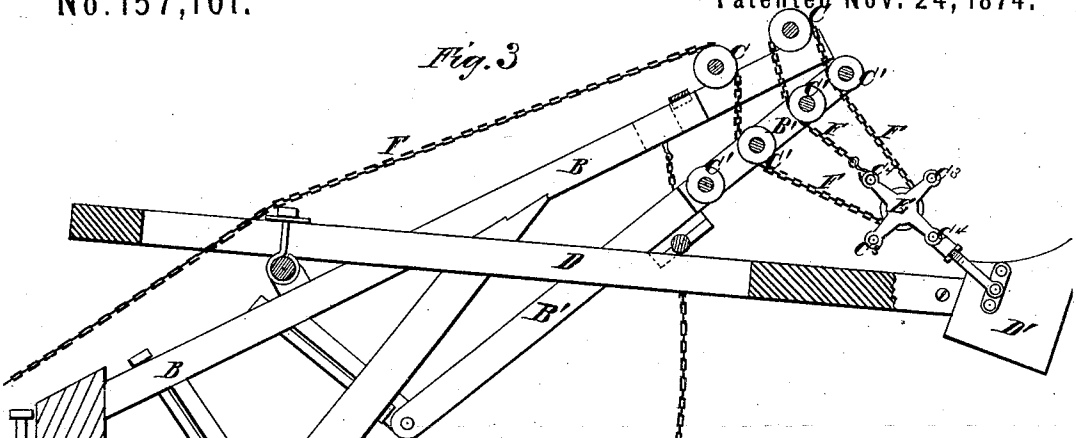
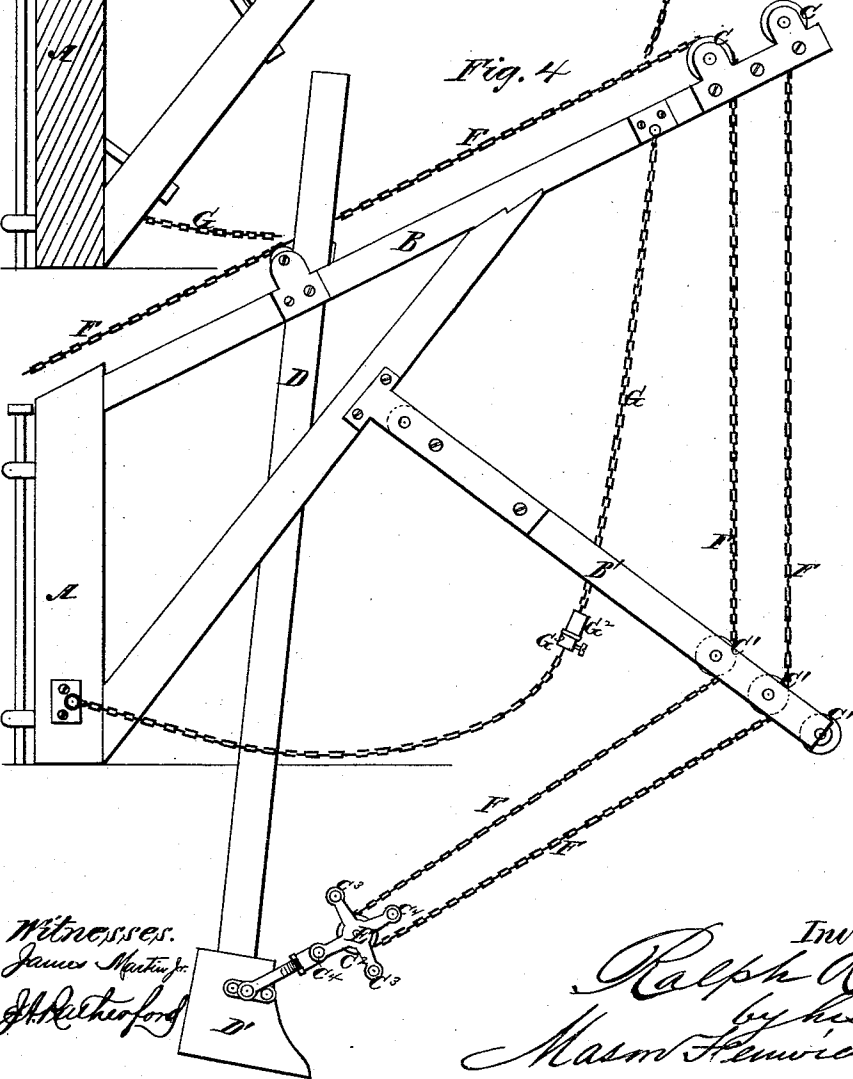


Fig.4



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UNITED STATES PATENT OFFICE.

RALPH R. OSGOOD, OF TROY, NEW YORK.

IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. **157,101**, dated November 24, 1874; application filed August 29, 1874.

To all whom it may concern:

Be it known that I, RALPH R. OSGOOD, of Troy, in the county of Rensselaer and State of New York, have invented a new and Improved Dredging-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a side elevation of my machine closed, and ready to be swung around. Fig. 2 is a similar view, showing the excavator in a position for dredging. Fig. 3 is a vertical central section of my machine, with the excavator in a position to be used as an anchor, or swung around to empty its load. Fig. 4 is a modification of the manner of raising the auxiliary arm. Fig. 5 is a top view of the devices used for holding the auxiliary crane-arm at any desired elevation.

The object of my invention is to render more practical and useful the well-known dredging-machine having a horizontally-swinging main crane-arm, and a vertically-swinging auxiliary crane-arm, and a sliding and swinging scraper, as shown in my drawings.

My first improvement consists in means for holding up the auxiliary crane-arm while swinging the crane-post on its axis for working the scraper on either side of the post, and while moving the scraper out forward of the main crane-arm for the purpose of using it as an anchor while drawing the dredging apparatus to a new place requiring to be dredged. With the dredging-machine having the auxiliary crane-arm, so much inconvenience and annoyance from said arm being in the way, and interfering with the expeditious working of the apparatus being experienced, very little satisfaction or benefit has been derived from the use of such machines, although the auxiliary crane-arm is one of the most important attachments ever made to dredging-machines on account of its permitting the power to be applied to the scraper or against the resistance at about an angle of forty-five degrees, or in an almost direct line.

My second improvement consists in the combination of additional pulleys or sheaves with the ordinary pulley of the auxiliary arm, and in arranging the power-chain to work double

or treble over these pulleys, and over pulleys in a swinging sheave-case, and on the main crane-arm, whereby the power upon the scraper is increased, and a bearing for the power-chain is secured, both when the scraper is working back and forward of the pulleys of the auxiliary arm, and thus the chain is kept in proper working tension during the whole of the sweep of the scraper over the bed of the river, whether it is being adjusted for working, or is in position for being swung around to be emptied of its load.

My third improvement consists of elastic cushions applied at a given elevation or point on the chains which suspend the auxiliary crane-arm, whereby the force of the descent of the said arm is greatly modified, and the injurious effect from shocks and strain upon the apparatus in a measure overcome.

My fourth improvement consists in a cramping contrivance combined with the suspending-chain of the auxiliary crane-arm, whereby the auxiliary arm can be cramped upon the chain, and held up out of the way at any point desired, while the crane is being swung around on its axis or the scraper moved outward to be used as an anchor.

My invention consists, fifth, in having the elastic cushion-stop adjustable on the suspending-chain, whereby the power can be applied through the auxiliary crane-arm at any desired angle.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

The crane-post A, main arm B, auxiliary arm B', and scraper D D' are constructed and fitted together and arranged to operate in the usual manner. C C are revolving sheaves or pulleys fitted in boxes set in between the side pieces of the main arm, and C¹ C¹ C¹ C¹ are similar sheaves or pulleys fitted in boxes set in between the side pieces of the auxiliary arm. These sheave-boxes are at the outer ends of the said arms, as shown. E is a sheave-case or pulley hinged to the part D' of the scraper, and provided with a central pulley, C², and chain-retaining pins C³ C³ and attaching-arms C⁴ C⁴. F is an endless power-chain passed through the pulley-boxes of the respective arms B B', and through the pulley-

case E, and in relation to the pulleys C C¹ C², as shown in the drawings. This chain is connected, as usual, by one end to the pulley or sheave-case E, and by its other end to a power-windlass arranged in proper relation to the apparatus. G represents one of the chains, upon which the auxiliary arm is suspended. These chains are passed loosely through eyes in the sides of the arm at G¹, or at any other suitable point, and fastened by their respective ends to the crane-post and main crane-arm. This chain is loose and long enough to allow the arm to swing around over it in the arc of a circle. G² are tubular cushions of rubber slipped over the chains and resting down upon stops G³, which are made in two pieces, and clamped upon the chain at any desired point by screws. A washer of metal may be interposed between the cushions and the clamp-stops. By loosening the screws of the clamp-stops the stops may be lowered or raised, and thus the cushion set at any altitude desired, and caused to arrest the auxiliary arm at any desired angle with respect to the scraper. The eyes at G¹ are formed in a rock-shaft, G⁴, and on this shaft is a pulley, G⁵, to which a cord, G⁶, is fastened eccentrically, and carried back between two guide-pulleys, G⁷ G⁷, which are attached to the inner hinged end of the auxiliary arm, as shown. By pulling the cord G⁶ the rock-shaft will be moved the distance of a quarter of a circle, and the suspending-chains cramped in such a way as to prevent the arm slipping down over them, and thus the arm is held up at any point desired by this contrivance. Instead of the cramping device a beveled pivoted hook, H, is provided on the side main crane-arm, and a stationary latching-pin, H', provided on the auxiliary arm, and by this contrivance of the hook and pin the auxiliary arm is hooked up out of the way when the crane is being swung around for working the scraper about a corner, or on either side of the center of the crane-post, or when the scraper is being moved to a position forward of the crane-arm for the purpose of using it as a draft-anchor while pulling the apparatus to a new dredging spot in the river or other place.

In Fig. 1 of the drawings it will be observed that the power-chain has a bearing against the two pulleys C C and the three inner pulleys C¹ C¹ C¹, and against the pulley C². In Fig. 2 the same relation of parts exists, except that the scraper has moved forward and downward slightly, and the auxiliary arm has been lowered to nearly an angle of forty-five degrees with respect to the scraper; that in Fig. 4 the power-chain has a bearing against

the three outermost pulleys C¹ C¹ C¹, and the auxiliary arm has been carried up by the scraper ready to be cramped or hooked up, so that it shall be out of the way while the crane is swung around to empty the scraper, or while the scraper is being moved longitudinally beyond the end of the crane in order to serve as an anchor.

In practice I may adopt only three pulleys, C¹ C¹ C¹, and arrange the power-chain as shown in Fig. 4. In this case one of its ends will be attached to the outer end of the crane-arm B, and its other end, as before, to the windlass, after being passed about the pulleys C C¹ C², in the manner shown, and I may only use the hook H and pin H', or the cramping-shaft, Fig. 5, or I may use both for holding up the auxiliary arm. I prefer the hook and pin, as these make a self-acting contrivance. I contemplate using other descriptions of holding-up device, and therefore do not confine myself to the special construction shown.

What I claim as new is—

1. The combination of a sustaining device with the auxiliary hinged arm B' of the crane, for holding up the said arm out of the way while the scraper is being adjusted and used as an anchor, and while it is being worked at any angle with respect to the side of the support of the crane, and at will of the operator allowing the said arm to be swung down to apply the power to the scraper in a more direct line, substantially as set forth.

2. The combination of two or more end sheaves, C C, and one or more intermediate sheaves, C¹, the power-chain F, vibrating sheave-case E, auxiliary crane-arm B', and main crane-arm B, and a scraper, D D, whereby the claims are kept in position, and their power upon the scraper increased and applied in a very direct manner, substantially as described.

3. The combination of the scraper D D', the yielding cushions G², and the suspending-chains G, substantially as and for the purpose described.

4. A cramping device, G⁴, in combination with the suspending-chain G, for setting the auxiliary arm B' at any desired position with respect to the main arm B, substantially as and for the purpose set forth.

5. The adjustable stop G³, in combination with the suspending-chain G, substantially as described.

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