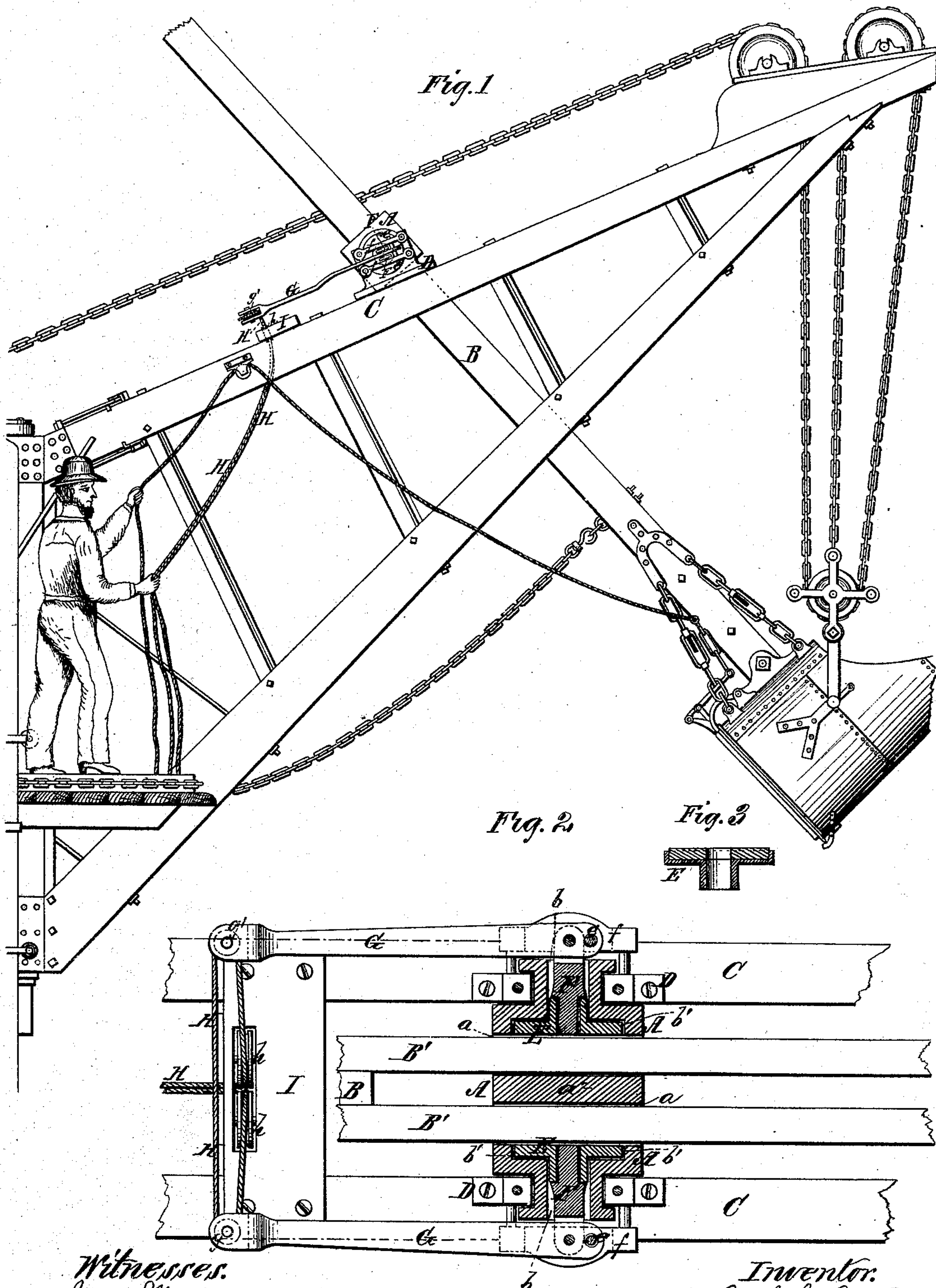


R. R. OSGOOD.  
Dredging-Machine.

No. 162,849.

Patented May 4, 1875.



Witnesses.  
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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. 162,849, dated May 4, 1875; application filed March 9, 1875.

*To all whom it may concern:*

Be it known that I, RALPH R. OSGOOD, of Troy, county of Rensselaer and State of New York, have invented a new and Improved Device for Operating the Dipper-Handles of Dredging-Machines; 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 a portion of a dredging-machine with my improvement applied to it. Fig. 2 is a longitudinal transverse section of my improved device, with the parts in the position they assume when the dipper-handle is being adjusted to a working position. Fig. 3 is a transverse section of one of the sliding friction-clamps of the dipper-handle, showing the manner of applying wood or other yielding material for a bearing-face.

The nature of my invention consists in a novel guide for the handle or pole of the dipper of dredging-machines generally, whereby the descent and ascent of the dipper can be controlled by the friction of the guide upon the handle or pole, and whereby the handle or pole can be held down while being filled, as will be presently described.

Dredging-machines with dipper-handles, as heretofore constructed, have been provided with racks and chains and drums for holding and controlling the dipper while being lowered and raised or operated, and practice has proven that such controlling devices are very inefficient for the purpose, from the fact that the racks or chains are very often broken by the great strain and wear and tear which necessarily come upon them, thereby causing much expense and serious delays.

In the accompanying drawings, I have shown an oscillating trunnion, A, with a dipper-handle, B, passed through it, mounted upon bearings D on timbers C, of the crane of a dredging-machine of known construction. The trunnion A has two passages, *a a*, entirely through it at right angles to its axis. These passages are separated by a partition, *a*<sup>2</sup>, which serves as a friction-surface for the respective bars B' B', which, with end cross-pieces, form the handle, to bind against, when it is desired to hold the handle in a fixed position, or slacken its speed

in descending or ascending. The passages *a* are intersected by passages *b b*, which are formed in the trunnion parallel with its axis, said passages extending from the outer ends of the journals of the trunnions to near their inner termini with a relatively small diameter, and then enlarging, so as to form shallow seats *b' b'*, as shown. In these seats and passages *b b'*, followers E E, having central passages through them and collars formed on them, are fitted, and between the partition *a*<sup>2</sup> and these followers the respective bars of the handle B are passed before the end cross-pieces of the handle are fastened to these bars. For producing pressure upon the followers, and thereby forcing the bars of the handle against the partition *a*<sup>2</sup>, short shouldered plungers F F are passed into the passages in the journals of the trunnion, and a proper distance into the central passages of the followers, in the manner shown. The outer forked ends of these plungers are fitted upon and pivoted to levers G G, which are pivoted at *e e* to the bearings D between guides *f f*, as shown.

By means of these levers the plungers can be pressed against the followers, and the followers thereby caused to press against the handle with any desired force or friction. For moving both levers simultaneously, and producing equal pressure with the followers, a cord or chain, H, is passed around sheaves *g g'*, provided on the ends of the levers, and then over pulleys *h h*, arranged on a cross-timber, I, of the crane, and therefrom to a convenient position for the operator to lay hold of it and pull upon its ends, for the purpose of causing the followers to bind with more or less friction upon the dipper-handle, accordingly as circumstances may require.

In practice the followers may be formed with a chamber, and wood or other yielding substance for the wearing and friction surface may be set into this chamber, as shown in Fig. 3 of the drawings; and, instead of using levers and a cord and pulleys for pressing up the followers, screws, or other suitable means may be adopted, and, therefore, I do not confine my invention to the levers, nor levers, pulleys, and cord or chains.

The handle B may be a pole, as is used on "clam-shell" or dipper dredges, and the fric-



tion guide-followers may be used for holding the clam-shell or dipper while it is being filled—a provision not heretofore made, I believe, in machines using such pole and dipper.

When a pole of a clam-shell or dipper is thus held the passage through the trunnion will be a central one, and the followers will press directly against the sides of the handle.

The trunnion A may be cast in one piece, or it may be made in any other manner found most convenient and desirable.

My invention enables me to construct dredging-machines at about one-half the cost of the usual holding mechanism, and at the same time the weight which the crane and dipper-handle sustain is lessened to such an extent, by dispensing with the racks and their fastenings, that the dipper can be lowered much faster and swung around with less power, and withal there is very little damage from wear and tear, and the great inconvenience from constant breakage and loss of time in repairing the breaks is avoided.

The operation is as follows: The handle is allowed to slip through the guiding-trunnion, and as it descends or rises the trunnion oscillates to permit the dipper to assume any position which may be necessary. In case it is desired to arrest the dipper or hold it in any position, either while fully down, partly down, or while being swung around to empty its load, the friction-followers can be applied, so as to prevent the handle slipping in the guide, and in an instant this friction can be withdrawn and the dipper allowed to slide freely

in the guide, the faces of which present no teeth or projections which are liable to be broken off by a sudden concussion or jerk.

What I claim is—

1. The dipper-handle or pole of dredging-machines, passed through a support or guide which has clamps capable of being extended transversely into the passage through which the pole moves, for the purpose of controlling the handle or pole, substantially as and for the purpose set forth.

2. The oscillating trunnion, forming a guide and support and clamp, the clamps thereof capable of being extended transversely into the passage, through which the dipper-handle or pole of dredging-machines is passed, substantially as and for the purpose described.

3. The dipper-handle constructed of bars B' B', and passed through a guide having a central partition,  $\alpha^2$ , substantially as described.

4. The trunnion and guide for a dipper-handle or pole, having adjustable friction-followers and a central partition, substantially as described.

5. The combination of the trunnion, the dipper-handle, the followers E, the plungers F, and the levers, substantially as described.

6. The combination of the trunnion, the dipper-handle, the followers E, the plungers F, the levers G G, and the cords H H, and pulleys, substantially as described.

RALPH R. OSGOOD.

Witnesses:

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