

W. A. COLLINS.  
Dredging-Machines.

No. 145,723.

Patented Dec. 23, 1873.

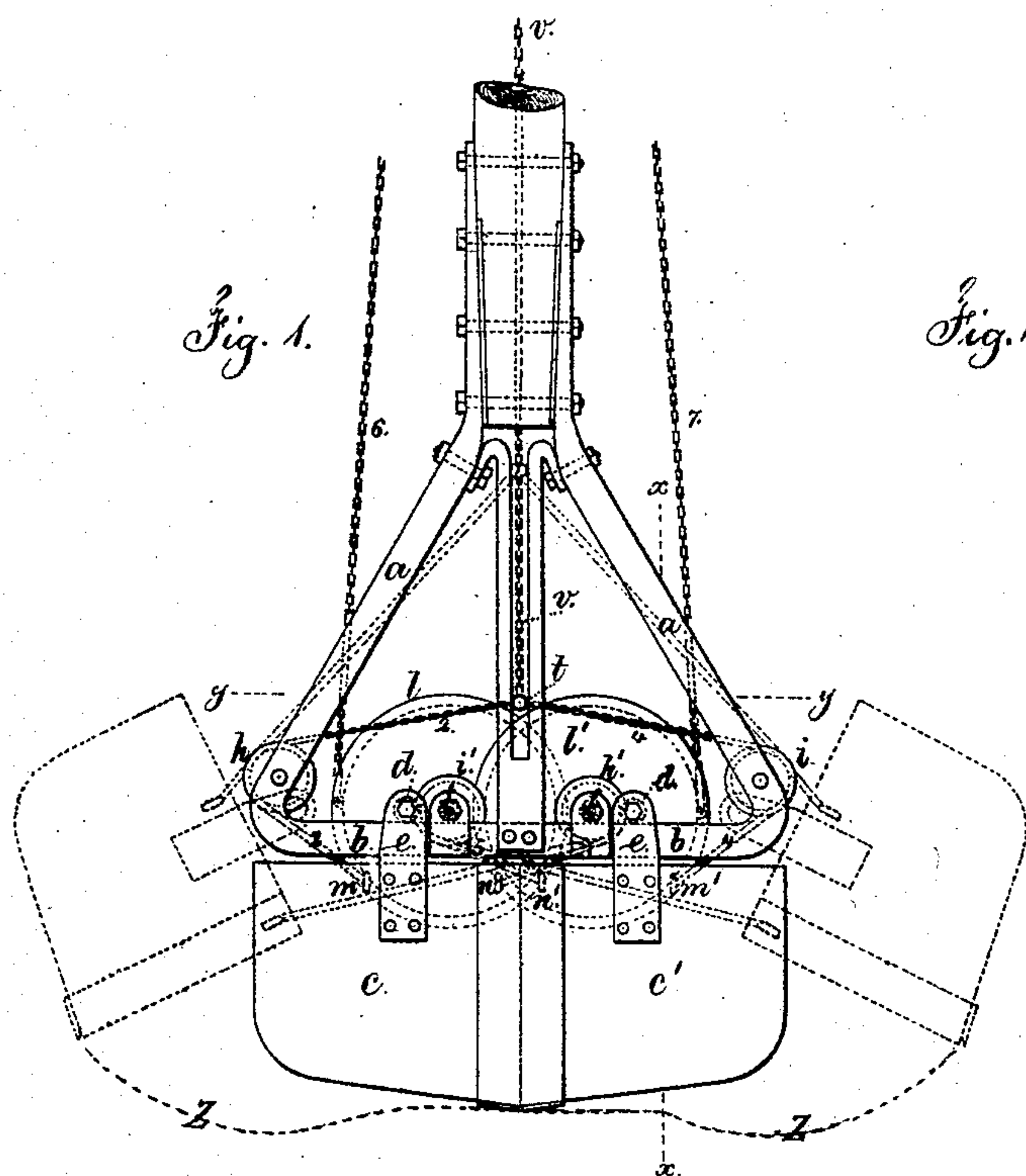


Fig. 2.

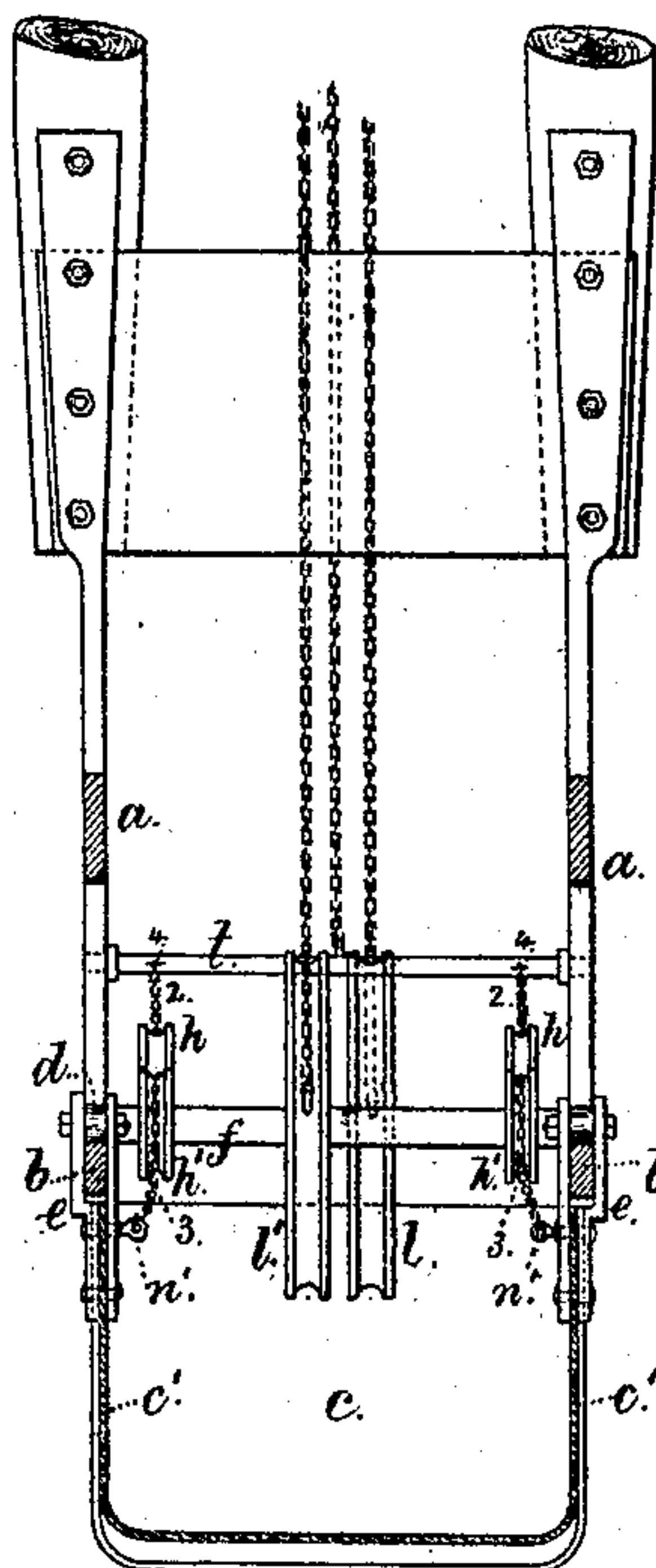
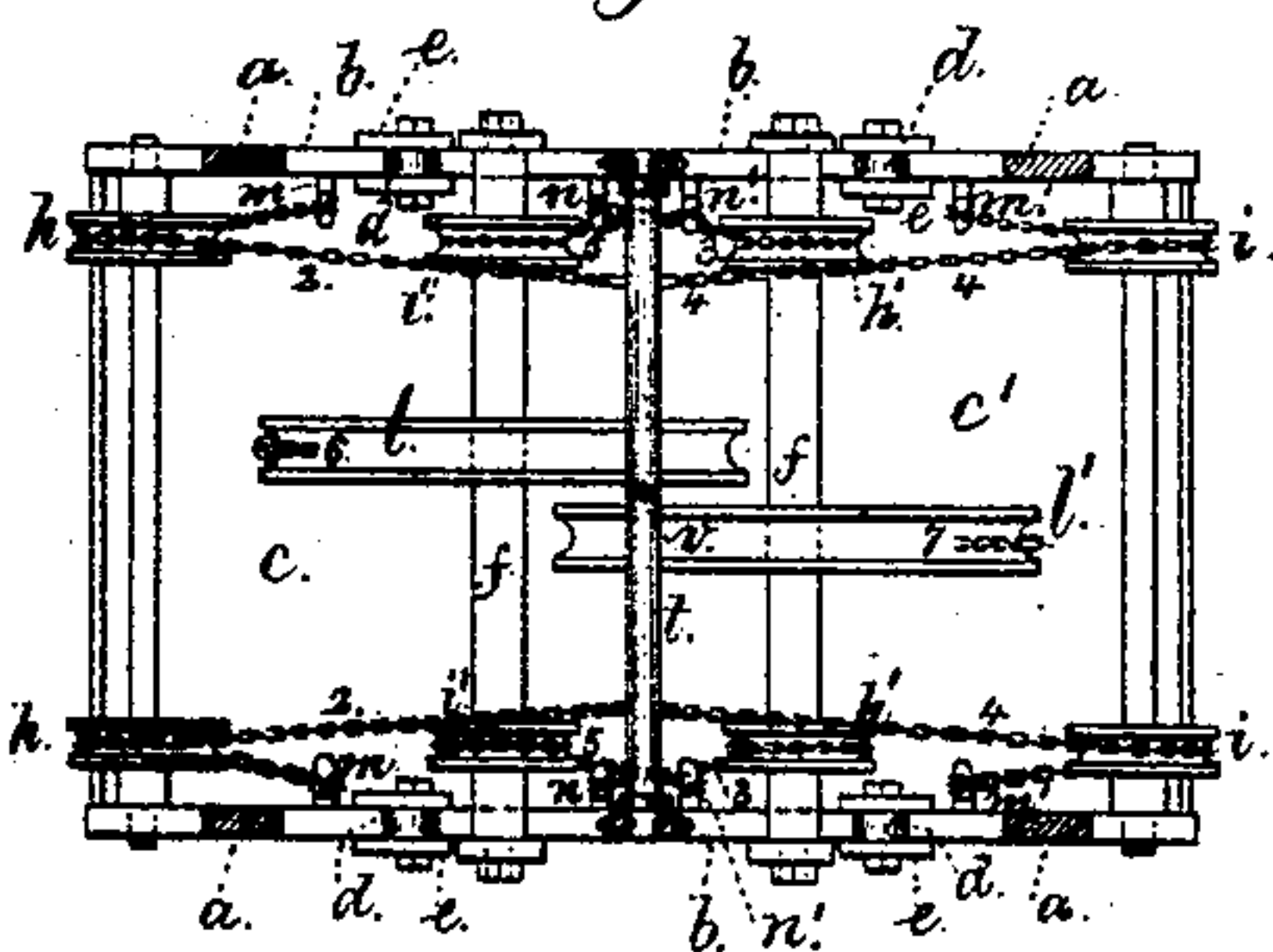


Fig. 3.



Witnesses

Charles Smith  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. **145,723**, dated December 23, 1873; application filed June 3, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM A. COLLINS, of Bloomfield, in the county of Essex and State of New Jersey, have invented an Improvement in Dredging-Machines, of which the following is a specification:

In Letters Patent granted to E. Morris, December 5, 1848, a scoop for dredging is shown, consisting of quadrant buckets attached by one pair of hinges or a cross-shaft, the scoops opening by swinging in an arc of a circle upon the hinge.

In my machine the scoops are not hinged but hang upon a bar by saddles or loops, and when first opened move away from each other, and when nearly at the end of their movement, they are caused to assume a position nearly at right angles to their position when closed, by which means the scoops open farther, and as they are drawn together they scrape much more effectually than the scoops hung upon hinges.

In the annexed drawing, Figure 1 is a side elevation, and Fig. 2 a vertical section, of my machine at the line *x x*, Fig. 1, and Fig. 3 is a plan below the line *y y*.

The frames *a* are hung upon poles or a frame which slides in guides, as in aforesaid patent. The said frames *a* are formed triangular in shape, and on the lower bars *b* of the triangle the buckets or scoops *c c'* move back and forth. The scoops are hung upon the bars *b* by saddles *e* passing over the bars, and rollers *d* should also be introduced in the saddles to cause the scoops to move easily. The bars *b* carry the shafts *f* for the chain-wheels to operate the scoops, and these wheels and their chains are arranged as follows: Chains 2 pass from the cross-bar *t*, of the vertical chain or rope *v*, over the drums *h* or pulleys, and are attached at *m* to the scoop *c*. The chains 3, connected to the scoop *c* at *n*, pass to the drums or pulleys *h'*. Similar chains, 4 and 5, are attached to the scoop *c'* at *m'* and *n'*, and the chains 5 pass to the drums or pulleys *i' i'*, and the chains 4 pass over the sheave *i* and connect to the cross-bar *t*. The chains 6 and 7 pass around the grooved wheels *l l'*, and are attached to said wheels at their ends. When the chains 6 and 7 are drawn upon, they revolve the wheels *l l'*, shafts *f*, and drums *h' i'*, winding up the chains 3 and 5 upon the drums

*h'* and *i'*, and drawing down the chains *v*, 2, and 4, and when these chains *v*, 2, and 4, are pulled upon, they draw the scoops apart, along the bar *b*, and then the saddles *e* and rollers *d* run upon the curved ends of the bar *b*, causing the scoops to assume the position shown in dotted lines. In this operation the chains 6 and 7 are wound upon the drums *l l'*; hence, when the chains 6 and 7 are again drawn upon, the pulleys *l l'* and drums *h' i'* are revolved, and the chains 3 and 5 draw the scoops back over the bar *b* until the saddles *e* take against each other or against stops, as the edges of the scoops are closed against each other. The dotted lines at *z z* illustrate the path in which the scraping-edges of the scoops move as said scoops are closed. The wheels *l l'* are larger than the drums or pulleys *h' i'*, so that the requisite power is obtained to close the scoops and gather up the mud, stones, or other material to be dredged out. It will be apparent that when the buckets are drawn toward each other the edges scrape up the mud or other material over an extended area, and gather such materials together sufficiently to fill the bucket. Thereby the excavation will be more uniform in depth than heretofore, and the bucket is filled more reliably. The lower portions of the buckets, being nearly flat, act as plows or cutters in passing beneath the material.

I claim as my invention—

1. The scoops *c c'*, suspended by the saddles from the bar *b*, in combination with the chains and wheels, arranged substantially as set forth, for moving the scoops upon such bars and actuating them, as specified.

2. The arrangement of the two shafts *f*, chain-wheels, chains, and buckets, in the manner specified, for sliding the buckets *c c'* upon the bars *b*, and swinging the same, substantially as specified.

3. The scoops drawn apart horizontally, and then swung into an inclined position and receiving the reverse movement in closing, substantially as and for the purposes set forth.

Signed by me this 29th day of May, A. D. 1873.

WILLIAM A. COLLINS.

Witnesses:

GEO. T. PINCKNEY,  
CHAS. H. SMITH.