

W. A. COLLINS.
DREDGING-BUCKETS.

No. 194,651.

Patented Aug. 28, 1877.

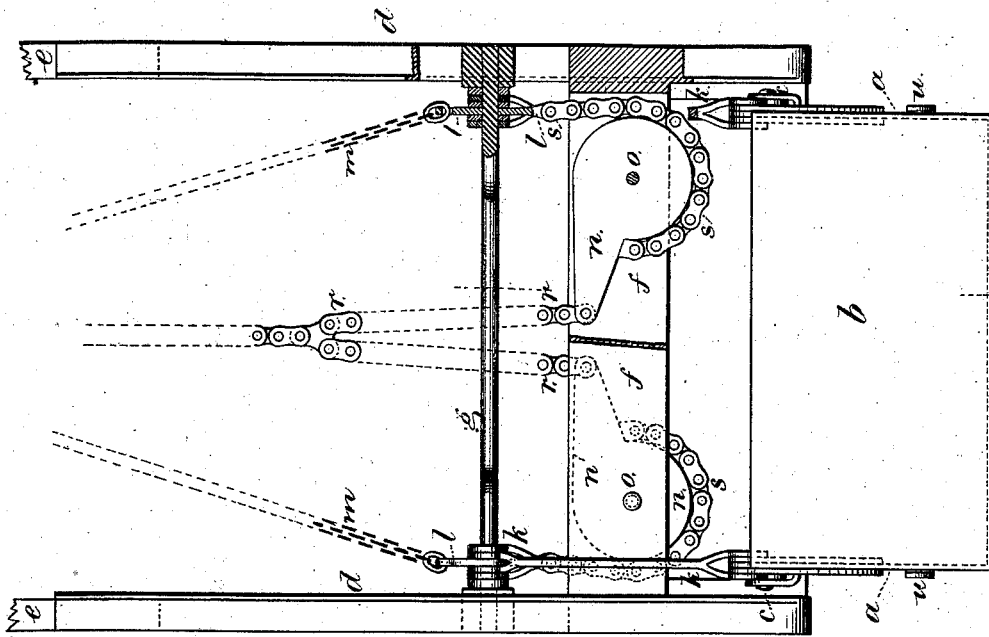


Fig. 2.

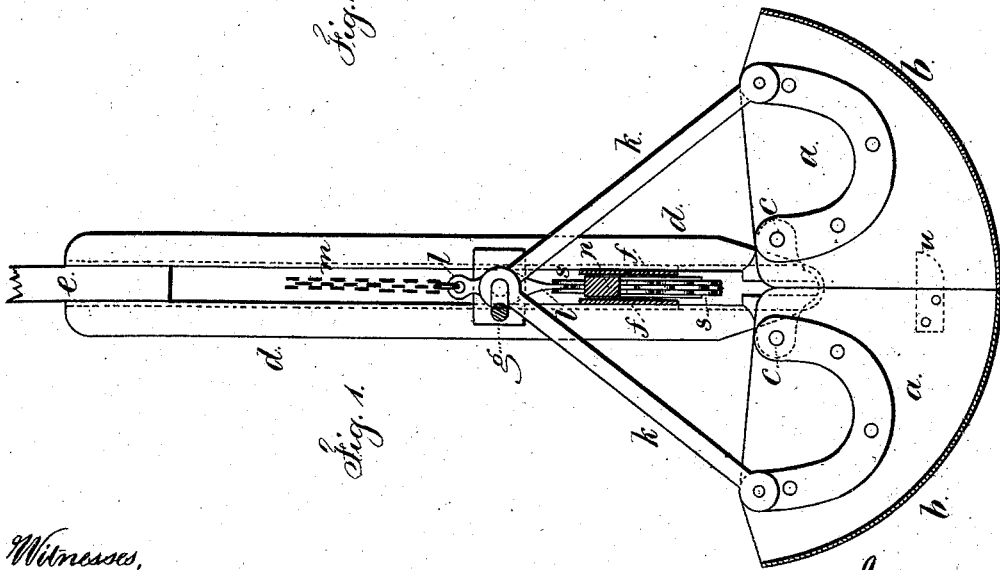


Fig. 1.

Witnesses,

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UNITED STATES PATENT OFFICE.

WILLIAM A. COLLINS, OF BLOOMFIELD, NEW JERSEY.

IMPROVEMENT IN DREDGING-BUCKETS.

Specification forming part of Letters Patent No. **194,651**, dated August 28, 1877; application filed May 23, 1877.

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 No. 54,649, heretofore granted, a dredging-bucket is shown made of two quarter-cylinder segments, hinged together, and opened by drawing up a cross bar or shaft with toggle-links to the segments, and closed by drawing upon a chain passing around a wheel.

In this class of dredging-machines the lifting-chain does not act in the center of the mechanism, and therefore the bucket is not always lifted vertically, and the guide-poles are strained and worn.

My invention is made for insuring the proper lifting of the bucket by a chain directly above the center of gravity, and centrally to the machine, and also for lessening the strain upon the cross-shaft and upon the joints of the links that are connected by such shaft.

In the drawing, Figure 1 is a vertical central section, and Fig. 2 is an elevation, partially in section, of my improved bucket.

The segmental buckets are formed of the ends *a a* and segmental sides *b*, and these are hinged at *c* to the frames *d*, that receive the lower ends of the guide-poles *e*, and these frames *d* are connected by the cross-plates *f f*, and there are slots for the ends of the cross bar or shaft *g*, all of which are similar, except, as hereinafter stated, to the devices shown in the aforesaid patent.

The links *k* are connected at their lower ends to the end plates *a* of the buckets, and at their upper ends they are, preferably, forked, so as to pass at each side of the respective links *l*, to the top of which links the ends of the lowering-chain *m* are attached.

Between the cross-plates *f f* are the lever-segments *n n*, each of which is upon a bolt or shaft, *o*, and the lever portions terminate in eyes, to which the bifurcated chain *r* is attached.

The segmental portions of the levers receive the chains *s*, that are each attached at one end to the bottom end of the link *l*, and at the other end to the segment. The parts are so positioned that these chains *s* are parallel, or nearly so, and the chain *r* is in the

center of the apparatus; hence, when the chain *r* is drawn upon to close the bucket, the lever-segments are swung, the chains *s* are drawn upon to move the cross-bar *g* and operate the toggles *k*, and in so doing there is no tendency to tip the bucket sidewise, or to draw on one side more than the other of the dredger, but the movement is equal all around the hoisting-chain, and the weight is equally or centrally suspended, so that there is little or no strain or wear upon the guide-poles.

In consequence of the link *l* being between the double joints of the toggle-bars *k*, the strain in closing the bucket is taken directly upon the toggle-bars themselves, instead of tending to bend the cross-bar *g*, as has heretofore usually been the case.

At each end *a* of the bucket there is a projecting plate, *u*, forming a claw or hook, that serves two purposes. The first is that of a guide, to keep the ends *a* in proper relation one to another, and prevent the joint being opened by lateral strain upon the metal. The second is to allow for grasping logs, railway-iron bars, and other long articles that often have to be dredged, and also for lifting similar articles from the holds of vessels without risk of injuring the vessel by claw-teeth at the edge of the bucket of the character that have been already applied along the bottom joint of the bucket.

The two chains being central, there is no part of the bucket that touches or is injured by the contact thereof with the chain.

I claim as my invention—

1. The lever-segments *n* and chains *r s*, in combination with the cross-frame *f*, toggle-bars *k*, and dredging-bucket, substantially as set forth.

2. The links *l* between the double joints of the toggle-bars *k*, in combination with the lever-segments *n* and chains *s*, for closing the bucket, substantially as set forth.

3. The plates *u* at the edges of the bucket ends, forming guides for the halves of the buckets and claws for grasping, substantially as set forth.

Signed by me this 21st day of May, A. D. 1877.

WILLIAM A. COLLINS.

Witnesses:

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HAROLD SERRELL.