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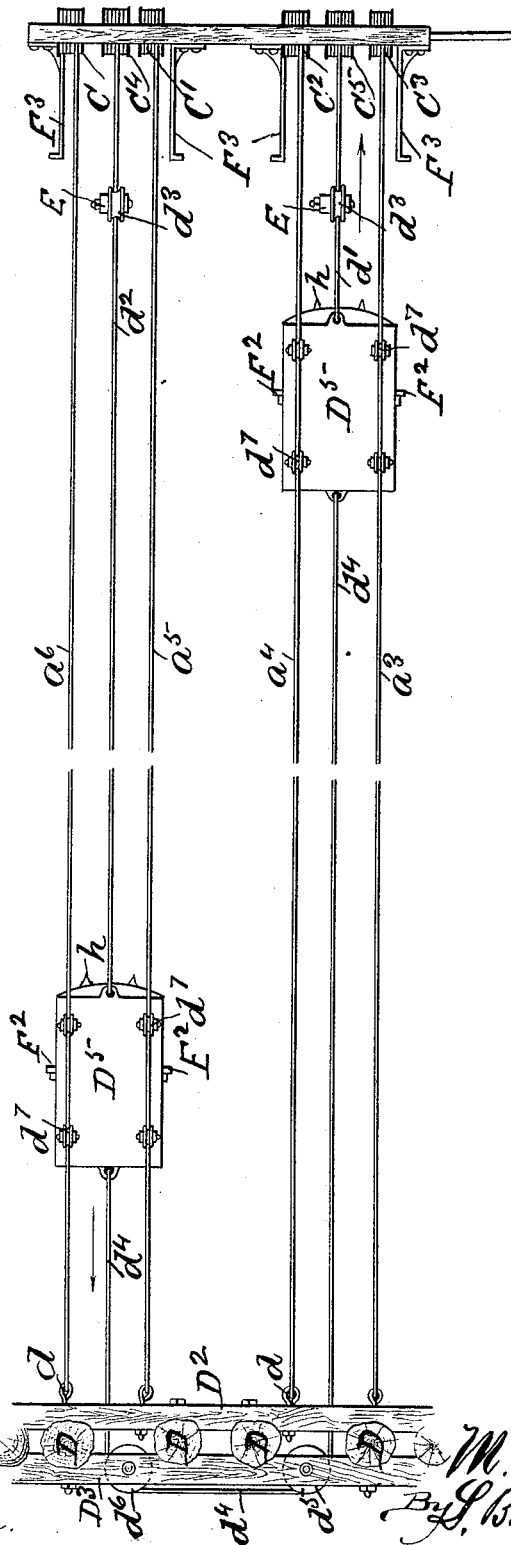
3 Sheets—Sheet 1.

M. GALLAGHER.
DREDGING MACHINE.

No. 386,309.

Patented July 17, 1888.

Fig. 1.



Witnesses:

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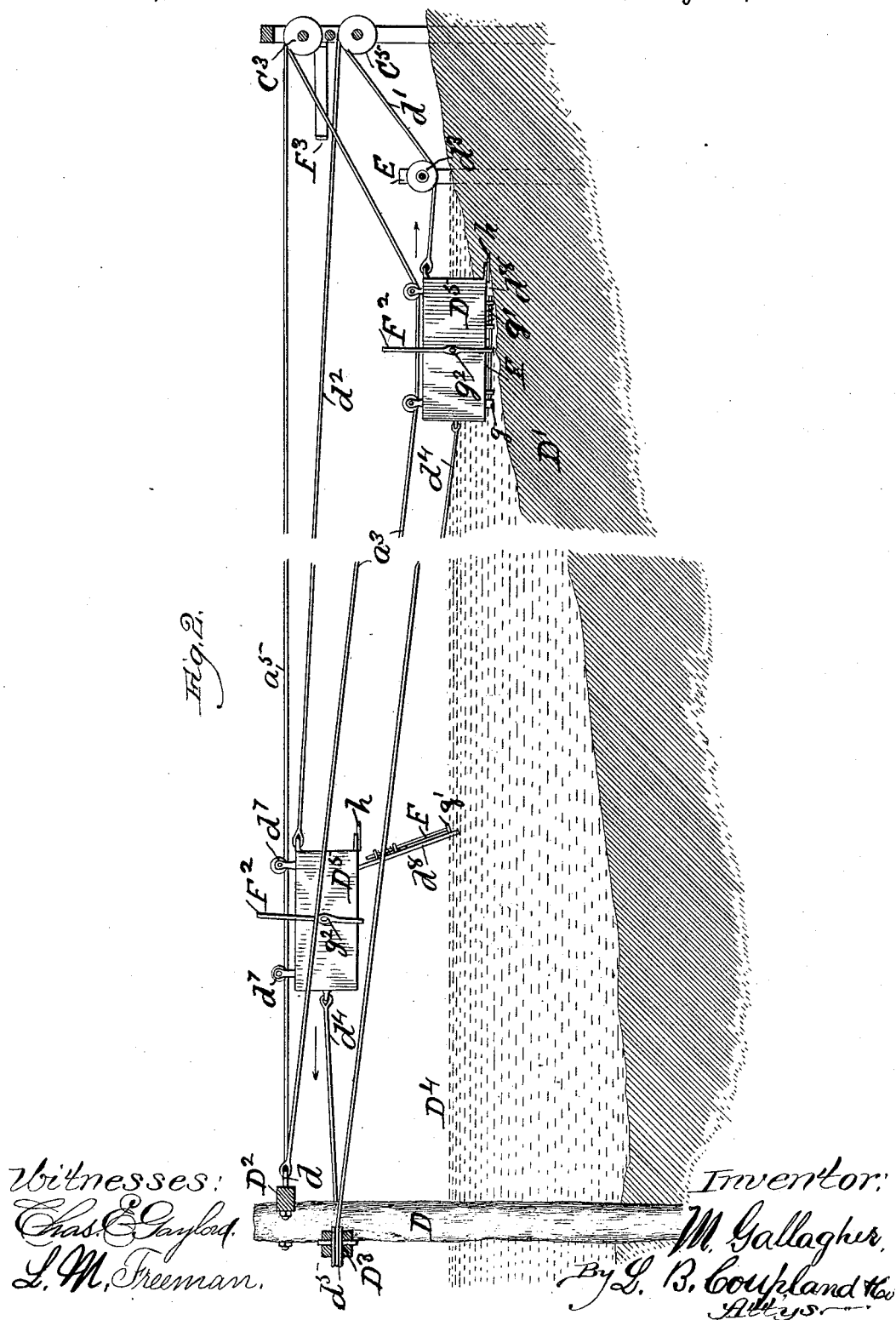
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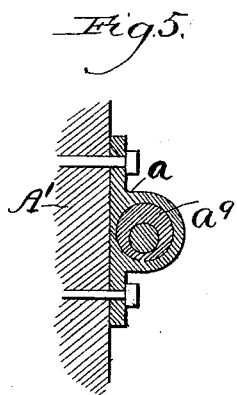
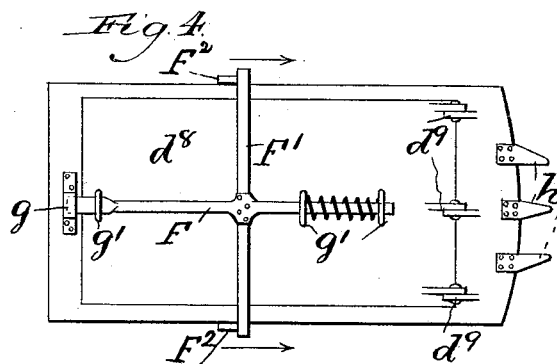
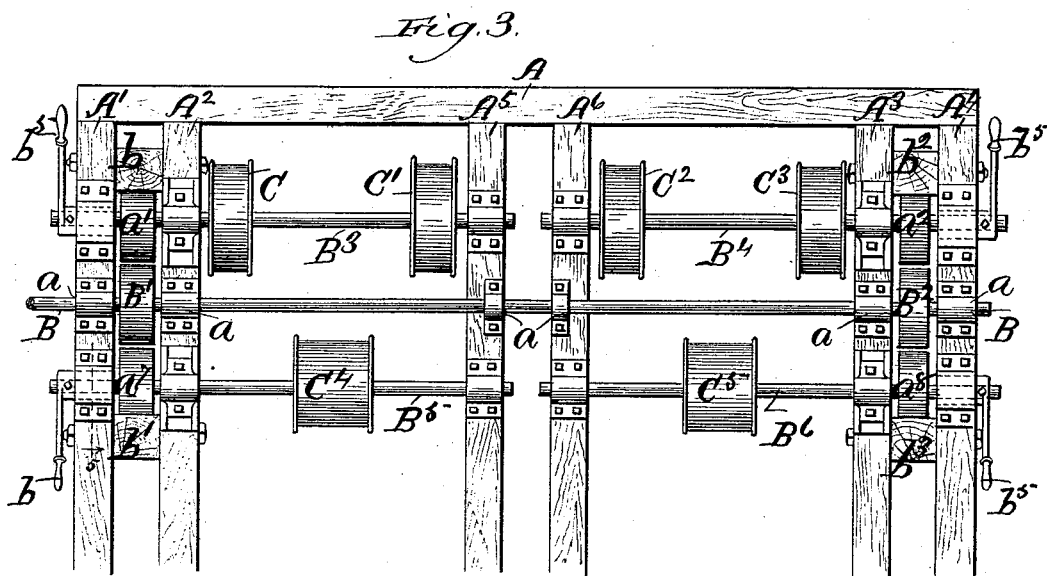
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UNITED STATES PATENT OFFICE.

MICHAEL GALLAGHER, OF CHICAGO, ILLINOIS.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,309, dated July 17, 1888.

Application filed March 19, 1888. Serial No. 267,751. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL GALLAGHER, of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in a Dredging Apparatus, of which the following is a full, clear, and exact description that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in that class of dredging devices that may be operated from the shore. The same consists of certain novel features in the construction, arrangement, and operation of the several parts, as will be hereinafter set forth.

Figure 1 is a plan view; Fig. 2, a side elevation and partial section. Fig. 3 is an end elevation looking inward from the land. Fig. 4 shows the under side of one of the dredging-buckets; and Fig. 5 a sectional detail of construction in the plane 5, Fig. 3.

Referring to the drawings, A represents the top horizontal framing-timber of the land end of the structure supporting the operating mechanism; A' A² A³ A⁴, the outside vertical timbers, and A⁵ A⁶ the central supporting ones, as shown in Fig. 3. The lower ends of the upright framing-timbers will be firmly embedded in the ground, and the upper ends connected by the cap-timber A. The main driving or power shaft B is provided with suitable journal-bearings, a, (see Fig. 3,) in the framework.

Mounted upon the shaft B, near each end and between the framing-timbers, are the friction driving-drums B¹ B². Above the shaft B are journaled the two counter-shafts B³ B⁴, having the friction-drums a' a² mounted thereon and in line with the companion drums on the power-shaft. The counter-shafts B³ B⁴ have the winding-drums C C' C² C³ mounted thereon, and to which the shore ends of the different carrying-cables a³ a⁴ a⁵ a⁶ are attached, whereby these cables may be slackened or strained, as required, in lowering or raising the dredging-buckets. The opposite ends of the carrying-cables are secured to the water end of the dredging structure, as shown in Figs. 1 and 2.

Below the driving-shaft B and in line therewith are journaled the counter-shafts B⁵ B⁶,

having the friction-drums a' a² mounted thereon, as shown in Fig. 3.

C⁴ C⁵ are cable-winding drums which are respectively mounted on the shafts B⁵ B⁶, near their longitudinal center, bringing them midway between the winding-drums on the shafts B³ B⁴. That part of the respective shafts B³ B⁴ B⁵ B⁶ having a bearing in the outer journal-boxes, a, is provided with the cam-ring a³, as shown in Fig. 5, so that the rotation of said shafts in one direction will bring the respective friction-drums mounted on the same in contact with the companion friction-drums on the driving or power shaft B, for the purpose of receiving the required motion from the same, and in the opposite direction will throw the friction-drums a' a² a³ a⁴ out of engagement and up against the brake-blocks b b' b² b³. (Shown in Fig. 3.) The outer ends of each of the counter-shafts are provided with the hand-operating lever b⁵. The water end of the structure consists of a number of piles, D, driven into the bed D' of the lake or river, and at any required distance from the shore.

D² D³ are horizontal timbers placed on each side of the piles above the water-line D', which serve to strengthen the structure and also to provide firm holding-ground for the attachment and movement of the different wire-cables. The outer ends of the carrying-cables a³ a⁴ a⁵ a⁶ are rigidly secured to a corresponding number of eyebolts, d, inserted in the framing-timber D². The shore ends of the pulling or dredging cables d' d² are connected to the drums C⁴ C⁵, while the opposite or outer ends are connected to the front end of the dredging-buckets D⁵ D⁶. The piles E E have the guide-sheaves d³ d⁴ journaled thereon, (see Figs. 1 and 2,) the cables d' d² running under the same and giving the downward pull necessary to embed and fill the dredging-buckets.

When a bucket is loaded, the shore-cable attached to the same may be disengaged from the depressing guide-sheave d³ and the bucket drawn ashore and the load discharged. One end of the cable d⁴ is attached to the outer end of one of the buckets, and from thence extends outward from the shore and runs over the horizontal sheaves d³ d⁴, journaled in the framing-timber D³ of the water part of the structure, and then passes on and is secured to the

companion bucket. By this arrangement the buckets are alternately loaded and discharged, one bucket going out as the other is coming in.

It is obvious that a single bucket can be worked instead of the double arrangement shown.

The dredging-buckets are provided on the upper side with a number of sheaves, d' , which support and suspend the same in proper relation to the carrying-cables.

The under side of the dredging bucket or buckets D^b is provided with the hinged discharge-bottom d^b , as shown in Fig. 1. This drop-bottom is hinged at d^b , near the front end, and is secured in a closed position by means of the locking-bolt F , engaging with the socket-catch g . This locking-bolt runs lengthwise with reference to the bucket, and is retained in position against the under side by means of a number of staples, g' , which permits of an endwise movement of said bolt. This bolt is rigidly secured near its longitudinal center to the cross-bar F' , which rests closely against the under side of the bucket, the ends of said cross-bar having a tripping contact with the lower ends of the levers $F^2 F^2$, extending upward on each side of the bucket or buckets. These levers are pivoted at g^2 to the respective sides of the buckets, and the upper projecting ends are adapted to have contact with the tripping-arms F^3 , when the buckets reach the discharging-point and the locking-bolt is withdrawn and the load automatically dumped. After the bucket is loaded the shore-cable d' should be slackened and disengaged from the depressing-sheave d^b , so that the bucket may be elevated to bring the discharging-levers $F^2 F^2$ in contact with the tripping-arms F^3 . When the bucket is run out and lowered, the pressure will close the drop-bottom. The spring g^3 serves to normally hold the bolt F in a locked position. The front bottom ends of the dredging-buckets are provided with the rigidly-fixed shovel-points h , which penetrate the earth and facilitate the dredging and loading process. By means of this arrangement sand may be dredged along the shore for commercial purposes, or earth removed for the purpose of deepening the channel. It also provides a convenient means for deepening the channels of rivers, as the structural ends of the device may be located on opposite sides of the water.

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

1. In a dredging apparatus, the combina-

tion, with the shore framing-timbers, of the main driving-shaft B , provided with journal-bearings a in said shore structure, the friction driving-drums $B' B^2$, mounted on the respective ends of said driving-shaft, the counter-shafts $B^3 B^4$, located above the power-shaft B , the friction-drums $a' a^2$, mounted on the respective counter-shafts, the cable-drums $C C' C^2 C^3$, the carrying-cables $a^3 a^4 a^5 a^6$, having their shore ends secured to said cable-drums, the water end of the structure consisting of a number of piles and framing-timbers to which the outer ends of the carrying-cables are rigidly secured, and the dredging-buckets riding upon said cables, substantially as and for the purpose set forth.

2. In a dredging apparatus, the combination, with the shore framing-timbers, of the driving or power shaft B , provided with journal-bearings a , of the counter-shafts $B^3 B^4$, journalled below said power-shaft, the friction-drums $a' a^2$, mounted on said counter shafts, the cable-winding drums $C^4 C^5$, also mounted on said shafts, the pulling-cables $d' d^2$, and the piles $E E$, the guide-sheaves d^3 , the dredging-buckets, the cable d^4 , and the pulleys $d^5 d^6$, one end of said cables being secured to their respective winding-drums, while the opposite end is attached to the inner or front end of the dredging-buckets, substantially as and for the purpose set forth.

3. In a dredging-machine, the combination, with the power-shaft B and the friction driving-drums $B' B^2$, of the several counter-shafts arranged above and below said shaft B , the friction-drums mounted on said counter shafts, the cam-ring a^{10} , formed on the respective outer ends of said counter-shafts, the brake-blocks $b b' b^2 b^3$, and the lever or levers b^5 , whereby the friction-drums on the counter-shaft may be thrown into and out of contact with the companion drums on the power-shaft and the operation of the same fully controlled, substantially as and for the purpose set forth.

4. The combination, with a dredging-bucket, of the hinged drop-bottom d^b , the locking-bolt F , the socket-catch g , the spring g^4 , the cross-bar F' , the vertical levers $F^2 F^2$, and the tripping-arms F^3 , substantially as and for the purpose set forth.

MICHAEL ^{his} X GALLAGHER.
mark.

Witnesses:

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