

(No Model.)

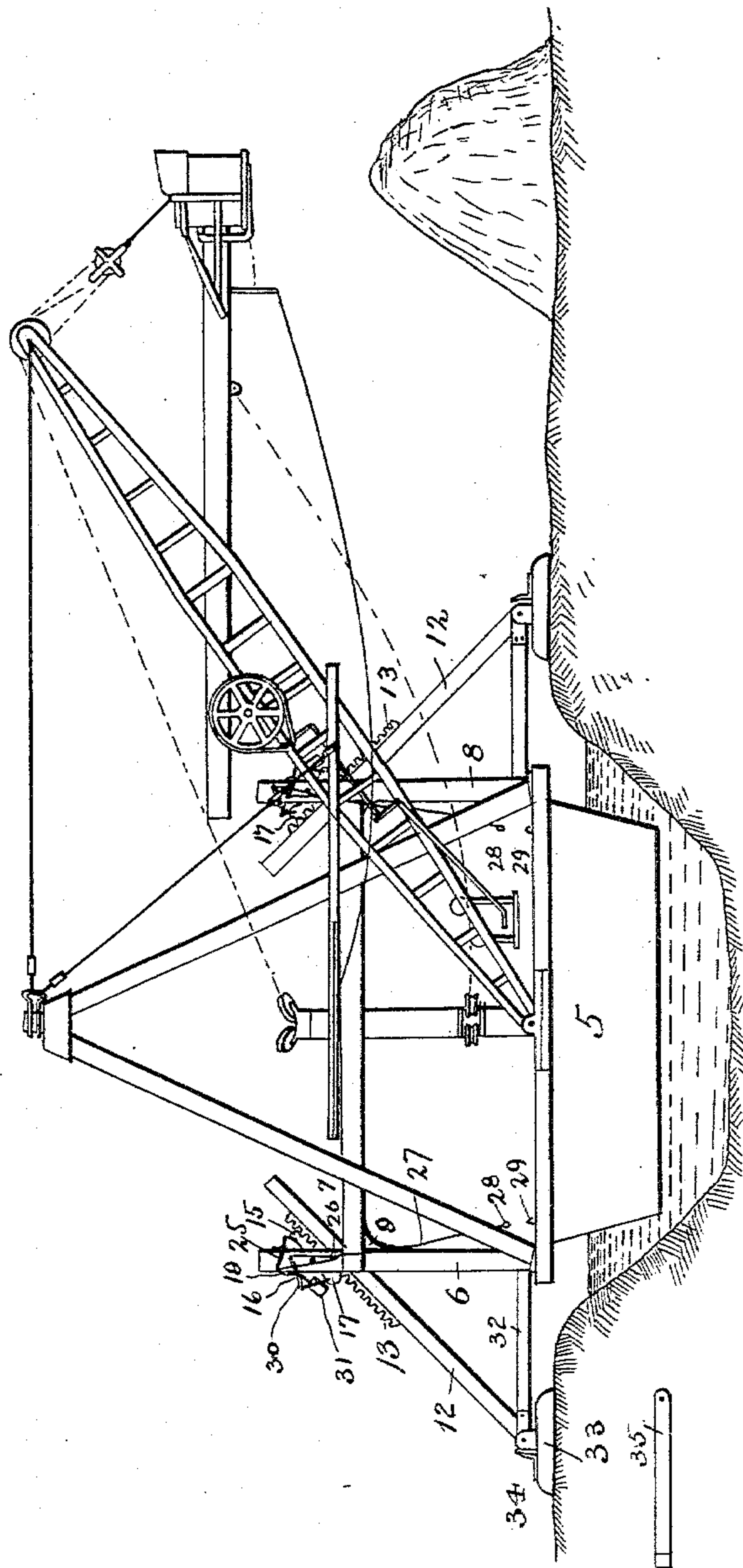
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G. H. NICHOLS.  
DREDGER.

No. 563,876.

Patented July 14, 1896.

*Fig. 1.*



Witnesses.

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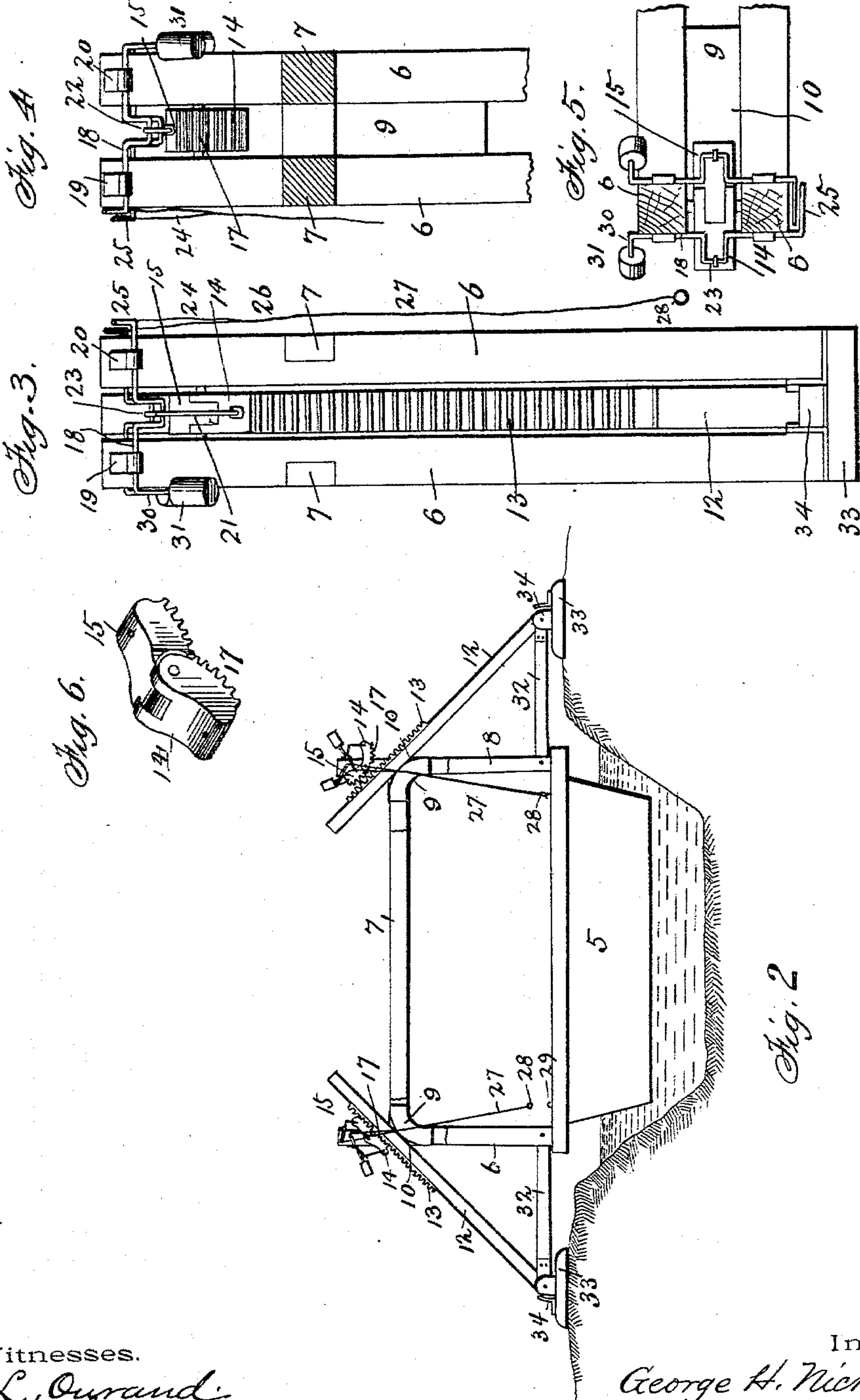
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# UNITED STATES PATENT OFFICE.

GEORGE H. NICHOLS, OF AKRON, OHIO.

## DREDGER.

SPECIFICATION forming part of Letters Patent No. 563,876, dated July 14, 1896.

Application filed April 28, 1896. Serial No. 589,404. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. NICHOLS, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Dredges; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to dredging-machines, and more particularly to that class used for irrigation and canal excavating; and the object is to provide a means for rigidly bracing the dredge laterally while it is at work; and to these ends the novelty consists in the construction, combination, and arrangement of the several parts of the same, as will be hereinafter more fully described, and particularly pointed out in the claim.

In the accompanying drawings the same reference-numerals indicate like parts of the invention.

Figure 1 is an end view of a dredge with my improved bank-spuds in position. Fig. 2 is a similar view, partly in section, with the retaining-pawls raised on the right-hand side to release the bank-spud and lowered on the left-hand side to lock the spuds on the bank. Fig. 3 is a side elevation of one of the bank-spuds. Fig. 4 is a detail view of the retaining-pawls and their operating devices. Fig. 5 is a sectional detail of the same, and Fig. 6 is a detached perspective view of the retaining-pawls.

5 represents the dredge-scow having the usual excavating derrick, lever, boom, and shovel, all of which are operated in the ordinary manner.

6 6 are uprights or stanchions connected near their tops by rigid cross-braces 7 7 to a similar pair of stanchions 8 8, and 9 is a knee-brace, one of which is located between each pair of stanchions with the cross-braces, as shown, and the upper face 10 of this brace 9 is semicircular and it forms a bearing for the bank-spud 12 at all points of its stroke. The lower face of the bank-spud, which rests upon and slides on the semicircular face of the knee-brace, is smooth, while its opposite parallel side is provided with a series of rack-teeth 13 for nearly its whole length.

Mounted immediately above the spud 12 and between the stanchions is a pair of gravity-pawls 14 and 15, hinged together by a rule-joint on a shaft 16. The face of each of these pawls is eccentric with the shaft 16, and their eccentric faces are provided with rack-teeth 17 of the same pitch as those on the bank-spud.

A double crank-shaft 18 is mounted in bearing-boxes 19 20 on the stanchions, and a pair of short pitmen 21 22 connect the outer ends of each pawl with the center pin 23 of the crank-shaft, and a short flexible cord 24 on the outer arms 25 of the crank-shafts are connected at a common point 26 to a down-rope 27, the end of which is provided with a ring 28, which at will can be detachably secured to the hook 29, secured to the deck of the dredge.

The opposite arms 30 of the crank-shaft 18 are provided with counterbalance-weights 31, which, taken in connection with the weight of the teeth of the pawls, serve to keep the pawls down into mesh with the teeth of the spud, as shown in the left-hand side of Fig. 2, and it will be seen that if the rope 27 be pulled down and the ring 28 secured to the hook 29 the pawls will be released from the spud, as shown in the right-hand side of the same figure. A pitman 32 is connected at one end to the spud at the point where it is hinged or pivoted to the ballast-block 33, and at its other end to the stanchions at a point a little above the deck, which serves to prevent the block 33 from spreading away from the dredge when the strain comes on the spud, and a bracket-shoe 34, rigidly secured to the top of the block, takes the strain from the end of the spud. These pitmen 32 are provided with extension-sections 35, which may be added to or taken from the pitman proper to preserve its relative horizontal position to the dredge, according to the width of the canal or ditch to be cut.

From the above description it will be seen that the application of these adjustable lateral bank-spuds to a dredge it is rendered as stable and firm in operation as if it was working on dry land, and they also dispense with the vertical spuds, which have to be driven down into the mud, and at best do not form a firm foundation for the dredge to work upon, but soon become loose and unstable.



Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

5 The combination with a dredge of the class described, of the stanchions 6, 6, provided with the semicircular-faced bracket, and the toothed gravity-pawls and their operating crank-shafts and cords, of the spud, provided with the rack-teeth, having its lower end piv-  
10 oted to a ballast-block, of the pitman con-

necting said spud and block to the stanchions, above described, substantially as and for the purpose specified.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

GEORG. H. NICHOLS.

Witnesses:

HENRY C. KRAUSE,

CHAS. BRENNER.