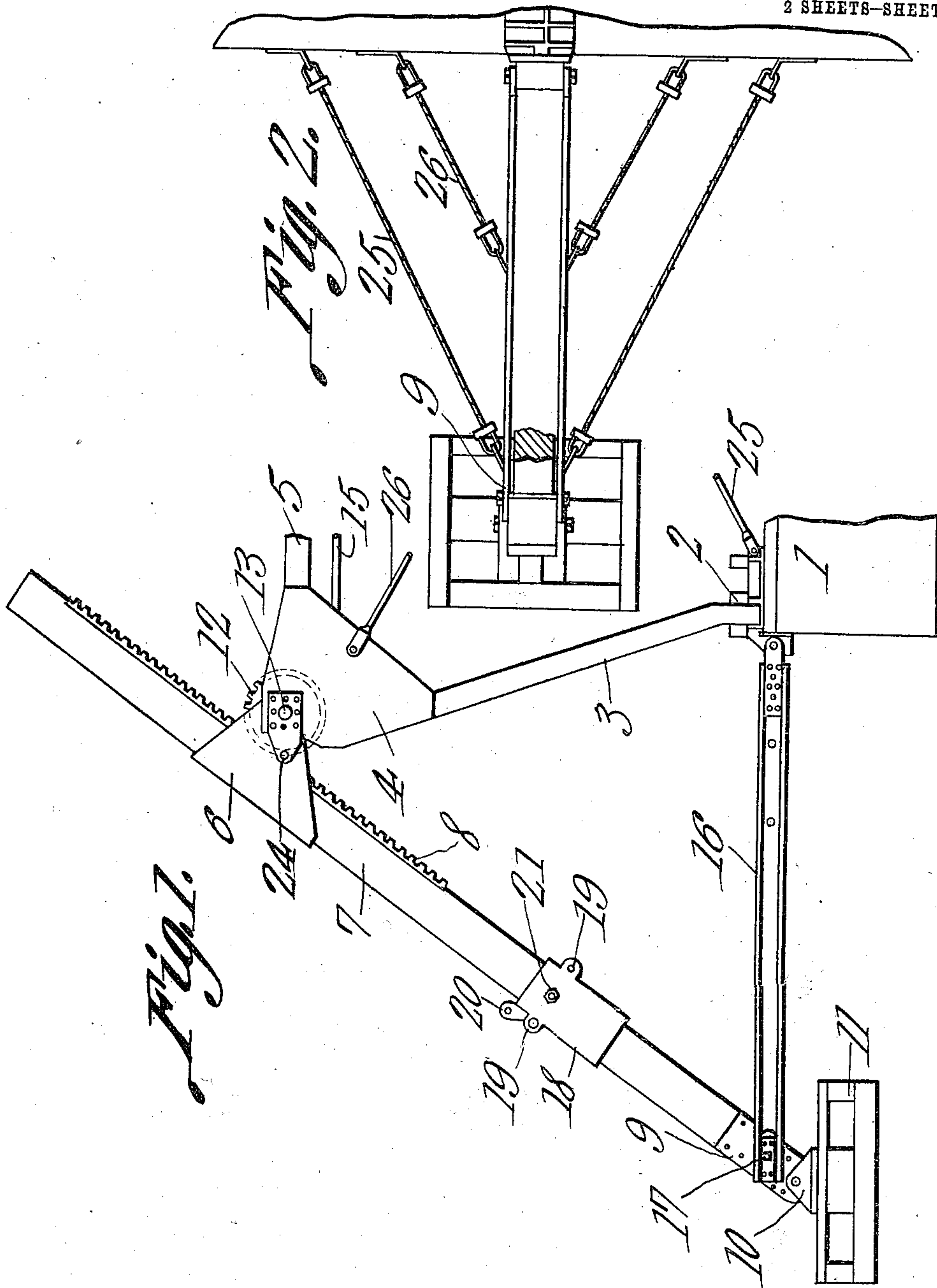


J. G. FAIRBANKS.
SPUD FOR EXCAVATING MACHINES.
APPLICATION FILED JULY 12, 1910.

989,898.

Patented Apr. 18, 1911.

2 SHEETS-SHEET 1.



Witnesses

J. G. Fairbanks
F. T. Chapman

James G. Fairbanks
Inventor

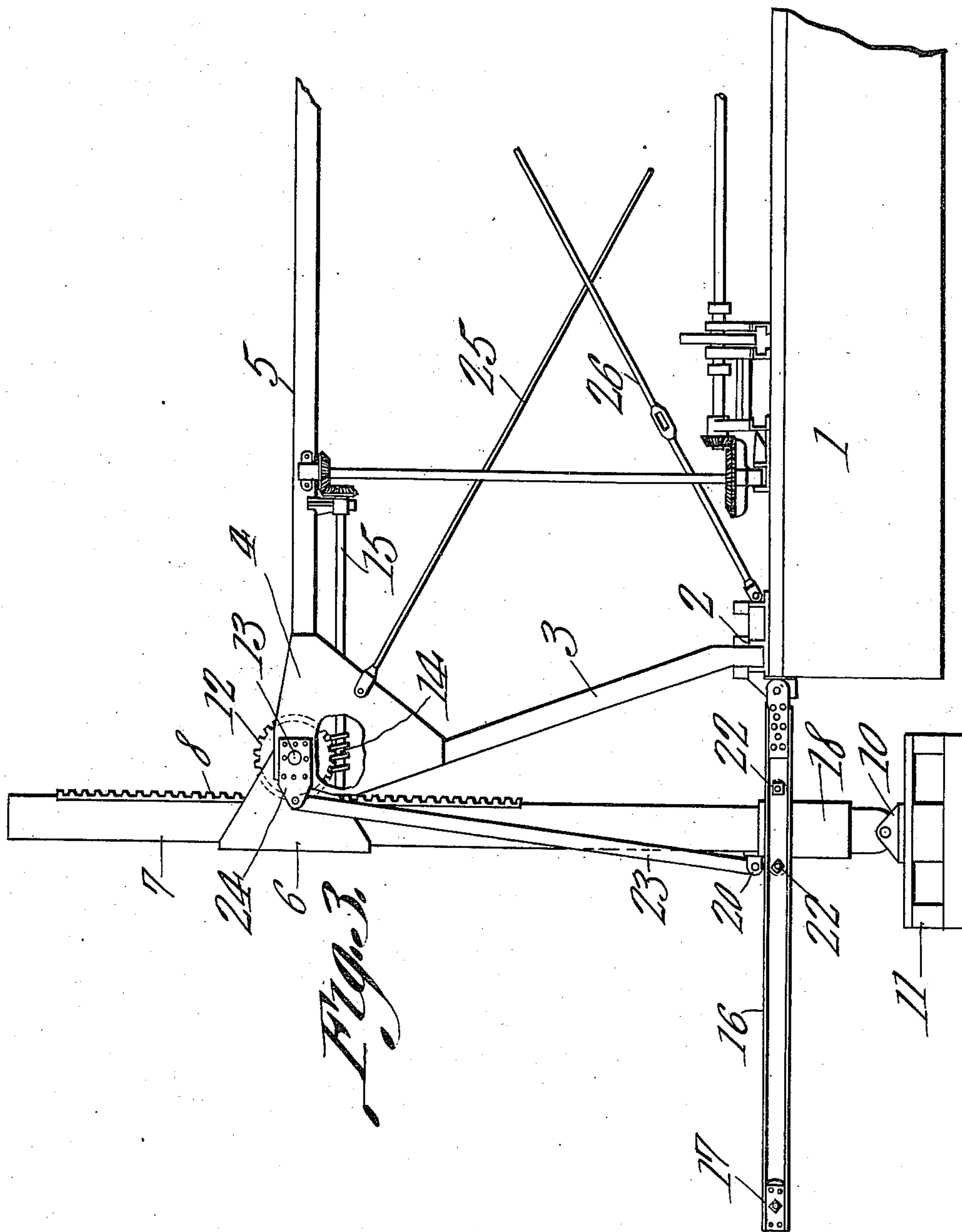
by *C. A. Snow & Co.*
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UNITED STATES PATENT OFFICE.

JAMES G. FAIRBANKS, OF MARION, OHIO.

SPUD FOR EXCAVATING-MACHINES.

989,898.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed July 12, 1910. Serial No. 571,625.

To all whom it may concern:

Be it known that I, JAMES G. FAIRBANKS, a citizen of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented a new and useful Spud for Excavating Machines, of which the following is a specification.

This invention has reference to improvements in spud mechanism for excavating machines and it is designed to provide a mechanism of this character equipped with both bank and vertical spuds.

It is customary to build the hull or scow of a dredging machine provided with bank spuds of a certain width for a certain capacity, but to equip a machine of the same capacity with vertical spuds it has heretofore been necessary to mount it on a hull of considerably greater width.

Attempts heretofore made to combine in one machine the vertical and the bank spuds, have failed on account of the narrowness of a hull built for bank spuds, or when the hull was made wide enough to be of proper proportions for the vertical spuds it became necessary to dig too wide a channel and handle much extra dirt, especially on the lateral ditches that are usually sold with the main ditch. This is avoided with the present invention whereby the spuds are so mounted as to be used upon a narrow or bank spud hull, either as bank spuds or vertical spuds.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,—

Figure 1 is an elevation viewed from one end of the machine showing the position of the spuds on one side of the machine when acting as bank spuds. Fig. 2 is a plan view of the structure of Fig. 1 showing but one spud and also showing the spud beam in section. Fig. 3 is an end view of the machine of Fig. 1 with the device changed to a vertical spud machine.

Referring to the drawings there is shown a hull or scow 1 which may be taken as typical of the ordinary dredging machine scow, and while in practice spuds are used at the opposite sides and if necessary at the four corners of the scow, but one spud will be considered for the sake of simplicity of description.

Secured to a plate or casting 2 at one side of the scow 1 is an upstanding and out-standing post 3 overhanging the side of the scow or hull 1 for an appropriate distance, and at the upper end of this post 3 there are secured spaced side plates 4 to which is connected a cross beam 5 extending to a like structure on the other side of the scow, but which being a duplicate of the one shown is not illustrated in the drawings.

Pivoted to the upper outer corner of the plates 4 is a guide or yoke 6 of suitable shape and size to be traversed by and hold a spud 7 in the form of a beam of appropriate size and length and having along one edge a rack bar 8. At the lower end of the spud beam 7 are plates 9 to which are pivotally secured ears 10 fast to a shoe 11 constituting the spud foot.

The spud-guide consisting of the yoke 6 holds the rack bar 8 against a gear wheel 12 mounted between the plates 4 on a shaft 13 constituting the pivot support for the yoke 6 so that when the latter is turned on the shaft 13 as an axis the rack 8 will remain always in mesh with the gear 12. The gear 12 may be driven by a worm 14 on a shaft 15 receiving motion from a suitable source of power mounted on the hull or scow 1. When the spuds are used as power bank spuds each spud beam 7 is held at a suitable inclination, with the spud foot 11 upon the bank, by a spud arm 16 which may be composed of two channel irons in parallel spaced relation as indicated at Fig. 2, this arm being pivoted at one end to the casting 2 and at the other end to the plates 9, being held to the latter by a bolt 17. The arm 16 acts as a spacing arm for the lower end of the spud 7 holding it in proper relation to the hull 1.

Carried by the spud 7 is a sleeve 18 forming a supplemental spud-guide, and provided near one end on opposite sides with ears 19 and at the same end with another ear 20 while a bolt 21 extending through the sleeve 18 and through the spud 7 holds the former normally to the spud in an inactive position when the spud is used as a bank spud.

When it is desired to convert the structure shown in Fig. 1 into a machine utilizing vertical spuds, the bolt 17 is removed and the spud 7 is permitted to assume a vertical position, after which the bolt 17 may be replaced in its first position with

relation to the arm 16. The bolt 21 is removed to allow the frame or casting 18 to drop into a position between the spud arm channels and then bolts 22 are passed through appropriate holes in the channels making up the arm 16 and through the ears 19. There is also provided a link 23 connected at one end to the ear 20 and at the other end to an ear 24 on one of the side plates 4, there being preferably such a link on each side of the spud 7.

The spud is braced against movement in the direction of the length of the scow 1 by spud guys 25, 26 secured at one end to the scow and at the other end to the spud arm 16. By mounting the spud support in overhanging relation to the sides of the scow and by mounting the spud in a guiding yoke movable concentric with the driving gear for the spud the latter may be used either as a bank spud or as a vertical spud by simply connecting the spud beam at an intermediate point of the spud arm 16 or at the end thereof in accordance with the character of use of the spud. When used as a vertical spud the sleeve or casting 18 is intermediate of the two channels composing the arm 16 and is bolted to these channels and constitutes a supplemental guide for the spud beam. When the device is used as a bank spud then the frame or casting 18 is not used and may be held to the spud beam for future use by the bolt 21.

The function of the links 23 is to support the sleeve or supplemental guide when the spud is being swung or angularly moved from one position to the other. It will be observed by reference to Fig. 1 that the sleeve is by the outward swinging movement of the spud beam raised to a position above the spud arm 16 and in position to be locked by the bolt or cross pin 21, before described. Again as the spud beam is swung downward to a vertical position as indicated in Fig. 3, the sleeve or supplemental guide is lowered relatively to the spud beam until it is in a position to be engaged with the spud arm to aid in guiding the spud beam in its vertical movement.

What is claimed is:—

1. A convertible bank and vertical spud mechanism for excavating machines, having a longitudinally movable spud, and an angularly movable spud guide overhanging the hull of the excavating machine.

2. A convertible bank and vertical spud mechanism for excavating machines, having a longitudinally movable spud, and a pivotal spud guide through which said spud extends, said guide overhanging the hull of the excavating machine.

3. A convertible bank and vertical spud mechanism for excavating machines, having a longitudinally movable spud, an angu-

larly movable spud guide overhanging the hull of the excavating machine, and spud depressing means occupying a fixed relation to the spud in all positions.

4. A convertible bank and vertical spud mechanism for excavating machines, having a longitudinally movable spud, an angularly movable spud guide overhanging the hull of the excavating machine, and spud elevating means occupying a fixed relation to the spud in all positions.

5. A convertible bank and vertical spud mechanism for excavating machines, having a longitudinally movable spud, an angularly movable spud guide overhanging the hull of the excavating machine, and spud actuating means carried by the guide.

6. In an excavating machine, a longitudinally movable spud, a support therefor in overhanging relation to the hull of the machine, and a yoke pivotally connected to the overhanging support and traversed by the spud.

7. In an excavating machine, a longitudinally movable spud, a rack bar thereon, a support for the spud overhanging the hull of the machine, a yoke pivotally connected to the overhanging support and traversed by the spud and rack bar thereon, and driving gear for the rack bar in concentric relation to the pivot support of the yoke.

8. A convertible spud mechanism for excavating machines, having a longitudinally and angularly movable spud and means for guiding the same, including a supplemental spud guide shiftable in position with the spud, means for securing the supplemental spud guide in fixed position, and actuating means for the spud.

9. A convertible spud mechanism for excavating machines, having a longitudinally and angularly movable spud and means for guiding the same including a supplemental spud guide, shiftable in position with the spud, a swinging link connecting the supplemental spud guide with fixed supporting means, means for securing the supplemental spud guide in fixed position and actuating means for the spud.

10. A convertible spud mechanism for excavating machines, having a longitudinally and angularly movable spud, a spud arm, guiding means for the spud including a supplemental spud guide shiftable in position with the spud, means for securing the supplemental spud guide in a fixed position with reference to the spud arm, and actuating means for the spud.

11. A convertible spud mechanism for excavating machines, having a longitudinally movable spud, an angularly movable main spud guide, located in an overhanging position with reference to the spud supporting means, a supplemental spud guide shiftable

in position with the spud, means for securing the supplemental spud guide in a fixed position, and actuating means for the spud.

12. In an excavating machine, a longitudinally movable spud, a rack bar thereon, a support for the spud in overhanging relation to the hull of the vessel, a pivoted yoke carried by the support and traversed by the spud and the rack bar thereon, gearing connections concentric with the pivot support of the yoke and meshing with the rack bar,

an arm for spacing the lower end of the spud from the hull of the machine and a guide for the spud adapted to be connected to the spacing arm.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES G. FAIRBANKS.

Witnesses:

E. J. FILIATRAULT,
C. W. FAIRBANKS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
