S. R. W. M. BAGER.

BANK SPUD.

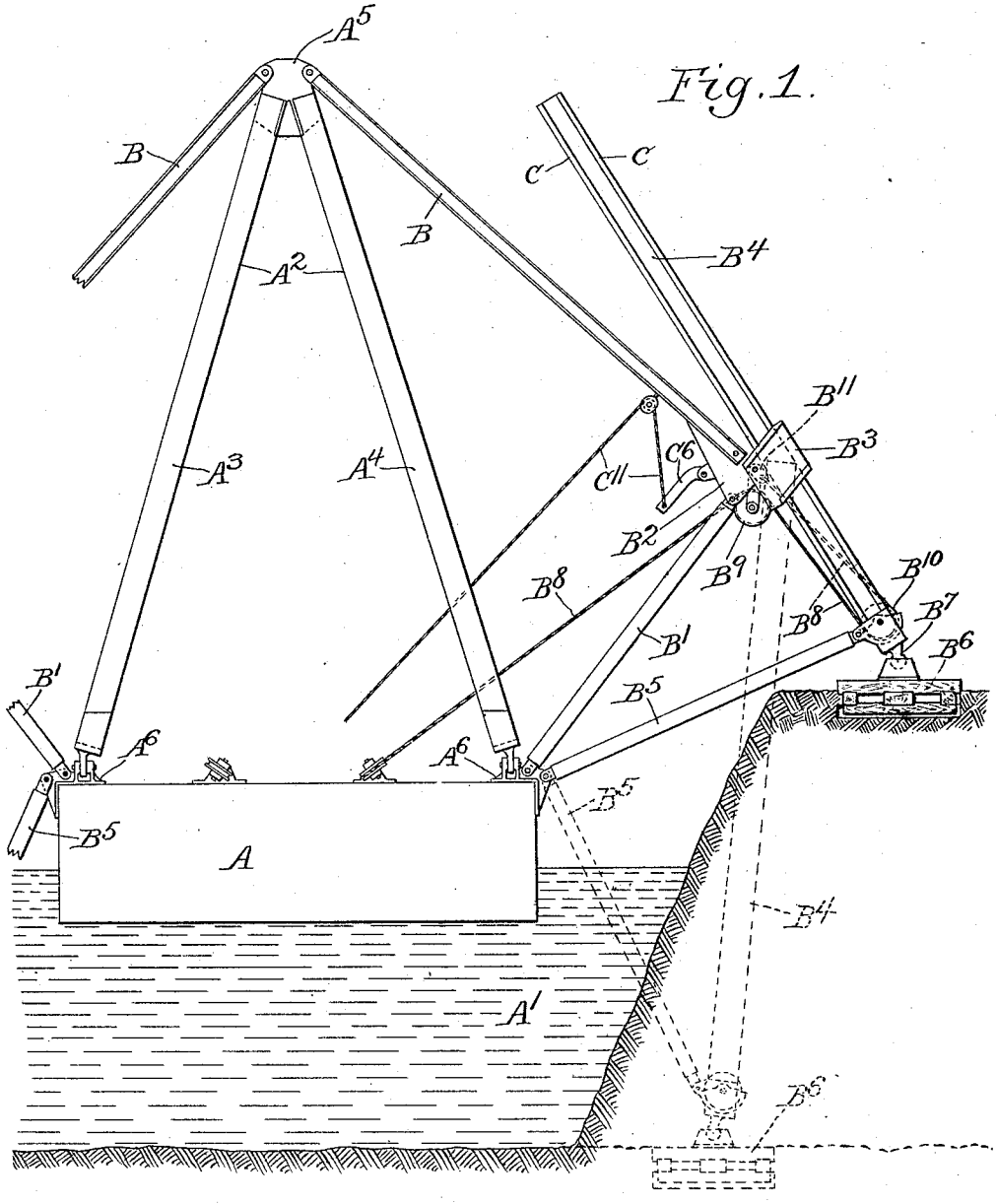
APPLICATION FILED APR. 2, 1917.

1,307,574.

Patented June 24, 1919.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
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2 SHEETS—SHEET 2.

Fig. 3.

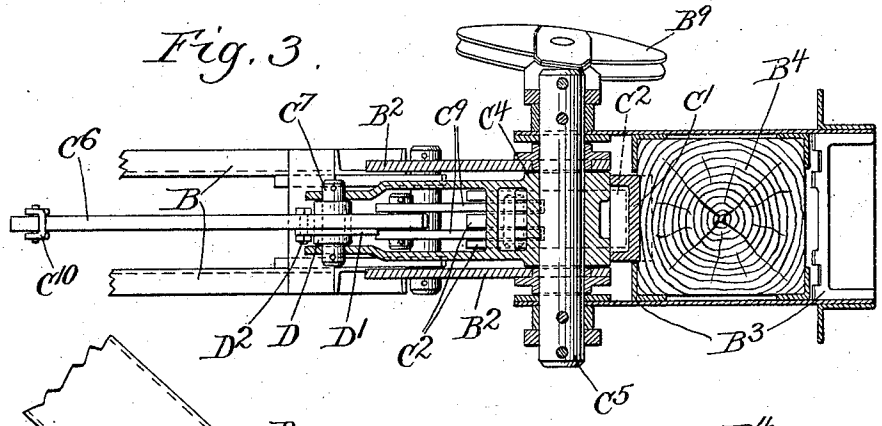
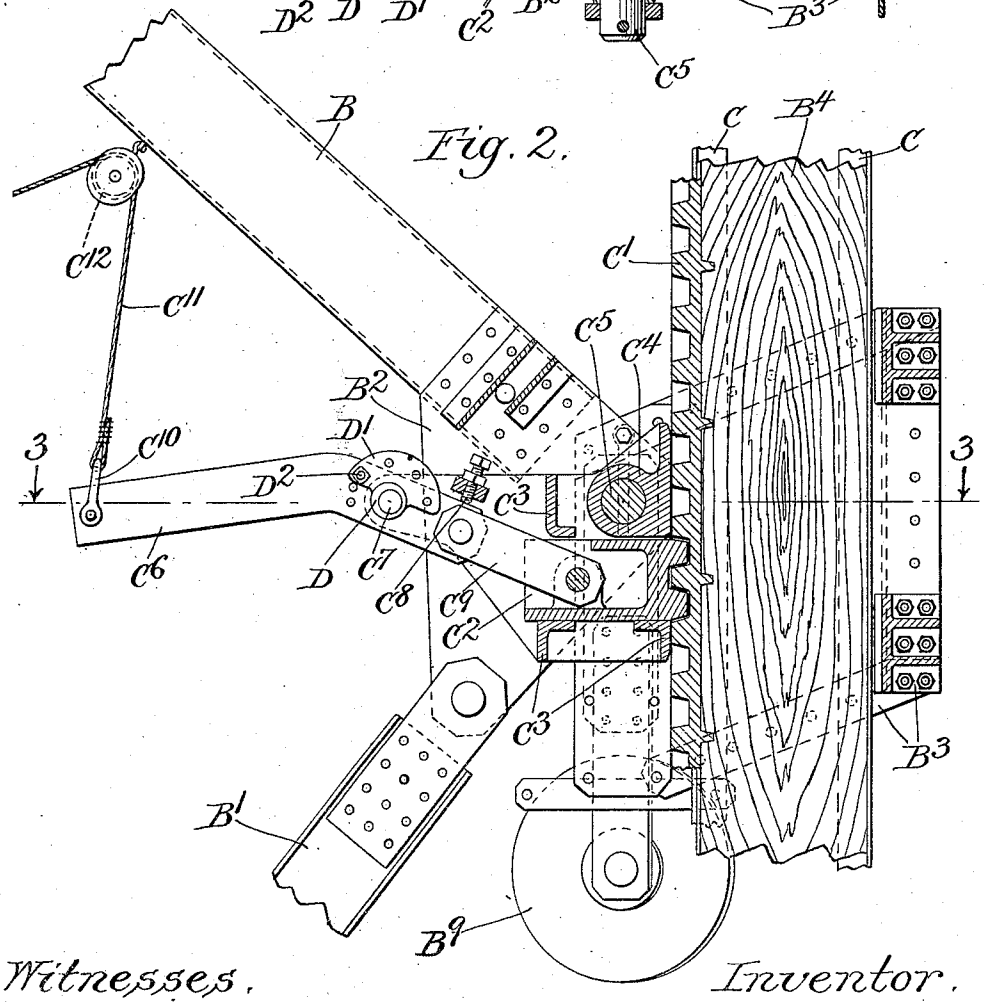


Fig. 2.



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UNITED STATES PATENT OFFICE.

SVANTE R. W. M. BAGER, OF SOUTH MILWAUKEE, WISCONSIN, ASSIGNOR TO BUCYRUS COMPANY, OF SOUTH MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

BANK-SPUD.

1,307,574. Specification of Letters Patent. Patented June 24, 1919.

Application filed April 2, 1917. Serial No. 159,078.

To all whom it may concern:

Be it known that I, SVANTE R. W. M. BAGER, a citizen of the United States, residing at South Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Bank-Spuds, of which the following is a specification.

My invention relates to improvements in bank spuds such as may be used in connection with dredges and other types of excavators. One of the objects of my invention is to provide a bank spud which may also be used in substantially the same manner as the ordinary type of vertical spud. Another object is to provide a bank spud and supporting guiding and controlling means of unusual strength and rigidity. Another object is to provide such a connection between a bank spud and its anchorage as to distribute the load symmetrically over the dredge and particularly to apply a large portion of the load to the main A frame which supports the excavating member. Another object of my invention is to provide in combination with the dredge and the spud, three adjacent triangular panels one of them comprising a main A frame erected on the dredge, another comprising an auxiliary spud supporting A frame erected upon one leg of the main A frame at its base, and a third a triangular A frame made up of one leg of the auxiliary A frame, the spud and a guiding and pivoting leg. Other objects are to provide a new and improved form of controlling and locking means for the spud. Other objects will appear from time to time in the specification. My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein

Figure 1 is a front elevation of a dredge with parts omitted showing my invention applied thereto;

Fig. 2 is a detail on an enlarged scale, part in section and part in elevation, showing the spud locking and part of the spud controlling means;

Fig. 3 is a section along the line 3—3 of Fig. 2.

Like parts are indicated by similar letters in all the figures.

A is the usual type of dredge scow adapted to float in the water in the excavation for a channel A^1. Mounted on the forward end of the scow is the A frame structure A^2 adapted to support the usual type of excavating apparatus not here illustrated because it forms no part of my invention. This A frame structure is made up of the two side legs A^3, A^4, joined together at their upper apex by a tie plate A^5 and pivoted at their lower ends on brackets A^6 on the upper deck of the scow, so that the A frame may rotate in a plane, that is, in a vertical plane parallel with the axis of the scow.

Erected upon the leg A^4 of the main A frame is a spud A frame made up of the legs B, B^1. The leg B is rigidly attached to the plate A^5 at one end and to a gusset plate B^2 at the other end. The leg B^1 is attached at one end to the bracket A^6 on the deck of the scow, at the other end to the gusset plate B^2 so that we have two A frames or triangular frames side by side in fixed relation one with another, having one common side. B^3 is a stirrup pivoted on the gusset plate B^2, and it contains the spud B^4 slidable therein. B^5 is a movable guiding leg pivoted at one end on the bracket A^6 on the scow, at the other end pivoted on the lower end of the spud B^4. B^6 is a supporting frame made up of a crib of wood or other similar structure adapted to support pressure upon the surface of the ground alongside the cut or at the bottom of the channel. It is connected to the end of the spud B^4 by means of a ball and socket joint B^7 as shown. B^8 is a hoisting cable leading from a suitable source of power on the scow not here shown, passing up over a sheave B^9 suspended from the gusset plate B^2, down over a sheave B^{10} on the end of the spud, back up to an anchor link B^{11} on the gusset plate B^2.

The spud is reinforced in the usual manner by the angles C at the corners, and it is provided along the side toward the dredge with a rack C^1. C^2 is a dog slidable in guides C^3 on the stirrup B^3, provided with a sleeve C^4 adapted to engage the rack C^1. It will be noted that the bearing sleeve C^4 which contains the pin C^5 upon which the stirrup is pivoted, forms a part of the guide for the dog C^2. C^6 is a control lever, pivoted on the pin C^7. It is adapted normally to rest against at its free end the adjustable stop C^8 whereby its rotation in a counter clockwise direction is limited. C^9 is a link

interposed between the free end of the lever C^6 and the dog C^2. C^{10} is a shackle upon the working end of the lever C^6 connected to a cable C^{11} passing over a sheave C^{12} on the A frame leg B, and thence leading down to the operator's position on the dredge, whereby the lever may be rotated and the dog moved back and forth to lock and unlock the spud.

D is an eccentric bushing surrounding the pin C^7 provided with a locking flange D^1. This locking flange is perforated as indicated, and a bolt D^2 is provided. It may pass through one or other of these perforations to change the pivot point of the lever by rotation of the eccentric bushing, thus providing a takeup for wear and adjustment in operation or in assembly of the device.

It will be evident that while I have shown in my drawings an operative device, still many changes might be made both in size, shape and arrangement of parts without departing materially from the spirit of my invention. I wish therefore that my drawings be regarded as in a sense diagrammatic.

The use and operation of my invention are as follows:—

When the dredge is erected with the main A frame in position and the excavating machinery attached to and suspended thereby and communicating therewith, the auxiliary spud supporting A frame is also erected in such manner as to form two rigid triangles having one common side. This furnishes a rigid integral permanent support upon which the spud may be pivoted. This pivot point, of course, is the apex of the small spud A frame, and projects out overhanging the side of the barge. The stirrup which is to guide and support the spud, is pivoted at this point, the spud itself being free to move back and forth through the stirrup controlled only by the hoisting line which passes around the sheave adjacent to such a stirrup and is anchored on the stirrup and is connected to the spud by the sheave at the end thereof in the bight of the line. Of course the winch on the scow will be operated to raise and lower the spud, the spud being permitted to fall by gravity and controlled in its fall by the brake at the winch. The stiffness of the A frame and suitable stay and guide members not here shown or illustrated will of course prevent the spud from swinging in any except the plane generally perpendicular to the axis of the scow. The pivot arm connecting the lower end of the spud and the barge, of course, limits the movement of the end of the spud to a circle, as shown in dotted lines about the pivot point of the arm or leg on the scow. The path or supporting platform on the end of the spud, of course operates to press against the surface wherever desired, either at the bottom of the excavation or on the side, and thus the spud can operate both as a bank spud or as an ordinary vertical spud.

In order that the spud, once its position has been assumed, may be positively locked, so that pressure may be applied to it, and so that it will steady the scow in operation, the rack is provided along the inner side of the spud. The dog engaging the rack normally is thrust into engagement thereby by the weight of the lever arm, and when this dog is in engagement with the rack there is no possibility of longitudinal movement of the spud, because the dog is so stiffened and reinforced, that the longitudinal pressure of the spud will not tend to move the dog, and the spud is rigidly held in position. When the spud is to be manipulated, the operator will pull on the cord, lifting the lever, and operating the connecting link to draw the dog out of engagement with the rack. The hoisting engine can then be operated to raise or lower the spud, and when the spud has reached its proper position, the dog will again be operated or at least permitted to operate to lock the spud in position.

I claim:

1. A dredge having a main A frame, a spud supporting A frame erected on one leg thereof one member of said spud supporting frame being a compression member pivoted to the apex of the main A frame, a spud carried by said spud supporting frame.

2. A dredge having a main A frame, a spud supporting A frame erected on one leg thereof one member of said spud supporting frame being a compression member pivoted to the apex of the main A frame, a spud carried by said spud supporting frame, said spud carrying frame occupying approximately the length of one leg of the main A frame.

In testimony whereof, I affix my signature in the presence of two witnesses this 29th day of March 1917.

SVANTE R. W. M. BAGER.

Witnesses:
E. J. WILKIE,
W. PLEHN.

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