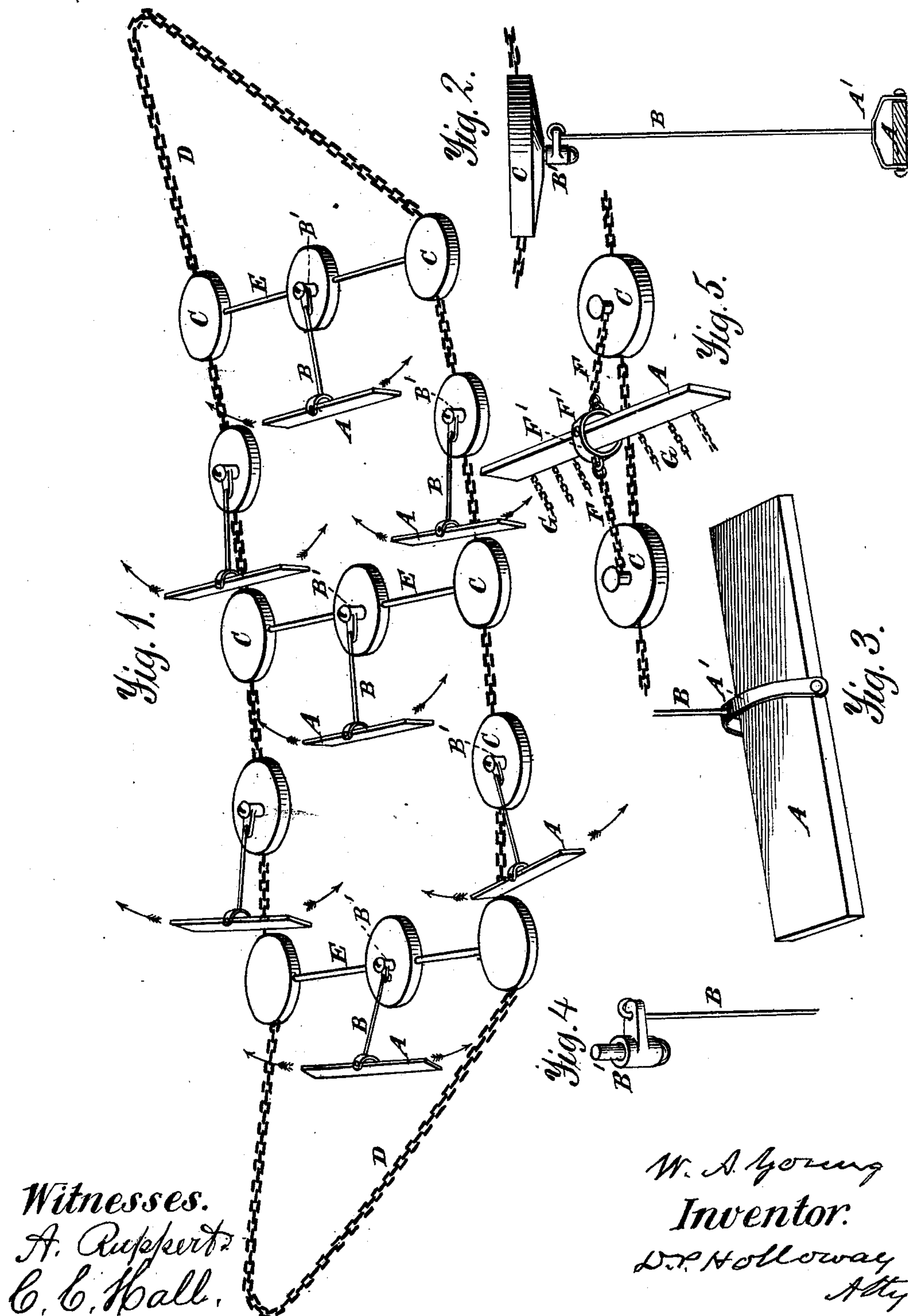


W. A. YOUNG.
Dredging Apparatus.

No. 235,190.

Patented Dec. 7, 1880.



Witnesses.
A. Rupert
C. C. Hall.

W. A. Young
Inventor.
D. P. Holloway
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM A. YOUNG, OF JACKSONVILLE, FLORIDA.

DREDGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 235,190, dated December 7, 1880.

Application filed February 2, 1880.

To all whom it may concern:

Be it known that I, WILLIAM A. YOUNG, of Jacksonville, in the county of Duval and State of Florida, have invented certain new and useful Improvements in Dredging Apparatus; and I do hereby 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to a dredging apparatus to be used in rivers or at points in deep water where there is a tide, it being designed to be anchored in rivers or other streams where there is a current, or at points where there is a current caused by a rising or falling tide, which causes a change in the direction of the current, and directly over sand-bars or earth-banks which it is desirable to remove, the object being to agitate and loosen the sand or other forms of earth, so that it may be carried away by said current and deposited in deep water, where it will not obstruct navigation. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the entire apparatus, showing a chain cable for uniting the parts together, floating agitators for being operated upon by the current, rods or chains for uniting the anchors, a series of which are shown, and a series of floating agitators. Fig. 2 is an elevation of one of the floating agitators at rest, showing how the cable passes through the anchor, and showing also a rod to which the floating agitator is attached, and by which it is connected to the anchor, and one such anchor. Fig. 3 is a perspective view, showing one of the floating agitators, the band by which the rod is attached thereto, and a portion of such rod. Fig. 4 is an enlarged view, showing a socketed arm which connects said rod to the anchor; and Fig. 5 is a plan view, showing one of the floating agitators, two anchors, a portion of the chain cable, chains for connecting the floating agitator to the anchors, and chains or other flexible pendant substances attached to the agitators for

the purpose of aiding in causing a sweeping motion to be given by the agitators.

In constructing devices of this character I use a floating agitator, A, of any desired dimensions, which may be made of wood, of sheet metal and hollow, or of any other substance suitable for causing it to float or have a tendency to rise in water. To this floating agitator there is attached a bail or band of metal, A', which is secured thereto by a bolt or rivet, upon which said agitator can swing, so that it will always present its greatest surface to the action of the current.

To the middle portion of the bail A' there is attached a rod or chain, B, the length of which is to be varied according to the depth of the water and force of the current where it is placed, it being desirable to have a greater length of rod or chain and a decreased size of floating agitator in a rapid current, and a decreased length in shallow water, and an increased size of floating agitator in a sluggish current.

The outer end of the rod or chain B is connected with anchor C, as shown in Fig. 2, the connection being made—when a rod is used—by means of a socket or sleeve, B', it having a central opening, through which a bolt passes for uniting it to the anchor, and an arm, through which—when a rod is used—it may be connected to the sleeve.

When a chain is used in place of the rod B the sleeve may be dispensed with, and the chain extending from each face of the agitator attached to an eyebolt passing through the anchor.

The device as already described, or any number of them, may be placed in any position desired where the action of the current of a stream of water, the tide, or waves will cause the agitators to be moved so as to cause the sand or other form of earth to be stirred up and carried away with the current.

I have thus far described my apparatus as consisting of a single anchor, rod, or chain and floating agitator, or a series of them disconnected, but placed in such relation to each other as to have the desired effect. I prefer, however, in practice, to unite several of them by a chain or cable, as shown in Fig. 1, and to connect each one of them with the cable D,

which may be of any desired length and of any number of strands or parts, and may have attached to it any number of anchors C, for preventing it from sinking into the sand and
 5 for holding it in position, and it may also have connected with it any desired number of floating agitators.

When constructed as last described the cable is anchored in a stream of water, or in any position where there is a current, its greatest
 10 length being in a line with the current or across it, as may be found most convenient.

For the purpose of making this device more effective, I propose to run rods or chains E
 15 from the anchors C which are on one branch of the cable to those that are upon the other or others and attach thereto additional anchors, chains, or rods and floating agitators.

When the apparatus is to be used in streams
 20 of water or in positions where the current is direct I propose to attach the floating agitators A to two anchors, C, or to the cable D or rods E, which will have the effect to allow the agitators to vibrate across the current, and
 25 thus agitate or stir up the sand, and at the same time prevent them from rising too high in the water, and thus obstruct navigation, as well as enable the placing of a greater number in a given area of space.

When the agitators A are connected to the
 30 anchors at two points, as last described, chains or other flexible substances F are used for the connections, they being united with the agitators by means of bails F' F' or rings, which
 35 are secured thereto by a bolt passing through said agitators, and upon which the bails and the agitators turn, so that as the direction of the current varies the last-named parts may assume the angular positions shown in Fig. 1, or
 40 any other position made necessary by such changes of the current.

I have shown in Fig. 5 as attached to the

agitator A pendants G G, which may consist of pieces of chain, wire-rope, or any other substance that will have the effect to agitate the
 45 sand as the floating agitator is changed in its position by the currents.

The anchors C, above alluded to, may be made of wood or of iron and of any desired form, they having an opening formed in them
 50 for the passage of the cable D. The office of these anchors is, first, to prevent the cable from being buried in the earth at the bottom of the stream or at the place where it is located, and, secondly, to serve as an anchor for
 55 the floating agitators, by which they are kept in their proper positions. Where a heavy cable is used these anchors may advantageously be made of wood, under which circumstances some movement will be imparted to
 60 them, so that to the extent of such movement they will tend to loosen the earth upon which they rest, thus aiding the floating agitators in doing their work. If a light cable is used, it may, and probably will, be found advisable to
 65 make the anchors, or a portion of them, of iron, so that they may aid in keeping the cable in its proper position.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, 70 is—

In an automatically-operating dredging apparatus, the combination of the cables D, the anchors C, the transverse rods or chains E, and a suitable floating agitator, the parts being
 75 arranged substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of January, 1880.

WILLIAM A. YOUNG.

Witnesses:

A. RUPPERT,
 GEO. F. GRAHAM.