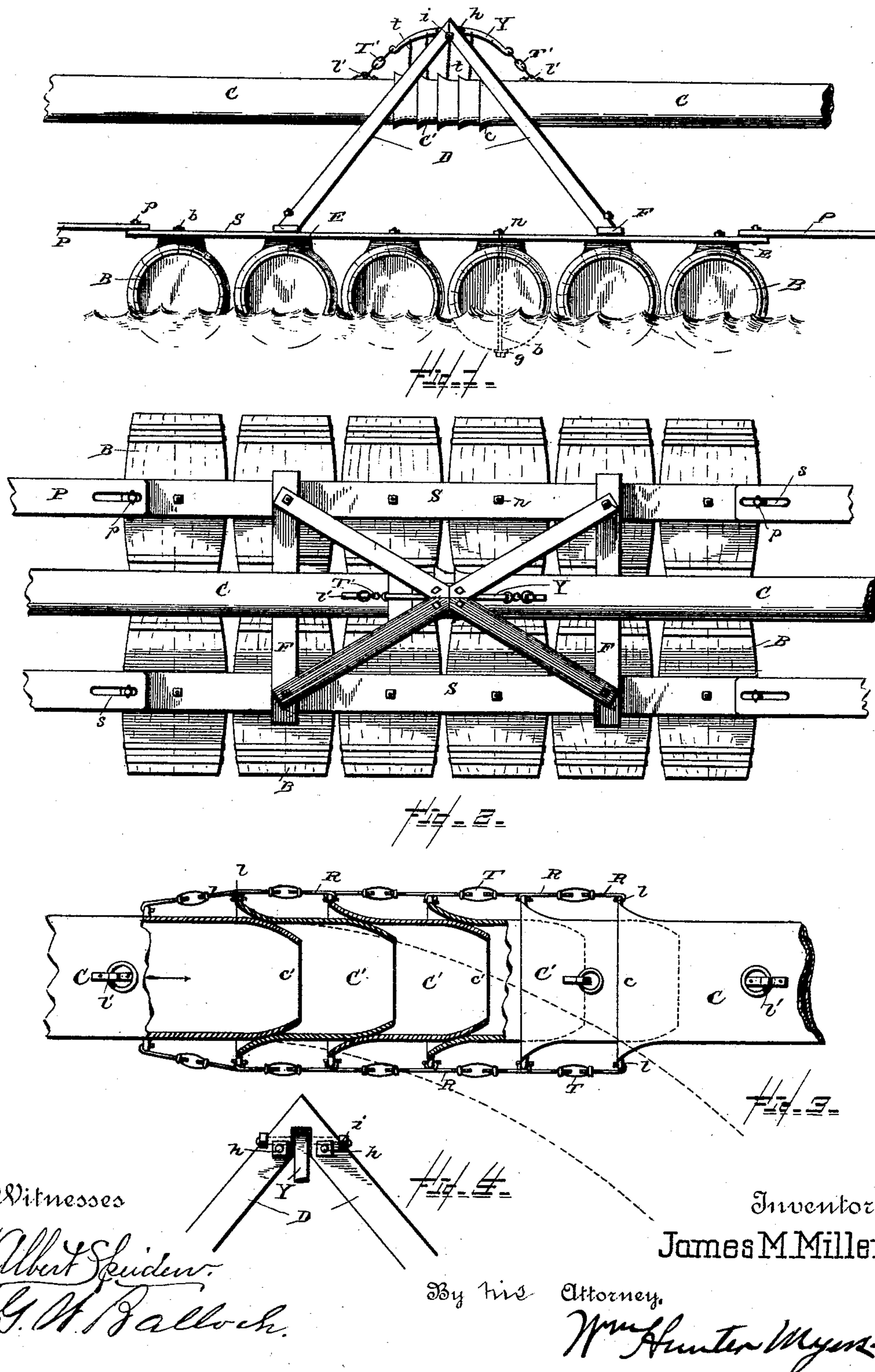


(No Model.)

J. M. MILLER.  
HYDRAULIC DREDGING APPARATUS.

No. 410,801.

Patented Sept. 10, 1889.





# UNITED STATES PATENT OFFICE.

JAMES M. MILLER, OF WASHINGTON, DISTRICT OF COLUMBIA.

## HYDRAULIC DREDGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 410,801, dated September 10, 1889.

Application filed April 15, 1889. Serial No. 307,267. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. MILLER, a citizen of the United States of America, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Hydraulic Dredging Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to hydraulic dredging; and it has for its object to provide cheap, simple, and effective means whereby the dredged material may be conveyed from the pump on the barge to the place selected for deposit.

The invention will first be described in connection with the accompanying drawings, and then pointed out in the claims.

Figure 1 of the drawings is a side elevation of one of the pontons and a portion of the flexibly-jointed conduit suspended thereon. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged sectional view of a portion of the conduit, illustrating the manner of making the flexible joints. Fig. 4 is a detail view showing the manner of pivoting the suspension-yoke.

In hydraulic dredging in rivers, bays, &c., the conduit leading from the pump on the barge to land is generally carried by a series of pontons or floats, as is well understood, and in order that it may adapt itself to the rising and falling and other movements of the pontons or floats the conduit is provided with flexible joints.

The ponton which I have devised for the above-stated purpose is of very simple and cheap construction, as will be seen on referring to Figs. 1 and 2 of the drawings, wherein—

B represents a series of barrels—such, for instance, as whisky or oil barrels—laid side by side and in two or more rows. On the middle portion of the upper side of each of these barrels I secure a block E, concave on its under side, so as to fit closely, and flat on top to afford a bearing for the stringers S, which are planks of sufficient length to span all the barrels in the ponton. The blocks E may be firmly secured to the barrels and the stringers S secured to the blocks; but I prefer to secure all these parts together by passing a headed bolt b, provided with a gasket g, (to prevent

leakage,) through the barrel, the block, and the stringer, as seen in dotted lines in Fig. 1, and fasten it by a nut n. The stringers are connected by cross-pieces F, from which rise four posts, whose upper ends meet over about the center of the ponton and are secured together by bolts h and the yoke pivot-bolt i, as seen in Fig. 4, forming the yoke-supporting frame D.

The conduit is composed of long sections C of iron pipe, each having a flaring bell-mouth at one end, as at c, while the other end of the section is reduced in diameter, as at c', the radius of the curve of this inwardly-bent portion corresponding to the radius of the curve of the outwardly-curved or bell-mouthed portion. By placing the inwardly-bent or male end of one pipe-section within the bell-mouth or female end of another pipe-section a flexible joint is produced which will be sufficiently tight for the purposes of a dredge-conduit, as the dredged material is designed to pass through the pipe in the direction of the arrow. As a single joint, as above described, would, however, permit of but limited flexure, I interpose between the sections C a number of short sections C', of the same general construction as the long ones, as clearly shown in Fig. 3, by which means the conduit may be given any required degree of flexibility. When the sections C and C' are put together in this manner and the conduit is given a bend, as in passing up a river-bank, some means must be resorted to for holding the sections in the bent position. For this purpose I employ rods R, which are hooked at one end for taking into lugs l on the bell-mouth ends of the sections and screw-threaded at the other end, the screw-threaded ends being engaged by turn-buckles T. These rods are on two opposite sides of the pipe-sections, so that when the conduit is bent the rods on one side of the bend may be drawn in or shortened, while those on the other side are to be let out or lengthened.

The conduit is suspended from the frame B by means of a yoke Y, pivoted on the bolt i, the yoke being connected to the sections C C' by turn-buckles T', one at each end, which engages with a lug l' on each of said sections, and by means of which the parts of the con-



duit may be drawn tightly together. The short pipe-sections C' are connected with the yoke by means of chains *t*, which are secured to lugs on said sections and to the yoke. This yoke may be of any desired form, so long as it is adapted to swing in its supporting-frame and permit of the attachment of the sections by turn-buckles and chains, as above explained; but in the present instance I have shown it in the general form of a bow, as seen in Fig. 1.

By so constructing and placing the frame D that the yoke may be pivoted some distance above the middle portion of the ponton and suspending the conduit from the yoke I attain a very desirable result, in that no matter how much the ponton may be caused to rock by the waves the conduit will always maintain a horizontal position throughout its length, which would not be the case were the yoke located at or near the end of the ponton.

It will be understood that there is to be a ponton wherever the pipe-sections C are joined, and these pontons are connected by planks P, slotted, as at *s*, at each end, through which slots pass turn-buttons *p* on the ends of the stringers S.

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

1. A ponton having an upright frame, a yoke pivoted in the upper portion of said frame, a flexibly-jointed conduit provided on its upper side with lugs, and suitable links connecting the ends of the yoke with said lugs, substantially as described.

2. A ponton having a centrally-located upright frame, a yoke pivoted in the upper portion of said frame, a conduit flexibly jointed

beneath said yoke, and suitable links connecting the ends of the yoke with the conduit on each side of the joint, all combined substantially as described.

3. A ponton having an upright frame whose top portion is over the central part of the ponton, a yoke pivoted in said frame longitudinally of the ponton, a flexibly-jointed conduit provided on its upper side with lugs, and turn-buckles connecting the ends of the yoke with said lugs, whereby the conduit is suspended and its joint may be tightened, substantially as described.

4. A flexibly-jointed conduit made of sections of pipe, each section being inwardly bent or curved at one end to reduce its diameter and outwardly-curved or bell-mouthed at its other end, the reduced or male end of one section fitted within the bell-mouth or female end of another section, in combination with a ponton having an upright frame, a yoke pivoted in the upper part of said frame, and means for connecting the sections with the yoke, for the purposes stated.

5. A flexibly-jointed conduit made of sections of pipe each having a male and a female end, as described, the male end of one section fitted within the female end of another section, and rods carrying turn-buckles connecting the sections, substantially as described, and for the purpose stated.

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

JAMES M. MILLER.

Witnesses:

G. W. BALLOCH,  
WM. HUNTER MYERS.