

No. 753,217.

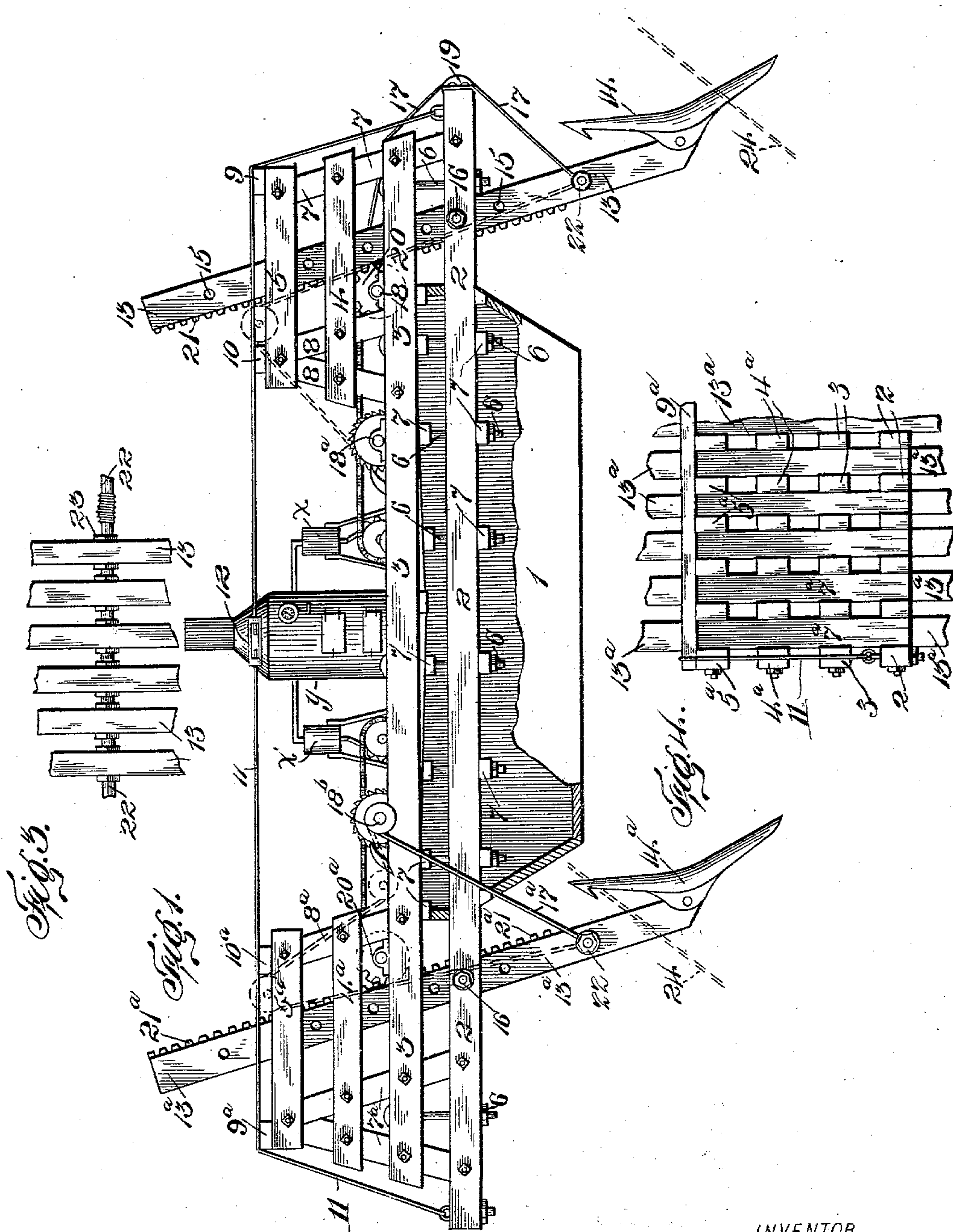
PATENTED MAR. 1, 1904.

E. H. ALLMAN.  
MEANS FOR REMOVING SAND BARS.

APPLICATION FILED JUNE 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:  
*Wm. C. McKenzie*  
*Amos W. Hart*

INVENTOR  
*Eugene H. Allman*  
BY *Munn & Co.*

ATTORNEYS.

No. 753,217.

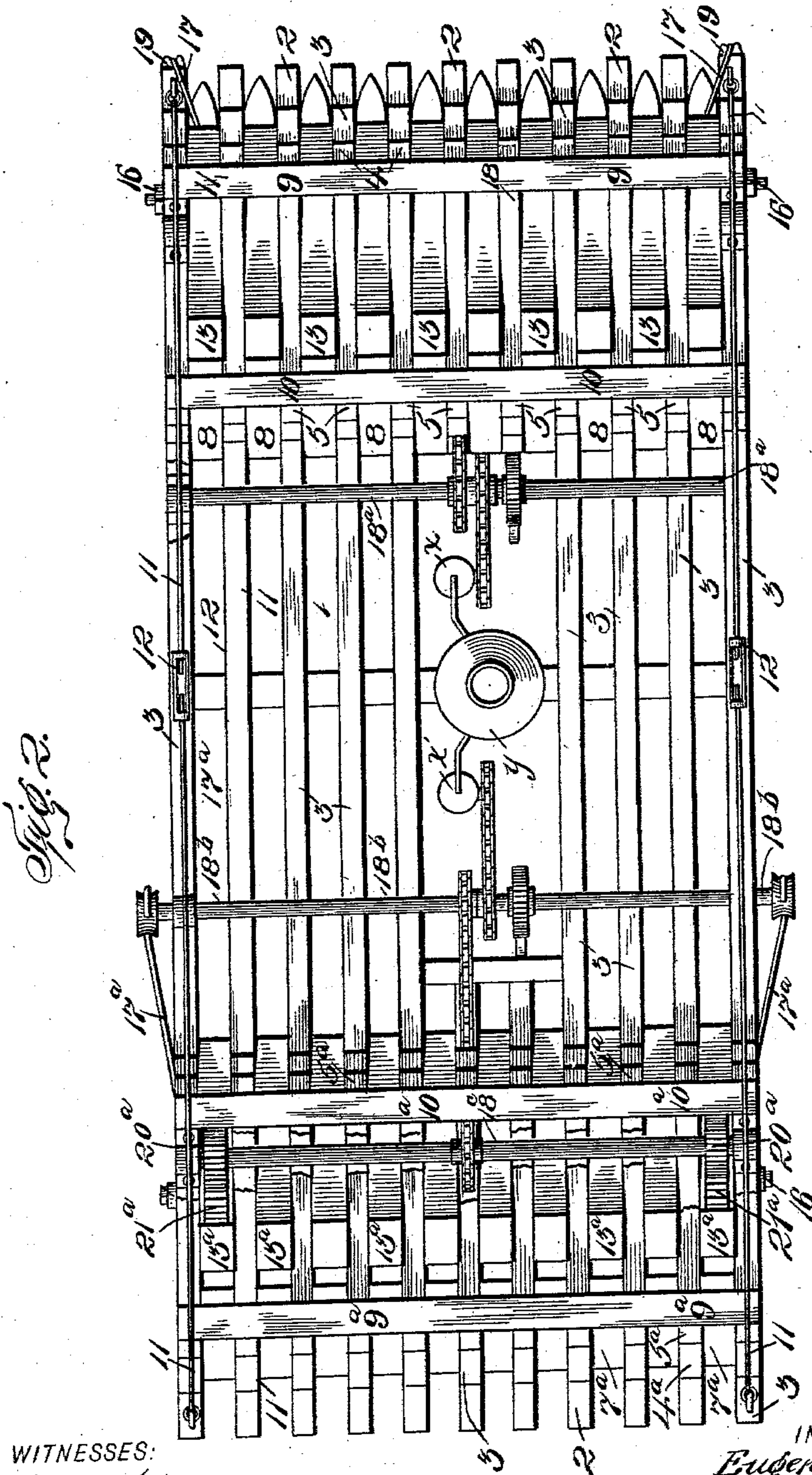
PATENTED MAR. 1, 1904.

E. H. ALLMAN.  
MEANS FOR REMOVING SAND BARS.

APPLICATION FILED JUNE 2, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:  
*Wm. C. McKenzie*  
*Amos W. Hart*

INVENTOR  
*Eugene H. Allman*  
BY *Munn & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

EUGENE H. ALLMAN, OF MOBILE, ALABAMA.

## MEANS FOR REMOVING SAND-BARS.

SPECIFICATION forming part of Letters Patent No. 753,217, dated March 1, 1904.

Application filed June 2, 1903. Serial No. 159,729. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE H. ALLMAN, a citizen of the United States, and a resident of Mobile, in the county of Mobile and State of Alabama, have made certain new and useful Improvements in Means for Removing Sand-Bars, of which the following is a specification.

My invention is an apparatus adapted for use in removing sand-bars beneath the water where there is a sufficient current to wash away the sand loosened by the apparatus. A series of plows are employed for furrowing the sand, the same being attached to beams or standards which are pendent from and adjustable vertically in a framework secured to a scow or other form of float and projecting beyond the bow and stern of the same. The said framework is peculiarly constructed and arranged, and the plow-standards are adjusted and supported by special mechanism.

My invention is also adapted for use in finding and removing torpedo cables or conductors.

The invention is embodied in the combination, construction, and arrangement of parts, as hereinafter described, reference being had to accompanying drawings, in which—

Figure 1 is mainly a side elevation of my improved apparatus, the scow or float being partly broken away. Fig. 2 is a plan view of the apparatus. Fig. 3 is a detail view illustrating the attachment of the plow-carrying means or standards to a horizontal connecting-shaft. Fig. 4 is an end view of a portion of the apparatus.

The framework, with other portions of the apparatus connected therewith, is mounted upon and secured to a scow or other form of float 1. The framework consists of a series of elongated horizontal frames arranged vertically parallel and parallel to the longitudinal axis of the scow. Each of the said frames consists of two series of bars 2 and 3 (see Fig. 1) and two shorter series of horizontal bars 4 and 5 and 4<sup>a</sup> and 5<sup>a</sup>, which are arranged and connected as follows: The lower series of bars 2 pass through the ends of the scow 1 and project a considerable distance therefrom. The upper series of bars 3 rest upon the deck or top of the scow 1 and project beyond the

ends of the same to nearly the same distance as the lower series 2. The two series of bars 2 and 3 are connected by vertical screw-bolts 6 and by transverse bars 7, which pass through the sides of the scow, as indicated. The shorter longitudinal bars 4 and 5, arranged at one end—that is to say, the bow of the scow—are attached to vertical bars 7 and 8 and also connected transversely by horizontal cross-bars 9 and 10. The bar 7, before referred to, also connects the ends of the two longer bars 2 and 3. The short longitudinal bars 4<sup>a</sup> and 5<sup>a</sup>, arranged at the stern, are similarly connected by vertical bars 7<sup>a</sup> and 8<sup>a</sup> and by transverse bars 9<sup>a</sup> and 10<sup>a</sup>. There is thus formed a framework (see Fig. 2) comprising a series of sets of frames which are separated from each other in vertical planes, but connected so as to form practically one rigid structure, which is also rigidly connected with the scow. Hog-chains or tension-rods 11 are connected with the bow and stern ends of the lower series of bars 2 and pass over the top cross-bars 9 and 10 and 9<sup>a</sup> and 10<sup>a</sup>. Turnbuckles 12 are applied, as shown, for the purpose of regulating tension, as conditions may require.

In each of the spaces between the two members of each pair of adjacent frames there is arranged a beam or standard 13, the same being placed at a slight inclination rearward and carrying at its lower end a plow or shovel 14, which is adapted for working in the sand or mud. It will be understood that there is thus a series of such beams or standards, with a corresponding series of plows, arranged at the bow of the scow and that a similar series 13<sup>a</sup> and 14<sup>a</sup> is arranged in the same way at the stern. All the beams or standards are provided with transverse holes 15 to receive a securing rod or shaft 16, which passes through the lower series of bars 2. It is obvious that by this means the standards may be adjusted vertically in order to plow at greater or less depth.

For the purpose of duly supporting the lower end of each of the plow-standards 13 when at work a tension chain or rope 17 is connected therewith at one end and at the other with a winch or drum on a shaft 18. The said chains or ropes 17 pass interme-



diately over saddles 19, attached to the ends of the lower series of longitudinal bars 2. It is apparent that by rotating the winch-shaft 18 any required degree of tension may be applied to the chains 17. The several winches or drums are in practice mounted upon the same shaft as the pinions 20, that serve the purpose of adjusting the standards higher or lower—that is to say, a rack 21 is applied to the rear side of each standard 13, and the pinions 20 engage the same. The pinion-shaft 18 is operatively connected by sprocket and chain with a counter-shaft, which is in turn similarly geared with an engine *x*, arranged in suitable manner upon the upper series of frames 3 and connected with a steam-boiler Y.

The rear standards 13<sup>a</sup> are similarly adjusted by pinion 20<sup>a</sup> and rack 21<sup>a</sup>, the latter being, however, applied on the front side of the standards. The standards are also supported by tension chains or ropes 17<sup>a</sup>, which are connected with winches or drums mounted on a horizontal cross-shaft 18<sup>b</sup>, which is provided with a ratchet and pawl for locking it, as shown. The shaft 18<sup>b</sup> is driven from the engine *x* by means of sprocket and chain, and the counter-shaft 18<sup>c</sup> is driven from shaft 18<sup>b</sup>. In place of racks and pinions for adjusting the standards 13 and 13<sup>a</sup> I may employ chains passing over guide-pulleys and winding on the shaft 18<sup>b</sup>, as indicated by dotted lines, Fig. 1. The lower portions of the front and rear series of standards 13 and 13<sup>a</sup> are connected transversely and also held duly spaced apart by means of a shaft 22, (see Fig. 3,) which is threaded at suitable intervals to adapt it to receive jam-nuts 23—that is to say, the shaft passes through the series of standards, and a jam-nut 23 is applied on each side of each standard, and when screwed up, as shown, the standards are clamped and held rigidly connected and equidistant. It will be understood that the tension chains or ropes 17 and 17<sup>a</sup> are connected with the shaft 22.

In operation the scow 1, with the apparatus attached as described, is towed or else propelled by an apparatus which may be applied to it to the required locality where a sand or mud bar requires to be removed. The scow is then towed or propelled back and forth over the bar, and the plows 14 and 14<sup>a</sup> being lowered to the required depth the sand is broken into furrows of considerable depth, and the portion thus loosened is washed and carried away by the current. Thus the bar may be quickly and easily removed and at small expense.

My improved apparatus is also particularly adapted for use in finding and removing torpedo cables or conductors. As indicated in Fig. 1, a front shovel or plow 14 is represented as engaging or picking up a cable 24, which sliding upward on the plow passes over the upper end of the same into the position shown at the stern—that is to say, between the rear

standard 13<sup>a</sup> and the upper end of the plow 14<sup>a</sup>, which is provided with a hook that prevents the cable from becoming detached.

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

1. An improved apparatus for the purpose specified, comprising a float, a framework applied thereto, a series of standards supported in said framework, and a series of plows secured to the lower ends of the standards which are adapted to project below the float, substantially as described.

2. The improved apparatus for the purpose specified, comprising a float, a framework supported thereon and secured thereto, a series of standards supported vertically in said framework and adapted for vertical adjustment therein, means for effecting such adjustment, and a series of plows carried by said standards, substantially as described.

3. The improved apparatus for the purpose specified, comprising a float, a framework supported thereon and projecting beyond the end of the float, standards which are duly held in guide-slots in said framework and provided with plows attached to their lower ends, means for adjusting the said standards higher or lower for the purpose of working the plows at different depths, and a tension device connected with the lower portion of the standards, and means for regulating the tension corresponding to the vertical adjustment of the standards, substantially as shown and described.

4. The improved apparatus for the purpose specified, comprising a float, a framework composed of a series of longitudinal frames arranged vertically parallel and spaced apart and transverse connections whereby they are held rigidly in due position, a series of standards arranged in the spaces between the several frames, racks and pinions for adjusting the standards vertically, and plows carried by the said standards, substantially as shown and described.

5. In an apparatus for the purpose specified, the combination with a float and a series of sets of frames arranged longitudinally thereon and in parallel vertical planes of a series of standards arranged at the stern and bow in the portions of the framework projecting beyond the float, racks and pinions for adjusting the standards higher or lower, a securing bolt or shaft passing through the standards and also the frames transversely, the standards being provided with a series of holes, and a series of tension devices for the several standards each comprising a chain or equivalent connected with the lower portion of the standards and a winding-drum, the said chain passing intermediately over a guide on the projecting portion of the framework, substantially as shown and described.

6. The improved apparatus for the purpose



specified, comprising a float and framework  
supported thereon and projecting therefrom,  
standards which are vertically adjustable in  
said framework, means for effecting the ad-  
5 justment, and plows attached to the lower  
ends of the standards and provided at their  
upper ends with a rearwardly and downwardly

projecting hook, whereby they are adapted to  
engage and hold a torpedo or other cable, as  
shown and described.

EUGENE H. ALLMAN.

Witnesses:

HUGO LEHMANN,  
H. H. HIGBY.