J. W. NEAL.

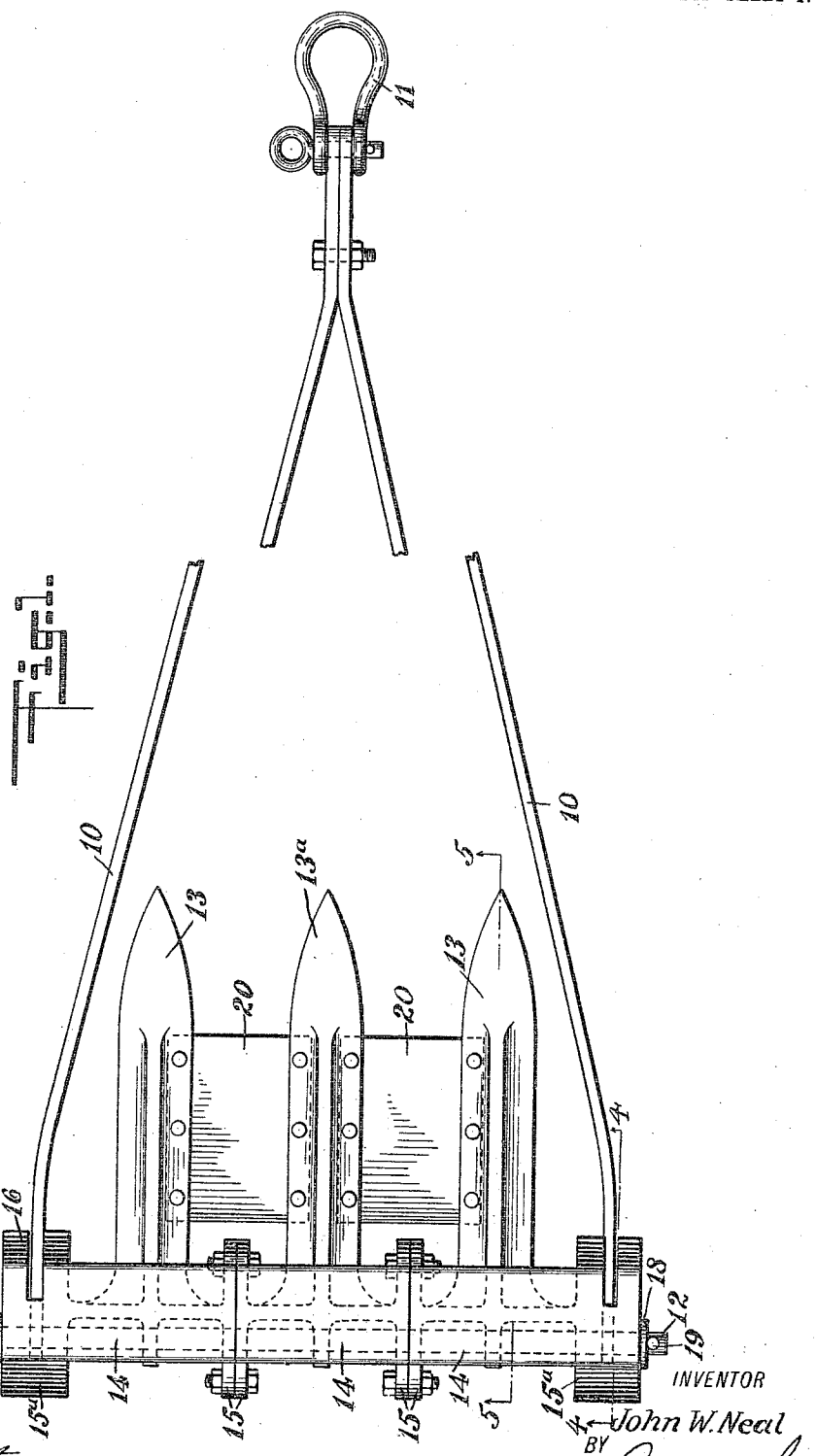
ANCHOR.

APPLICATION FILED JUNE 24, 1909.

957,621.

Patented May 10, 1910.

2 SHEETS—SHEET 1.




WITNESSES

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INVENTOR

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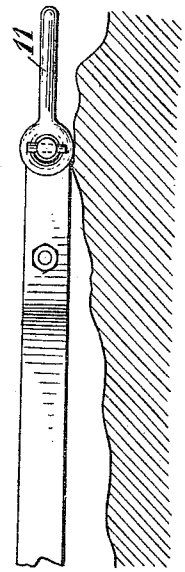


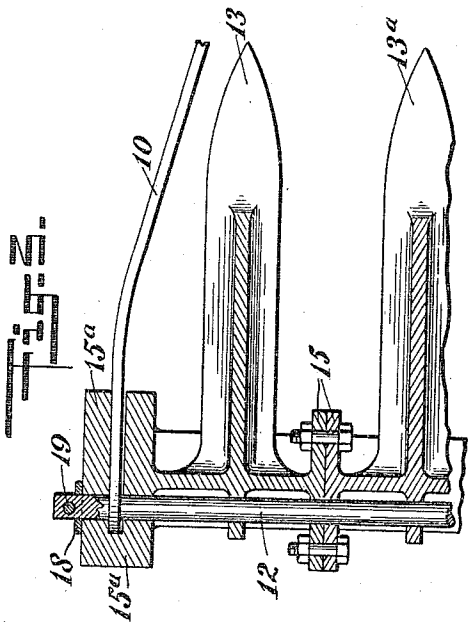


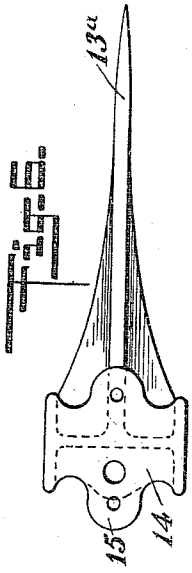


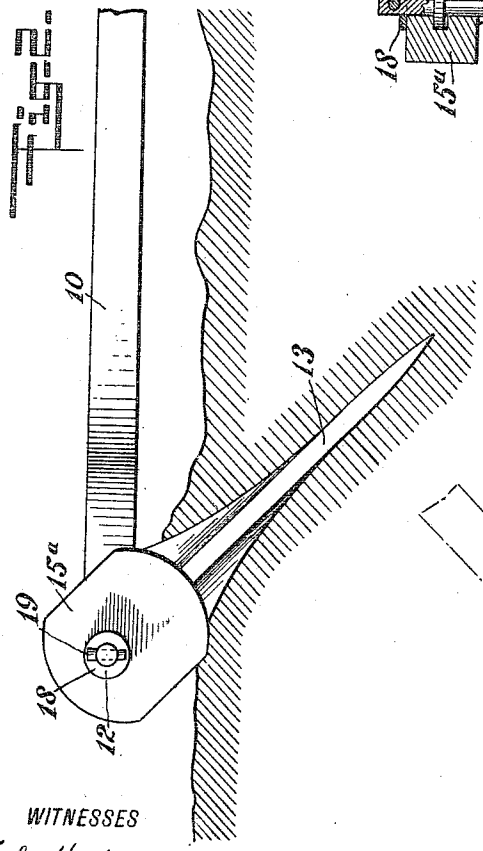


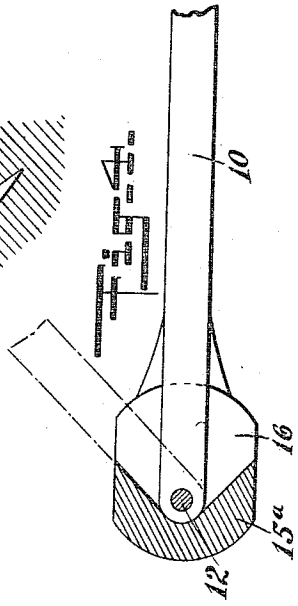


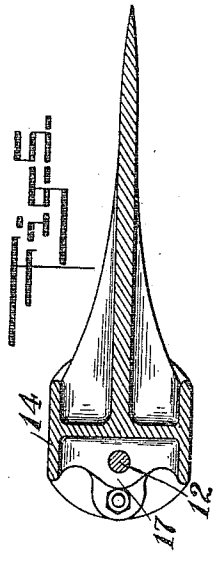


WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN WALKER NEAL, OF KEALIA, TERRITORY OF HAWAII.

## ANCHOR.

957,621. Specification of Letters Patent. **Patented May 10, 1910.**

Application filed June 24, 1909. Serial No. 504,042.

*To all whom it may concern:*

Be it known that I, JOHN W. NEAL, a citizen of the United States, and a resident of Kealia, Kauai, Territory of Hawaii, have invented a new and Improved Anchor, of which the following is a full, clear, and exact description.

The invention belongs to that class of anchors in which a number of flukes are carried on a yoke frame and have a limited rotary movement relative thereto to engage in the mud or sand.

The invention has in view an anchor of this character in which the flukes are detachably connected and may be increased and decreased in number so that the anchor may offer the requisite resistance.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan of an anchor constructed in accordance with my invention; Fig. 2 is a side view of the same, with the flukes engaged in the mud or sand; Fig. 3 is a fragmentary section through the flukes; Fig. 4 is a section on the line 4—4 of Fig. 1; Fig. 5 is a section on the line 5—5 of Fig. 1; and Fig. 6 is a plan of one of the intermediate flukes removed from the anchor.

The frame of the anchor is in the form of a fork or yoke comprising outwardly-diverging side bars 10 connected together at their inner ends, where they are provided with the usual shackle 11 for connecting the anchor chain. The side bars at their outer end portions are journaled on a cross-shaft 12, on which is arranged end flukes 13 and one or more intermediate flukes $13^a$, each fluke having a T-head 14. Both ends of the head of the intermediate fluke $13^a$ and the inner ends of the heads of the end flukes 13 have external flanges 15, each of which is bolted or otherwise detachably secured to the adjacent flange, and the heads of the flukes 13 have relatively thicker flanges $15^a$ provided with sector-shaped slots 16 extending from the shaft 12, and through which the end portions of the side bars 10 pass. These slots admit of the flukes revolving on the shaft 12 to approximately forty-five degrees above and below the side bars, at which points the further rotation of the flukes is prevented by the ends of the slots contacting with the edges of the side bars. The head 14 of each fluke is flattened at both the bottom and top and approximately I-shaped in cross-section between the blade of the fluke and flange forming forwardly projecting flanges connected together by an intermediate web, as shown in section in Fig. 5. The cross-shaft 12 passes through the flanges 15 and $15^a$ and also through an intermediate ear 17 at the rear of each head, and at each end is provided with a washer and cotter pin 18 and 19 respectively, to secure the shaft against relative endwise movement. The flukes in addition to being connected together by the bolts passing through the flanges of the heads are further connected by webs 20 extending between the blades and detachably secured thereto.

On pulling the anchor slightly forward after it has been lowered to the bottom, the bottom outer edge of the I-shaped portions of the heads engage with the mud or sand and turn the points or blades of the flukes down, and on the continued pull on the anchor these blades are forced into the mud and sand, the anchor taking the position illustrated in Fig. 2. In raising the anchor, the side bars strike the upper edges of the slots 16 of the flanges $15^a$, as illustrated in dotted outline in Fig. 4, operating to force the fluke from the bottom in an approximately vertical direction. The construction admits of the intermediate fluke being removed and the end flukes directly secured together or several other intermediate flukes added if desired, a cross-shaft of the proper length for the number of flukes used being placed in the anchor. Thus, the flukes may be of such number that the required resistance the anchor is to offer is obtained, and the flukes may be easily renewed when broken, without discarding any other portion of the structure.

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

1. In an anchor, the combination of a frame, a plurality of flukes carried by the frame and having a limited rotary movement relative thereto, the flukes having heads externally flanged at each end, and means detachably securing the adjacent flanges of the heads together.

2. In an anchor, the combination of a cross-shaft, a yoke frame connected to the opposite end portions of the cross-shaft, flukes arranged on the cross-shaft and hav-

ing a limited rotary movement to each side of the frame, each fluke having a head detachably connected to the head of the next adjacent fluke.

3. In an anchor, the combination of a yoke frame, a cross-shaft passing through the outer end portions of the frame, and flukes arranged on the cross-shaft, each fluke detachably connected to the next adjacent fluke and having heads provided with flattened forwardly extending portions at opposite sides to cause the points of the flukes to engage when the frame is moved forward.

4. In an anchor, the combination of a yoke frame, flukes having heads provided with end flanges, with the adjacent flanges of the heads detachably secured together, the outer flanges of the end flukes having sector-shaped slots to receive the end portions of the frame, and a cross-shaft passing through the flukes and the frame.

5. In an anchor, the combination of a frame having spaced arms, a cross-shaft passing through said arms, flukes having heads arranged on the cross-shaft, each of said heads externally flanged at each end, the outer flanges of the outer flukes having slots radiating from the cross-shaft, through which the arms pass, with the end walls of the slots arranged to limit the rotation of the flukes to the opposite sides of the arm, and means detachably securing the flukes together, passing through the adjacent flanges of the heads.

6. In an anchor, a fluke having a head provided with a forwardly-projecting flange at each side, with the flanges connected together by a web extending crosswise of the flukes, the outer side of each flange forming a seating face of the head, and the forward edge of the flange arranged to engage the soil when the fluke is pulled forwardly, and force the point of the fluke downwardly.

7. In an anchor, flukes having heads, each head having an intermediate portion I-shaped in cross-section externally flanged at each end, means detachably connecting the flukes together through the adjacent flanges of the heads, a shaft on which the flukes are carried passing through the flanges at the outer side of the said I-shaped portions, and a frame connected to the shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN WALKER NEAL.

Witnesses:
M. R. TEVES,
JOAQUIM DE SOUZA.