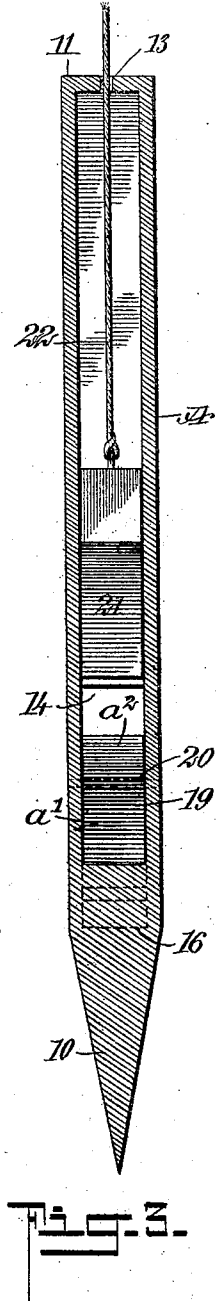
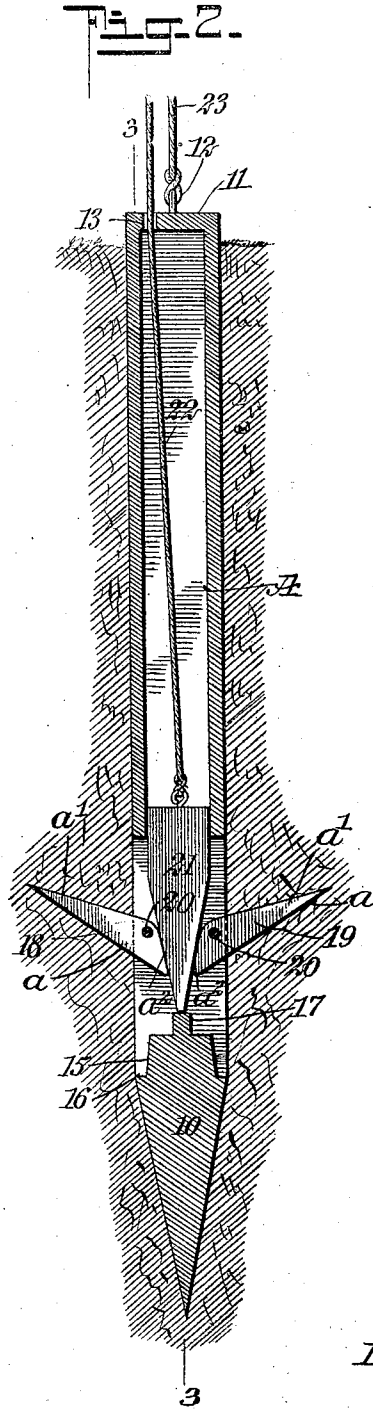
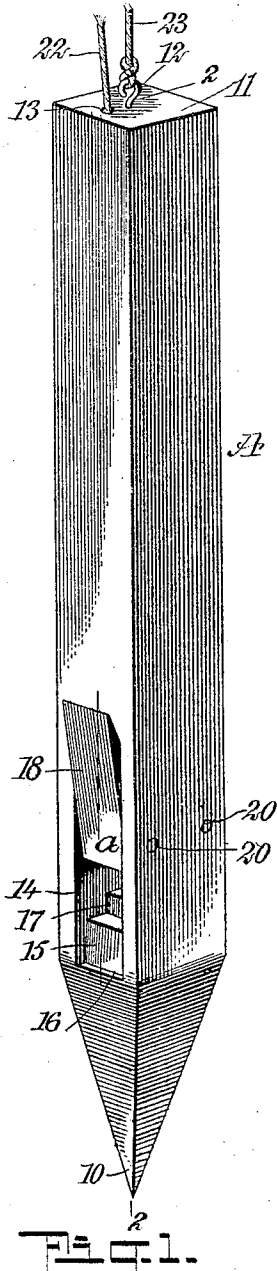


No. 856,003.

PATENTED JUNE 4, 1907.

D. THOMAS.  
ANCHOR FOR AIR SHIPS.  
APPLICATION FILED MAY 18, 1906.



WITNESSES  
*H. J. Friedrich*  
*W. J. H. H. H.*

INVENTOR  
*David Thomas*  
BY *Mumford & Co.*  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

DAVID THOMAS, OF SAN FRANCISCO, CALIFORNIA.

## ANCHOR FOR AIR-SHIPS.

No. 856,003.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed May 16, 1906. Serial No. 317,099.

*To all whom it may concern:*

Be it known that I, DAVID THOMAS, a citizen of the United States, and a resident of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Anchor for Air-Ships, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide an automatic harpoon anchor particularly adapted for use in connection with buoyant vessels to effect a landing at a given point quickly and accurately, and to so construct the anchor that when it has entered the ground claws will be forced out into the ground when the anchor is subjected to upward strain, preventing the anchor from being withdrawn or dislodged until the provided means are operated for permitting the said claws to be drawn in.

A further purpose of the invention is to improve upon the construction of a similar device for which application for Letters Patent was made by me June 1, 1905, Serial No. 263,299, and which was allowed January 8th, 1906, said improvements consisting in rendering the entire construction more simple, durable and economic, and also rendering the device less liable to get out of order, and furthermore wherein all springs are dispensed with.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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 figures.

Figure 1 is a perspective view of the improved anchor as it appears upon entering the ground; Fig. 2 is a longitudinal section through the anchor and a section through the ground which it has entered, illustrating the claws of the anchor locked in their holding position; and Fig. 3 is a vertical section through the anchor, taken practically on the line 3—3 of Fig. 2, the parts being in position to permit the anchor to be withdrawn from the ground.

The body A of the anchor is hollow and rectangular in cross section and is of any desired length, terminating at its bottom portion in a pyramidal solid point 10. The upper end of the body A is closed by a plate 11, provided with an I-bolt 12, and has an aperture

13 produced therein. Just above the point 10 slots 14 are made in opposite sides of the body, and at the lower ends of the slots a striking block 15 is secured upon the upper surface of the point 10, or is made integral therewith, and the sides of the block 15 which face the slots 14 have an upward and inward inclination. Spaces 16 intervene between the faces of the block and the outer edges of the bottom walls of the said openings 14; and furthermore the striking block 15 is provided with a reduced cap section 17.

Two prongs or spurs 18 and 19 are also employed in this construction to hold the anchor fast in the ground. These prongs or spurs are pivoted at 20 near their inner ends within the body A, one near each slot 14, and the width of the spurs or prongs 18 and 19 is such that they will have free movement in the solid portions of the body.

What may be termed the inner or under faces of the spurs or prongs 18 and 19, designated as *a*, are straight while their opposing outer or upper faces *a'* are inclined outwardly from their pivots 20 in direction of the opposing faces *a*, whereby the prongs or spurs are thinnest at their outer ends; and at the inner ends of the spurs or prongs 18 and 19 their outer or upper faces *a'* from their pivots 20 are inclined inward in opposite directions to their main inclinations, or in direction of the inner ends of the straight faces *a*. The inner inclined surfaces of the said prongs or spurs are designated as *a''*.

A wedge block 21 is held to slide in the body A between the prongs or spurs 18 and 19, and this wedge block, when the prongs are to be brought into action, is adapted to enter the space between the inner ends of the said prongs or spurs, and said wedge block 21 has a cable or chain 22 attached to it, which leads up through the opening 13 in the top of the said body to the vessel carrying the anchor.

A cable 23 is attached to the I-bolt 12 at the top of said anchor, and said cable 23 is usually connected with a windlass carried by the vessel.

In operation, before the anchor is cast overboard it is turned end for end, that is, point up so as to bring the prongs or spurs 18 and 19 to the upper position shown in Fig. 1. The spurs are by hand temporarily held in this position, and the device is again turned point downward and the wedge block 21 is dropped down between the pivoted ends of

said spurs or prongs. When the prongs are released and the wedge block is between them, the spurs drop downward, assuming an angular position relatively to the sides of the body, substantially as is shown in Fig. 2, the degree of the angle being controlled by the bevel of the point of the wedge block 21. When the parts are in this latter position and the anchor is cast overboard, as it enters the ground the spurs will fold up to their first position, shown in Fig. 1, permitting the anchor to force its way into the ground a proper distance. As soon as the anchor is subjected to the tug of the vessel through the medium of the attached cable 23, and is slightly drawn upward thereby, the spurs 18 and 19 are automatically drawn out to their angular or locking position in the ground as fully shown in Fig. 2, and said anchor can not be drawn from the ground until the spurs are free to enter the body A, since the wedge block will have forced its way between them downward to a bearing upon the cap 17 of the striking block 15.

25 When it is desired to withdraw the anchor the wedge block 21 is carried to the upper position shown in Fig. 3, or to any position above the same, and upward tension is exerted upon said anchor, whereupon as the anchor is pulled out from the ground the spurs 18 and 19 gradually fold downward in the body A, assuming the position shown in Fig. 3, wherein it will be observed they hug tightly at their thinner or outer ends to the inclined faces of the striking block 15, and at this time said spurs or prongs are entirely within the body of the anchor and offer no resistance to its continued withdrawal from the ground. The spurs 18 and 19 may be properly termed anchor members, and the body A a stock.

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

- 45 1. A device of the class described, comprising a stock for driving into the ground, being provided with transverse openings, anchor members means whereby traction on the stock will protrude said anchor laterally

through said openings, a device for locking the anchor members, in protruded position and means operated exteriorly of the stock for operating said locking device to lock or release said members. 50

2. A device of the class described, comprising a stock for driving into the ground, which stock is provided with transverse openings, a striking block within the stock at the bottom of said openings, the sides of said block facing said openings being upwardly tapered, tapering anchor members mounted for protrusion through the said openings, a wedge block slidable in the stock above the anchor members, adapted to be passed between them and lock them in their spread position, and externally-operated means for withdrawing the wedge block and permitting the anchor members to drop within the stock to an engagement with the tapering faces of the striking block. 65 70

3. A device of the character described, comprising a stock for driving into the ground, being provided with transverse openings, a striking block within the stock at the bottom of its openings, anchor members pivoted in the stock for protrusion through said openings, which anchor members have their outer members flat and their inner members inclined in opposite directions from their pivots, a wedge block held to slide in the stock above the anchor members, the wedge block being adapted to enter the spaces between the inner ends of the anchor members to hold them in spread position, and to be withdrawn from engagement with said members to permit said members to drop downward within the stock, a cable attached to the said wedge block, being passed out through the stock, and a supporting cable secured to the upper portion of the stock. 80 85 90

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

DAVID THOMAS.

Witnesses:

ARTHUR LOUP,  
CHAS. C. LANE.