(No Model.)

D. HOYT.

ANCHOR.

No. 588,767. Patented Aug. 24, 1897.

Fig. 1.

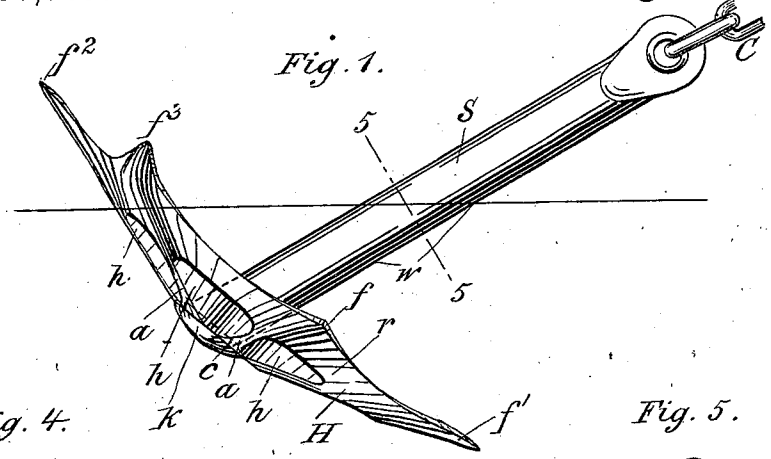


Fig. 4.



Fig. 5.



Fig. 2.

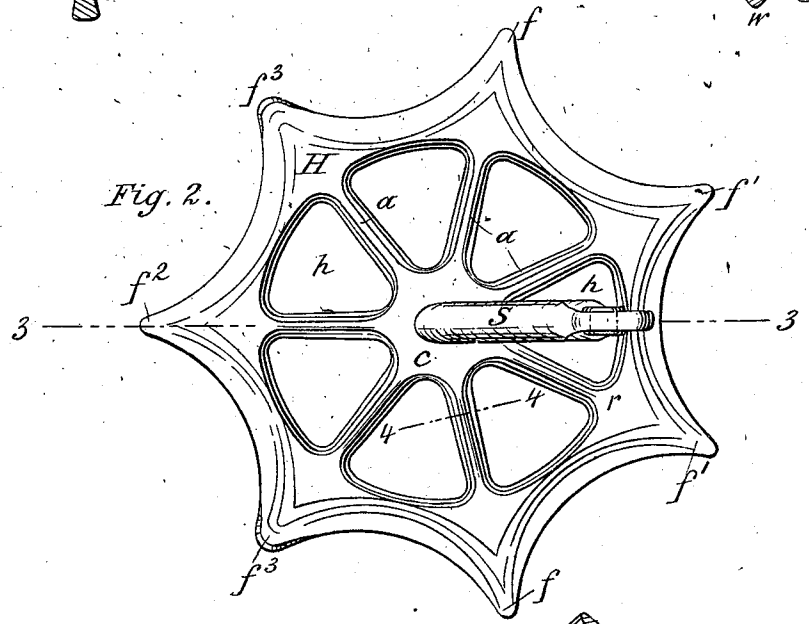
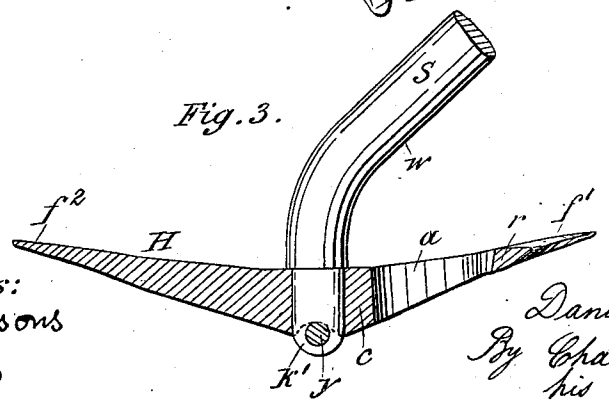


Fig. 3.



Witnesses:
Wm J Parsons
Fred Platt

Inventor:
Daniel Hoyt
By Chas L. Horack
his Attorney.

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UNITED STATES PATENT OFFICE.

DANIEL HOYT, OF SOUTH NORWALK, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF, AND HENRY D. HOBSON, OF BROOKLYN, NEW YORK, AND WILLIAM F. OATMAN, OF EAST ORANGE, NEW JERSEY.

ANCHOR.

SPECIFICATION forming part of Letters Patent No. 588,767, dated August 24, 1897.

Application filed February 28, 1896. Serial No. 581,122. (No model.)

To all whom it may concern:

Be it known that I, DANIEL HOYT, a citizen of the United States, and a resident of South Norwalk, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Anchors, of which the following is a specification.

My invention refers to anchors for anchoring vessels of all kinds.

The objects of my invention are to provide an anchor which when dropped into the water will, before or upon reaching the bottom, and as tension is being applied to the cable to which the anchor is secured, readily assume the position best adapted to accomplish its purpose; also to so construct the anchor that under continued heavy strain applied to its cable C it will cut into the bottom and will bury itself therein deeper and deeper, so as to firmly and safely hold a vessel even in an exceedingly rough and choppy sea.

A further object is to so shape the anchor, and particularly its upper surface, as to permit of readily breaking ground when the anchor is to be raised.

I accomplish these and other useful purposes by the means hereinafter specified, and set forth more particularly in the claims.

In the accompanying drawings, forming part of this specification, and wherein corresponding letters of reference relate to like parts, Figure 1 is a side view of an anchor constructed according to my invention and shown in a position which it will assume while partly buried in the bottom and while holding a vessel. Fig. 2 is a ground plan of the anchor, and Fig. 3 a vertical section along line 3 3 in Fig. 2, showing, however, a modification with reference to the form of the shank of the anchor and the mode of fastening it to the head. Fig. 4 is a section along line 4 4 in Fig. 2, and Fig. 5 a section along line 5 5 in Fig. 1.

The two principal parts of my anchor are a head H, which is made dishing in its general outlines and with flukes extending from its periphery, and the shank fixedly secured thereto, both said parts possessing valuable and novel features and being so adjusted in their positions with reference to each other as to insure of the anchor taking bottom quickly after it strikes the same.

Referring first to the dishing head H, the same comprises a central crown-piece C, arms a a, extending outward therefrom, a rim r, connecting the outer ends of said arms, and flukes f f' f^2 f^3, extending outward from said rim and being so shaped as to make the periphery of the head appear scalloped. The preferred form of my head is such that the under sides of the arms and of the portion of the rim directly adjoining said arms lie upon the surface of a cone, while the flukes are turned upward slightly, so that after the under side of the anchor strikes bottom one of the sides of the cone will come to rest flat upon the bottom, and that immediately after tension is applied to the cable C and a slight tilting sidewise of the head is produced thereby one or two of the flukes will begin to take bottom at once. The ribs r are made narrowing or wedge-shaped toward their upper surfaces for the reason that after the anchor has become embedded in the silt or mud forming the bottom the said ribs will readily cut through such overlying material when the anchor is being raised, and the holes h between said ribs will then permit the free passage of such material. The upper surfaces of arms a and rim r may be made either concave or straight or of any other suitable configurations. The flukes f are preferably arranged symmetrically around the periphery of the head and made of an uneven number, for reasons hereinafter explained.

The shank may either be made of a bar of metal straight throughout, as shown in Fig. 1, or may be made curving where it approaches the head, so as to permit of passing its end through the crown c at right angles thereto, as shown in Fig. 3, it being, however, desirable and important to place the axis of the outer or free end of the shank, which contains the eye to which the chain or cable C is attached, at an oblique angle with the plane of the head and in a plane at right angles to the plane of the head, which will intersect the latter plane between the two nearest flukes f' f' and in line with the most distant fluke f^2. The flukes f^3 which are nearest to fluke f^2 I

prefer to turn upward more abruptly than the remaining flukes and especially fluke f^2.

Where the shank passes out from the under side of crown c, I prefer to make it project sufficiently so as to produce there a knob or projection k or k', extending beyond the apex of the conical surface, according to which I preferably construct the under side of the head of the anchor. The means for confining the shank in fixed connection to the head may be varied according to the judgment of the manufacturer. Thus in Fig. 1 the lower end of the shank is shown to be upset so as to form the head of a rivet, while in Fig. 3 a key y passes through the lower reduced end of the shank. The portion of the surface of the shank facing the head is shown to be made wedge-shaped, as at w, so as to permit said wedge-shaped portion to facilitate the operation of the anchor by cutting into the bottom as said anchor is gradually working its way downward into the mud or silt.

In general the operation of the anchor is as follows: As the anchor is being dropped it will, principally owing to the fact that its center of gravity is to one side of the axis of the head, have a tendency to assume an inclined position, so that providing the bottom be approximately level the under side of the head between flukes f' f' will accommodate itself to said bottom, said flukes still slightly projecting above the same until tension is applied to cable C, when the head will tilt farther, so that said flukes will begin to open bottom, the scalloped portions of the rim between and adjoining said flukes aiding therein, particularly as they are brought to an edge, until under the influence of the tension so applied said anchor will crowd its way sufficiently to become partly or wholly immersed in the bottom. As the shank is placed symmetrical with reference to the nearest two flukes f' f', they will simultaneously take ground and thereby increase the hold of the anchor.

When the anchor is to be raised, it is only necessary to tilt and raise the same in the usual manner and the wedge-shaped edges of arms a will facilitate the cutting of the anchor through the overlying material, as explained above, and such material will pass downward through holes h without seriously obstructing the raising of the anchor.

If for any reason some other portion of the under surface of the head should first strike bottom, knobs or projections k or k' will, as tension is being applied to the cable, serve as fulcrums around which said head will swing until it assumes the position above described, and illustrated in Fig. 1.

The peculiar forms given to flukes f^3 f^3 will come into play in case in dropping the anchor the portion of the under side of its head nearest to fluke f^2 should come to rest flatly on the bottom. Then if swinging of the anchor around projection k should be feasible said flukes f^3 would not interfere with said operation in either direction, as they are sufficiently deflected not to open bottom, while if, for instance, a stone or other obstruction should interfere with said swinging of the anchor their inclination with reference to the shank will be such as to jointly and together with fluke f^2 insure a firm hold of the anchor in the bottom even in this abnormal position.

It will readily be seen that many of the details of the anchor might be varied without departing from the spirit of my invention. Thus the under side of the head might be given any other suitable configuration and the cross-section of the shank might be given any other proper form. This action of sinking will be understood as occurring with the cable payed out at length as usual. The slight concavity, which has a radius much longer than the shank, permits the disk to cut down through the sand or mud in a direction which is a resultant of the force of tension of the cable and the direction of resistance of the material of the bottom. This could not occur with a cup-shaped head, which could only scoop and half bury itself, the upper side of the cup offering resistance to full subsidence.

In raising the anchor the cable is hauled short, as usual, and the head breaks out, the upper edge of the radial arms facilitating the raising and cleaning. The cleaning is also aided by the smallness of the concavity.

I claim as new and desire to secure by Letters Patent—

1. An anchor consisting of a disk-shaped head, and a shank fixed centrally in said head, said head having a sharp scalloped edge with flukes between the scallops around the edge, and having a concavity whose radius is greater than the length of the shank, substantially as described.

2. An anchor consisting of a disk-shaped head slightly concave on its upper side, and an inclined shank fixed in the center of the head, the whole being so constructed and arranged as to sink in the mud or silt, substantially as described.

3. An anchor consisting of a disk-shaped head slightly concave on its upper side and having sharp-pointed flukes, and an inclined flattened shank fixed in the center of the head, the whole being so constructed and arranged as to sink in the mud or silt, substantially as described.

4. In an anchor, the combination with a dishing head, of a shank fixed to the crown or center of said head and having its free end portion placed at an oblique angle with the plane of the head, when the anchor is in its operative condition.

5. In an anchor, the combination with a dishing head, of a straight shank adjusted to pass obliquely through the crown or center of said head.

6. In an anchor, the combination with a dishing head comprising flukes extending outward from its crown, of a rigid shank fixed to said crown, the axis of its free end being

placed at an oblique angle with the plane of the head and in a plane at right angles to the plane of the head and intersecting the periphery of the head between the two nearest flukes.

7. In an anchor, the combination with a dishing head comprising flukes extending outward, of a shank fixed to the crown of said head, the axis of its free end being placed at an oblique angle with the plane of the head and in a plane at right angles to the plane of the head and intersecting the periphery of the head in line with the most distant fluke the two flukes nearest said most distant fluke being turned upward more than aforesaid fluke.

8. In an anchor, the combination with a dishing head comprising flukes extending outward from the crown, of a shank fixed to the crown of said head, the axis of its free end being placed at an oblique angle with the plane of the head, and the surface of said shank facing the head being made in the form of a wedge extending longitudinally along said shank.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 24th day of February, 1896.

DANIEL HOYT.

Witnesses:
CHAS. L. HORACK,
WM. J. PARSONS.