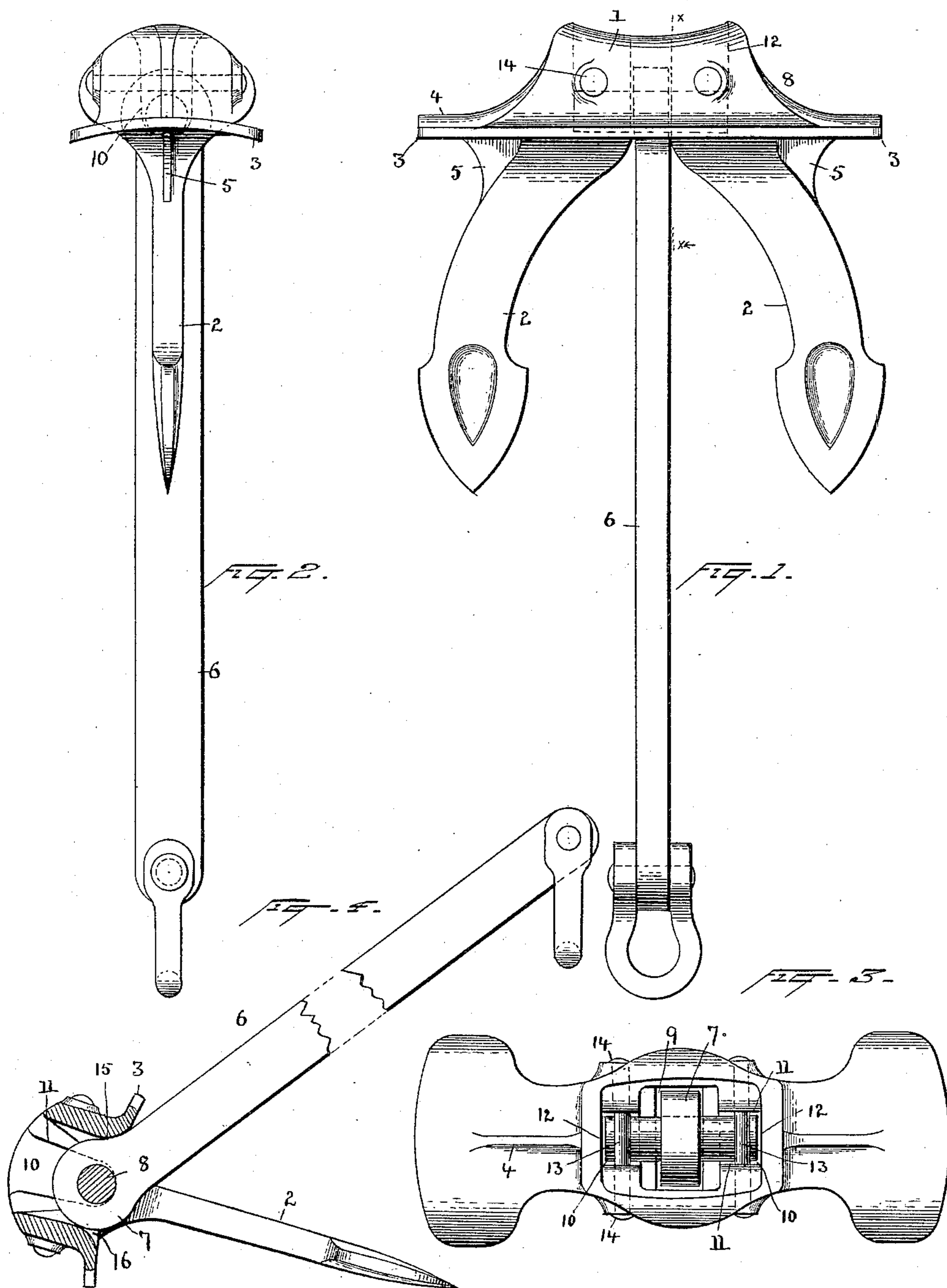


(No Model.)

J. F. HALL & J. VERITY.
CONSTRUCTION OF ANCHORS.

No. 452,954.

Patented May 26, 1891.



Witnesses
Morris A. Clark,
W. F. Oberli.

Inventors.
J. F. Hall & J. Verity,
By their Attorneys
Lyert Seely.

UNITED STATES PATENT OFFICE.

JOHN FRANCIS HALL, OF SHEFFIELD, AND JOHN VERITY, OF LEEDS,
ENGLAND.

CONSTRUCTION OF ANCHORS.

SPECIFICATION forming part of Letters Patent No. 452,954, dated May 26, 1891.

Application filed September 16, 1889. Serial No. 324,132. (No model.) Patented in England January 25, 1889, No. 1,353.

To all whom it may concern:

Be it known that we, JOHN FRANCIS HALL, residing at Sheffield, county of York, England, and JOHN VERITY, residing at Leeds, county of York, England, have invented new and useful Improvements in the Construction of Anchors, (for which a patent has been granted us in Great Britain, dated January 25, 1889, No. 1,353,) of which the following is a full, clear, and exact description.

Our invention relates to that class of anchors in which the shank and the head are movable with relation to each other, being connected by means of a trunnion.

Our invention consists in certain features of construction in anchors of the character indicated which render them more positive in their action, which largely reduces the difficulty and expense of their manufacture, and which gives to them certain other advantages, which will be more fully set forth in the following description.

In the accompanying drawings, illustrating the anchor, Figure 1 is a plan view. Fig. 2 is a view at right angles thereto. Fig. 3 is an end view; and Fig. 4 is a section on line $x x$ of Fig. 1, looking in the direction of the arrow.

The head of the anchor is constructed with a cross-piece or cross-head 1, flukes 2 2 integral therewith, and projecting horns 3 3, also integral therewith. Said horns project from the body of the cross-head approximately as far as do the flukes 2, and are shovel-shaped, as indicated in Figs. 2 and 3. These shovel-shaped horns are provided with strengthening ribs 4 5.

6 is the shank of the anchor, and has at the end connected with the head an enlarged rounded end 7, through which extends a pivot-pin or trunnion 8. This trunnion we prefer to insert through the opening in the shank when the end of the shank is hot, so that when cold it will shrink onto and firmly hold it, although the trunnion may be formed in one piece with the shank, if desired. An opening or perforation 9 is formed at the center and extending entirely through the head. This opening is large enough to freely admit the shank of the anchor. At either side of the opening and directly in the crown of the

anchor are recesses 10, extending only part way through the head, as shown most clearly in Figs. 2 and 4. These recesses are curved at the bottom, and on said curved bottoms the trunnion 8 rests. The recesses, it will be seen, have side walls 11 and end walls 12, but communicate with the opening 9 on the fourth side. The end walls 12 prevent the trunnion 8 from slipping out in either direction should it be loosely mounted in the end of the shank 6. Through the head at right angles to the trunnion and behind the same are placed pins 13, riveted or otherwise secured at 14. The function of these pins is to hold the trunnion and shank in place in the head.

It will be seen from Figs. 1 and 2 that the projecting horns are placed slightly in front of the center of the axis of the cross-head. This throws the weight forward and causes the flukes to operate positively and certainly.

In Fig. 4 the shank and the head are in the position which they would assume while the anchor is dragging. The horns 3 tend to cause the flukes to enter the ground, and at the same time the shovel-shaped horns give increased resistance to the anchor, and since the horns project a considerable distance from the cross-head and are of considerable width they serve in an admirable manner as or in place of a stock. It will be seen that the shoulder 15, against which the rounded end of the shank bears, will take a considerable amount of the strain due to the dragging of the anchor, thereby relieving to some extent the strain on the trunnion.

In using this anchor dirt and small stones sometimes collect in the opening 16 below the end of the shank; but, owing to the rounded contour of said end and to the shape of the opening in the cross-head, such dirt and stones will be either forced back out of the opening 16 or they will pass entirely through the cross-head when the shank is turned in any manner to bring it into line with the flukes.

What we claim is—

1. The combination, in an anchor, of the cross-head integral with the flukes and with the shovel-shaped horns, said head having an opening through it and being recessed at the

crown, and a shank inserted through said opening and having a trunnion held in the recess in the cross-head, substantially as described.

5 2. The combination, in an anchor, of the cross-head integral with the flukes and with the shovel-shaped horns, said head having an opening through it and being recessed at the crown, and a shank with an enlarged round-
10 ed end carrying a trunnion inserted through said opening and resting loosely therein, the trunnion being held in the recess in the cross-head, substantially as described.

3. The combination, in an anchor, of the
15 cross-head integral with the flukes and with the horns, said head having an opening through it and being recessed at the crown, and a shank having a trunnion resting in the recesses, and cross-pins behind the trunnion
20 to hold it and the shank in place, substantially as described.

4. An anchor-head adapted to be secured to a movable shank and consisting of the cross-piece, the flukes, and the projecting

horns, said parts forming one integral piece, 25 the head being perforated and having a recess at the crown on each side of the perforation or opening, substantially as described.

5. The anchor-head adapted to be secured to a movable shank and consisting of the 30 cross-piece, the flukes, and the horns projecting from the cross-piece approximately as far as the flukes, said parts forming one integral piece, the head being perforated and recessed at the crown on each side of the perforation 35 or opening, substantially as described.

6. An anchor-head adapted to be secured to a movable shank and consisting of the cross-piece, the flukes, and the shovel-shaped horns projecting from the head slightly in 40 front of the center of the axis of the head and approximately as far as the flukes, substantially as described.

JOHN FRANCIS HALL.
JOHN VERITY.

Witnesses:

J. W. HARDING,
J. JAWETT.