





# UNITED STATES PATENT OFFICE.

WILLIAM LUMSDON BYERS, OF SUNDERLAND, ENGLAND.

## PIVOTED ANCHOR.

SPECIFICATION forming part of Letters Patent No. 670,368, dated March 19, 1901.

Application filed January 2, 1901. Serial No. 41,874. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LUMSDON BYERS, anchor manufacturer, a subject of the Queen of Great Britain, and a resident of 11 Norfolk street, Sunderland, in the county of Durham, England, have invented certain new and useful Improvements in Pivoted Anchors, (for which I have applied for patents in Great Britain, No. 6,541, bearing date April 7, 1900, and in Germany, Kassenbuch No. 14,208, bearing date November 10, 1900,) of which the following is a specification.

My invention has for its object improvements in the construction of pivoted anchors, and relates more particularly to the means employed to trip the anchor-head and cause its flukes to "take" in the surface over which the anchor is let go, but embraces also modifications in the construction of the anchor or head and method of pivoting the same to the shank.

With the object of insuring the proper tripping of the heads of pivoted anchors whatever the nature of the surface in which the flukes of the latter are to become embedded I employ lateral projections or trips, as heretofore; but the outer end or edge of these I provide with inclined wings, lips, or flanges of considerable area, extending backward or away from the anchor-flukes. Further, in constructing pivoted anchor-heads instead of providing lugs on the cross-head to enable the shank to be hinged thereto I form a suitable recess in the center of the cross-head to receive the end of the shank and secure the latter by a pin or bolt passing completely through the cross-head from end to end. This pin is secured in position by upsetting the projecting ends thereof after a collar has been placed on each of them. The opening through the cross-head is preferably enlarged between points near the recess for the end of the shank and the outer ends of the cross-head, so that the bolt may be more easily placed in position.

An anchor constructed according to my invention is shown in the accompanying drawings, of which—

Figure 1 is an end view; Fig. 2, a side view, partly in section; and Fig. 3, a front view.

The anchor-head *a* is formed with the lat-

eral projections or trips *b*, the upper faces of which form with that of the head a concave surface, divided longitudinally by a strengthening web or ridge *b'* and transversely by webs or flanges *b*<sup>2</sup>. The outer edges of these trips are provided with wings, lips, or flanges *c* of considerable area, extending backward or away from the flukes *d* at an angle to the latter, as shown by dotted lines. The lips or flanges constitute flat surfaces inclined to the length of the anchor-flukes, preferably at an angle of about twenty degrees, or so that if the lines formed by the surfaces were produced they would meet the flukes of the anchor at a point about one-third of the entire length of the flukes from their points. When the lateral projections or trips are unable to secure the necessary resistance to effect a proper tripping, these flat surfaces will support or retard the sinking of the anchor-head (especially in soft or muddy bottoms) sufficiently to enable or cause the flukes to assume their proper relative position when the strain comes on the anchor.

The head *a* is provided with a central recess *e*, the sides of which are elongated by webs or flanges *b*<sup>2</sup>, in which the end of the shank *f* is pivoted by a bolt *g*, passing entirely through the cross-head *a*, the opening for the passage of this bolt being enlarged at intervals, as shown in section, Fig. 2, to facilitate the insertion, and said bolt being secured in position by a conically-bored ring *h* being passed over its end and the latter then upset.

What I claim is—

1. In combination with the head having the trips *b*, *b*, projecting therefrom with their upper surfaces concaved, the wings or lips *c* projecting from said trips and a shank connected to the head, substantially as described.

2. In combination with the head, the flukes connected therewith and the laterally-projecting lips having inclined surfaces, the plane of said inclines if produced striking the flukes about one-third of their length from their points, substantially as described.

3. In combination, the head having the projecting trips, and the lips projecting from the said trips, said lips having inclined plain flat surfaces converging upwardly to a point at or near the flukes, substantially as described.

4. In combination, the head having the cavity and also having the projecting trips with concaved upper surfaces with the ribs  $b'$  extending longitudinally of the trips and the  
5 ribs  $b^2$  extending transversely of the head, and a shank fitted to the head, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM LUMSDON BYERS.

Witnesses:

EDMUND HORAN,  
JOHN S. MYLOD.