June 18, 1946. J. S. NORTON 2,402,202

ANCHOR

Filed July 17, 1944

Fig. 1.

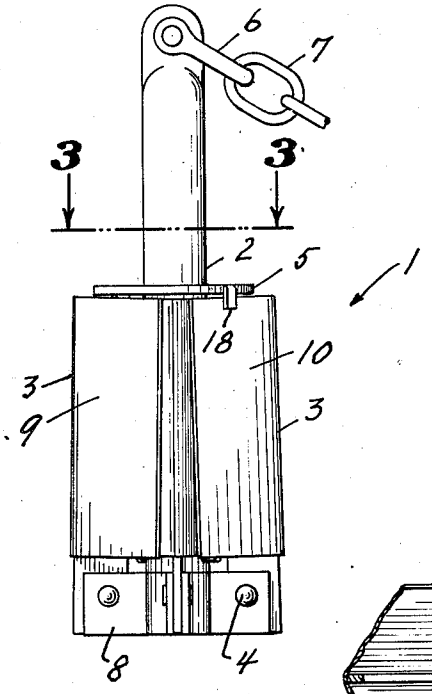


Fig. 3.

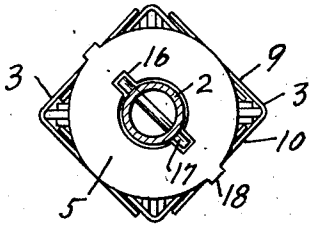


Fig. 4.

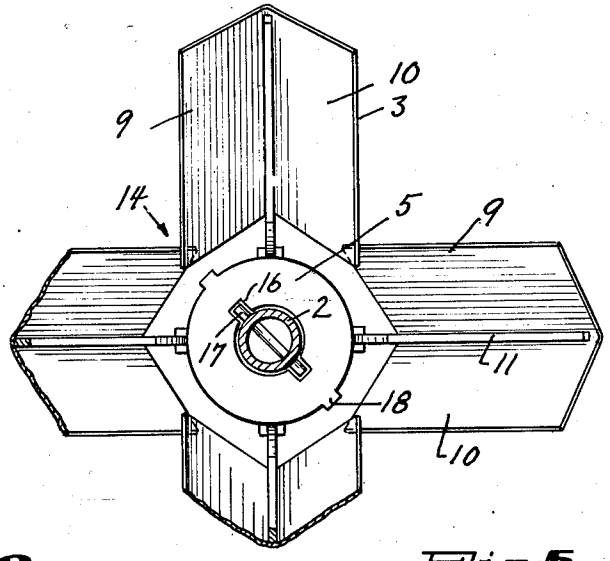


Fig. 2.

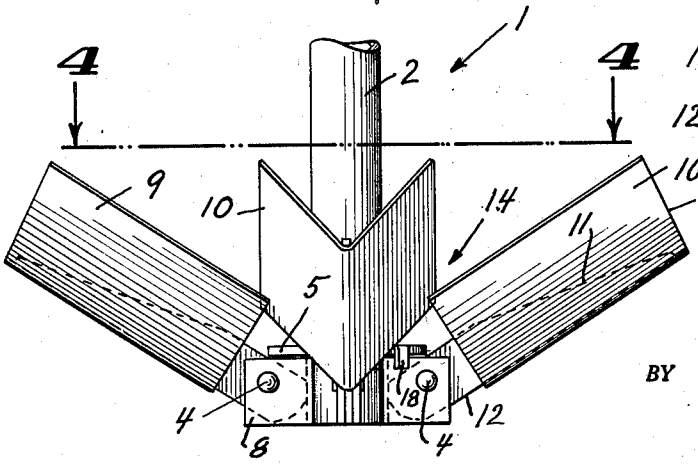
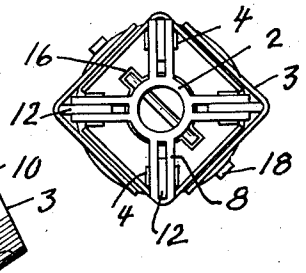


Fig. 5.



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2,402,202

ANCHOR

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4 Claims. (Cl. 114—208)

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The present invention relates to improvements in anchors, and has particular reference to lightweight anchors, in which the gripping properties of the anchor are principally relied on rather than the weight for holding the anchor in position.

It is particularly proposed to provide an anchor of the character described, in which the flukes are pivoted for movement between active and inactive positions, and in which the flukes, when in inactive position, are closely grouped or nested about the anchor shank so as to take up little space when not in use.

It is further proposed to provide a particular shape of fluke of increased gripping power.

Another object of my invention is to arrange the flukes about the shank in such a manner that the anchor automatically gravitates into proper position for cooperative action of two adjacent flukes when the anchor is dragged over the bottom of a body of water.

And finally it is proposed to provide an anchor of the character described which is light in weight, simple in construction, of great holding power as compared with its weight, and economical to manufacture.

Further objects and advantages of my invention will appear as the specification proceeds, and the novel features of my lightweight anchor will be fully defined in the claims attached hereto.

The preferred form of my invention is illustrated in the accompanying drawing, forming part of this application, in which:

Figure 1 shows a side view of my anchor, with the flukes in inactive or nested position;

Figure 2, a side view of the same, with flukes in active or open position;

Figure 3, a section taken along line 3—3 of Figure 1;

Figure 4, a section taken along line 4—4 of Figure 2, some of the flukes being broken away; and

Figure 5, a bottom plan view of the anchor with the flukes in nested position.

While I have shown only the preferred form of my invention, I wish to have it understood that various changes or modifications may be made within the scope of the claims hereto attached without departing from the spirit of my invention.

Referring to the drawing in detail, my anchor 1 comprises in its principal features, a shank 2, a plurality of flukes 3 pivoted thereto, as at 4 and a locking member 5 slidable on the shank.

The shank 2 may be in the form of a sleeve or tube having a clasp 6 at its upper end for attachment of the chain 7, and having four pairs of ears projecting radially from its bottom end in uniform spacing.

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The flukes 3 are very simple in construction, each comprising a piece of metal made in the form of an angle iron to present two flanges 9 and 10 arranged at a right angle to one another.

These flanges are relatively wide as compared with the length of the fluke, and as shown in the drawing, the combined width of the two flanges is substantially equal to the length of the flukes.

A longitudinal vane 11 is attached to the inside of the angle and projects beyond the inner end thereof, as at 12, to be received between the ears 8 of a pair of ears, and to be pivoted thereto, as at 4.

This construction allows each of the angles or flukes to swing in a radial plane with respect to the shank, from an active position illustrated in Figure 2 to an inactive position, as shown in Figure 1. The outward swing is limited by the extreme end of the vane bearing on the shank. The vanes are tapered from the inner toward the other ends of the flukes.

In the form illustrated I provide four flukes and four pairs of ears in which the flukes are pivoted. The flukes are made of considerable width so as to slightly overlap, even in fully opened position, as at 14, and are arranged in such a manner that two opposing flukes may be considered the outer flukes and the other pair the inner flukes.

Thus, in folding, the inner flukes will fold first, and the outer flukes will fold over the inner flukes, the four flukes then forming a prism around the shank, as shown in Figure 3.

This effect is obtained by making the vanes of the outer flukes slightly wider than the vanes of the inner flukes, as shown in Figure 5, which spaces the outer flukes from the shank slightly more than the inner flukes.

For locking the flukes in either position, I provide the disc 5 which is free to ride on the shank. When the anchor is opened, the disc drops down along the shank. It is formed with two notches 16 which may be made to register with two pins 17 projecting from the shank a short distance above the ears 8.

When the notches register with the pins, the disc is allowed to drop below the pins and may be locked against the same by a slight turning movement. In this position, it bears firmly against the upper edges of the vanes and holds the flukes in open position.

To release the disc, it is only necessary to turn

it so as to make the notches and pins register, whereupon the disc will slide down the shank when the anchor is held upside down. At the same time the flukes will automatically drop into nesting position adjacent the shank.

The operator may then grasp the fluke assembly, turn it over again, and lower the disc upon the assembly, the disc being formed with opposing clips 18 adapted to engage over opposing outer flukes for holding all the flukes in nested position.

In operation, when the anchor is dropped in open position, and dragged forward on the ground at the bottom of a body of water, it will automatically adjust itself to ride on two adjacent flukes. The two lowest corners or points of adjacent flanges will dig into the ground surface and cause the earth material, such as mud or rocks, to ride up on the flanges until it reaches the outer flanges of the same flukes, which prevent the material from passing over the back edge and force it back upon the first flanges, acting somewhat like the mold board of a plow.

Thus the material is retained between the four flanges of the two flukes and crowded into a space which diminishes in cross-section, whereby an extremely strong grip is obtained on the bottom surface. Any forward drag will tend, due to the inclination of the fluke flanges, to deepen the anchorage.

If the anchor is straightened into vertical position for lifting, the flukes will readily discharge the material over their inner ends during the lifting operation.

After the anchor has been used, it may be readily folded, upon removal of the disc lock, and may be locked in folded position by re-applying the disc lock. It thus forms a very compact assembly easily handled and economical to store.

I claim:

1. An anchor of the character described comprising a shank, a plurality of narrow vanes projecting therefrom radially, and flukes secured upon the vanes and spaced from the shank to provide substantial clearance about the shank, the flukes being trough-shaped and of sufficient width to contact around the clearance.

2. An anchor of the character described comprising a shank, a plurality of narrow vanes projecting therefrom radially, and flukes secured upon the vanes and spaced from the shanks to provide substantial clearance about the shank, the flukes being trough-shaped and of sufficient width to contact around the clearance, and the length of the flukes being substantially commensurate with the width thereof as measured along the surface of each fluke.

3. An anchor of the character described comprising a shank, a plurality of narrow vanes projecting therefrom radially, and flukes secured upon the vanes and spaced from the shank to provide substantial clearance about the shank, the flukes being trough-shaped and of sufficient width to contact around the clearance, and the vanes being pivoted for swinging movement in radial planes, whereby the flukes are nested around the shaft when the vanes are swung toward the same.

4. An anchor of the character described comprising a shank, a plurality of narrow vanes projecting therefrom radially, and flukes secured upon the vanes and spaced from the shank to provide substantial clearance about the shank, the flukes being trough-shaped, of sufficient width to contact around the clearance and of a length substantially commensurate with the width thereof as measured along the surface of each fluke, and the vanes being pivoted for swinging movement in radial planes, whereby the flukes are nested around the shaft when the vanes are swung toward the same.

JOHN S. NORTON.