

April 5, 1932.

A. L. SYKES

1,852,491

TRAWL NET

Filed April 29, 1931

2 Sheets-Sheet 1

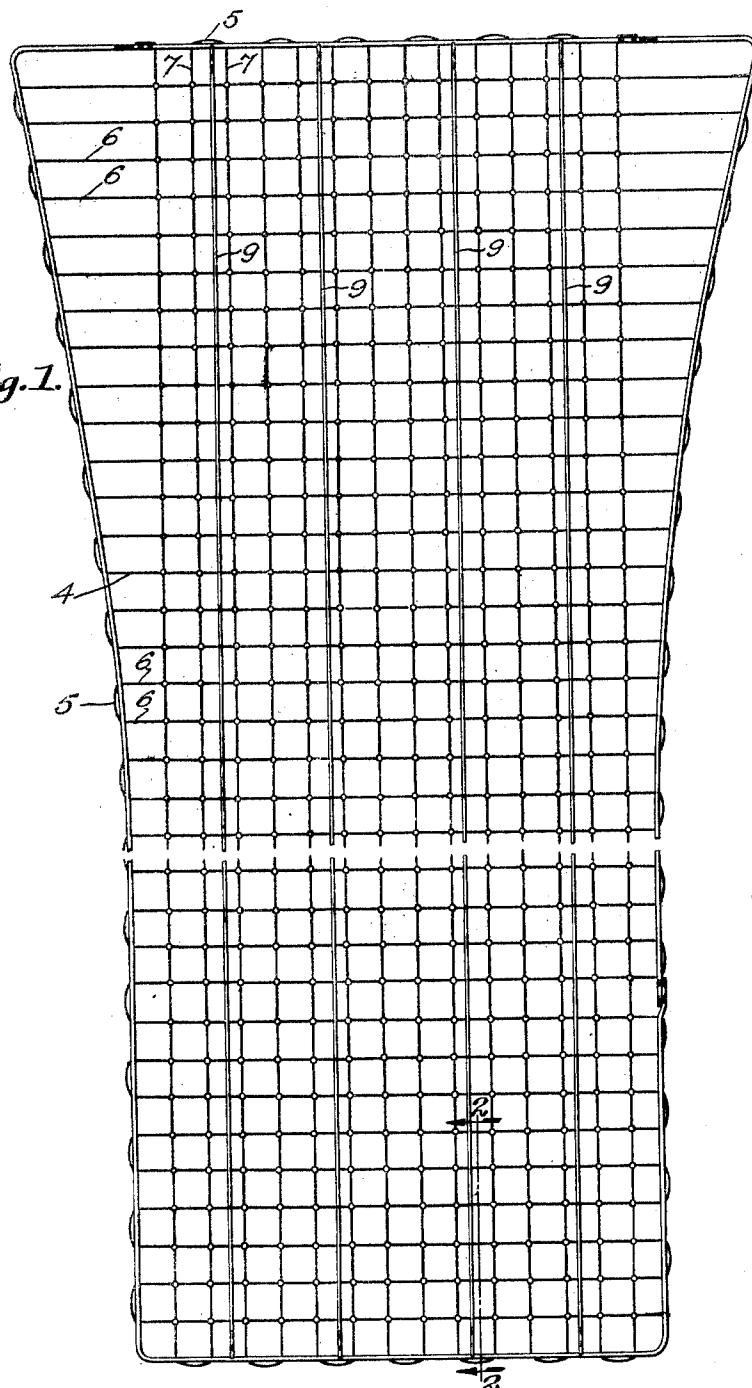


Fig. 1.

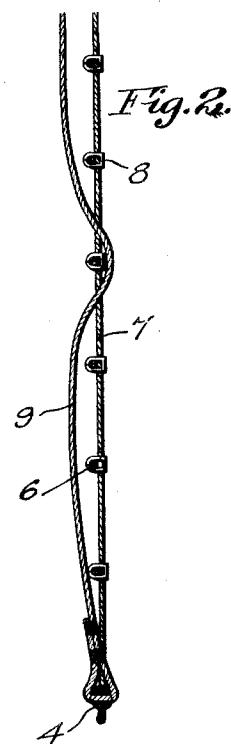


Fig. 2.

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Fig. 3.

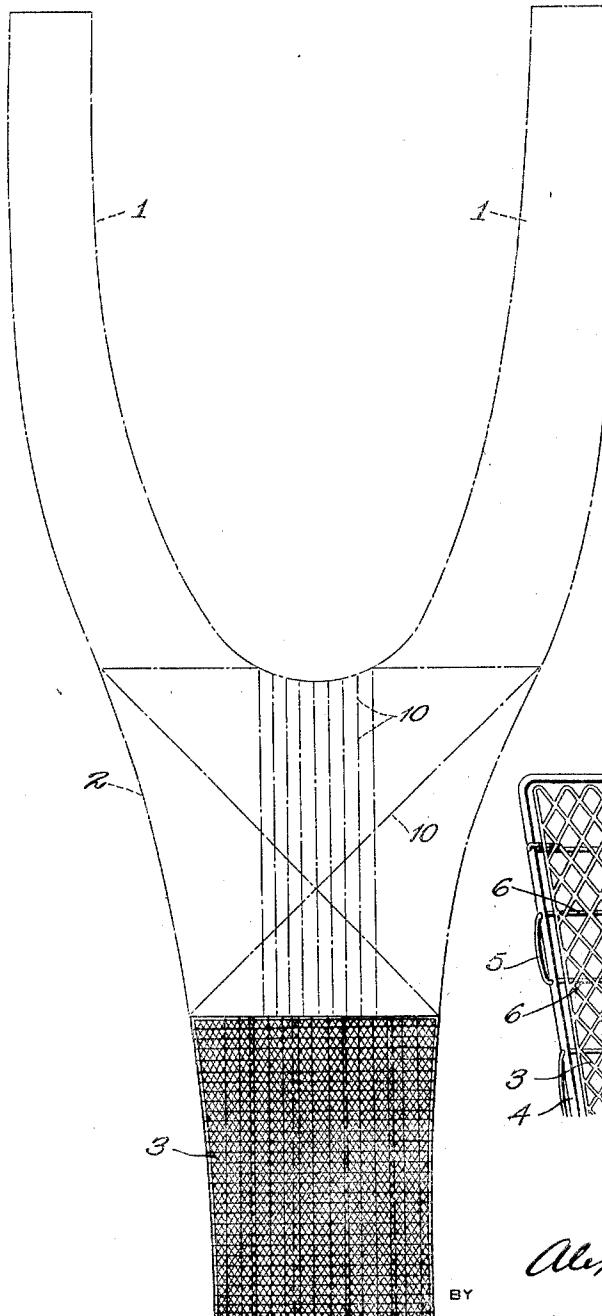


Fig. 4.

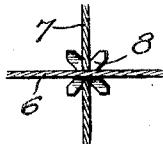


Fig. 5. 4

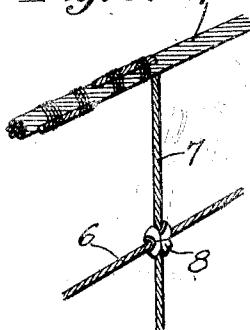
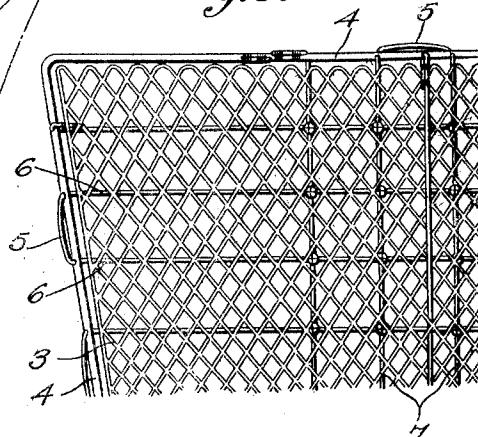


Fig. 6.



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UNITED STATES PATENT OFFICE

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TRAWL NET

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This invention relates to improvements in trawl nets and particularly to the lower cod end thereof, in the provision of a steel wire netting reinforcement therefor.

5 An object of the invention is to provide a composite fiber netting and a flexible wire netting, with the wire netting as a base beneath the fiber netting as a reinforcing and protective layer for and to relieve the fiber 10 netting of drag and load bearing strains.

Another object of the invention is to improve a fishing or marine fiber net to increase its durability and load sustaining capacity and to provide the same with a metallic under layer to protect the fiber netting from wear and tear when dragged over the ground or becoming engaged with a protruding obstruction.

Other features and advantages of the invention will be more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is a plan view of the protective or 25 reinforcement netting for the lower side of the cod end portion of a trawl net.

Figure 2 is an enlarged section on line 2, 2, Figure 1 illustrating one of the longitudinal guy lines interlooped with a cross strand of 30 the protective netting.

Figure 3 is a general plan view of the lower side of a trawl net showing the right and left wings and belly in dot and dash lines and the cod end with the protective netting 35 therebeneath and longitudinal and cross guy lines or cables extending beneath the lower side of belly and connecting with the framing cable of the protective netting.

Figure 4 is a detail view of a pair of cross 40 strands with a button clip in position for clinching the tangs of the clip about the strands, for intersection clamping.

Figure 5 is a detail view of a pair of cross strands clamped together at their intersection 45 with a button clip, and the method of joining an end of a cross strand to the framing cable of the protective netting.

Figure 6 is an enlarged detail view of a corner portion of the trawl netting and reinforcement or protective netting therebeneath.

The trawl may be of any of the standard designs and makes, as "Otter", "Boston", etc., which usually only differ, one from the other, in outline configuration, each composed of upper and lower sections, generally of large proportion, one of the sizes measuring one hundred and twenty four feet long. Each upper and lower section constitutes a pair of wings, and intermediate belly portion and a cod end, and the mesh of each portion differing from that of the other portion of the section.

The present invention, however, is only directed to the cod end and belly portion of the lower section of the net, which is subjected to the severest strain and wear, by being dragged in shallow or deep waters across the bottom or ground. The cod ends represent the pocket of the net in which the fish are collected as the net is dragged behind a vessel and the lower cod end portion under the heavy pull and drag, causes the strands of the net to be rapidly worn and cut, or when engaging with an obstruction rent apart, opening the net, allowing the fish to escape either while 70 the net is being towed during the period of fishing or while the net is being withdrawn from the water to unload or discharge a catch.

Referring to the drawings, 1, 1 indicates the right and left wings of a trawl net, 2 the 80 belly portion and 3 the cod end of a lower section of a net. The net represents a weaving or cross-work of fiber rope and twine of various mesh, tarred or waterproofed, the character and structure of which, for the various types, is well known in the art.

For the lower side of the lower cod end portion and approximately of corresponding outline I provide a protective netting comprising a flexible framing cable 4, with the opposite ends of the cable spliced together, forming a continuous loop of the outline of the lower cod end of the net. A netting of wire cable or pliable wire and of comparatively coarse or large mesh is interposed within the bounds of the framing cable with an end or return loop 5 for a pair of cross strands 6 or longitudinal strands 7 interspersed or laced through the twists or between the strands of the framing cable, permanently spacing and 106

maintaining the mesh of the strands along the framing and securely anchoring the protective netting to the framing cable. The opposite or free ends of the strands are suitably interlaced and wire bound to the cable as shown in Fig. 5, or may be otherwise permanently secured to the framing cable. At the intersection of each pair of cross and longitudinal strands of the wire or metallic netting, the strands are clamped together by a button clip 8, having a plurality of tangs crimped about and to the strands, with the button face preferably exposed to the lower side, to provide shoes for the netting at the strand intersections.

A plurality of spaced parallel guy cables 9 are strung longitudinally of the netting with the opposite ends of the guy cables looped and securely spliced to the respective top and bottom cross lines of the framing cable. The guy cables at intervals entwine about cross strands of the protective netting and may also interlace with the netting of the trawl to secure the two together. As the protective netting is contemplated to be furnished separate it is tied at numerous points to the trawl netting in any manner which will join the two into a composite layer structure.

In some instances it may be found desirable and advantageous to extend longitudinal and angular guy lines or cables 10 from the framing cable of the protective netting to the draw lines or forward portion of the trawl and along the underside of the belly portion thereof to the relief of the trawl netting.

The strands both longitudinal and cross of the protective nettings are preferably of a high grade steel wire, to make the netting very flexible so that it can be folded with the trawl netting and adds but little weight to be trawl, but flexibility is the desideratum for the fisherman.

While I have shown and described the improvement as applied to trawl nets it will be recognized that it may also be used in connection with cargo nets used for loading and unloading of vessels and for other types of service in which nets are used.

The netting configuration may be variously modified. For instance, in place of the square type illustrated, the strands may be diagonally arranged to produce a diamond formation, so that the pattern of the mesh or netting work is optional. Preference, however, is given to a pattern or design which will not unduly increase the weight of the net, nor interfere with the folding thereof.

Having described my invention, I claim:

1. In a trawl net, the combination of the lower cod end of the net of fiber netting and a metallic wire netting as an under layer for the fiber netting.
2. In a net, a fiber netting and a flexible wire netting forming a composite structure

with the wire netting as an underlayer for the fiber netting.

3. In a net, a wire netting as an underlayer for a fiber netting, comprising a framing cable and intersecting cross and longitudinal wire strands joined to the framing cable.

4. In a net, a wire netting as an underlayer for a fiber netting, comprising a framing cable and intersecting cross and longitudinal wire strands joined to the framing cable, and metallic button clips for clamping together the cross and longitudinal strands at their respective intersections.

5. A net, constituting fiber netting in combination with wire netting, as an underlayer for the fiber netting, of intersecting wire strands and a wire cable border.

6. A net, constituting fiber netting in combination with wire netting, as an underlayer for the fiber netting, of intersecting wire strands and a wire cable border, and a plurality of guy wire cables longitudinal of the wire netting secured at their opposite ends to the border cable of the wire netting.

7. In a trawl net constituting upper and lower sections, each lower section comprising a pair of wing portions, belly and cod end portions of fiber netting, of a flexible wire netting as an underlayer for the fiber netting for the lower cod end portion of the net and a plurality of guy cables longitudinal of the cod end and belly portions of the net lower section fixed to the framing of the flexible wire netting.

8. In a net, a wire netting as an underlayer for a fiber netting, comprising a framing cable and intersecting wire strands joined to the framing cable.

In witness whereof I hereunto subscribe my name.

ALEXANDER L. SYKES.

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