Sept. 11, 1928. 1,683,668

C. HANSEN ET AL

VANE FOR FISHERY

Filed Dec. 2, 1926

Fig. 1.

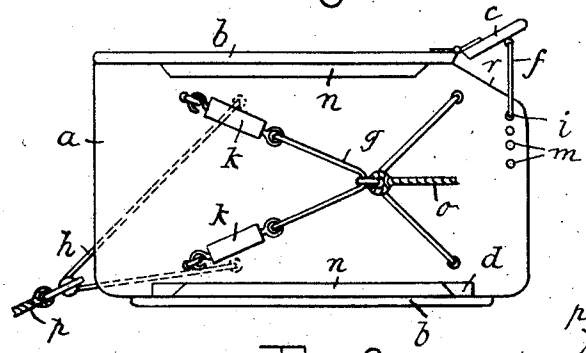


Fig. 2.

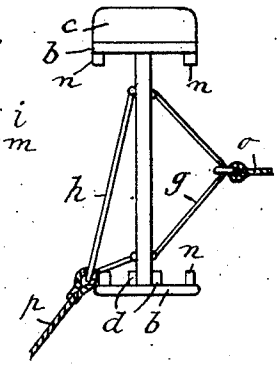


Fig. 3.

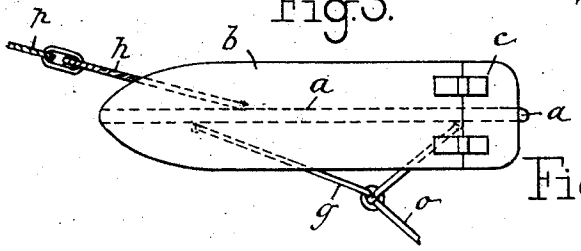


Fig. 4.

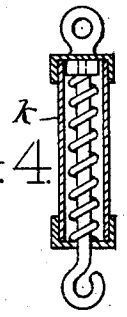


Fig. 5.

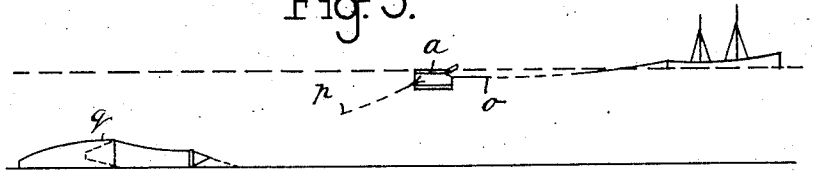
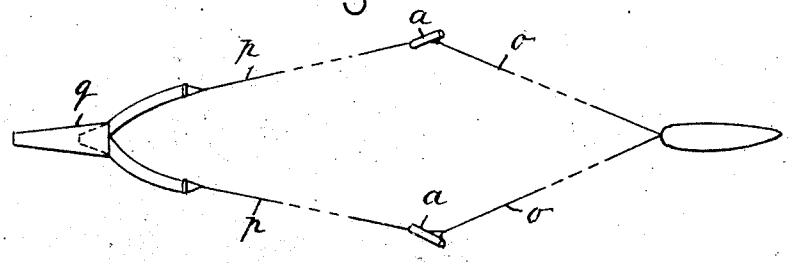


Fig. 6.



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UNITED STATES PATENT OFFICE.

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VANE FOR FISHERY.

Application filed December 2, 1926, Serial No. 152,128, and in Denmark December 3, 1925.

The present invention relates to otter boards of the kind placed between the lines from the ship and the draglines for the net, the object being to move each of these lines sideways, in such manner that there will be formed in front of the net a space of suitable width within which space the fish swimming in the water will be directed towards the net partly by the otter boards and partly by the draglines.

The distinguishing feature of the present invention is that the otter board, on the upper edge of which it has previously been proposed to use steering planes and adjustable horizontal rudders, consists in known manner of a plate to one side of which the line from the ship is attached by means of a crow-foot and to the other side of which the drag-line for the net is attached by means of a bight, is fitted at the top as well as at the bottom with a steering plane, and in connection with the former one and if desired also in connection with the latter one, a horizontal rudder. In connection with each of the steering planes steering strips may be provided on the sides of the planes facing one another. The horizontal rudder or rudders may either be stationary or adjustable.

In the accompanying drawing illustrative of the invention.

Figs. 1 to 3, respectively, show an otter board according to the invention, in side elevation, front elevation and top view,

Fig. 4 is a detail to a larger scale, and

Figs. 5 and 6, show respectively, a trawl consisting of net, lines and otter boards, in side elevation and top view to a smaller scale.

As shown, the otter board, the weight of which is adjusted in such a manner that its specific gravity is the same as that of water, consists of a rectangular wooden board *a* along the upper and lower edge of which steering planes *b* are attached at right angles to the board *a* and project equally far to either side of the latter. The steering planes *b* are similarly formed by rectangular wooden boards the width of which is suitably reduced gradually towards the rear, in such a manner that the steering planes acquire the shape shown in Fig. 3. To one end of the upper steering plane *b*, suitably the top end, there is attached a horizontal rudder *c* being for instance of the same width as the steering plane. The horizontal rudder may either be rigidly attached in a slanting position relatively to the steering plane or, as shown in Fig. 1, it may be hinged to the front edge of the steering plane, in such a manner that it may be turned into a more or less oblique position relatively to the steering plane. The horizontal rudder is retained in the position, to which it is adjusted, by means of a rod *f* the lower end of which may be attached by means of a bolt *i*, to holes *m* provided at various levels in the board *a*. As shown in Fig. 1 the board *a* is fitted with a sloping edge *r* opposite the horizontal rudder, in such a manner that the rudder may also be swung downward relatively to the steering plane *b*. As mentioned above the horizontal rudder is placed at the front end of the vane. There is nothing to prevent the rudder being disposed at the rear end of the vane instead of at the front end, and instead of the horizontal rudder being provided only in connection with the upper steering plane, a horizontal rudder may also be provided in connection with the lower steering plane and at the same end of the vane as the rudder provided in connection with the upper steering plane.

Along the edges of each of the steering planes, on the sides of the latter facing one another, there may be provided steering strips *n*, see especially Fig. 2. Along the bottom edge of the plate *a*, ballast is provided, for instance in shape of metal bars *d*.

The connection of the vane to the line *o* from the ship is effected by means of a crow-foot *g* attached to one side of the board *a*, the two front branches of the crow-foot being shorter than the two rear ones. In each of the latter there is inserted a resilient member *k* which is shown in section in Fig. 4. To the opposite side of the vane there is attached a bight *h* to which the drag-line *p* from the net *q* is connected.

While fishing the vanes, as mentioned above, should serve to move the drag-lines some suitable distance to either side. By the forward motion of the ship, the vanes will adjust themselves obliquely in relation to the direction of motion. The horizontal rudder serves to force the vane up towards the surface of the water, and the steering planes are provided in order to maintain the vane in vertical position in the water, the forward motion of the vane producing eddies along the sides of the board *a*, the said eddies working against the steering planes and, thereby, maintaining the latter in equilibrium. The

steering strips *n* assist in preserving the position of equilibrium by forcing the current eddies into contact with the board *a*.

Instead of the vane being maintained in the surface of the water it may be caused, by adjustment of the horizontal rudder *c* to stay more or less below the surface of the water.

The resilient members *k* are provided in the two rearmost branches of the crow-foot *g*, in order that the vanes may yield resiliently in case the speed of the ship is increased during fishing.

Having thus described our invention, what we claim is:—

1. A device of the character described, comprising a vertical board, a steering plane secured to said board at right angles thereto along its upper edge, a steering plane secured to said board at right angles thereto along its bottom edge, a rudder hingedly secured to the upper steering plane and adapted to be swung from a position at an angle to the plane above the same to a position at an angle to said plane below the same, and means for maintaining said rudder in any of its adjusted positions.

2. A device of the character described, comprising a vertical board, a steering plane secured to said board at right angles thereto along its upper edge, a steering plane secured to said board at right angles thereto along its bottom edge, steering strips secured to each of said planes at opposite sides of said vertical board, a rudder hingedly secured to the upper steering plane and adapted to be swung from a position at an angle to the plane above the same to a position at an angle to said plane below the same, and means for maintaining said rudder in any of its adjusted positions.

In testimony whereof we have signed our names to this specification.

CARL HANSEN.
PAUL LETH.