G. SCOTT.

BOAT PROPELLING MECHANISM.

APPLICATION FILED JULY 6, 1910.

998,555.

Patented July 18, 1911.

2 SHEETS—SHEET 1.

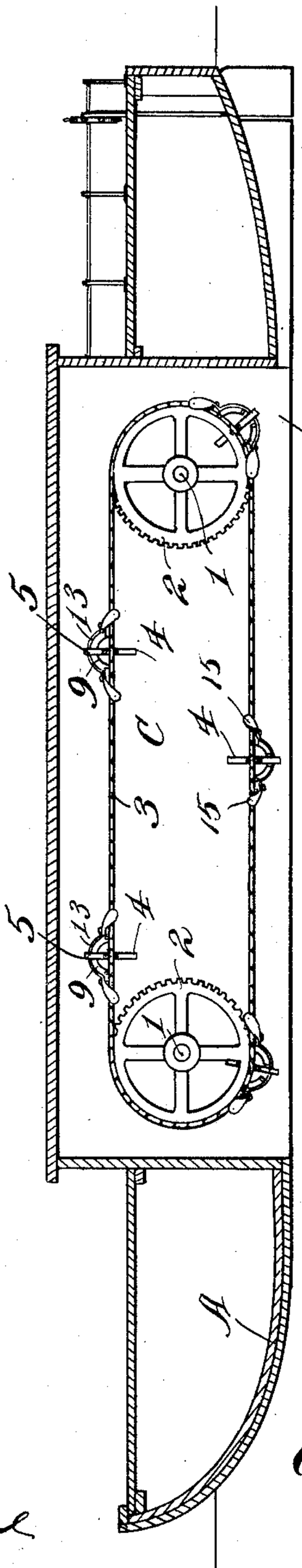


Fig. 1.

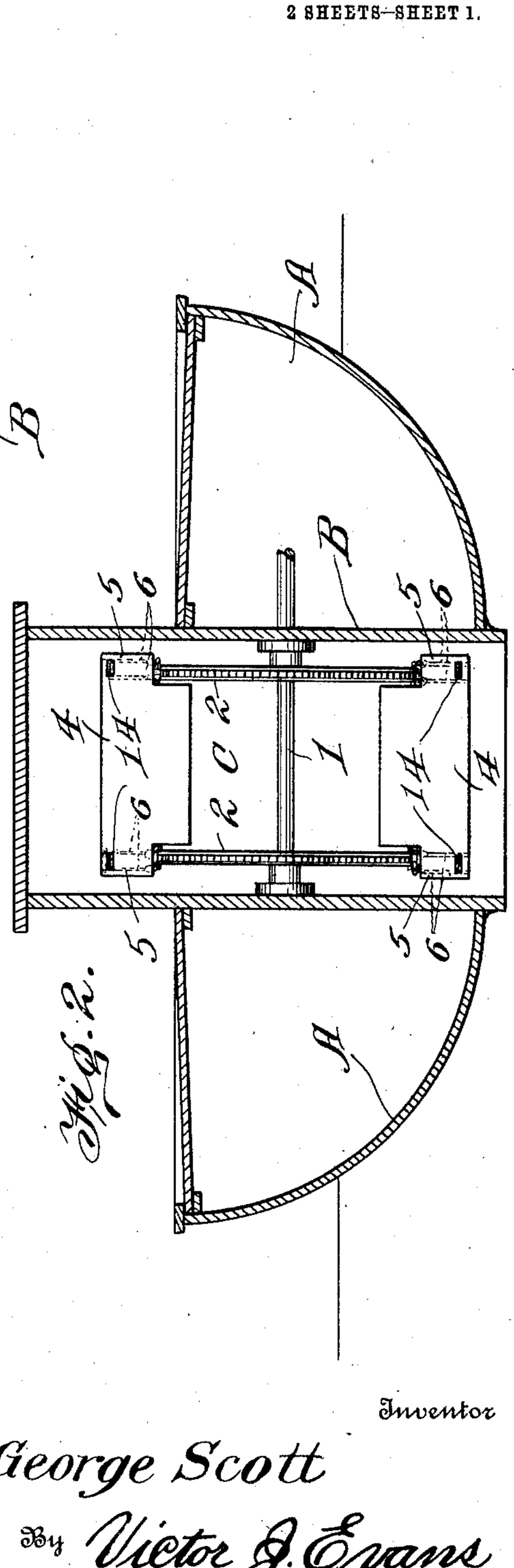


Fig. 2.

Witnesses
H. N. Lybrand
C. Bromberg

Inventor
George Scott
By Victor J. Evans
Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

G. SCOTT.

BOAT PROPELLING MECHANISM.

APPLICATION FILED JULY 6, 1910.

998,555.

Patented July 18, 1911.

2 SHEETS—SHEET 2.

Fig. 3.

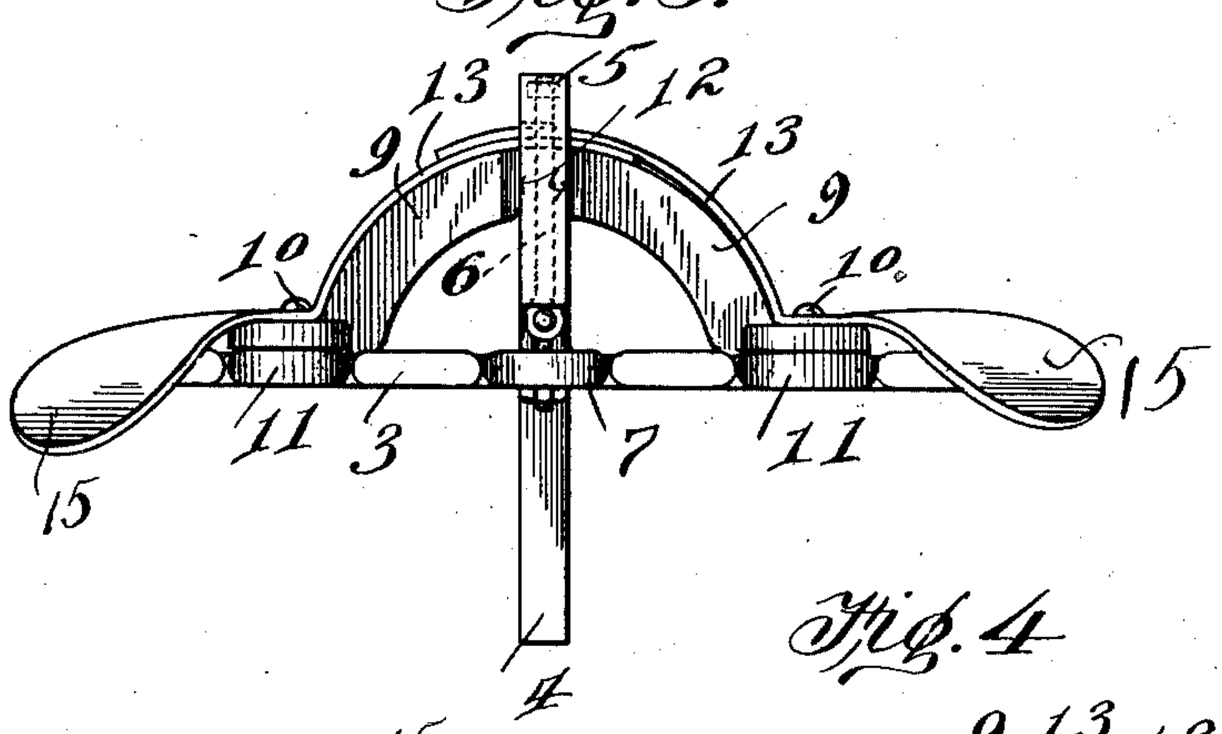


Fig. 4

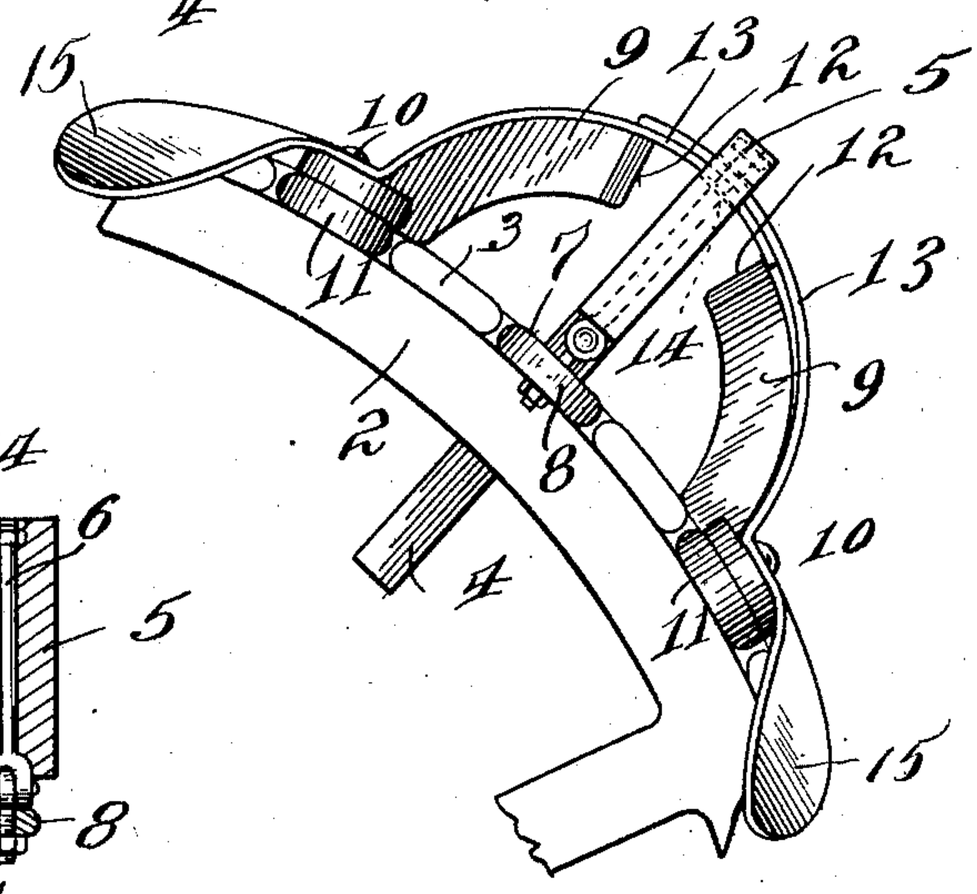


Fig. 6.

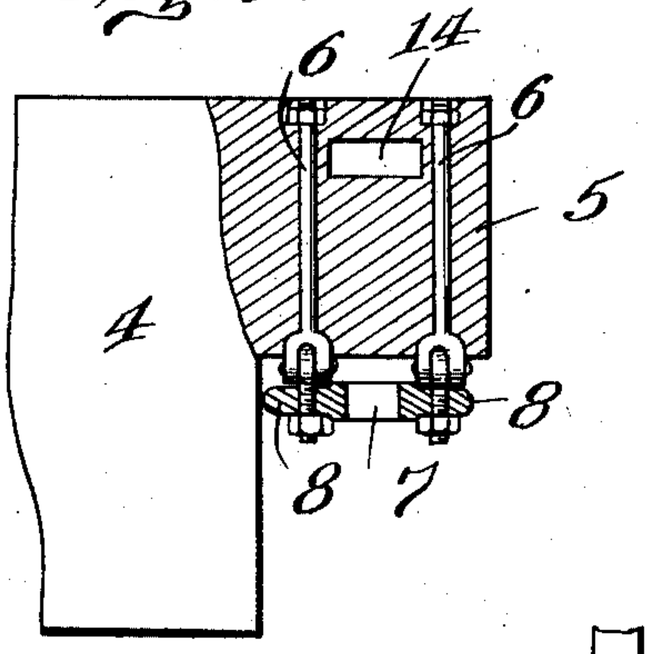
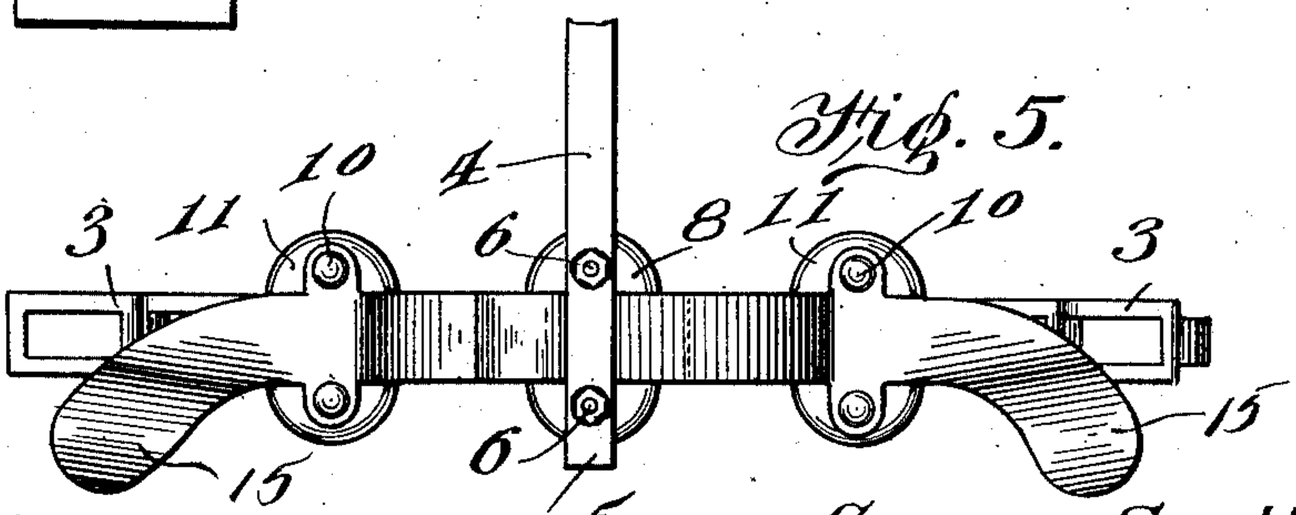


Fig. 5.



Witnesses

N. H. Lybrand

C. B. Broadway

Inventor

George Scott

By Victor J. Evans

Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE SCOTT, OF ANN ARBOR, MICHIGAN.

BOAT-PROPELLING MECHANISM.

998,555. Specification of Letters Patent. **Patented July 18, 1911.**

Application filed July 6, 1910. Serial No. 570,663.

To all whom it may concern:

Be it known that I, GEORGE SCOTT, a citizen of the United States, residing at Ann Arbor, in the county of Washtenaw and State of Michigan, have invented new and useful Improvements in Boat-Propelling Mechanism, of which the following is a specification.

This invention relates to boat propellers of that type including an endless element having a plurality of blades or vanes which react in the water for causing the boat to be propelled.

The invention has for one of its objects to improve and simplify the construction and operation of mechanism of this character so as to be efficient and reliable in use, requiring a minimum of power and composed of comparatively few parts.

Another object of the invention is the provision of a novel means for holding the blades or vanes in outstanding position during the time they are active in the water so that a maximum thrust can be obtained.

With these objects in view, and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a longitudinal section of a boat equipped with the improved propelling mechanism. Fig. 2 is a transverse section thereof. Fig. 3 is an enlarged side elevation of one of the blades and bracing means. Fig. 4 is a similar view showing the position of the bracing means as the blades pass around the supporting wheels of the endless blade element. Fig. 5 is a plan view of one end of the blade and brace means. Fig. 6 is a detail view of the means for fastening the blade elements to the chains.

Similar reference characters are employed to designate corresponding parts throughout the several views.

In the present instance, I have elected to illustrate the propelling mechanism as applied to the center of the boat longitudinally, this arrangement being especially adapted for small crafts, but in larger vessels the propelling mechanism can be arranged at each side in place of the usual paddle wheels.

Referring to the drawings, A designates the hull of the boat which is provided through its center with a longitudinal tunnel B extending its entire length, so that water can rise therein to the same height as the water at the sides of the hull. This tunnel is adapted to contain a propelling mechanism C. Across this tunnel are mounted transversely-extending shafts 1 on each of which are secured spaced sprocket wheels 2 around which pass sprocket chains 3 that together form an endless blade carrying element. On this element are several blades 4 which are spaced apart at such a distance that at least two blades will be active at a time in propelling the boat and yet the blades are not so close together as to cause the blade in advance to neutralize the effect of the succeeding blade. These blades extend from one chain to the other and are provided with laterally-projecting ears or members 5 that extend across the chains 3 and are secured therto by bolts 6 passing through the said cars. These bolts are hingedly connected to links 7, which links are provided with lugs 8 to afford connection with the bolts. Part of each blade extends above and part below the chain, so that the strain on the blades will be more equally distributed.

The blades are provided with bracing means for holding them in outstanding position or at right angles to the chains. For this purpose, each chain is provided with oppositely-disposed bracing members 9 arranged at the opposite side of each blade, the said members being secured by bolts 10 to lugs 11 of the chain 3. The ends of the members 9 are provided with rubber block or other cushioning elements 12 that bear against the opposite faces of the blades. Each member has secured to its outer edge an arcuate strip 13 that projects beyond the member and extends through an opening 14 in the adjacent ear 5 of the blade. The strip or member 13 of one of the braces 9 overlaps the strip of the companion brace and these members serve to prevent twigs and the like from lodging between the blades and the braces or abutments 9. When the chains pass around the sprocket wheels, the braces or abutments separate from the blades, owing to the curvature which the chains take, but as soon as the blades pass from the wheels, the abutments reëngage the blades so as to be held at right angles to the chains. At the base portion of the abut-

ments are foot extensions 15 which project down over the sides of the chain for the purpose of keeping weeds, chips and the like from clogging the mechanism. The blade carrying element is driven in any suitable manner as for instance by an engine of reversible type and is operatively connected with the shaft 1.

The water line in the tunnel is disposed above the top edge of the blades so that the entire area of the latter will be operative as long as the blade is traveling from one wheel to the other. Furthermore, the blades do not project below the keel of the boat so that it will be possible to propel the latter in shallow water sufficient to float the boat.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention relates, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment therof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as are within the scope of the claims.

What I claim as new, and desire to secure by Letters Patent, is:—

1. In a propelling mechanism, the combination of an endless element, blades mounted thereon, abutments secured to the element and engaging the opposite sides of the blades, and members on the abutments arranged in overlapping relation to each other and extending through the blades to prevent objects from being caught between the blades and abutments.

2. In a propelling mechanism, the combination of an endless element, blades mounted thereon, wheels over which the element passes and separate abutments secured to the element at opposite sides of each blade and tiltable into and out of engagement with the latter as the element passes around the wheels.

3. In a propelling mechanism, the combination of an endless element, rotary supports for the element, blades on the element, and abutments secured to the element and arranged at opposite sides of each blade for bracing the latter when in operation and separable upon the blades as the element passes around its supports.

4. In a propelling mechanism, the combination of spaced chains, rotary supports for the chains, blades extending from one chain to the other and having apertured ears extending across the chains, means for fastening the ears to the chains, abutments on the chain for engaging the opposite sides of the ears, and members on the abutments extending through the apertures of the ears.

5. In a propelling mechanism, the combination of spaced chains, rotary supports for the chains, blades extending from one chain to the other and having apertured ears extending across the chains, means for fastening the ears to the chains, abutments on the chains for engaging the opposite sides of the ears, members on the abutments extending through the apertures of the ears, and a yielding device on the abutments arranged to engage the said ears.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE SCOTT.

Witnesses:

JOHN Q. A. SESSIONS,
W. A. CLARK.