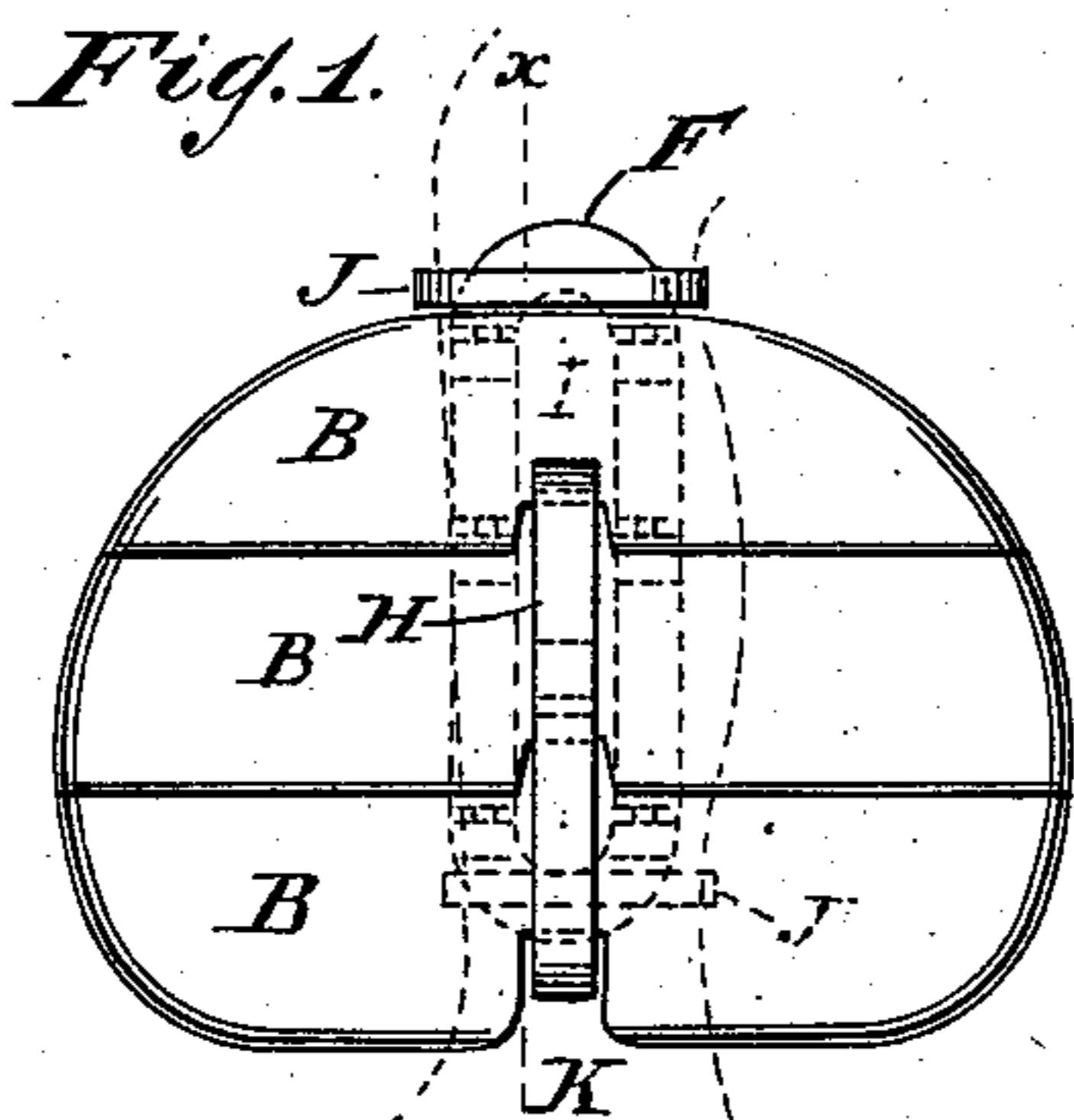


(No Model.)

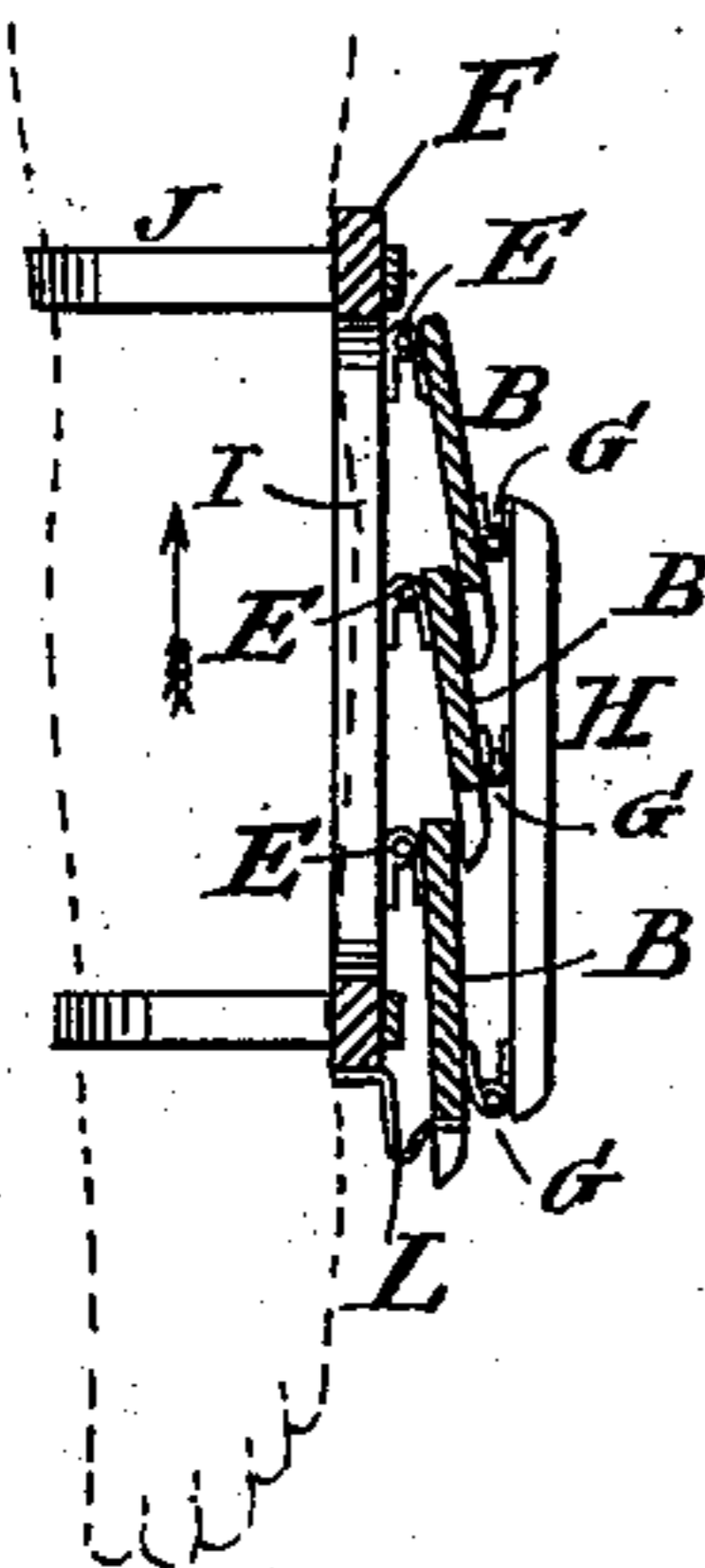
C. W. PETERSEN.  
SWIMMING APPARATUS.

No. 377,638.

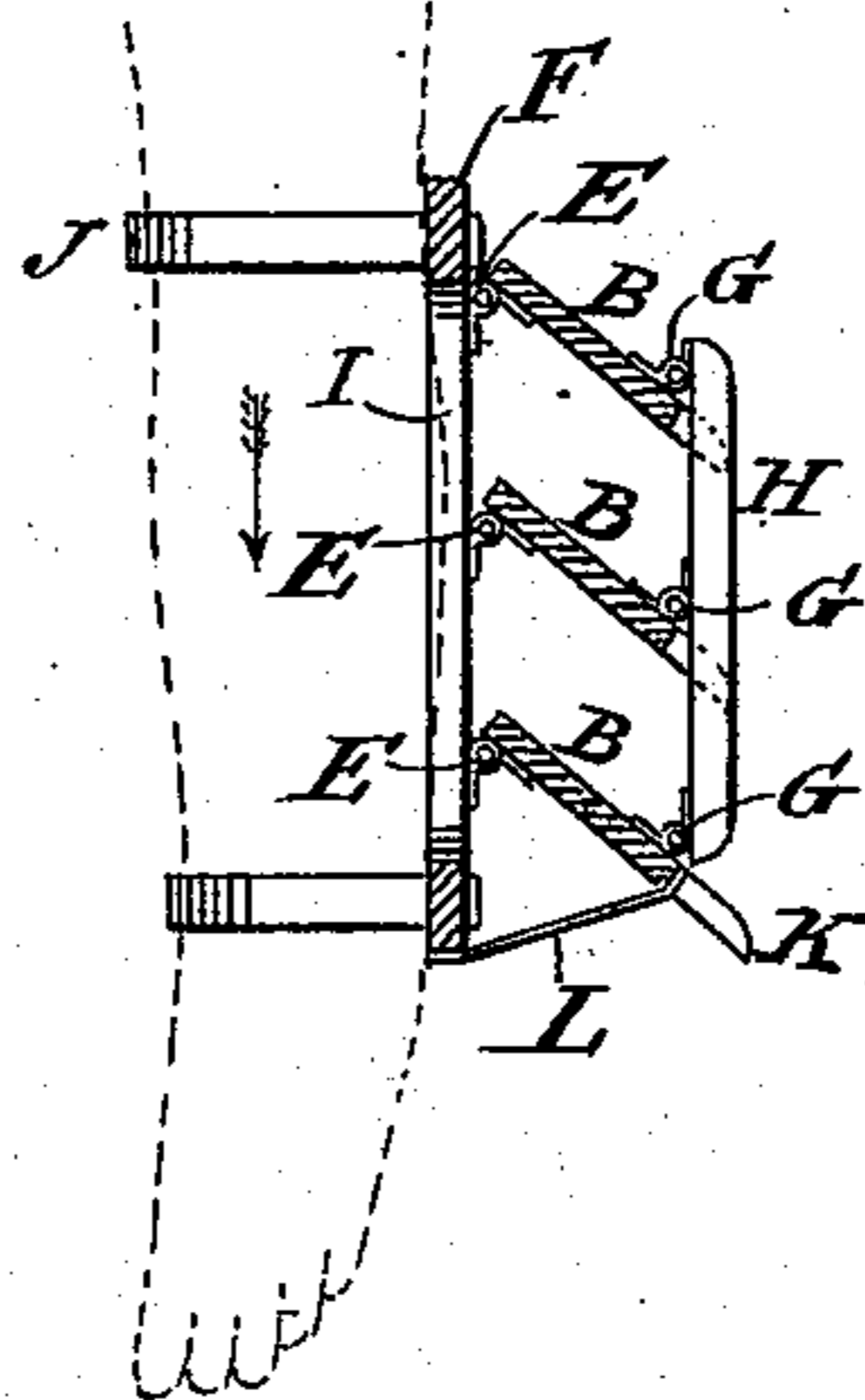
Patented Feb. 7, 1888.



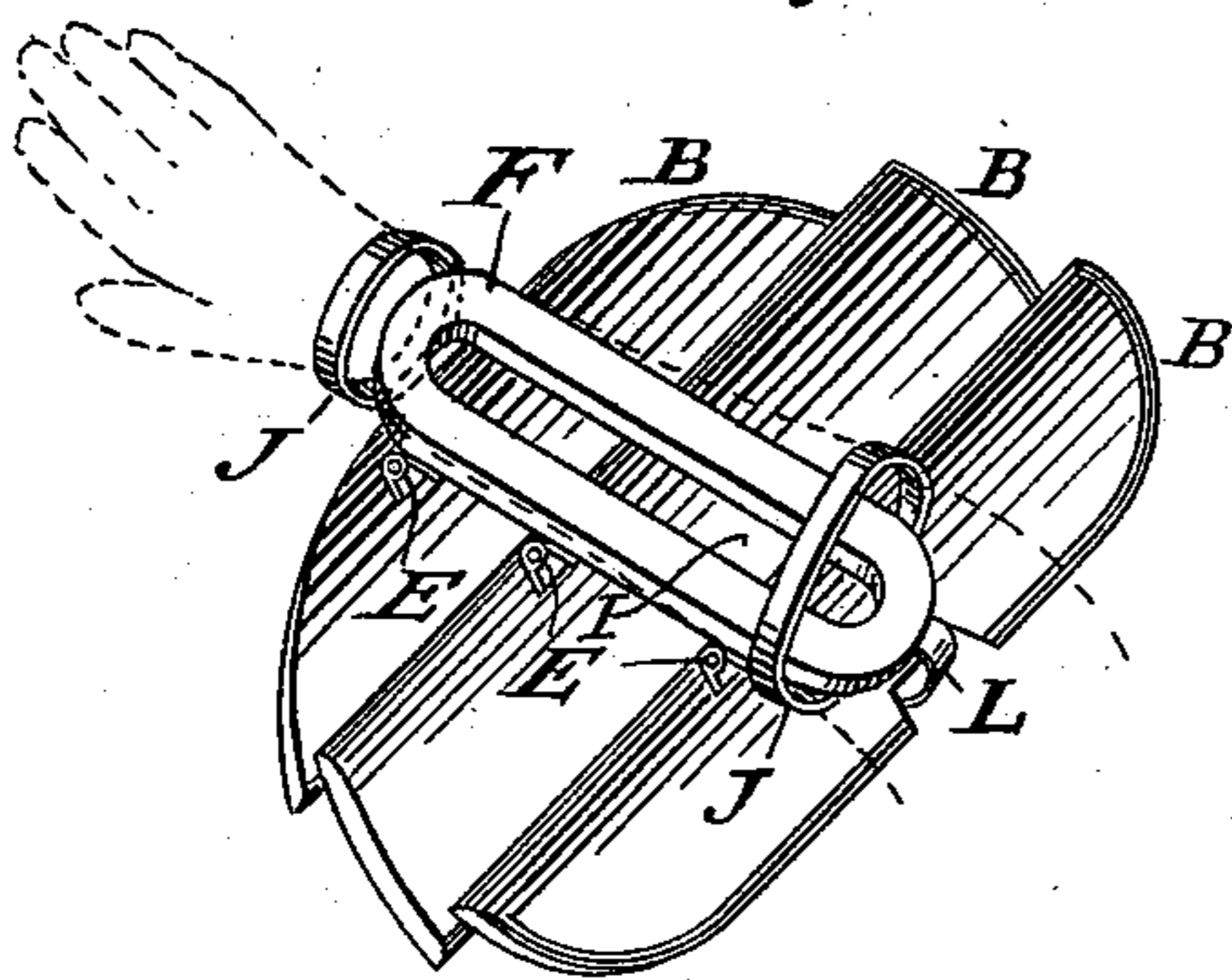
*Fig. 2.*



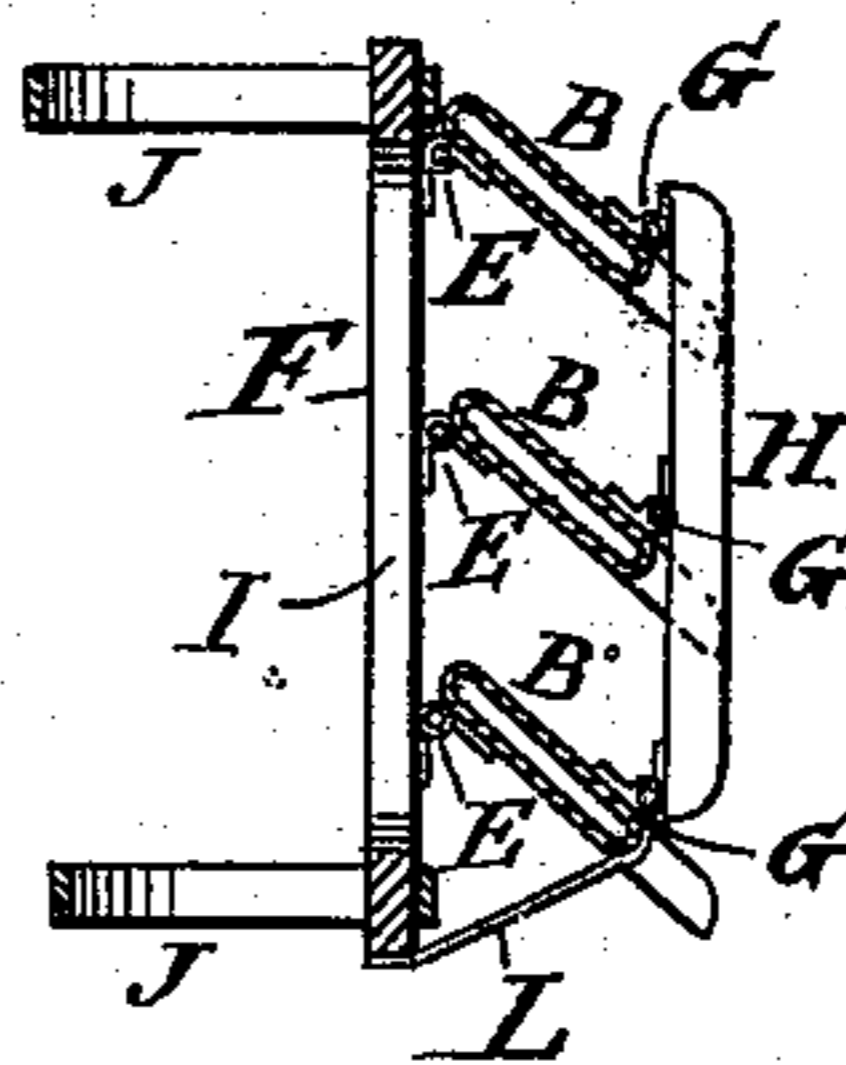
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESSES:

*Eduard Wolff.*  
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INVENTOR

*Carl W. Petersen.*

BY *Van Santvoord & Hauff*

his ATTORNEYS.

# UNITED STATES PATENT OFFICE.

CARL W. PETERSEN, OF BROOKLYN, NEW YORK.

## SWIMMING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 377,638, dated February 7, 1888.

Application filed October 22, 1887. Serial No. 253,137. (No model.)

*To all whom it may concern:*

Be it known that I, CARL W. PETERSEN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Swimming Apparatus, of which the following is a specification.

This invention relates to swimming apparatus; and it consists in improvements which are fully set out in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a folding propeller provided with leaves hinged to a frame, the apparatus being adapted in this example to be secured to the leg of the swimmer. Fig. 2 is a front view of the propeller shown in Fig. 1, the arrow in Fig. 2 being meant to show that the direction of motion is upward, in which case the leaves of the propeller become closed, as is represented in this figure. Fig. 3 shows the propeller with its leaves open, the arrow showing that the direction of motion is downward. Fig. 4 shows the propeller arranged to be secured to the arm of the swimmer. Fig. 5 represents a propeller whose leaves are made hollow to secure lightness.

Similar letters indicate corresponding parts.

The folding propeller here shown consists of leaves B, hinged at their inner edges by suitably-placed hinges E to an inner bar, F, and also hinged near their outer edges by hinges G to an outer bar, H. The bars F and H are arranged transversely to the hinged leaves. The bar F has an opening, I, as shown in the drawings, so that the bar has the form of an oblong ring. To the ends of the bar F are secured straps J J, which go around the leg or arm of the swimmer and are fastened thereto by any suitable fastening. The outer edges of the leaves B are notched, as at K, and the hinges G, which connect said leaves to the bar H, are placed at the top of said notches, so that the bar H enters into the notches of said leaves

when the folding leaves are open, as is shown in Fig. 3. When the swimmer moves his leg in the direction of the arrow in Fig. 2, the leaves of the propeller fold themselves inward, as represented in that figure, because of the resistance of the water in which the apparatus is supposed to be immersed, and when he moves his leg in the direction of the arrow in Fig. 3 the leaves are opened from the same cause, the extent of their opening being governed by the strap L, which is fastened to the bottom of the bar F, and extends thence to the bottom of the bar H or to the outer edge of the lower leaf B, where it is fastened. Any other suitable stop may be used in place of the strap L for controlling the extent of movement of the folding leaves.

The leaves, bars, and other parts of the apparatus are made of materials of light specific gravity, and the leaves may be of tin or other sheet metal and made hollow, as is indicated in Fig. 5, so as to secure lightness, and the bars F and H can also be made in that manner, if desired.

I do not restrict myself to any particular number of folding leaves B in constructing the apparatus.

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

A folding propeller consisting of the parallel folding leaves B, the bars F and H, hinged transversely to the opposite edges of said leaves, the straps J J, attached to the opposite ends of the inner bar, F, and a stop, L, for limiting the unfolding of the leaves, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

CARL W. PETERSEN. [L. S.]

Witnesses:

A. FABER DU FAUR, Jr.,  
E. F. KASTENHUBER.