(No Model.)

S. A. BROWN.

NET CUTTING ATTACHMENT FOR TORPEDOES.

No. 401,773. Patented Apr. 23, 1889.

Fig. 1.

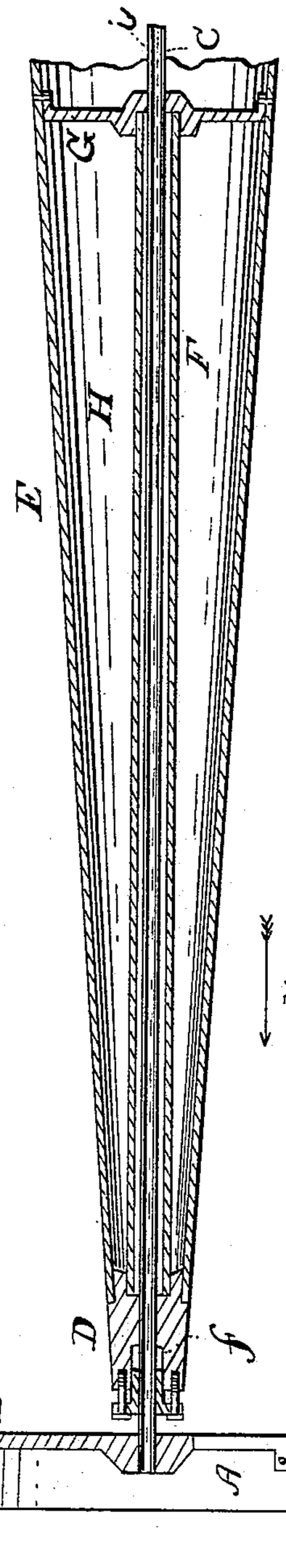


Fig. 3.

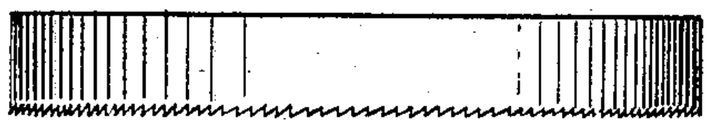
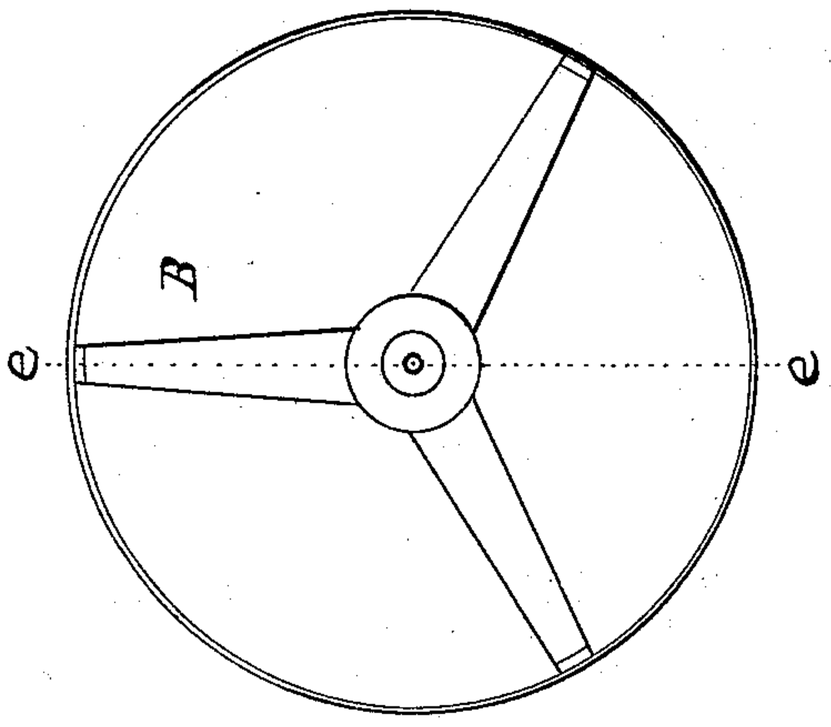


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

SETH A. BROWN, OF BUFFALO, NEW YORK.

NET-CUTTING ATTACHMENT FOR TORPEDOES.

SPECIFICATION forming part of Letters Patent No. 401,773, dated April 23, 1889.

Application filed December 17, 1888. Serial No. 293,843. (No model.)

To all whom it may concern:

Be it known that I, SETH A. BROWN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Torpedoes, of which the following is a specification.

The object of my invention is to provide a means for penetrating the protective netting of vessels, and it will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal central section through the forward portion of a torpedo and through the center of the cutter, as indicated by the dotted line *e e*, Fig. 2. Fig. 2 is a front elevation of the cutter and supporting-frame. Fig. 3 is a side elevation showing a slight modification of the cutting-edge of the cutter.

In said drawings, E represents the front portion of a torpedo. It is preferably made of iron-plate in any well-known way. At the front is a casting, D, provided with a stuffing-box, *f*, and forming a bearing for the shaft C.

F is a longitudinally-arranged tube passing through the explosion-chamber H, having its forward end secured to the casting D, and its opposite end is rigidly fastened to the plate G, which also forms a bearing for the shaft, and is secured to the shell of the torpedo E.

A shaft, C, passes through the bearings D and G and through the tube F. At the front end of the shaft C is rigidly secured the cutter-frame B, having an annular cutter, A, secured to it by bolts or rivets K. The rear end, *i*, of the shaft C extends backward far enough to connect with a steam, gas, or other engine, or with any other suitable means for giving the shaft and cutter a rotary or an oscillating motion; but I prefer a rotary motion, which may be given in any well-known way either by a steam, gas, or an electric engine or motor of any ordinary construction.

The object of the tube F is to protect the shaft C, and also to insulate the shaft from the explosion-chamber H within the shell E, so as to allow the shaft to pass through the explosive material without interfering with it.

The cutting-edge of the cutter A may be either a smooth cutting-edge, N, as shown in Figs. 1 and 2, or a series of saw-teeth, O, as shown in Fig. 3.

The operation of the invention is as follows: The torpedo moves in the direction of the arrow *v*, Fig. 1, and as the cutter is turning rapidly it will easily cut its way through any of the usual nettings employed to resist torpedoes.

I claim as my invention—

1. In a torpedo, the combination therewith of an annular cutter secured in a supporting-frame mounted at the head of the torpedo upon a shaft set in bearings within the torpedo, and extending from the front toward the rear, and a suitable means for giving it a rotary motion, substantially as described.

2. In a torpedo, the combination therewith of a tube, F, passing longitudinally through the explosion-chamber H, and the shaft C, passing through the tube and having at its forward end an annular cutter, and at its rear end a means for giving it a cutting motion, substantially as described.

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