

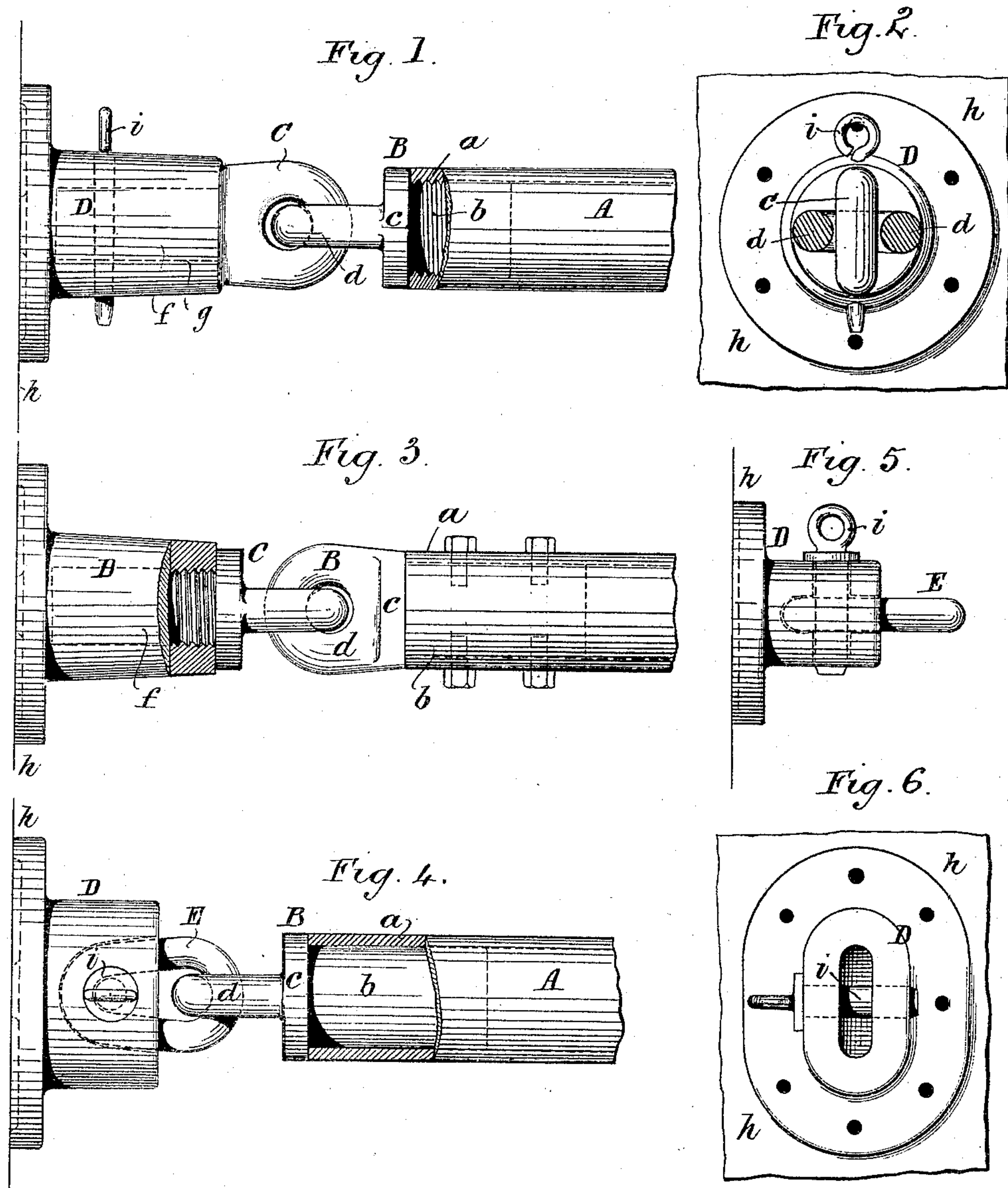
(No Model.)

W. P. BULLIVANT.

ATTACHMENT FOR SUPPORTING TORPEDO NETS.

No. 442,951.

Patented Dec. 16, 1890.



Witnesses:
Ewell A. Dick
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by Marshall Bailey
his attorney.

UNITED STATES PATENT OFFICE.

WILLIAM PELHAM BULLIVANT, OF LONDON, ENGLAND.

ATTACHMENT FOR SUPPORTING TORPEDO-NETS.

SPECIFICATION forming part of Letters Patent No. 442,951, dated December 16, 1890.

Application filed January 23, 1890. Serial No. 338,021. (No model.) Patented in England October 7, 1889, No. 15,730, and November 14, 1889, No. 18,206.

To all whom it may concern:

Be it known that I, WILLIAM PELHAM BULLIVANT, wire-rope manufacturer, a subject of the Queen of Great Britain and Ireland, residing at 72 Mark Lane, in the city of London, England, have invented certain Improvements in Booms and Their Attachments for Supporting Torpedo-Nets, (for which I have applied for patents in Great Britain, Nos. 15,730 and 18,206, dated, respectively, October 7, 1889, and November 14, 1889,) of which the following is a specification.

Hitherto booms for supporting torpedo-nets have generally been made of wood, and the heel attachments have consisted of metal shoes or sockets or the like, into which the heel end of the boom has been inserted and riveted.

According to my invention I make the booms of metal (preferably of steel or iron) tubes, either tapered or of the same diameter throughout, and screw or otherwise secure the heel attachment therein instead of on the exterior, as heretofore. To secure the boom to the side of a vessel or other place to which it is to be attached, I provide on the said side or place a boss or projection having an orifice therein into which the heel attachment of the boom is inserted and securely held therein by screwing, riveting, or by means of an eyebolt or a link, as hereinafter described.

I will describe my invention with reference to the accompanying drawings, Figure 1 of which is a side elevation, and Fig. 2 a transverse section, illustrating my invention. Fig. 3 is a side elevation, partly in section, illustrating a modified form of the connecting parts, and the remaining figures represent further modifications, hereinafter referred to.

The boom A is made of metal (preferably of steel or iron) tube, and may either taper from the heel portion *a* toward the outer end or taper from the mid portion toward each end or be made parallel throughout, as desired. To the heel *a* of the boom is secured an attachment B, the stem *b* of which may be screwed into the boom, as shown in Fig. 1, or be fixed therein by screws, as shown in

Fig. 3, or the heel end of the boom may be shrunk onto the stem *b*, as shown in Fig. 4. The attachment B is formed with a flange or shoulder at *c*, against which the heel of the boom bears when in position. It is also provided with an eye *d*, with which is linked an eyebolt C, by which the boom is attached to the side of a vessel or the like. The stem *f* of the eyebolt C is inserted in an orifice *g* in a boss D, projecting from the side *h* of the vessel or other place of attachment, and the said stem may be secured to the said boss by a cotter-pin *i*, passed through the boss and the stem, as shown in Figs. 1 and 2, or the stem *f* may be screw-threaded and screwed into a corresponding screw in the boss, as shown in Fig. 3.

Instead of the eyebolt C, hereinbefore described, a link, as shown at E, Fig. 4, may be engaged with the eye of the attachment B, a suitably-shaped orifice being provided in the boss D, as shown in Figs. 4, 5, and 6, for the reception of the link, which when in position in the boss is securely held therein by a strong pin *j*, passed transversely through the boss and through the link, as shown.

Owing to the position of the parts and the mode of connecting them, as described, the strains are better distributed than hitherto.

What I claim is—

1. A boom for supporting torpedo-nets, consisting of a tube (preferably of steel or iron) and a heel attachment suitably secured inside the heel end of said boom, substantially as and for the purposes set forth.

2. A boom for supporting torpedo-nets, consisting of a tube and a heel attachment having at one end an eye and at the opposite end a stem which is secured inside the heel end of said boom, substantially as described.

3. A boom for supporting torpedo-nets, consisting of a tube and a heel attachment having an eye at one end, an intermediate flange or shoulder *c* formed thereon, and a stem at the opposite end secured inside the heel end of said boom, substantially as described.

4. For connecting torpedo-net booms (whether of the kind described or of the usual kind) to the sides of vessels or to other places, a boss or projection attached to or formed on

the side or place to which the boom is to be
connected, the said boss having therein an
orifice, as shown, into which is inserted a pin
or eyebolt or a link connected to the heel-end
5 attachment of the boom and retained in po-
sition in the boss by screwing or by a pin or
like means, substantially as hereinbefore de-
scribed with reference to the accompanying
drawings.

In testimony whereof I have signed my re-
name to this specification in the presence of
two subscribing witnesses.

WM. PELHAM BULLIVANT.

Witnesses:

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