

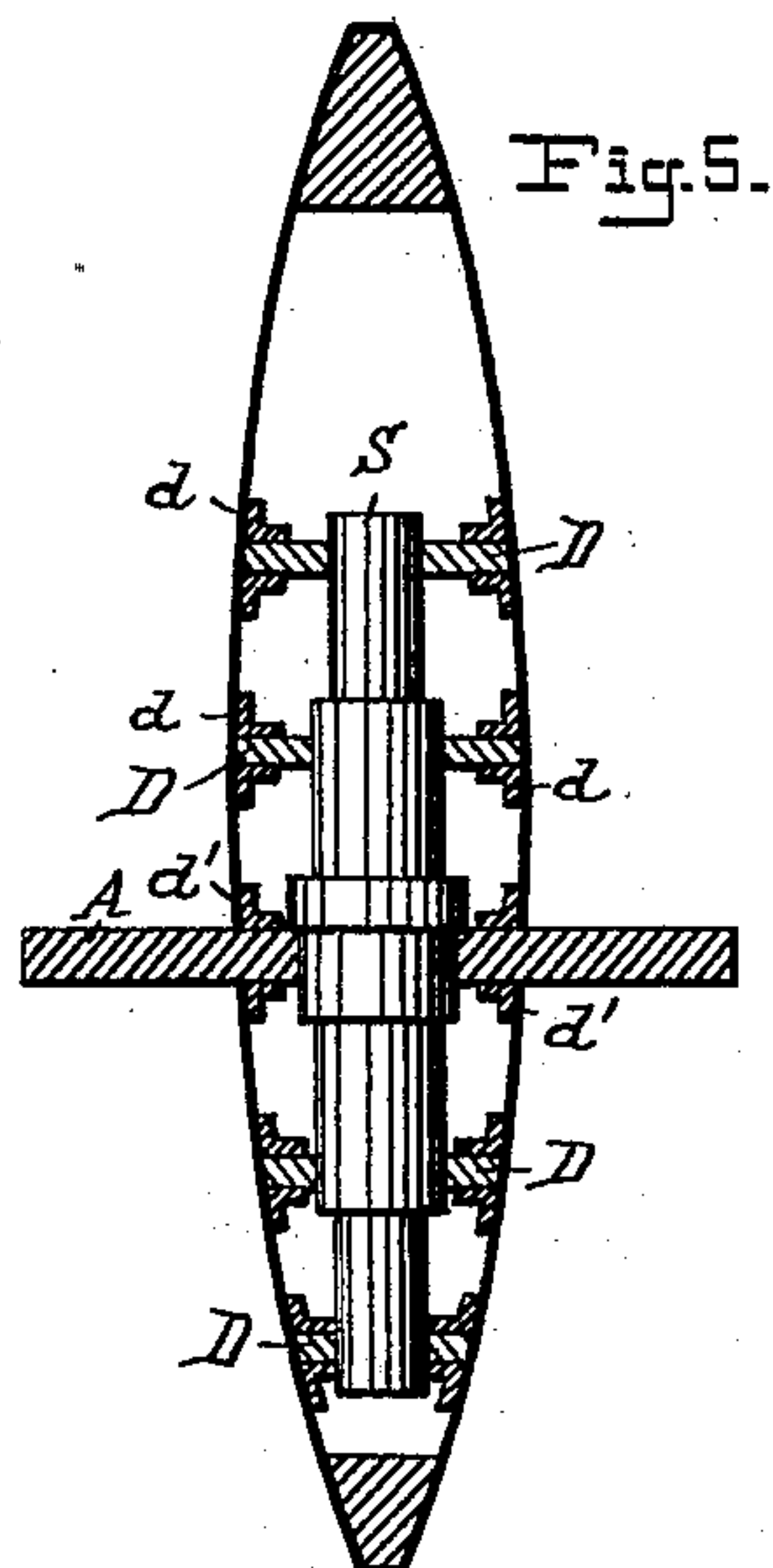
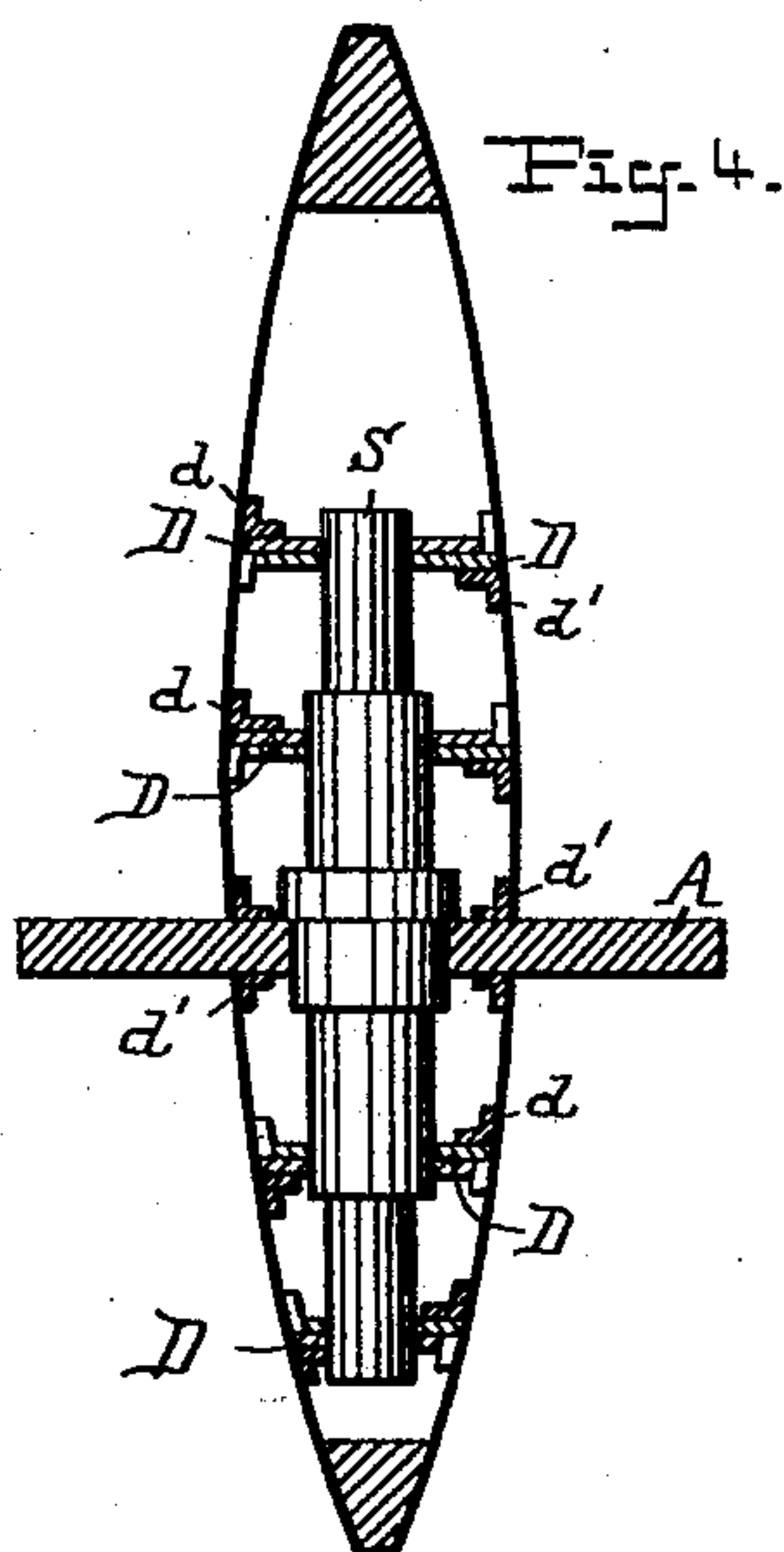
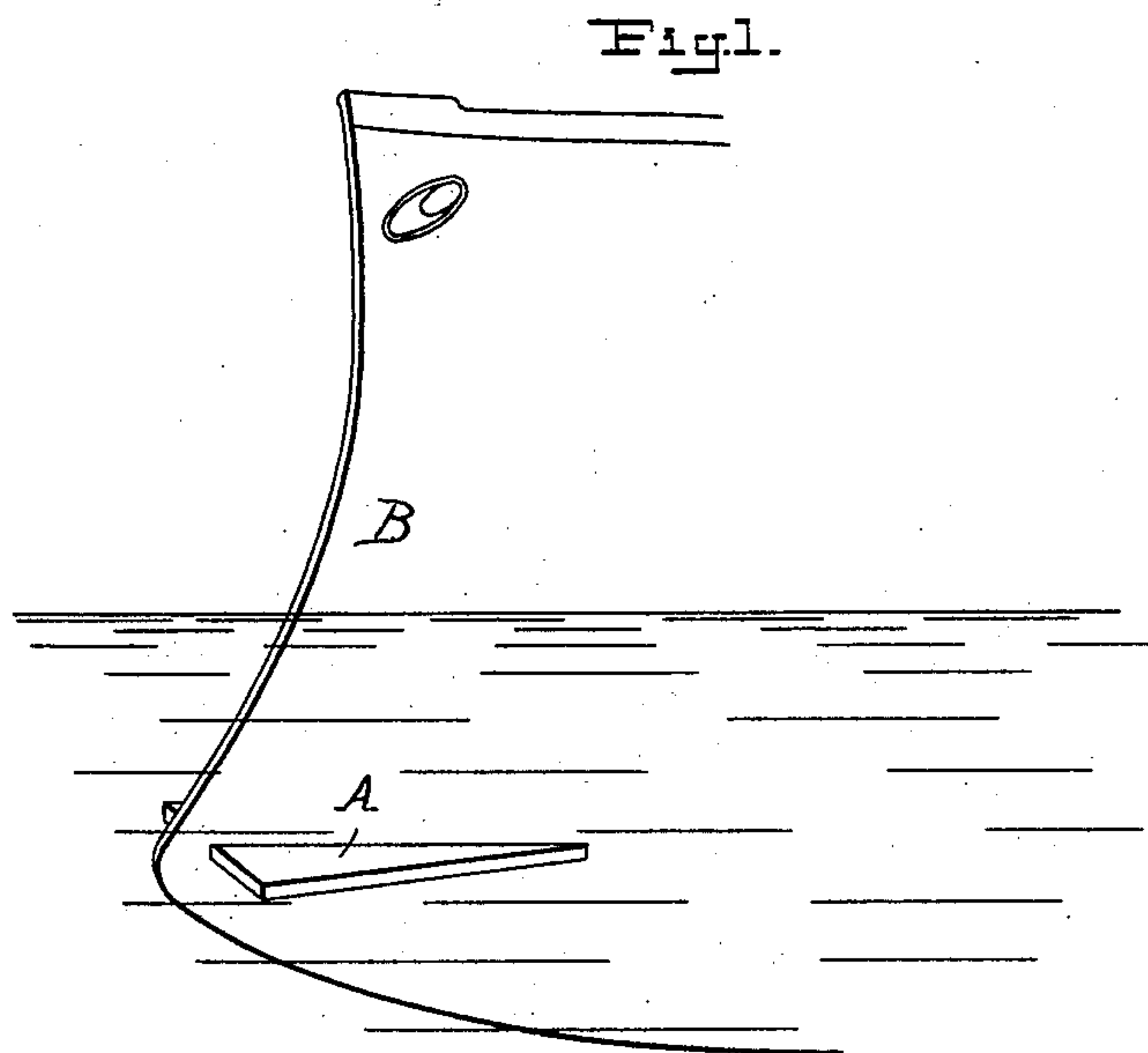
(No Model.)

2 Sheets—Sheet 1.

J. F. WARD.
SHIP'S RAM.

No. 403,806.

Patented May 21 1889.



WITNESSES:

E. J. Griswold
John Revell

INVENTOR,

John F. Ward
BY
Horsman and Horsman
his ATTORNEYS.

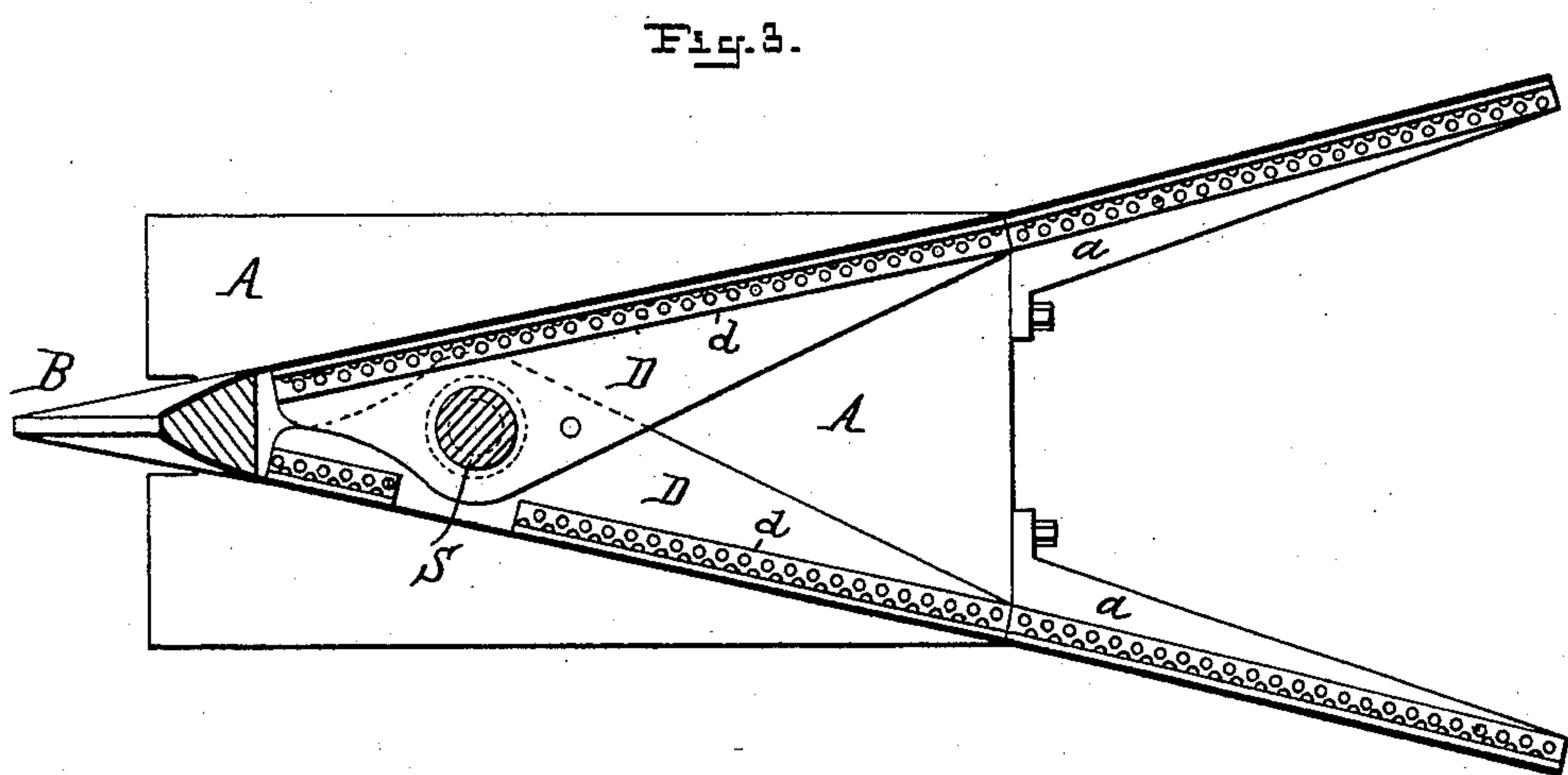
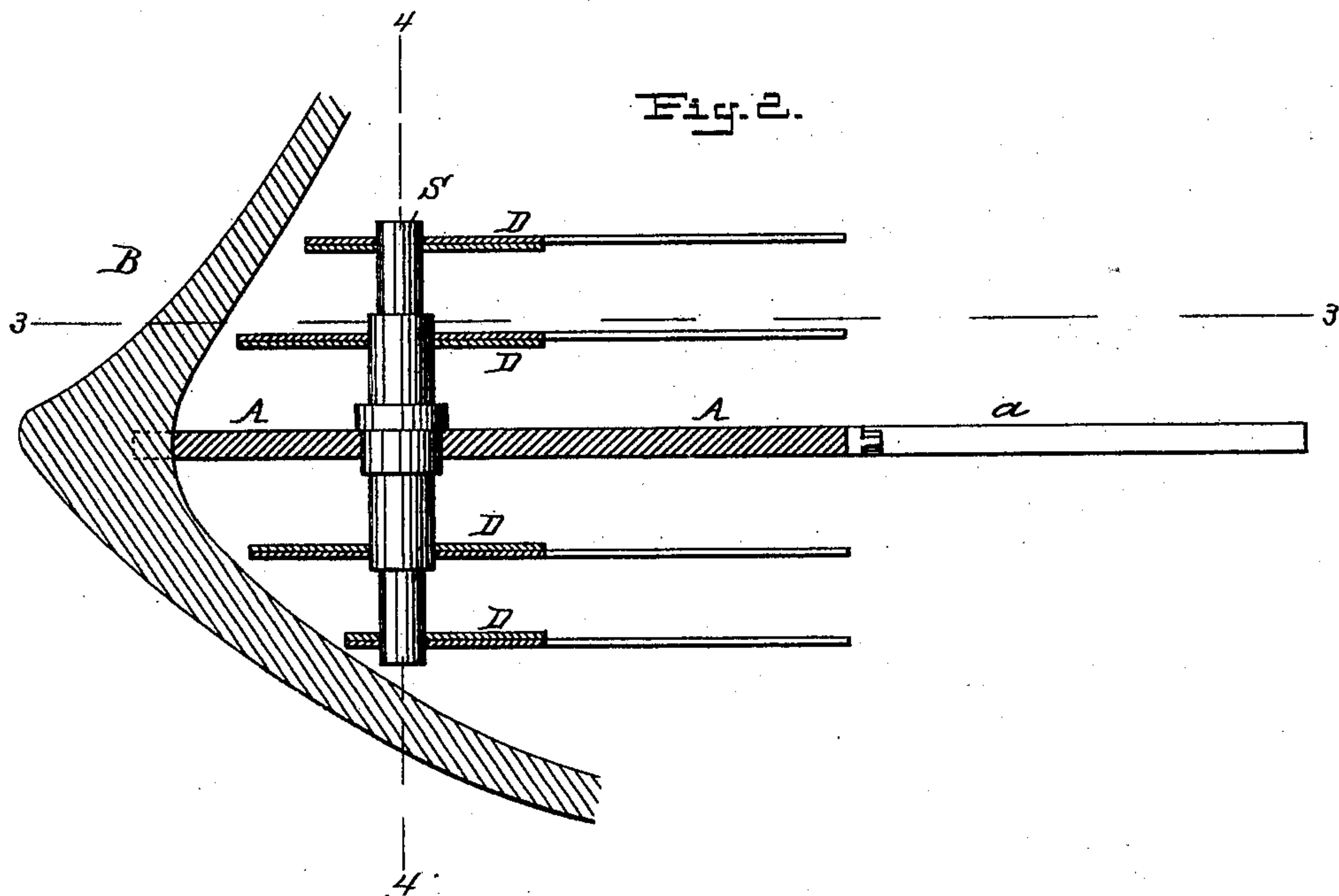
(No Model.)

2 Sheets—Sheet 2.

J. F. WARD.
SHIP'S RAM

No. 403,806.

Patented May 21 1889.



WITNESSES:

E. J. Griswold
John Revell

INVENTOR

John F. Ward
BY
Horsman and Horsman
his ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN F. WARD, OF JERSEY CITY, NEW JERSEY.

SHIP'S RAM.

SPECIFICATION forming part of Letters Patent No. 403,806, dated May 21, 1889.

Application filed March 12, 1889. Serial No. 302,992. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. WARD, a citizen of the United States, and a resident of Jersey City, Hudson county, New Jersey, have
5 invented certain Improvements in Vessels' Rams, of which the following is a specification.

My invention consists of certain improvements in the construction of vessels' rams,
10 which improvements are more particularly designed for application to the ram for which I obtained Letters Patent No. 379,427, dated March 13, 1888.

My former invention as described and
15 claimed in that patent consisted in the construction of the vessel with a ram extending transversely of the bow and provided with two oppositely-located attacking edges or corners.

20 It is the object of my present invention to provide for the strong construction of the ram, so that it shall be able to withstand all shocks and strains without breaking away and without damage to the vessel itself carrying the
25 ram.

In the accompanying drawings, Figure 1 is a perspective view of the bow of a vessel provided with the form of ram of my previous invention. Fig. 2 is a longitudinal section,
30 drawn to a larger scale, of a part of the bow with my present improvements. Fig. 3 is a sectional plan view on the line 33, Fig. 2, and Fig. 4 is a vertical section on the line 44, Fig. 2. Fig. 5 is a section showing a modification.
35 cation.

It will be seen on reference to Fig. 1 that the ram A on the bow B of the vessel extends transversely, like the end of a chisel held horizontally, as in my former invention; but my
40 present improvements may be applied to the construction, bracing, and strengthening of other forms of vessels' rams.

I make the ram A of a heavy plate built

into the frame-work of the vessel and extending through the plating of the vessel. The
45 rear end of this plate A may be braced by means of angle-pieces *a*, bolted to the rear end of the plate and to the frame-work of the vessel; but as a means of securing the ram A, I rely principally upon a shaft, S, which passes
50 through the ram-plate and also through a series of bracing bars or plates, D, above and below it and secured to the frame-work of the vessel. In case the ram-plate is to be applied to a vessel already built, these bracing bars
55 or plates are preferably made of the shape illustrated more fully in Fig. 3, and arranged in pairs, so that one bar of the pair shall be bolted or riveted by angle-irons *d* to the frame-work of the vessel on one side of the bow,
60 while the other bracing-bar of the pair is similarly secured to the frame-work on the other side of the bow of the vessel, as illustrated in Fig. 4.

Where the invention is applied to vessels in
65 course of construction, single bracing-plates D, extending entirely across, should be used to take up the strain upon the shaft S, as shown in Fig. 5. I also prefer, for additional security, to unite the ram-plate A to the frame
70 of the vessel by means of angle-irons *d'*. (Shown in Fig. 4.)

I claim as my invention—

The combination of the bow of a vessel and its ram-plate with a shaft passing through
75 the ram-plate, and bracing plates or bars secured to the frame-work of the vessel, and through which the shaft also passes, substantially as described.

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

JOHN F. WARD.

Witnesses:

EDITH J. GRISWOLD,
JOHN REVELL.