

(No Model.)

J. W. GIBB.  
CENTERBOARD FOR BOATS, &c.

No. 595,161.

Patented Dec. 7, 1897.

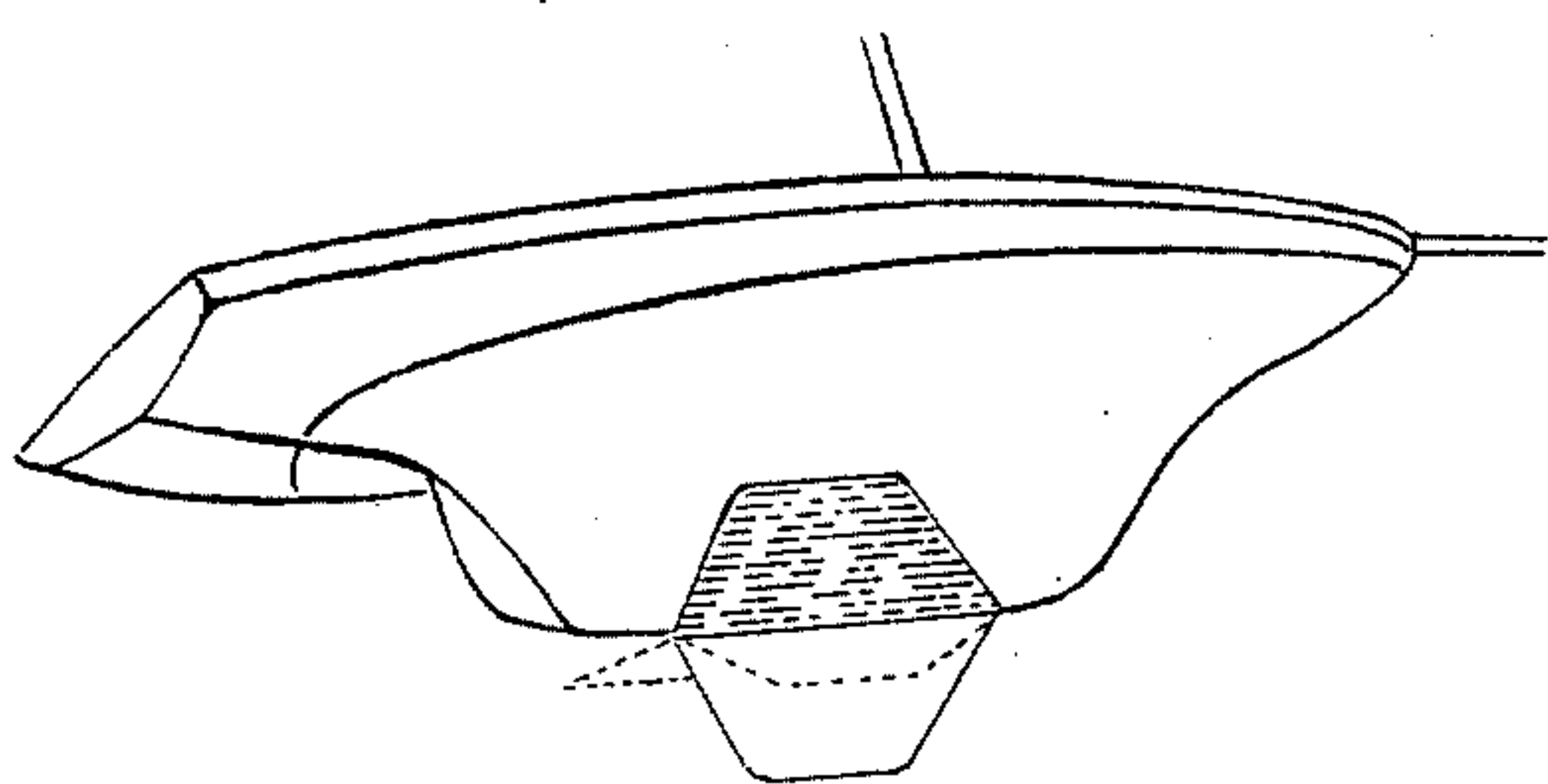


Fig. 5.

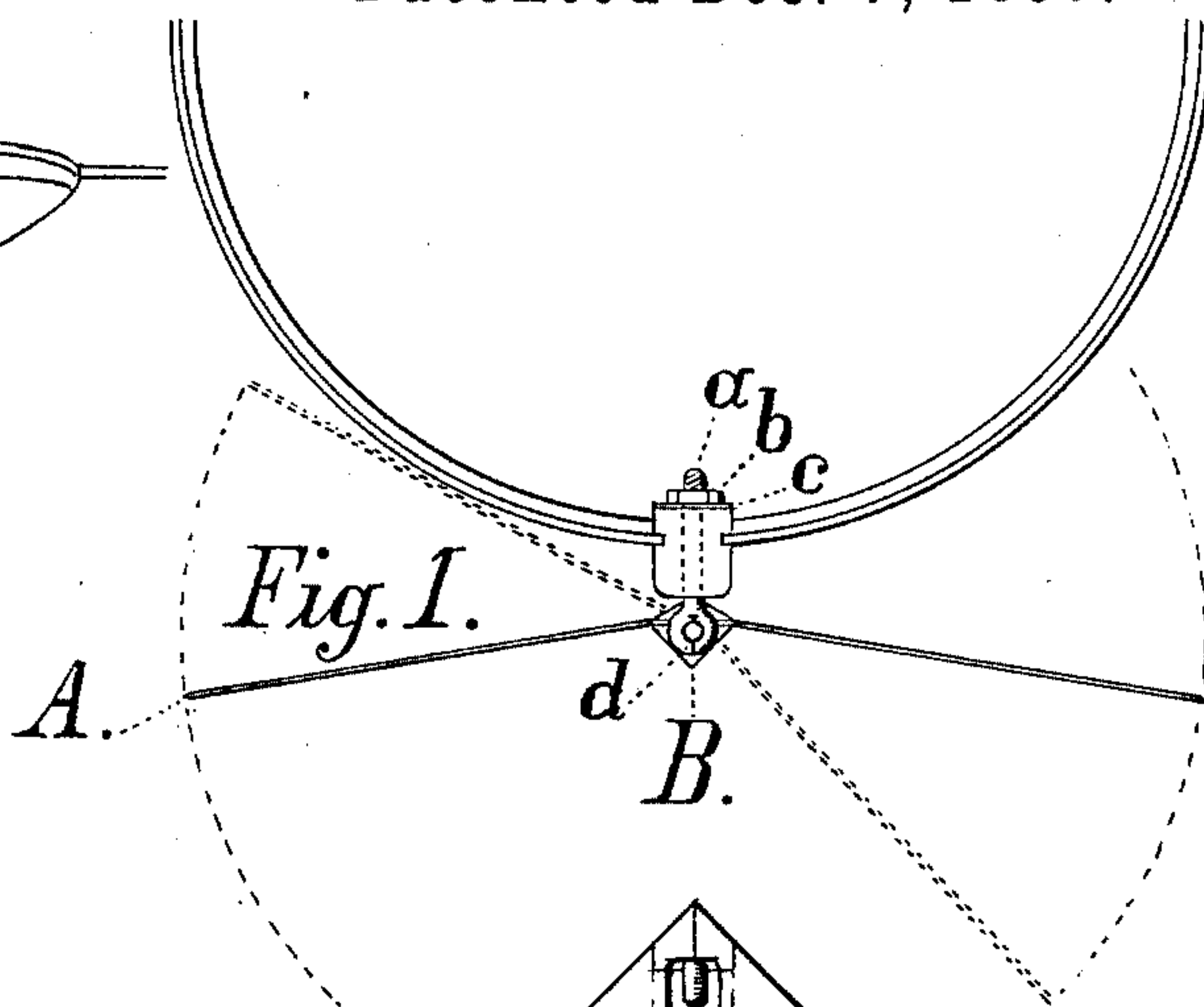


Fig. 1.

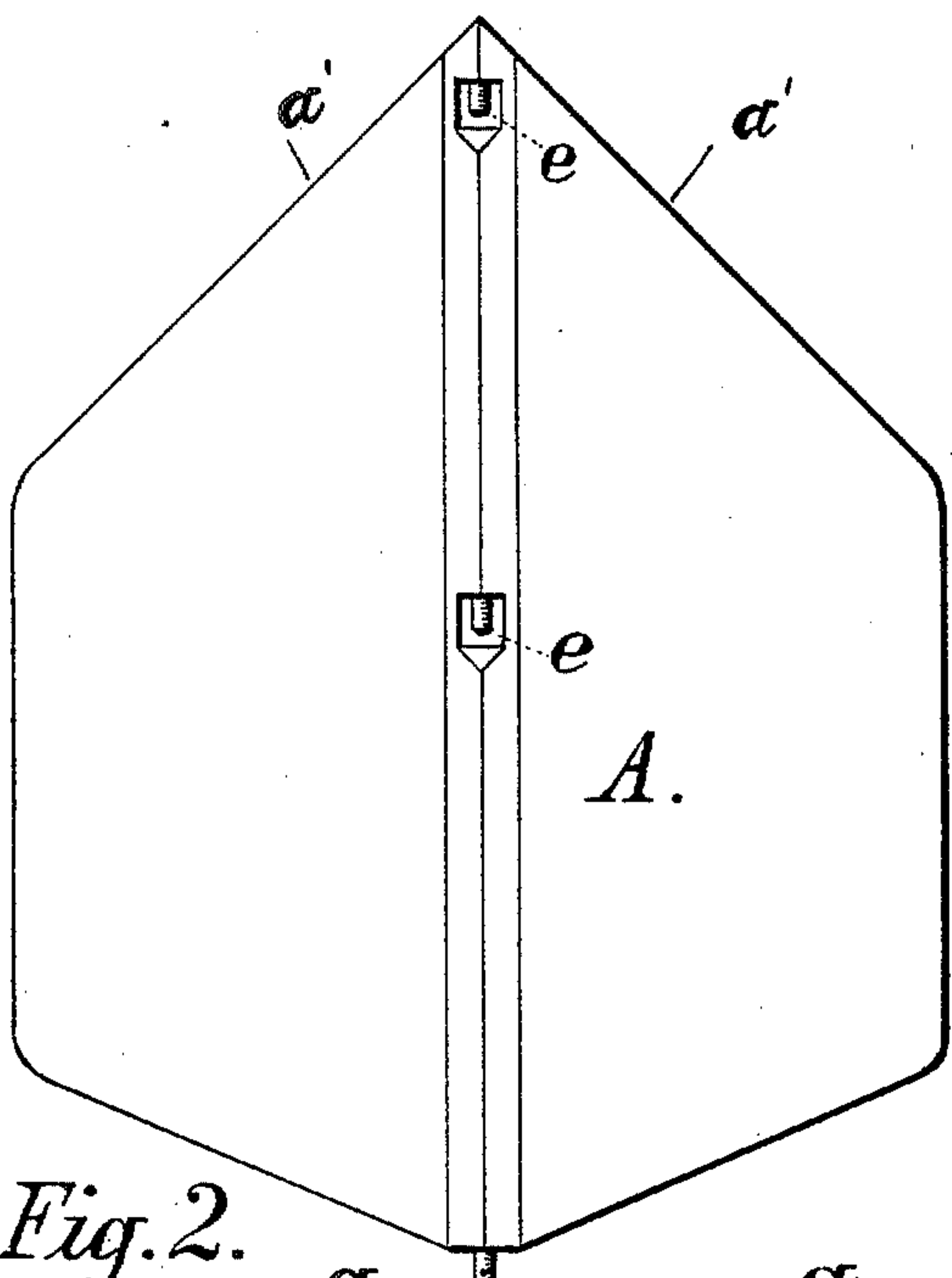


Fig. 2.

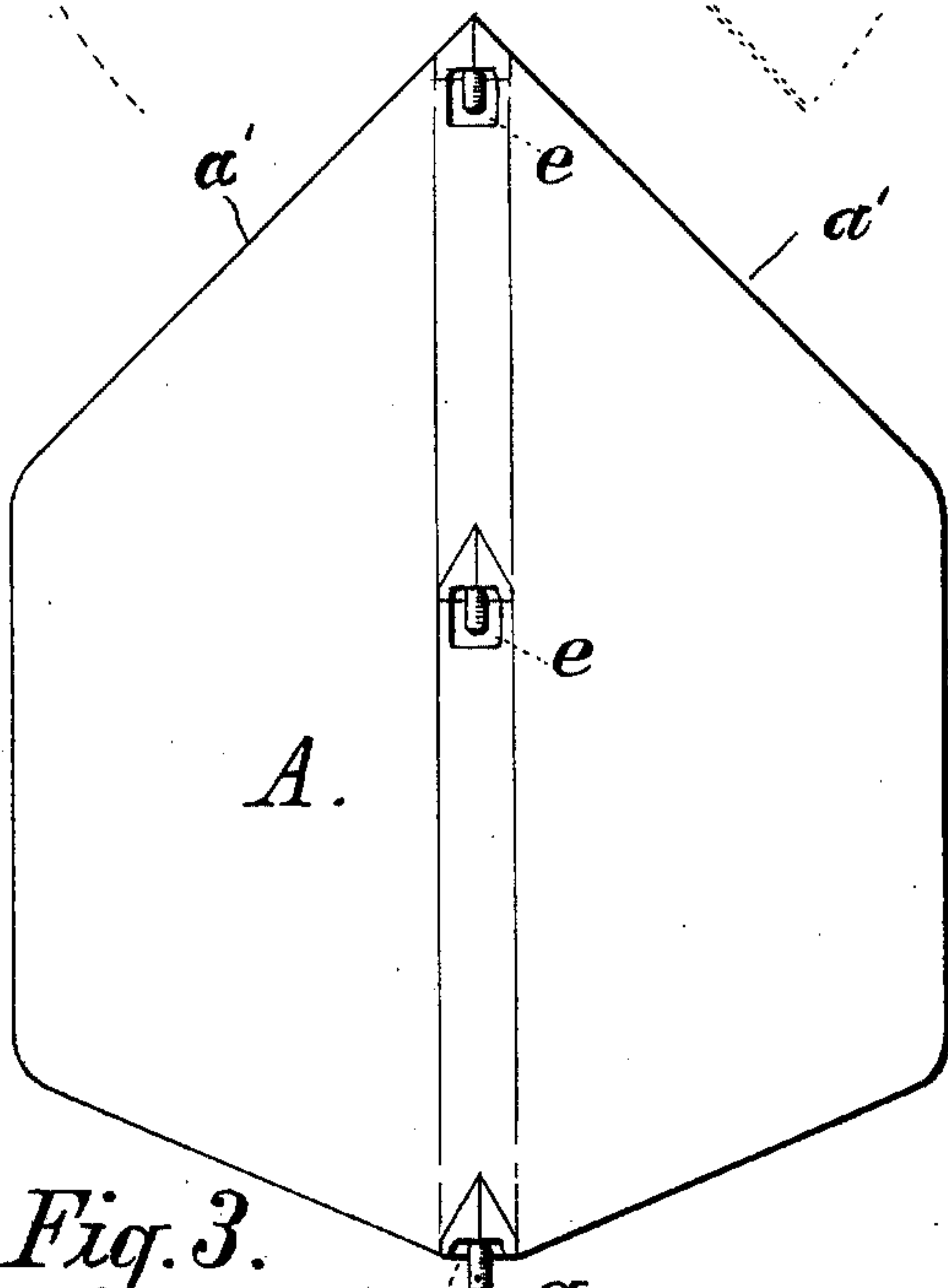


Fig. 3.

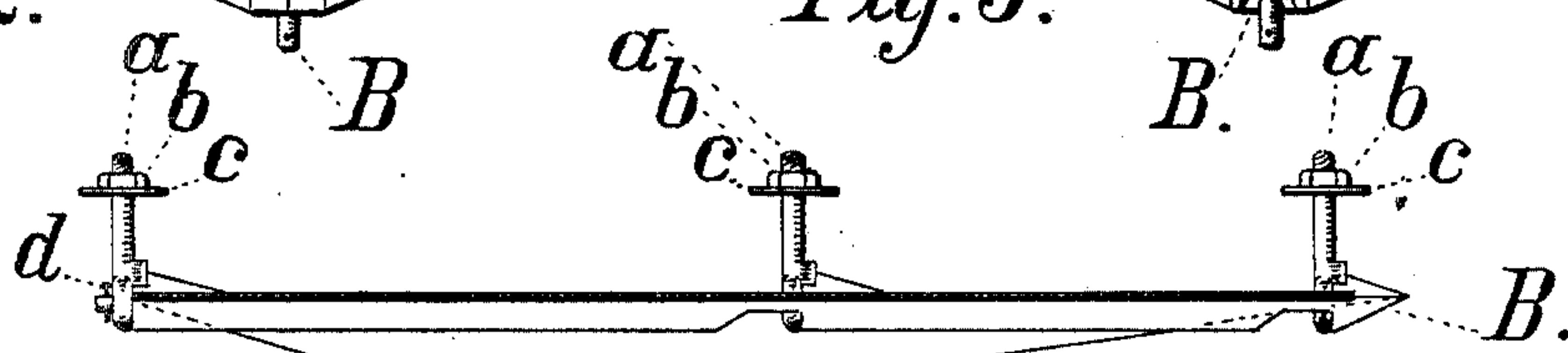


Fig. 4.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES W. GIBB, OF CHICAGO, ILLINOIS.

## CENTERBOARD FOR BOATS, &c.

SPECIFICATION forming part of Letters Patent No. 595,161, dated December 7, 1897.

Application filed September 12, 1895. Serial No. 562,305. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. GIBB, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have  
5 invented certain new and useful Improvements in Centerboards for Vessels, of which the following is a specification.

This invention relates to movable centerboards for sailing craft, and refers to a self-  
10 adjusting centerboard, automatically adapting itself to the list of the hull in opposition to the drift, and more specifically to a centerboard of double construction or provided with  
15 two resistance plates or blades which are alternately brought into operative position as the boat changes from one tack to another or reverses the angle of its course with relation to the direction of the wind either in  
"running" or "beating."

20 The object of the invention is to improve the sailing qualities of vessels equipped therewith and promote steadiness by the automatic shifting of the centerboard to a position opposed to the drift and incidentally to provide a construction which will enable the  
25 boat to navigate places impractical for boats equipped with centerboards such as heretofore commonly constructed.

The invention therefore consists, primarily,  
30 in combining with the hull a self-adjusting centerboard which automatically shifts its angle to the keel with the list of the hull, so as to present a practically perpendicular face to the direction of drift, and, secondarily, in  
35 combining with the hull two resistance-blades pivotally mounted to oscillate upon longitudinally-extending axes, each blade being free to oscillate away from the vertical keel plane of the boat, but positively limited in its move-  
40 ment toward the latter or when brought into position to resist the drift.

It further consists in the various other combinations and details of construction hereinafter pointed out and claimed.

45 In the drawings, Figure 1 is a transverse vertical sectional view of the hull of a boat equipped with one embodiment of my invention, the latter being shown in rear end elevation. Figs. 2 and 3 are bottom and top  
50 plan views, respectively, of the device removed from the boat. Fig. 4 is a longitudinal sectional view taken on a line parallel

with and adjacent to the central supporting or stiffening rib, showing the latter and the securing-bolts in side elevation. Fig. 5 is a  
55 perspective view showing the under side of a yacht-hull equipped with my invention.

In the most approved embodiment of my invention and as illustrated herein the two  
60 resistance-blades A A, forming the double centerboard, are united rigidly together and pivoted upon a common axis, the side of the hull serving to limit the outward and upward oscillation of the blades. Inasmuch as the  
65 blades are rigidly united, the contact of the upwardly-oscillated blade with the rigid stop afforded by the under side of the hull will determine the position which the other blade  
70 will assume when resisting movement of the boat laterally through the water, as when "tacking" and "drifting" under the impulse of the wind.

The blades are arranged to stand at more or less of an angle with each other, the angle  
75 included between the lower sides of the blades illustrated in Fig. 1 being a very obtuse angle, including approximately one hundred and seventy degrees. It is to be understood that the angle of the blades with relation to  
80 each other will be varied in accordance with the form of the hull to which they are attached, the distance their pivotal axis is located from or below the keel, and other conditions, it being obvious that a boat having  
85 a very flat hull and with the blades pivoted relatively close to the keel will require that the blades be set at a sharper angle with relation to each other than that illustrated, in order that the acting blade may be brought  
90 sufficiently near to a vertical plane to insure proper resistance when the other blade rests against the side of the hull. In this connection it may be stated that the blades may, if  
95 found desirable, be set at a much sharper angle with relation to each other than shown—as, for instance, at right angles to each other—and suitable stops or projections provided to  
limit the upward oscillation of the inactive blade at a distance from or before it reaches  
100 the under side of the hull. Inasmuch as the boat is always careened over more or less at such times as the resistance-blade is brought into use, it follows that said blade will assume a more advantageous position if it diverges



somewhat from the keel plane of the boat toward the direction in which the resistance is encountered, as indicated in dotted lines, Fig. 1.

5 The details of construction by which the blades are pivotally secured to the keel are obviously not essential, but, as herein shown, they are attached to a shaft or rib B, which is provided at each end and intermediate of  
10 its length with pivot-studs *e*, with which engage eyebolts *a*, that extend vertically upward through the keel and are provided at their upper ends with suitable nuts *b* and washers *c*. Keys or pins *d*, inserted through  
15 the ends of the pivot-studs *e*, serve to retain the latter in position within the eyebolts.

As a further improvement I form the front margins *a'* of the blades tapering or inclined from the center rearwardly and outwardly,  
20 so that any obstruction, such as weeds or the like, coming in contact with the blades will be deflected outwardly out of the path of the boat. This form also has the further advantage of causing the blades to glance up-  
25 wardly, so as to assume a generally horizontal position should the boat pass over a place so shallow or shoaling as to bring the blades in contact with the bottom, thus permitting the boat to pass safely where it would other-  
30 wise be impossible.

As a still further improvement I also make the said front edges of the blades sharp or knife-edged, so that in passing through weedy water the boat will cut its way and not be-  
35 come entangled.

In operation when the vessel is on the starboard tack and heeling to port the windward blade of the centerboard is in contact with the hull and the port blade vertical, or nearly  
40 so, and opposed to the drift, but as soon as the helm is shifted, throwing the vessel upon the larboard tack, the resistance of the water causes the port blade to swing up against the hull, or whatever may be the stop, and the  
45 starboard blade to swing down toward the perpendicular and in turn oppose itself to the drift. Thus the lee side of the centerboard is always set automatically against the direction of drift.

50 I claim—

1. The combination with the hull, of a self-

adjusting centerboard adapted to automatically shift its angle to the keel with the list of the hull so as to oppose the direction of drift, and accessory means acting automatically in  
55 response to the shift to stay the centerboard at each extreme of shift against the resistance of the drift.

2. The combination with the hull, of a pair of alternately-acting, self-adjusting center-  
60 boards, each adapted to automatically shift its angle to the keel with the list of the hull and accessory means acting automatically in response to the shift to stay the centerboard at one extreme of its movement in a position  
65 of resistance against the drift.

3. The combination with the hull of two resistance-blades pivotally mounted to oscillate in unison upon longitudinally - extending  
70 axes, each blade being free to oscillate away from the vertical keel plane of the boat, but positively limited in its movement toward the latter when brought into position to resist the drift.

4. The combination with a boat of a center-  
75 board comprising two blades rigidly united with each other at their inner margins and pivotally connected with the keel of the boat.

5. The combination with a boat of a center-  
80 board comprising two blades rigidly united so as to extend in divergent relation to each other and pivotally suspended from the keel of the boat, said blades being free to oscillate upwardly into contact with a part of, or upon  
85 the boat, whereby, when either blade is in a position of resistance, the other will act as a stop to hold it in this position.

6. The combination with a boat of a center-  
90 board comprising two blades rigidly united so as to extend in divergent relation to each other and pivotally suspended from the keel of the boat, said blades being free to oscillate upwardly into contact with a part of, or upon  
95 the boat, whereby, when either blade is in a position of resistance, the other will act as a stop to hold it in this position, the front margins of said blades being of wedge form.

JAMES W. GIBB.

Witnesses:

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