No. 704,685. Patented July 15, 1902.

T. JENSEN.

SAILING BOAT.

(Application filed Oct. 25, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

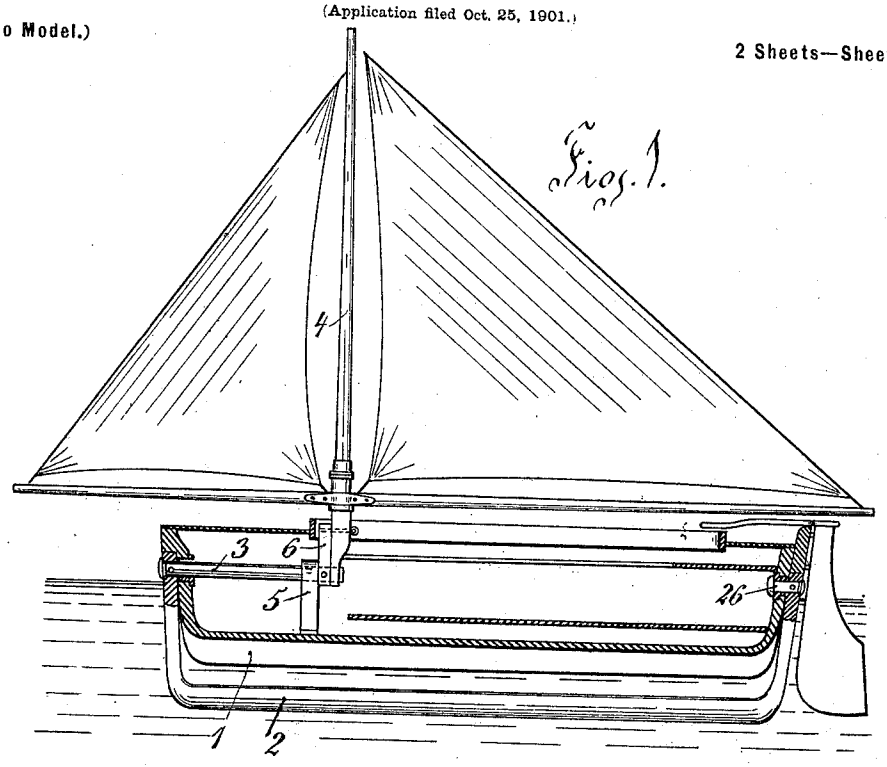


Fig. 3.

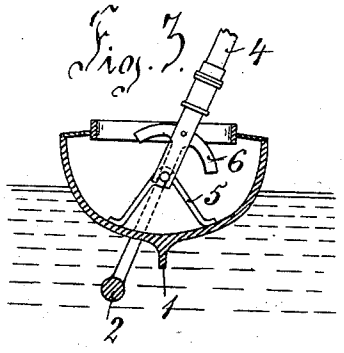


Fig. 4.

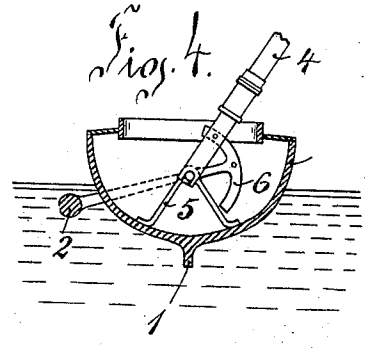
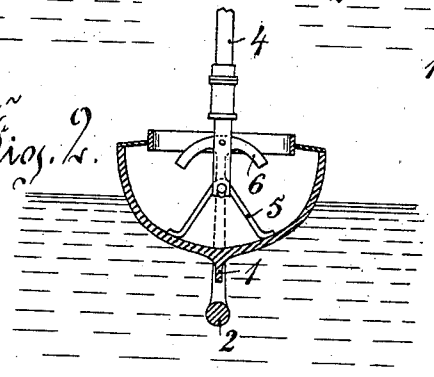


Fig. 2.



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Fig. 5.

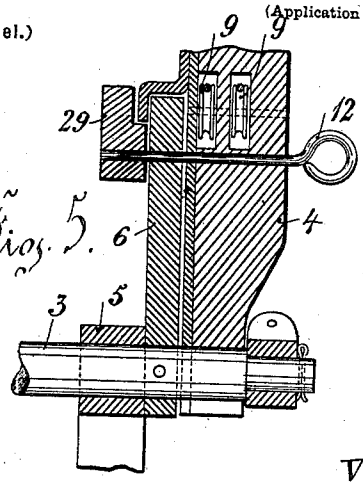


Fig. 6.

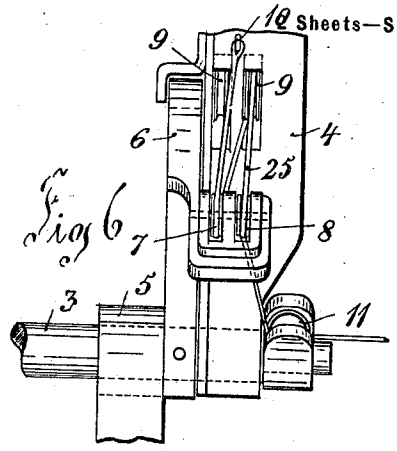


Fig. 7.

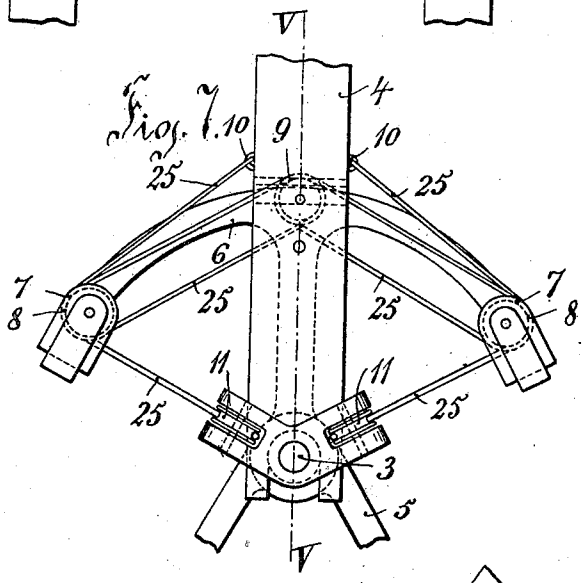
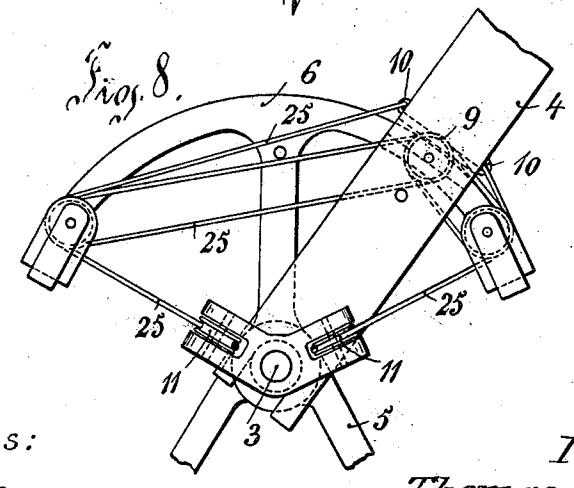


Fig. 8.



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UNITED STATES PATENT OFFICE.

THOMAS JENSEN, OF ARENDAL, NORWAY.

SAILING-BOAT.

SPECIFICATION forming part of Letters Patent No. 704,685, dated July 15, 1902.

Application filed October 25, 1901. Serial No. 79,951. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JENSEN, mechanician, a subject of the King of Sweden and Norway, residing at Kittelsbugt, Arendal, Norway, have invented certain new and useful Improvements in Sailing-Boats, of which the following is a specification.

The invention consists in the features and arrangement of parts hereinafter described, and particularly pointed out in the claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section of a boat constructed according to the invention. Fig. 2 is a transverse section thereof, showing the mast in the vertical position. Fig. 3 is a view similar to Fig. 2, but showing the mast in an inclined position. Fig. 4 is a view similar to Figs. 2 and 3, but showing the mast inclined at its greatest angle and the ballast-keel making an angle with the mast. Fig. 5 is a sectional view illustrating a portion of the swinging shaft in section on the line V V, Fig. 7, the figure showing the connection between the mast and the shaft. Fig. 6 is a side view thereof. Fig. 7 is a front view thereof. Fig. 8 is a similar view to Fig. 7, but showing the mast at an inclination with the keel.

Beneath the usual keel 1 of the vessel there is arranged the ballast-keel 2, which is pivotally suspended upon an axis which generally coincides with the metacentral line of the vessel. The ballast-keel is advantageously made of the form shown in Fig. 1, the upwardly-extending ends being pivoted to a shaft 3 at the bow of the vessel and to a pivot 26 at the stern of the vessel. The shaft 3 extends through a stuffing-box in the hull and a bearing 5 to the mast 4, which is keyed to the inner end of the said shaft, so that mast and ballast-keel can swing upon the shaft 3 transversely to the boat and on opposite sides of the said shaft.

It will be clear that any inclination of the mast occasioned by the pressure of wind upon the sails takes no effect upon the hull of the boat, as the ballast-keel 2 is inclined simultaneously with the mast 4, but in the opposite direction, and thus counteracts the inclination of the sail, while the boat or hull remains in its normal condition, being only affected by the movement of the water. As the mast 4 does not move in the longitudinal plane of the boat, it is clear that the forwardly-acting force of the wind upon the boat remains effective, as heretofore, and the swinging ballast-keel, which is outside the boat, in no way interferes with the inside thereof, as the only portion in connection with the said keel which is inside the boat is the oscillating shaft 3.

The connection between the shaft 3 and the mast 4 is effected by a segment 6, which is keyed upon the shaft 3 and which can be adjusted relatively with the mast and secured thereto in any desired position. The said segment 6 is provided at each end with two pulleys 7 and 8, Fig. 6. Pulleys 9 9 are also mounted on the mast. A rope 25 is secured to an eye 10 on each side of the mast, the said rope passing successively over the pulleys 7 9 8, thence over a pulley 11, mounted on the inner end of the shaft 3 to the rear, where it is secured at any convenient point in the oscillating line of the boat. The same arrangement is provided on the other side of mast. When, therefore, one of the ropes is pulled from the after part of the boat and the other allowed to be slack, the mast 4 can be caused to swing relatively to the segment 6 (see Fig. 8) and can be secured in this position by fixing the rope at the after part. As, furthermore, the said rope is secured in the axis of oscillation of the vessel, the mast and keel can be inclined relatively to the hull under the action of the wind without in any way affecting the relative position of the mast 4 and segment 6.

By introducing the bolt 12, Fig. 5, which directly connects the mast 4 with the sector 6 and the latter with the rigid woodwork 29 of the boat, the boat behaves exactly as an ordinary sailing-boat and cannot swing relatively with the mast and keel.

With an ordinary fresh wind it would be sufficient to fix the mast 4 at the center of the segment 6, (see Figs. 2 and 7,) the bolt 12 being only inserted sufficiently to connect the mast 4 and the segment 6.

The action of the keel 2 on the mast 4 can, to accord with the greater or less force of the wind, be regulated by disconnecting the mast and segment and inclining the mast more or less to the windward side relatively with the

segment 6 by means of the rope 25. (See Figs. 4 and 8.) The weight of the keel then acts through a longer leverage, which is clearly shown in Fig. 4. In this manner the greater force can be utilized while the mast assumes approximately the upright position.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the hull of the boat, a keel extending along the same and having upturned arms at its ends pivotally connected at the outer side of the bow and stern, a mast within the hull, a shaft 3 extending from the upturned arm of the keel at the bow to the mast and a bearing adjacent the mast for said shaft, substantially as described.

2. In sailing-boats of the kind described the combination with the hull, mast and pivoted ballast-keel of means whereby the mast can be adjusted and secured at the suitable angle with the ballast-keel in order that the reaction of the keel upon the mast can be regulated substantially as hereinbefore described.

3. In sailing-boats of the kind described the combination with the hull and pivoted ballast-keel and mast, of a shaft connected to said keel and rigidly connected at its inner end to a segment which, by means of pulleys and ropes, can be connected to the mast which loosely swivels upon the end of the shaft, the rope serving to turn the mast relatively with the segment and to secure the same in position, substantially as hereinbefore described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

THOMAS JENSEN.

Witnesses:
AXEL LAHN,
RICHARD STOKK.