

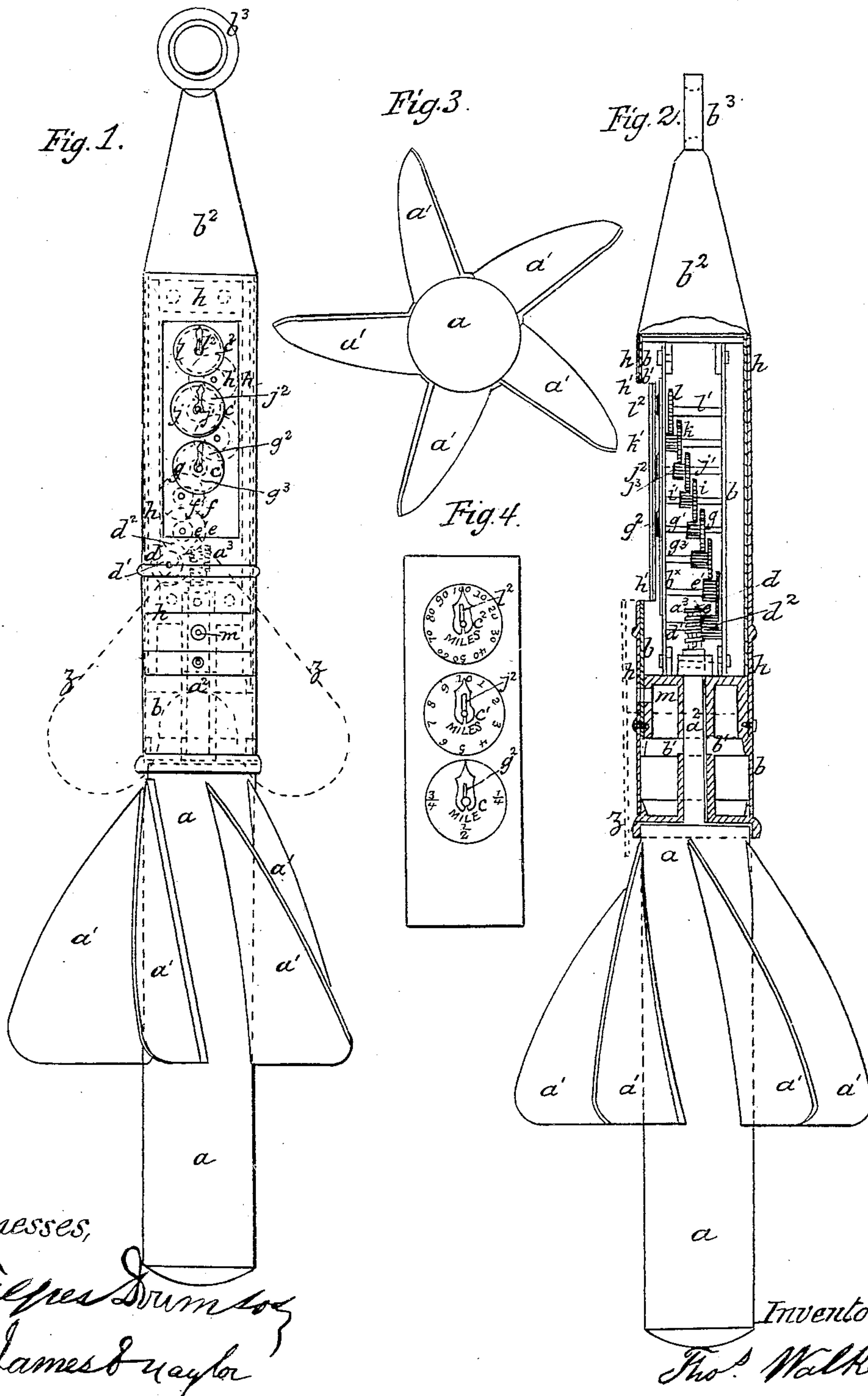
T. WALKER.

3 Sheets—Sheet 1.

Apparatus for Indicating the Speed of Vessels.

No. 58,189.

Patented Sept. 18, 1866.



Witnesses,

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James H. Taylor

Inventor,

Thos. Walker.

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3 Sheets—Sheet 2.

Apparatus for Indicating the Speed of Vessels.

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Fig. 5.

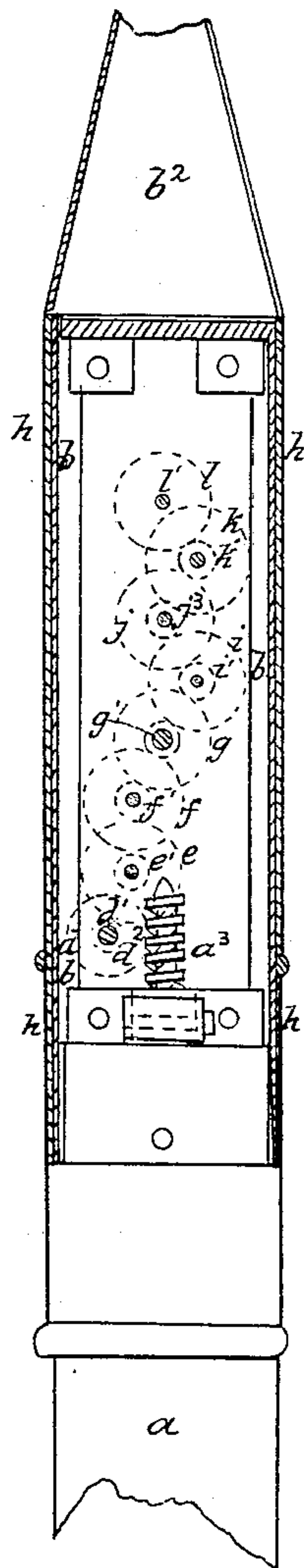
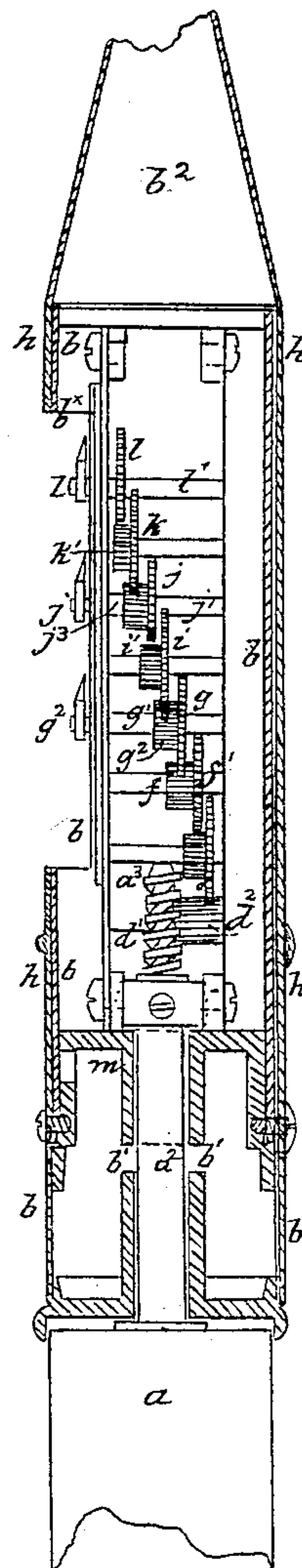


Fig. 6.



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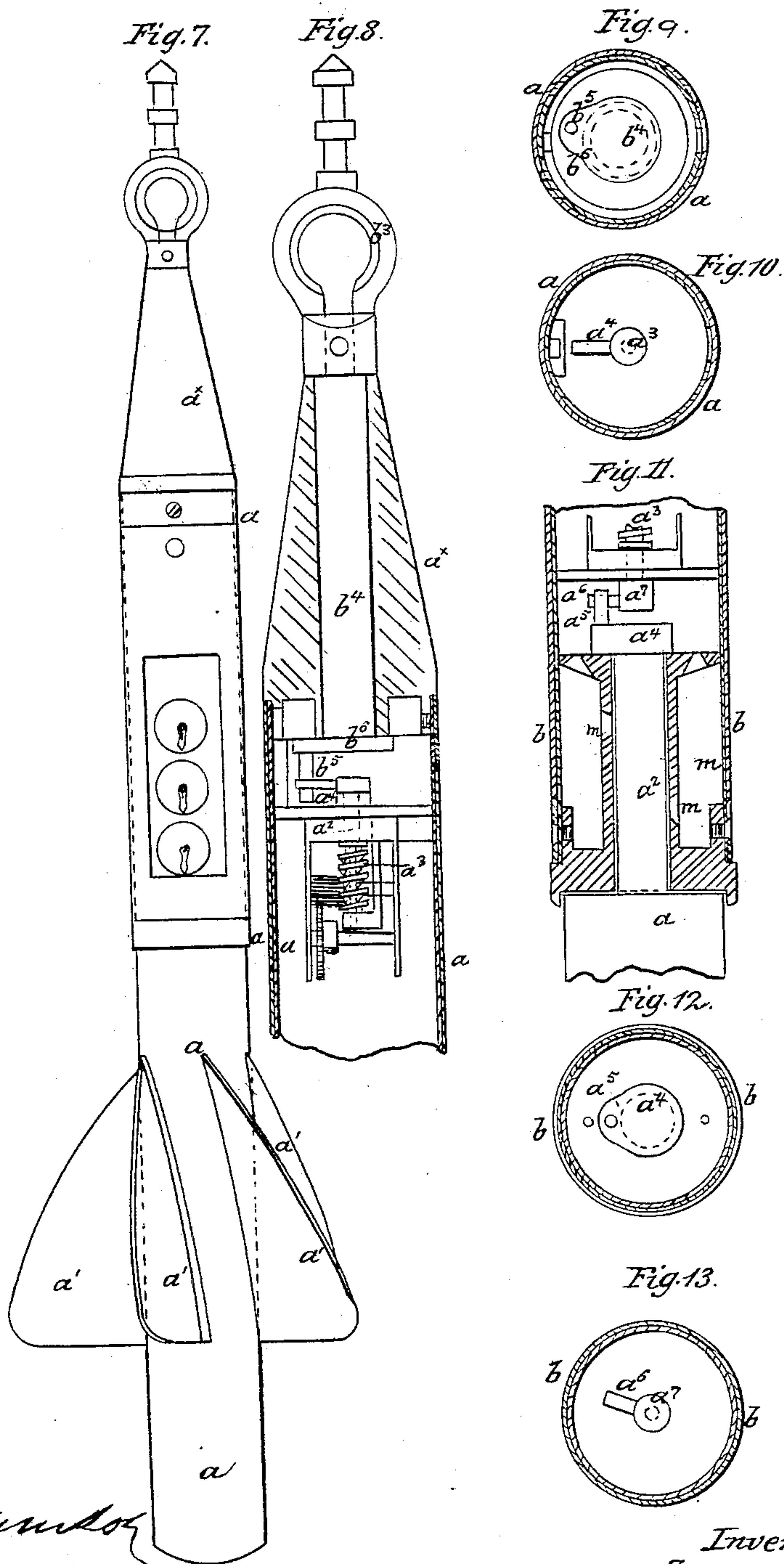
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3 Sheets—Sheet 3.

Apparatus for Indicating the Speed of Vessels.

No. 58,189.

Patented Sept. 18, 1866.



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UNITED STATES PATENT OFFICE.

THOMAS WALKER, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND.

IMPROVEMENT IN APPARATUS FOR INDICATING THE SPEED OF VESSELS.

Specification forming part of Letters Patent No. 58,189, dated September 18, 1896.

To all whom it may concern:

Be it known that I, THOMAS WALKER, of Birmingham, in the county of Warwick, England, engineer, have invented Improvements in Means or Apparatus for Indicating the Speed of Vessels; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

For indicating the speed of vessels, I apply inclined or oblique vanes upon a tube which is capable of freely rotating with a central spindle or axis when acted upon by passing through the water. The wheel-work for registering the rotation of the vanes is carried by a frame, the fore end of which I prefer to be of a conical form to facilitate the passage through the water. The back end of this frame is close to the front end of the rotator, and therefore prevents the water from pressing on the front end of the rotator, which pressure would materially increase the pull and consequent friction against the retaining-collar on the spindle of the rotator, and thereby cause inaccuracy in the working of the wheel-work of the register.

The tube inclosing the wheel-work may be part of the rotator, to revolve with it, or it may be stationary, receiving the spindle, but so as not to revolve with the rotator.

Motion is given to the registering wheel-work by a worm attached to a spindle from the rotator acting on a wheel, or by a stud on the spindle of the rotator acting on the arms of a wheel affixed to a worm or pinion giving motion to the first of the series of wheels, or by other suitable means.

A sliding or other cover incloses the dials, but so as to be capable of easy removal to see the distance run without disturbing the wheel-work.

But that the nature of the improvements and the means which I adopt in carrying the same into effect may be better understood, I will proceed to describe the accompanying drawings.

Figure 1 is a side view, Fig. 2 a section, and Fig. 3 an end view, of an arrangement of apparatus according to my invention for indicating the speed of vessels. Figs. 4, 5, and 6 show parts separately on a larger scale.

a is a tube or cylinder, upon which are applied the vanes a' , forming the rotator. This tube a is affixed to the axis or spindle a^2 , which is supported with capability of rotation in the bearings b' , carried by or forming part of the tube or protector b , containing the wheel-work for operating the fingers on the dials c c' c^2 , and thereby indicating the rotations of the rotator. The tube b contains the wheel-work, and is formed conical at its fore end, b^2 , to facilitate passage through the water, while it acts to prevent the water pressing upon the end of the tube a , and by the pressure thereof from interfering with the free action of that tube. Upon the end of the spindle a^2 is formed or affixed a worm, a^3 , which takes into the teeth of the worm-wheel d upon the axis d' , upon which is formed the pinion d^2 , the teeth of which take into the teeth of the wheel e , having upon its axis the pinion e' , the teeth of which take into the teeth of the intermediate wheel, f , upon which is formed or affixed the pinion f' , the teeth of which take into the teeth of a wheel, g , on the axis g' , carrying the hand g^2 on the dial c , and also the pinion g^3 , the teeth of which take into a wheel, i , to which is affixed a pinion, i' , taking into the wheel j on the axis j' , on which is affixed the hand j^2 and pinion j^3 . The teeth of the pinion j^3 take into the teeth of the wheel k , and upon this wheel is affixed a pinion, k' , which takes into the teeth of the wheel l on the axis l' , carrying a hand, l^2 .

The wheel-work is so arranged in relation to the distance traveled during one revolution of the rotator a that the hand to the first dial may move once round in a nautical mile, and the succeeding dials register ten miles and one hundred miles, respectively.

h is a shifting cylinder, capable of turning the tube b , containing the wheel-work. When the opening h' of this cylinder is coincident with the opening b^* in the tube b , opposite the dials, the indications on these dials may be seen.

The dials may be protected when the apparatus is in operation by turning the cylinder h over them.

m is an oil-hole, for the purpose of lubrication. This hole is covered by the cylinder h , which is provided with a hole, which, when

coincident with the hole m , admits of oil being poured through that hole.

The rope for holding the apparatus in the water while taking indications of a vessel's speed is attached to the ring or eye b^3 .

The red line z indicates a plate, which, in the passage of the apparatus through the water, tends to bear the back end thereof upward, and thereby take strain off the spindle a^2 .

Fig. 7 shows a slight modification of parts from that just described. In this case the vanes are attached to the tube inclosing the wheel-work, and on their rotation they cause this tube to revolve with them on a spindle affixed to an eye or ring, b^3 . Fig. 8 shows a longitudinal section of parts of this arrangement drawn to a larger scale, and Figs. 9 and 10 transverse sections of the same.

a is a continuation of the tube upon which the vanes a' are applied, and which, according to this arrangement, is attached to the cone a^* , to revolve on an axis, b^4 , applied to the ring b^3 , and this tube a incloses the wheel-work, and the wheel-work receives motion in the rotation of the tube a by means of the stud b^5 , projecting from the crank-arm b^6 , affixed to the axis b^4 , acting on the short arm a^4 , projecting from the axis a^2 , upon which is formed the screw-worm a^3 , to give motion to the wheel-work, as explained in respect of the previous figures.

Fig. 11 shows a longitudinal section, and Figs. 12 and 13 two transverse sections, of a modification of the means of imparting motion from the tube a to wheel-work, as indicated for

that purpose by Figs. 1 to 8. In these Figs. 11, 12, and 13, in place of the worm a^3 being formed on the spindle a^2 , it is separated therefrom, and communication between these parts is effected by the spindle a^2 , having formed on or applied to it a boss or enlargement, a^4 , carrying a stud, a^5 , which, in the revolution of the spindle a^2 with the rotator, acts on the projection a^6 from the boss a^7 , formed on or applied to the worm a^3 , to cause that worm to revolve.

Having thus described the nature of my said invention and the means which I adopt in carrying the same into effect, I would have it understood that I do not confine myself to the precise details shown and described, as these may be varied; but

What I do claim is—

The adaptation or combination of means forming apparatus for indicating the speed of vessels, whereby the wheel-work and index are placed in front of the vanes of the rotator, and they are definitely acted upon to have motion given to them in the rotation of such vanes, and in which the rotating vanes and the chamber containing the wheel-work are immediately connected, substantially as explained.

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

THOS. WALKER.

Witnesses:

ALFRED DENNISON,
JAMES E. NAYLOR.