W. THOMSON.

NAVIGATIONAL SOUNDING MACHINE.

APPLICATION FILED APR. 3, 1908.

923,384.

Patented June 1, 1909.

2 SHEETS—SHEET 1.

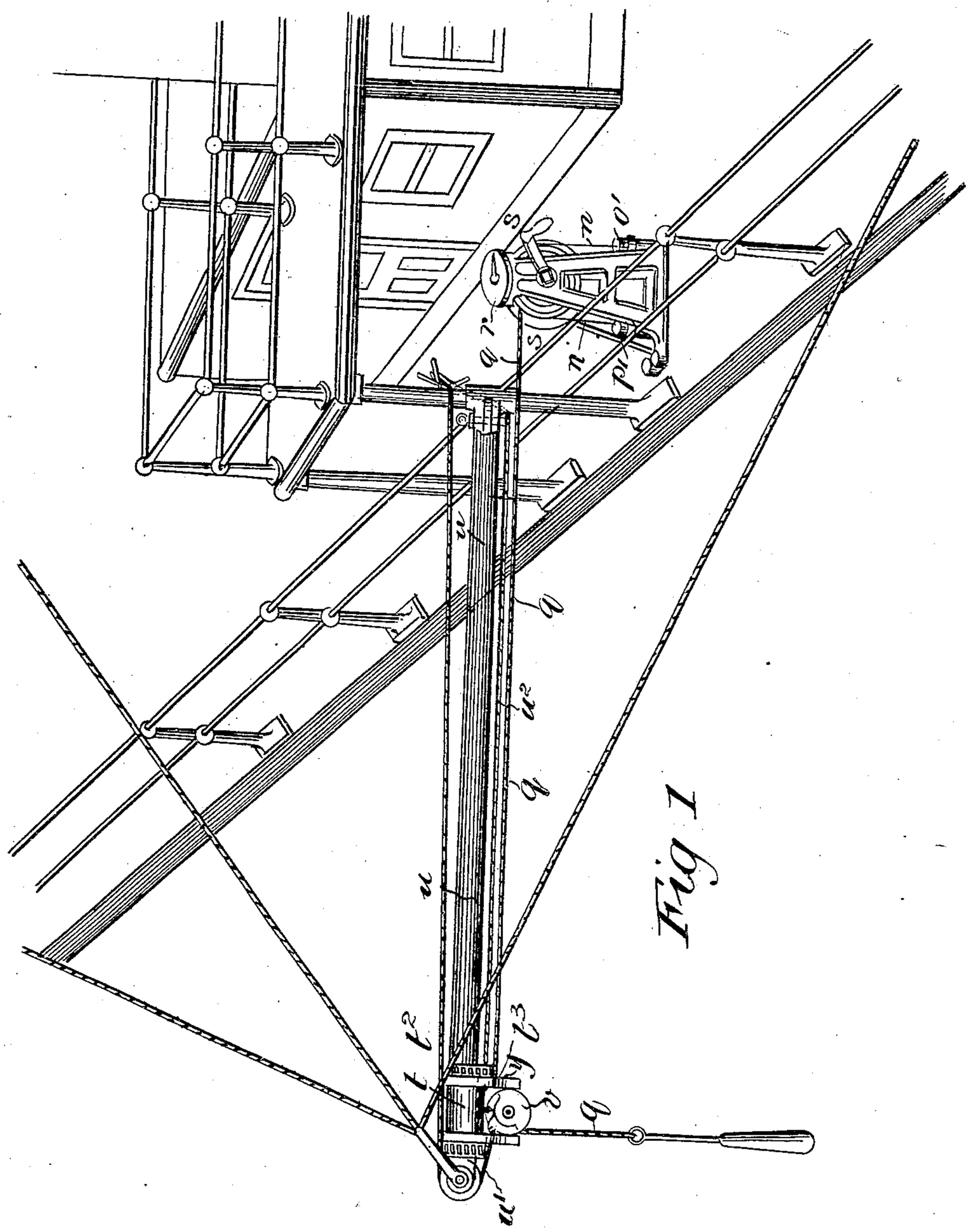

Fig 1

Witnesses,
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Fig 3

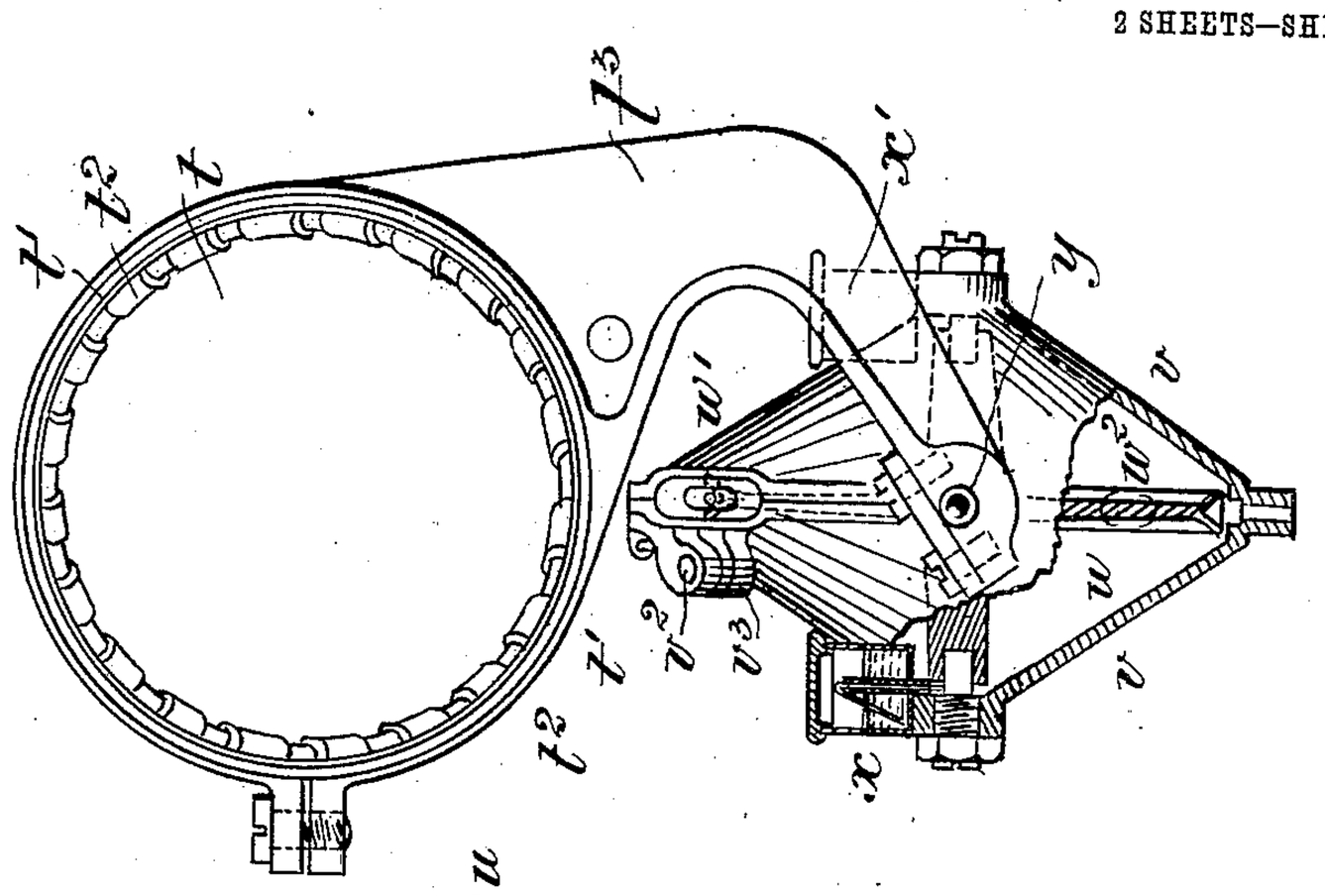
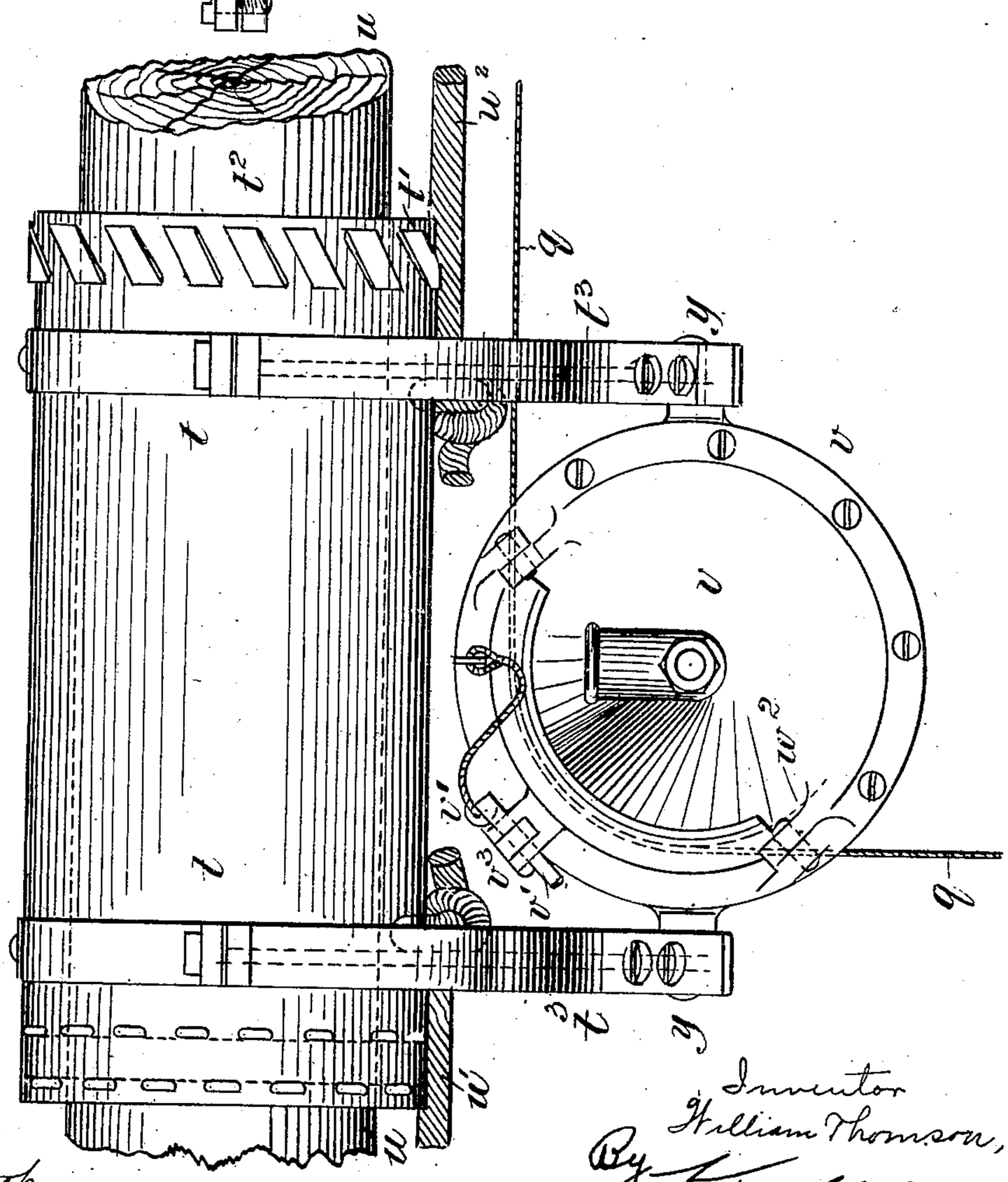


Fig 2.



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UNITED STATES PATENT OFFICE.

WILLIAM THOMSON, OF LARGS, SCOTLAND.

NAVIGATIONAL SOUNDING-MACHINE.

No. 923,384. Specification of Letters Patent. Patented June 1, 1909.

Application filed April 3, 1908. Serial No. 425,041.

To all whom it may concern:

Be it known that I, WILLIAM THOMSON, Baron Kelvin, of Largs, Scotland, have invented certain new and useful Improvements in and Connected with Navigational Sounding-Machines, Especially for Flying Soundings, of which the following is a specification.

This invention relates to improvements in and connected with navigational sounding machines especially for flying soundings, and relates more especially to the means of taking the soundings by the aid of a spar or boom.

In order that my invention may be properly understood and readily carried into effect, I have hereunto appended two sheets of drawings, of which—

Figure 1 is a perspective view of a ship's spar deck showing the method of taking soundings by the aid of a spar or boom. Fig. 2 is a side elevation drawn to an enlarged scale of a carrier or traveler and a leading block and pulley. Fig. 3 is an end view of the carrier and block partly in section all hereafter more fully described and referred to.

In carrying out my invention, when soundings are to be taken from amidships or from the fore-bridge, as at present practiced in H. M. navy by aid of a boom about 30 feet long, held by guys and a topping lift in a horizontal position perpendicular to the ship's side, I provide a special traveler *t*, Fig. 2, which carries a leading block on an improved plan, and which is controlled by out-haul and in-haul ropes, and from said traveler by a suitable bracket depends a pulley over which passes the sounding wire.

The boom may be conveniently of about 5 inches diameter at its middle, and be tapered toward the ends. The traveler *t* is an iron sleeve of diameter somewhat greater than the greatest diameter of the boom *u*, and of length about two and a half times this diameter. The ends of this tube are stiffened with an interior iron ring t^1 which is covered with greased leather t^2, preferably by lacing as shown. This arrangement allows only the leather to come in contact with the boom, and the length of the tube is a perfect safeguard against jamming, when the traveler is moved by the out-haul u^1 or the in-haul u^2.

The frame or shell of the leading block *v* is pivoted about an axis *y*, *y*, supported or carried in the bearings terminating the bracket or frame t^3. The said axis is perpendicular to the axis of the pulley *w*. The pivots are mounted on a bracket or frame as aforesaid, which is fixed to the traveler above described, with their axis parallel to the boom. Thus the block is free to take any position, with the plane of the pulley inclined to the vertical but always passing through a horizontal line parallel to the boom. During egress, the wire enters the pulley *w*, horizontally, parallel to the boom, through a hole w^1 in the shell, and leaves it by a second hole w^2 in the shell, along a line at right angles to the first. The pivoting of the shell allows the plane of the pulley always to adjust itself to the direction in which the wire runs out to the sea, thus avoiding a considerable amount of friction, and consequent uncertainty in the resistance against its egress, and also avoiding a still greater frictional resistance against the wire while being hauled in. When being hauled in against heavy stress, the friction of the wire *q* against the shell of the pulley *w* would be very severe upon the wire and would require considerably greater force upon the handles of the sounding machine to haul it in, if the leading block were merely hung on a swivel and compelled to take its position by the pressure on the wire of the shell, instead of being suspended and balanced as in the manner described above.

To allow the sounding wire *q* to be placed in the groove on the pulley *w*, and removed, as desired, a circumferential portion of the shell at its upper side is hinged, as seen in Fig. 2, and by folding back this portion, a sufficient part of the pulley is exposed to allow the placing on or removal of the wire. The hinged parts are locked together and unlocked by the insertion and withdrawal of a retaining pin v^1 into and from the eyes v^2 formed in the lugs v^3.

Suitable oil cups or receptacles *x* and x^1 are mounted on one side of the shell immediately over the pivots on which the pulley turns.

Claims.

1. In a navigational sounding machine, the combination with a boom, of a traveler slidable along the boom, a leading block

pivotally mounted on the traveler, and a pulley rotatably mounted in the leading block.

2. In a navigational sounding machine, the combination with a boom, of a traveler mounted to slide longitudinally along the boom, a leading block pivotally mounted on the traveler on an axis substantially parallel to the boom, and a pulley for supporting the sounding wire said pulley being rotatably mounted in the leading block upon an axis transverse to the boom.

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

WILLIAM THOMSON.

Witnesses:

JOHN LIDDLE,

JOHN T. LIDDLE.