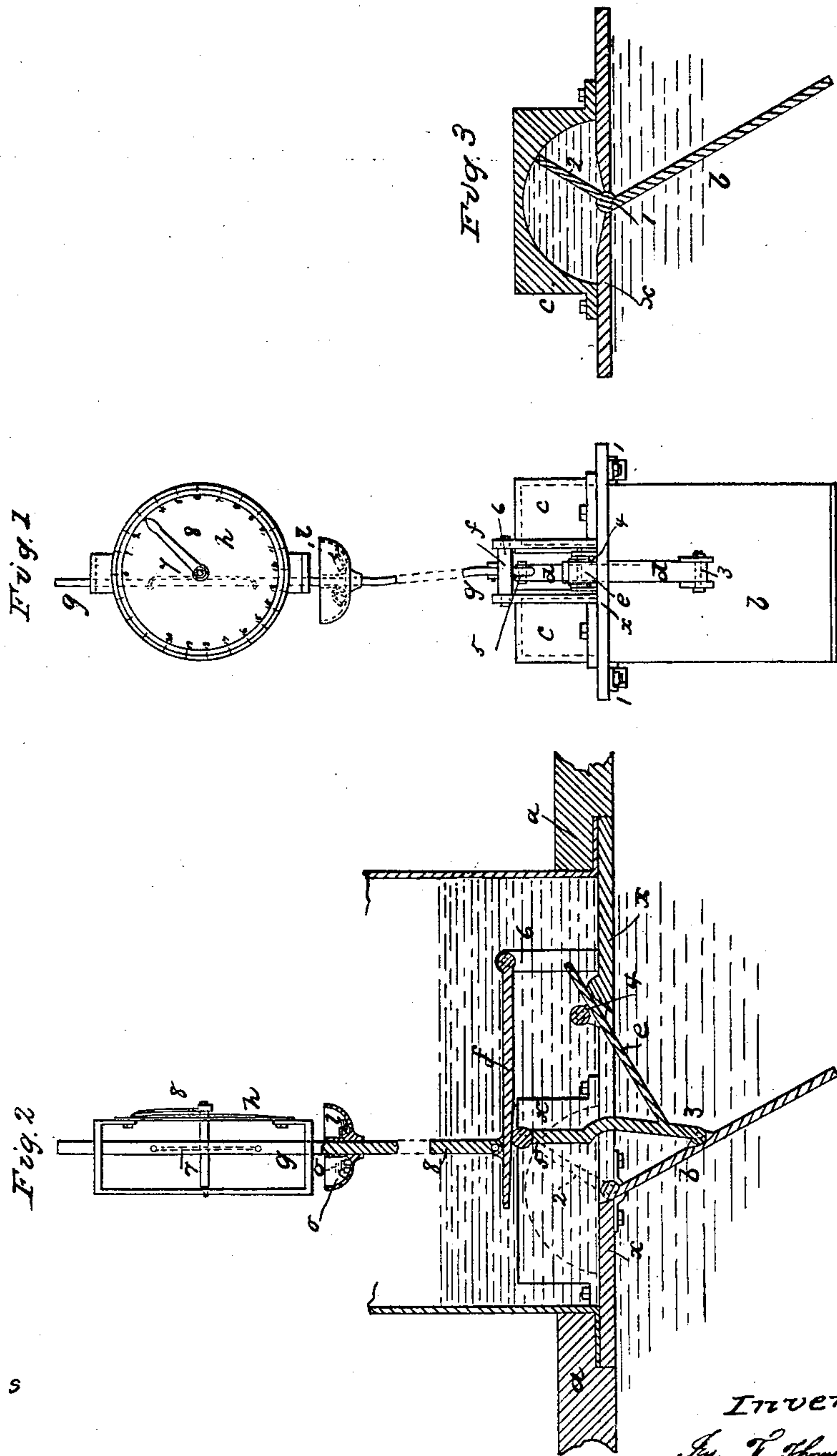


I. F. THOMPSON.

Speed Measure.

No. 14,035.

Patented Jan. 1, 1856.



Witnesses
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UNITED STATES PATENT OFFICE.

IRA F. THOMPSON, OF NEW YORK, N. Y.

VELOCIMETER FOR VEHICLES.

Specification of Letters Patent No. 14,035, dated January 1, 1856.

To all whom it may concern:

Be it known that I, IRA FRANKLIN THOMPSON, of the city, county, and State of New York, have invented and made certain new and useful Improvements in Means for Indicating the Speed of Vessels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1, is a front view, Fig. 2, is a vertical section through the center of the apparatus, and Fig. 3, is a section through the drag and bucket attached thereto.

The like marks of reference denote the same parts.

The nature of my said invention consists in the use of a hinged drag below the bottom of the vessel, so set that the same is moved as the vessel passes through the water into an inclined position proportioned to the speed of the vessel, and consequently indicating said speed by means of an apparatus connected to said drag, but if this hinged drag alone was used, the same would be influenced by the pitching and lurching of the vessel, and the difference of depth of the apparatus in the water in consequence of the weight in the vessel, causing the said apparatus to be acted on by water of different densities, would render said drag useless as an indicator of the speed of the vessel, hence I have combined with said drag, a means for preventing a sudden motion by the use of a piston and small amount of leakage; and also applied weight to said drag in such a manner that said weight can be proportioned to the draft of the vessel and the consequent density of the water—by the use of either or both of which means, as circumstances may require, the drag is made to indicate correctly the speed of the vessel.

The whole of my apparatus is to be inserted at the bottom of any suitable pipe, or in the pump well, care being taken to have said pipe water tight so that there cannot be any leak into the vessel.

In the annexed drawing *a*, represents the bottom of the vessel; *b*, is a drag or paddle set and moving on centers 1, 1, in such a manner that it can hang vertically or be drawn up against the bottom of the vessel when not in use. The drag *b*, is formed

with buckets or pistons 2, 2, on each top edge of said drag, passing through the plate *x*, which carries the apparatus, and over each of these pistons a box *c*, is placed and attached to the bed *x*, and the inside of each box is formed semi-circularly so as to coincide with and fitted nearly water tight to the piston 2, as it moves with the drag on the centers 1, 1; although the piston 2, must not fit so close as to cause much friction. Very small holes or a slight leakage must be provided so as to allow water to pass from one side of the piston to the other as the drag changes its inclination but the piston must be sufficiently tight to prevent the drag jumping as the vessel pitches. In order to denote the position of said drag and the consequent speed of the vessel I make use of the following means: 3, is a joint on the drag *b*, connecting thereto a link *d*, to which an arm *e*, is attached, passing below a roller 4, so that said link is kept vertical as it moves and is elevated by the drag *b*. On the upper end of this link *d*, a friction roller 5, is attached acting below a lever *f*, jointed at 6 to short standards, and carrying a vertical bar or rod *g*, running to the deck or to any convenient position above the apparatus, and near the end of said rod is a guide through which the same can slide, and also a cord or chain 7, is attached at its ends to said vertical bar, but passes around the spindle or arbor *i*, which goes through the center of the dial *h*, and is provided with a hand 8, by which the speed of the vessel is indicated by figures placed on said dial, as the drag *b*, is inclined more or less in passing through the water.

It will be evident that a rack and pinion might be used to revolve the arbor *i*, and its hand 8, instead of the cord, and also that the vertical rod *g*, might be connected directly to the link *d*, at the roller 5, provided the rod *g*, was sufficiently long not to be influenced by the back and forth motion of the link as it rises and falls, causing said rod *g* to bind in any of its bearings.

The resisting power to prevent the drag *b*, assuming a horizontal position is the weight attached to the link *d*, and when the vessel is heavily laden the drag is in water that is far denser than when the vessel is lightened by the consumption of coal or otherwise, hence it is necessary that a portion of the

weight applied to keep the drag downward on starting, be removed as the vessel draws less water in order that the density of the water acting on the drag may be compensated for. I have therefore attached to the rod *g* a cup or receptacle *l*, into which the requisite weight is placed when the vessel goes to sea, so that her speed is correctly indicated on the dial,—and these weights must be so proportioned in size that a given weight is to be removed out of said basin for every inch foot or other distance the vessel rises in consequence of being lightened of her burden.

I am aware that various kinds of drags and wheels or propellers have been used to denote the speed of vessels as well as the number of miles run; but I am not aware that any drag has ever before been hinged onto or near the bottom of a vessel and combined with a gradual leakage of suitable fluid to prevent any sudden motion to said drag as the vessel pitches, thereby causing the drag to indicate correctly the speed of the vessel; I do not claim the water leaking pistons in themselves as these have before

been used for checking and stopping vibrations in other indicating instruments, but—

What I claim and desire to secure by Letters Patent is—

1. The combination of a water leaking piston or pistons with the drag *b*, in the manner substantially as specified, whereby the drag being hinged at or near the bottom of the vessel, indicates by its inclination the speed of the vessel; and said water leaking piston or pistons act to prevent a sudden motion to said drag as the vessel pitches as specified.

2. I claim the method herein described of communicating motion from the drag or paddle *b*, to an indicator, by means of the link *d*, guided and retained vertically by the arm *e*, substantially as specified.

In witness whereof I have hereunto set my signature this thirty first day of January, one thousand eight hundred and fifty-five.

IRA F. THOMPSON.

Witnesses:

LEMUEL W. SERRELL,
THOMAS G. HAROLD.