

Mechanism for Trimming Ships.

Patented Feb. 16, 1875.

Fig. 1.

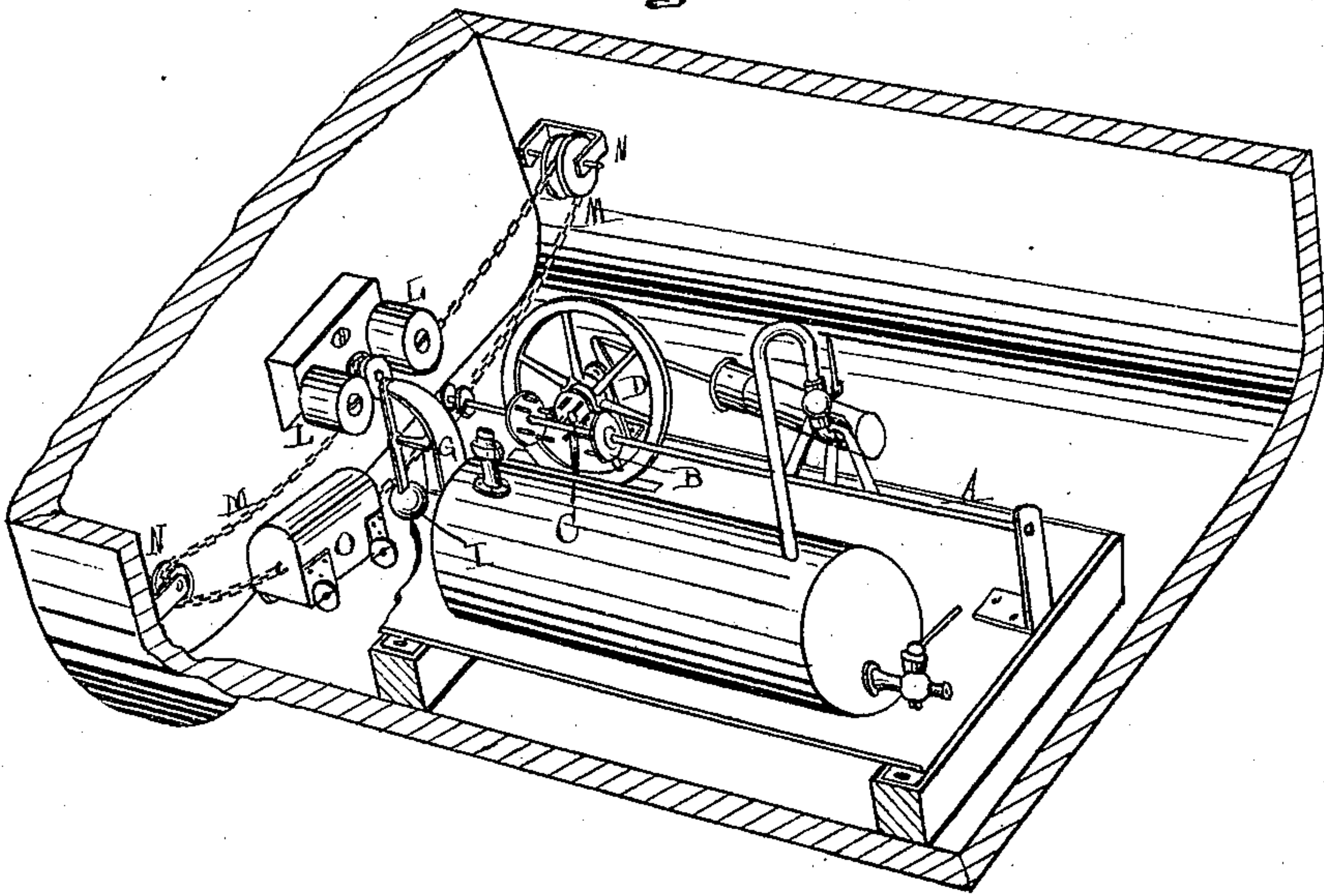
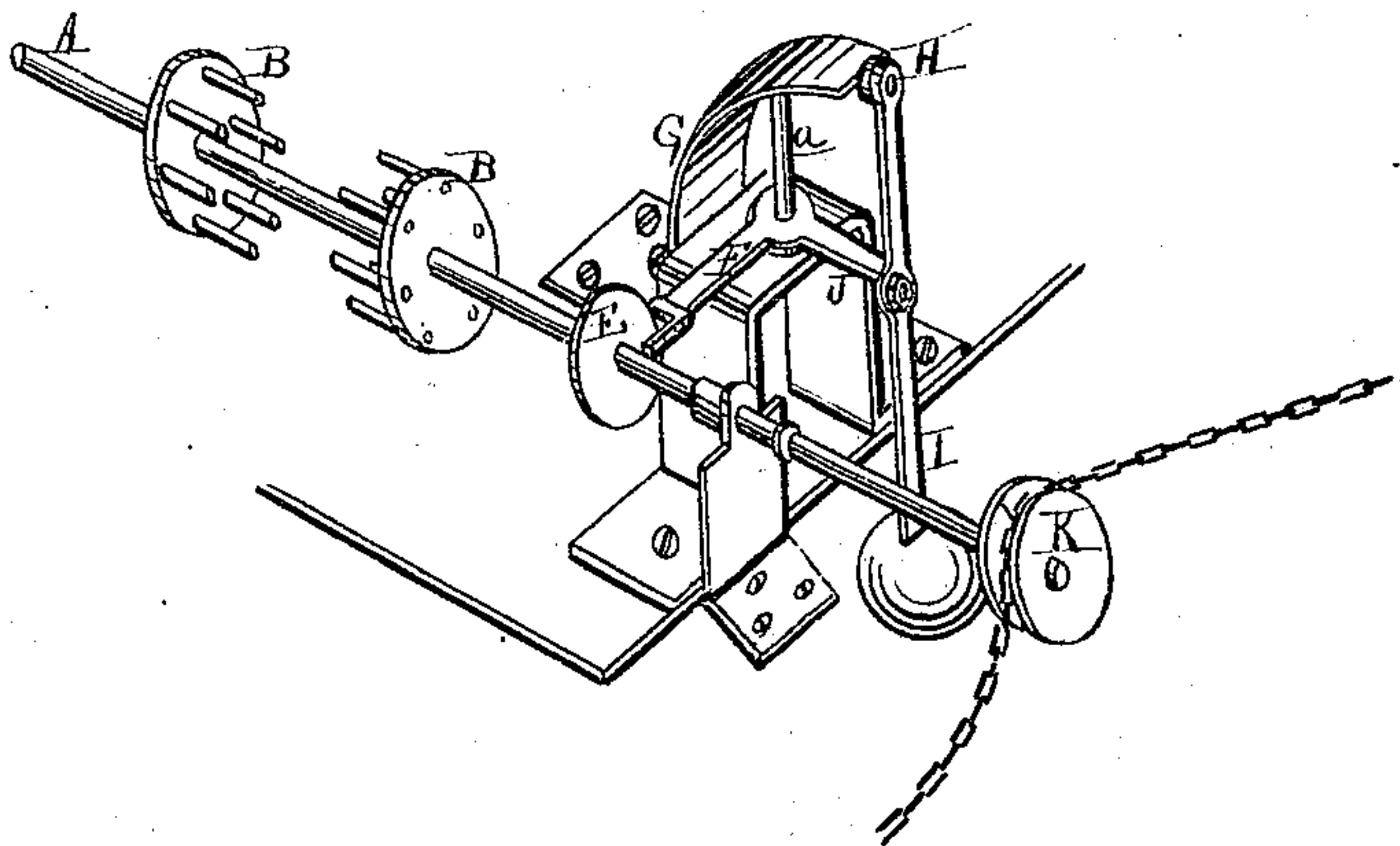


Fig. 2.



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IMPROVEMENT IN MECHANISMS FOR TRIMMING SHIPS.

Specification forming part of Letters Patent No. **159,951**, dated February 16, 1875; application filed
May 22, 1874.

To all whom it may concern:

Be it known that I, JAMES McNABB, of Widder Station, in the county of Lambton and Dominion of Canada, have invented an Improvement in Self-Adjusting Ship-Trimmers, of which the following is a specification:

The nature of this invention relates to certain improvements in devices for trimming ships, or for keeping them, so far as practicable, on an even keel. Ordinarily trim-barrels filled with sand, or chain-boxes on wheels, are employed for this purpose, being rolled from one side of the ship to the other, as occasion may require.

The invention consists in a pendulum so arranged with relation to the operating parts of the device as to throw the main driving-shaft into or out of gear, as the ballast may be required to be moved, said pendulum governing the movement one way or the other as the vessel lists to one side or the other; also, in the combination of the devices for moving the ballast, as more fully hereinafter described.

Figure 1 shows, in perspective, an interior section of a vessel's hull with my devices in place. Fig. 2 is an enlarged perspective view of the pendulum and the operating parts.

Like letters indicate like parts in each figure.

In the drawings, A represents a shaft, supported in suitable bearings, so that said shaft may have a short horizontal play, for the purposes hereinafter described. On this shaft there are secured two bevel-gear wheels, B, or their equivalents; and these wheels—one at a time—are designed to engage with a similar wheel, C, on the end of the shaft D, which may be driven by a pony-engine, or by any other proper mechanism, the horizontal or longitudinal play of the shaft A being just sufficient, while one of the wheels B is engaged, to free the other from its engagement with the wheel C. A smooth wheel, E, is secured to the shaft A, and its periphery revolves within the bifurcated arm F of the bell-crank, which is properly pivoted, at *a*, to the frame G, from the overhang H of which the weighted

pendulum I is suspended. The other arm, J, of the bell-crank is loosely secured to the pendulum-rod. K is a grooved pulley secured to the shaft A, and L are merely guide-wheels, properly placed to keep the chain or rope M in place. This pulley may be a toothed wheel, if preferred, and the chain may be a chain so constructed that its links will engage with the teeth of the wheel, as in the ordinary manner of chain-gear. N are grooved pulleys, one being placed and properly secured at each side of the ship. O is a car or box on wheels, designed to be heavily weighted, and it may travel on a track or between suitable guides on the floor of the ship. To each end of this car or box the chain M is secured, passing thence over the pulleys N, under the guide-wheels L, and over the pulley K, so that when the shaft A revolves in one direction the car moves in the opposite one.

As the vessel lists to starboard the weighted pendulum remains perpendicular, while all the other parts of the device follow the listing of the ship. The bell-crank, being operated upon by the pendulum, moves the shaft A longitudinally by means of the wheel E, in conjunction with the bifurcated arm of the bell-crank, when one of the bevel-wheels are thrown into gear, so that the shaft will rotate in the direction of the list of the ship, and compel the car or box to travel in the opposite direction, and thereby counteract the tendency of the vessel to list. Should she list to port, the same result is produced in directly the opposite direction.

What I claim as my invention, and desire to secure by Letters Patent, is—

In devices for trimming ships, the combination of the weighted pendulum I, the overhang H, frame G, and the bell-crank F, for the purpose of controlling the movements of a longitudinal shaft, A, substantially as described and shown.

JAMES McNABB.

Witnesses:

WILLIAM J. FLEMING,
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