

Magnaghi, Hydrographer to the Royal Italian Navy, by means of which the thermometer may be attached to any part of the line during the descent; and after the first regular haul in of from 10 to 80 feet, according to adjustment, any number of stoppages or any amount of line may be afterwards run out without altering the temperature obtained at the commencement of hauling up.

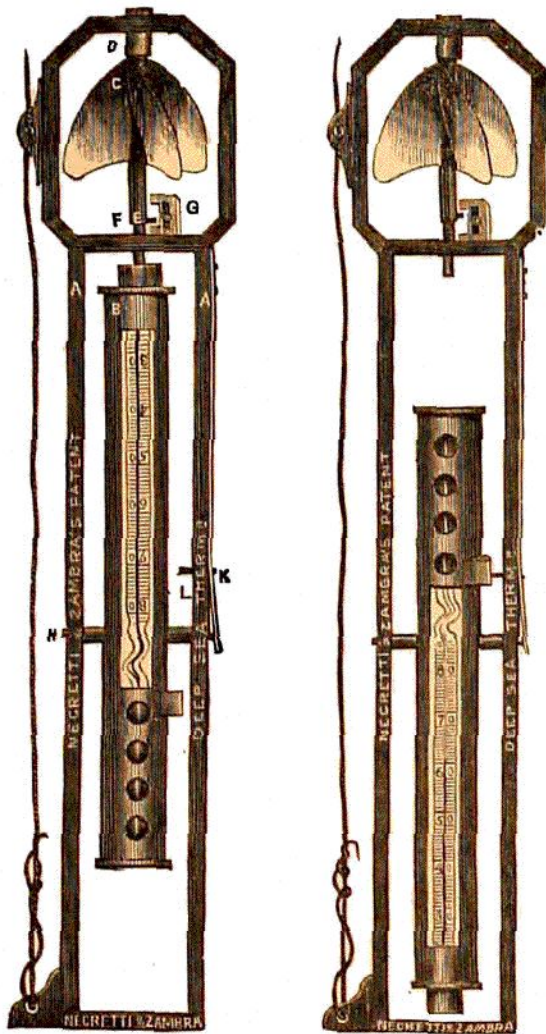


FIG. 31.—Magnaghi's reversing apparatus for Negretti & Zambra's Thermometer.

The apparatus will be best understood by reference to fig. 31. A is a metallic frame in which the case B, containing the thermometer, is pivoted upon an axis H, but not balanced upon it. C is a screw-fan attached to a spindle, one end of which works in a socket D, and on the other end is formed the thread of a screw E, about half an inch long, and just above it is a small pin or stop F on the spindle. G is a sliding stop-piece against which the pin F impinges when the thermometer is adjusted for use. The screw E works into the end of the case B, the length of play being adjusted as necessary. The number of turns of the screw into the case is regulated by means of the pin and stop-piece. The thermometer in its case is held in position by the screw E, and descends into the sea in the position shown in the left hand figure, the fan C not acting during the descent because it is checked by the stop F. When ascent commences the fan revolves, raises the screw E, and releases the thermometer, which then turns over and registers the temperature at that spot, owing to the axis H

being below the centre of gravity of the case B as adjusted for the descent. Each revolution of the fan represents about 10 feet of movement through the water upwards, so that the whole play of the screw requires 70 or 80 feet of ascent; therefore the space through which the thermometer should pass before turning over must be regulated at starting. If the instrument ascends a few feet by reason of a stoppage of the line while attaching other thermometers, or through the heave of the sea, or any cause whatever, the subsequent descent will cause the fan to carry back the stop to its initial position, and such stoppages may occur any number of times provided the line is not made to ascend through the space necessary to cause the fan to release the thermometer. When the hauling-in has caused the thermometer to turn over, the lateral spring K forces the pin L into a slot in the case B and clamps it (as seen in the right hand figure) until it is received on