

a descent of 225 fathoms. Where greater depths are required it is only necessary to add another dial and index. This sounding instrument answers very well in moderately deep water, and is extremely valuable for checking soundings by the ordinary method, where deep currents are suspected, as it *ought* to register vertical descent only. It is not satisfactory in very deep water, and its uncertainty is shared apparently by all instruments involving metal wheel-work. It is difficult to tell the reason. The machinery seems to get jammed in some way under the enormous pressure of the water.

The 'Massey's sounding-machine' in common use is somewhat different from the 'shield' instrument described and figured above. It is constructed on precisely the same principle, but it is bolted to a special form of sounding lead, and is thus somewhat more cumbersome.

Besides the increasing attention which has been paid of late years to all subjects of scientific interest, and especially to those connected with physical geography, the conditions of the depths of the sea, the nature of the bottom, the force and direction of deep currents, the temperature at great depths, and, in fact, all the conditions affecting the sea bottom, have lately acquired great practical importance in connection with telegraphic communication by ocean cables.

The Atlantic Ocean, with the accessible portions of the Arctic Sea, has naturally, from the relation in which it stands to the first maritime and commercial nations of the present period, been the most carefully surveyed; and as it appears to contain depths nearly