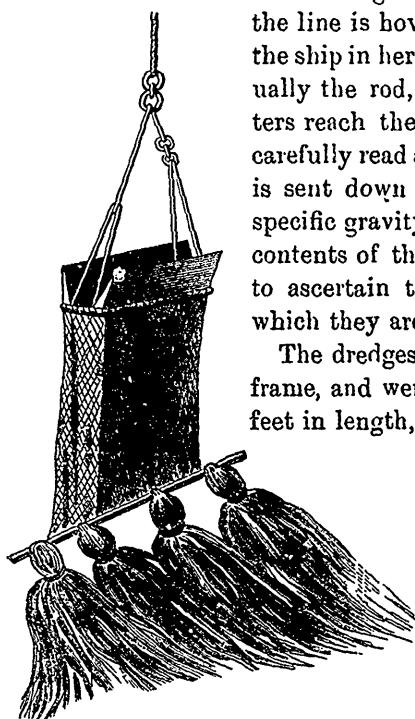


gives the temperature. The creosote acts on a small quantity of mercury in the tube, which rises or falls as the creosote expands or contracts. In each of the tubes above the mercury is a small metallic index, having a hair attached to it, which, pressing against the glass tube, acts as a spring, and keeps the index in its place, so as to be read off and recorded. These thermometers are tested by hydraulic pressure, from two to three tons on the square inch, and are considered trustworthy up to 3,000 fathoms.

The weights having reached the bottom, the line is hove in, care being taken to keep the ship in her position over the line. Eventually the rod, water-bottle, and thermometers reach the surface, the thermometer is carefully read and registered, the water-bottle is sent down to the laboratory, where the specific gravity of the water is taken, and the contents of the sounding-rod are examined to ascertain the nature of the bottom, after which they are dried and bottled.



A DREDGE.

The dredges supplied consisted of an iron frame, and were of three sizes, 5, 4, and 3 feet in length, and from 15 to 9 inches in width. The iron frame, to which was secured the bag, is intended to skim the surface of the bottom, and the net to catch and retain all that might come in its way; at the bottom of this bag a number of hempen swabs were generally secured so as to sweep along and bring up small animal life, coral, sponges, etc. From $2\frac{1}{2}$ to 3 hours are usually required to sink the dredge when the depth is about 2,500 fathoms. When it is once down, which is easily found by experience, the vessel is allowed to drift, or steams slowly on for some hours. When the dredge has been on the bottom a sufficient time, the rope is brought to the deck-engine and the dredge hove up. When it appears above the surface, there is usually great excitement amongst the "Philos,"