in circumference, with a breaking strain of 14 cwt. (called No. 1 line), and the second being $\frac{3}{4}$ inch in circumference, with a breaking strain of 10 cwt. (called No. 2 line). These lines were made of the best Italian hemp, well hackled and rubbed down, to prevent any ragged parts projecting outside and increasing the friction of the cordage during its descent through the water; they were made in lengths of about 120 fathoms each, a number of which were spliced together so as to form a connected line of 3000 fathoms, which was marked at every 25 fathoms, the 25 and 75 fathom marks being white, the 50 fathom marks red, and the 100 fathom marks blue. The material used for marking was worsted, and the number of 100 fathoms was indicated by tucking this worsted under and over the strands of the rope, one tuck for every 100 fathoms up to 1000 fathoms, and then again commencing at 1100 fathoms with one tuck. The whole length of 3000 fathoms was kept on one reel, so that it might run out uninterruptedly, the first 25 fathoms being doubled, as they had to bear the strain of lifting the sinkers over the side. The object of marking the line with worsted "tucked in" was to prevent any projections rendering it liable to foul, either in the blocks or on the drum when heaving in.

Great care was necessary in splicing the lengths of the sounding line together, as if too short a "long splice" were made it was very apt to draw, in consequence of the line being laid up slackly to increase its strength and pliability.

Owing to some defect in its construction, the No. 2 line was found unequal to the strain it was intended to bear, so that it parted in "heaving in," and therefore, after a few trials, it was entirely discarded for deep-sea soundings, the No. 1 line, which was of excellent quality, being exclusively used. The cost of this line was £10, 5s. 6d. per 1000 fathoms, and its weight per 100 fathoms was 18 lbs. 9 oz. in air and 8 lbs. in water.

Sounding Reels.—The reel on which the 3000 fathoms of sounding line was kept, was 5 feet in length, and, with the line on it, $2\frac{1}{2}$ feet in diameter. The heart of the reel was 5 inches in diameter, and through its centre was driven an iron rod, which projected at each end so as to form an axle. Extending out from, and firmly fixed to, the ship's side, on the forecastle, were iron cranks on which these axles rested and revolved, so that the reel could be turned easily and smoothly. To prevent the sounding line becoming entangled in the axle or cranks, a wooden disc, $2\frac{1}{2}$ feet in diameter, was fitted at each end of the reel, and one of these discs was grooved, so that by passing a gasket over it, one end of which was attached to the ship's side, and the other end held in a man's hand, the revolutions of the reel could be retarded when the impetus given by the pitching or rolling of the ship would otherwise have caused it to revolve too quickly.

The Sinkers.—Each sinker was of cast-iron, 56 lbs. in weight, cylindrical in form, with a hole through its centre, and a groove on each side; on its upper surface were