

brass wire, the meshes half an inch to a side. The second sieve was much finer, the meshes a quarter of an inch to a side. The third was finer still, and the fourth so close as only to allow the passage of mud or fine sand. The sieves were put into the tub, which was then filled up to the middle of the top sieve with sea water. The top sieve was then half filled with the contents of the dredge, and the set of sieves gently moved up and down in the water. It is of great importance not to give any rotary motion to the sieves in this part of the process, for this is very ruinous to fragile organisms; the sieves should be gently churned up and down, whether singly or together. The result of the process was that the rougher stones and gravel, and the larger organisms, were washed and retained in the upper sieve, the fine mud or sand passing through the whole of the sieves and subsiding into the bottom of the tub, while the three remaining sieves contained, in graduated series, the objects of intermediate size. The sieves were examined carefully in succession, and the organisms which they contained gently removed

with a pair of brass or bone forceps into jars of sea water, or placed at once in bottles with spirits of wine. The manner in which the sieves are used will, of course, vary according to circumstances and the nature of the deposit.

The operations of trawling or dredging were carried on from the mainyard, the dredge rope being rove through an iron gin-block with a patent sheave, which was attached to the accumulators in the manner previously described. For dredging purposes, however, no less than eighty accumulators were used, and in

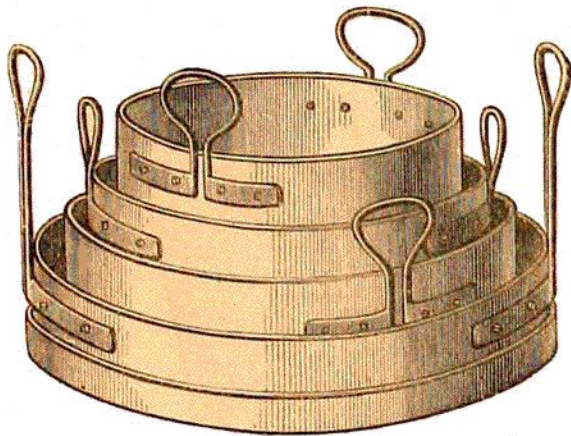


FIG. 21.—The Sieves.

order to stretch them 17 feet, a force of $2\frac{1}{2}$ tons had to be exerted—that is a force equal to the breaking strain of the rope. The accumulators, instead of being triced up to a block on the yard, as they were for sounding purposes, were secured to a pendant hooked on to the cap, the pendant being hauled out, or eased in, by a burton on the end of the yard, as the dredge was required to plumb the sea or the dredging platform (see fig. 12). Before being fastened to the chain of the dredge, the dredge rope was passed through two thimbles. One was used for a special purpose, described hereafter; to the other a small tackle was hooked, to haul the rope close to the ship's side when required. The dredge or trawl being ready to go over, the ship was put before the wind, and the jib hoisted, the wind being kept a little on the quarter of that side of the ship it was intended to work from, in order to drift the dredge clear of the propeller. The dredge was now triced up to the block below the accumulators, and the burton on the mainyard hauled out until the dredge plumbed the sea; it was then lowered down a fathom or two below the surface, and the rope checked, so that from the platform the swabs might be seen to trail clear of the sack.