built of square timber; the main sills were of oak, 15 inches square, of one piece from shoulder to shoulder; the seven succeeding courses were pine, 8 inches by 12, placed on edge, and the two upper timbers were oak, 12 inches square; a triangular piece of oak was placed below the main sill. The successive courses were pinned together with two-inch turned pins of oak, and bolted to uprights placed in the angles, and at intermediate distances along the sides; the outside was covered with two courses of three-inch oak plank, dressed in a planer to an even thickness, the planks of the inner course making an angle of 45° with the horizontal timbers, and those of the outer course being put on vertically, with the smooth side outwards. It was at first proposed to cover the whole with thin sheet iron to reduce the friction of the sand upon the sides; but experiments made to ascertain the coefficients of friction of sand against various substances, showed so slight a difference between iron and dressed oak, that the covering was not put on. Within this outer wall was placed a second wall inclined inwards; it was framed of oak timbers, 10 inches square, which rested upon the main sills and bore against a pair of 12 inch timbers, placed parallel with the upper timbers of the sides; this inclined wall was carried round the triangular ends, the framing being modified to accommodate the angles. Three braces, 15 inches square, were placed immediately above the main sills, extending across the caisson and bearing against the upright timbers; these served also as the basis of three \/-shaped cross-walls, each formed of two equally inclined rows of oak sticks, 8 inches square, fitted into 15 inch timbers above; the lower angles of the cross-walls were formed by triangular pieces of oak, along the lower edges of which ran three iron rods, two inches in diameter, which passed through the main sills and tied the whole caisson together; each cross-wall was further strengthened by a truss built into the middle of it. The timbers of the inclined walls were thoroughly stayed by iron bolts binding them to the outer walls, and the cross-walls were strengthened by rods connecting their upper timbers; the interior framing of the starlings was secured by hanging it from a truss placed above, and the top of the caisson was tied across, by 2-inch rods placed at the shoulders, and by dovetailing the 15-inch cross-timbers into the sides. The whole interior frame was sheathed with 2-inch oak plank, but the spaces between the double walls were left entirely open above. The cut-