

timbers to the lower-deck shelf; the seams of each layer being caulked, and felt laid between the surfaces.

Ten pairs of iron diagonal riders are worked in the hold, and ten pairs of diagonal plates on the sides of the vessel between decks.

The bows and stern are fortified internally by wood sleepers, breastworks, and iron crutches; great attention has also been paid in the arrangement of diagonal castings, radiating square to the bows, under the beams of each deck; terminating at the shelf-pieces and hooks, to meet as effectively as possible the pressure of ice.

Between the upper and lower decks, and also between the lower and orlop decks, as well as in the hold, where tie-beams have been introduced, thick shelf-pieces are worked, terminating under the transom abaft, and meeting at the middle line forward.

Filling chocks have been fitted in the after part, with a second transom kneed to the sternpost and ship's side, double-planked, within and without-board, thus affording great strength to the stern to meet the shocks to which the counter may be subjected.

The thwartship bulkheads of the fore, main, and after holds, are wrought diagonally of two thicknesses of $1\frac{1}{2}$ in. English oak plank, at right-angles to each other, the upper ends rabbetting into the lower-deck beams, and the lower ends into 4 in. plank wrought upon the doubling; the bulkheads are caulked on both sides, and rendered water-tight; the wing bulkheads are similarly wrought. The limber-boards are caulked down, and doubled over with fore and aft planks, which serve to receive the diagonal ceiling.

Penstocks are introduced on each side of the keelson, through each bulkhead, allowing a free water-course, when