other near the foremoſt end of the quarter deck, consiſting of double ladders for the conveyance of the men up from the other decks in cafes of emergency ; and ſikewiſe one on each fide of the fore part of the quar­ter deck from the gangway : and in every ſhip of the line all the beams from the foremoſt ladder-way to the after one ſhould be open with gratings, both for the admission of air, and for the greater expedition of con­veying different articles in the time of action.

Two ſcuttles are to be diſpoſed one on each side of the mainmaſt, if it happens to come through the quar­ter deck, tor the top tackles to paſs through, to hook to the eye bolts drove in the upper deck for that purpoſe.

The ſteering wheel ſhould be placed under the fore­part of the ronndhouſe, and the two beams of the quar­ter deck, which come under it, ſhould be placed con­formable to the two uprights, ſo that they may tenon in them. The quarter deck beams ſhould be kneed at each end with one hanging and one lodging knee ; which adds greatly to the ſtrength of the side. The hanging knees which come in the great cabin may be of iron ; their vertical arms to be two-thirds of the length of that of wood, and to reach the ſpirketing. It ſhould be obſerved, that the beam abaft, which comes under the ſcreen bulkhead, ſhould round aft agreeable to the round of the bulkhead, for the ſupport of the same.

The forecaſtle beams ſhould be placed according as the works of the deck will admit. The hatchways are therefore to be considered first. There ſhould be one for the funnel of the fire hearth to paſs through, and one for the copper to admit of vent for the ſteam ; and alſo one or two over the galley as the forecaſtle will admit of. The fore-topſail-ſheet bits ſhould be ſo diſ­poſed as to come one pair on the fore and one on the aft side of the mast, to let into the side of the forecaſtle beams, and ſtep on the upper deck beams below : there ſhould alſo be a ladder-way at the fore part of the fore- caſtle for the conveniency of the fore part of the ſhip.

The beams may now be placed agreeable thereto, their number being four more than there are in a ſpace in the upper deck equal in length to the forecaſtle ; and where there happens to be a wide opening between the beams, as in the case of a hatchway, mast room, &c. then half a beam of fir may be introduced to make good the deficiency. The foremoſt beam ſhould be of a breadth ſufficient to take the aft side of the inboard arms of the catheads, as they are ſecured upon this beam by being bolted thereto. Every beam of the forecaſtle ſhould be kneed at each end with one hang­ing and one lodging knee : the vertical arms of the hanging knees ſhould reach the ſpirketing, and the knees well bolted and carefully clenched.

Proceed to the roundhouſe ; the same things being obſerved with reſpect to the beams as in the quarter deck : for as the roundhouſe beams are sided very ſmall, it hence follows that they muſt be near co each other. Let therefore the number of beams on the roundhouſe be four more than in the same length of the quarter deck ; every other beam being of fir for lightneſs, and every oak beam may be kneed at each end with one hanging and one lodging knee ; the hanging knees abaft may be of iron, their vertical arms to be in length two thirds of thoſe of wood. The roundhouſe ſhould al­ways have a great round up, both for ſtrength and conveniency. There muſt be on the roundhouſe a ſmall pair of knee-bits on each fide of the mizenmaſt, turned round and scarfed over each other, and bolted through the mast catlings. There muſt alſo be a companion on the roundhouſe placed over the middle of the coach, in order to give light thereto.

With regard to placing the roundhouſe beams, the uprights of the ſteering wheel and the mizenmaſt are to be obſerved ; as when the beams which interfere with thoſe parts are properly ſpaced, the rest may be diſpoſed of at diſcretion, or at an equal diſtance from each other, and letting the beam over the ſcreen bulk­head have a proper round aft, agreeable to the quarter deck beam underneath.

The upper parts of the inboard works being now de­ſcribed, proceed next to the lower parts, or to thoſe which come below the lower deck. Draw in the orlop, by taking the heights afore, at midſhips, and abaft, between that and the gun-deck, from the dimenſions, and a curve deſcribed through theſe points will repre­ſent the upper part of the deck. Set off the thickneſs of the plank below, and the under ſide of the plank will be repreſented. As this deck does not run quite forward and aft as the other decks, the length of it muſt be therefore determined ; for this purpoſe let the after beam be placed at a ſufficient diſtance from aft to admit of the bread rooms being of a proper ſize for the ſhip, which will be under that beam of the gun deck that comes at the ſecond part from aft. The after beam being drawn in, proceed to ſpace the other beams, placing them exactly under thoſe of the gun-deck ; and that which comes under the foremoſt beam of the gun- deck may terminate the fore part of the orlop. Draw the limber ſtrake, by ſetting off its thickneſs above the cutting down line, and a line drawn parallel thereto will repreſent the limber ſtrake. That part of the orlop which is over the after magazine, ſpirit room, and fish room, and alſo that which is over the fore magazine, is laid with thicker planks than the reft oſ the deck ; which is for the better security of thoſe places, the planks being laid over the beams ; but in the midſhips, from the fore part of the ſpirit room to the aft part of the fore magazine, the beams are laid level with the surface of the deck, and the planks are rabbeted in from one beam to the other.

In order to repreſent the orlop as juſt deſcribed, the dimenſions of the different apartments above mentioned muſt be determined : Let the aft ſide of the after beam be the aft ſide of the after magazine, and from thence draw the bulkhead down to the limber ſtrake ; and the foreſide of the third beam may be the foreſide of the af­ter magazine, drawing that bulkhead likewise, which will alſo form the aft ſide oſ the fiſh room ; the foreſide of the fiſh room may be drawn from the aft ſide of the fifth beam, which will alſo repreſent the aft side of the ſpirit room ; then the foreſide of the ſpirit room may be drawn from the foreſide of the ſixth beam. Hence from the foreſide of the ſixth beam quite aft the deck, will be repreſented by the two lines already drawn, and the upper ſide of the beams will he repreſented by the lower line.

Proceed next to the forepart of the orlop, letting the