wood ſhall belt over it, and be of as much ſubſtance as the knee itſelf : therefore the knee muſt conſequently be placed its whole thickneſs below the cutting down line repreſenting the upper part of the dead wood.

The ſheer draught, the body, and half-breadth plans are now finiſhed, from whence the ſhip may be laid down in the mould loft, and alſo the whole frame erected. As, however, the uſe of the diagonal lines in the body plan has not been ſufficiently explained, it is therefore thought proper to ſubjoin the following illuſtration of them.

The diagonal lines in the body plan are mentioned in the tables of dimenſions merely for the purpoſe of forming the body therefrom; but after the body is formed, they are of very principal uſe, as at their ſtations the ribbands and harpins which keep the body of the ſhip together while in her frames are all deſcribed, and the heads of the different timbers in the frame like­wiſe determined.

The lowermoſt diagonal, or n⁰ 1. which is named the lower firmark, at which place the bevellings are taken for the hollow of the floors ; its ſituation is gene­rally in the middle between the keel and the floor firmark.

Second diagonal is placed in the midſhips, about 18 inches below the floor head, and is the ſtation where the floor ribband is placed in midſhips, and likewiſe the floor harpin forward ; there is alſo a bevelling taken at this diagonal all the way fore and aft, from which it is term­ed the floor sirmark.

Third diagonal, terminates the length of the floors, and is therefore called the floor head. There are likewiſe bevellings taken at this diagonal as far forward and aft as the floor extends. The placing of this diagonal is of the utmoſt conſequence to the ſtrength of the ſhip, it being ſo near to that part of the bulge which takes the ground, and of consequence is always liable to the greateſt ſtrain ; it ſhould therefore be placed as much above the bearing of the body in midſhips as could be conveniently allowed by conversion of the timber ; but afore and abaft it is not of ſo much conſequence.

Fourth diagonal is placed in the middle between the floor head and the fifth diagonal, at which place a rib­band and harpin are ſtationed for the ſecurity of the firſt or lower futtock, from whence it is named the first fut­tock sirmark. There are alſo bevellings taken at this diagonal all afore and aft, which being part of the body where the timbers moſt vary, occasions them to be the greateſt bevellings in the whole body.

Fifth diagonal terminates the heads of the firſt futtocks, and is therefore called the first futtock head. It ſhould be placed at a convenient diſtance above the floor head, in order to give a ſufficient ſcarf to the lower part of the ſecond futtocks. There are likewiſe bevellings for the timbers taken at this diagonal, all fore and aft.

Sixth diagonal ſhould be placed in the middle be­tween the firſt futtock head and the ſeventh diagonal ; at which place the ribband and harpin are ſtationed for the support of the ſecond futtocks. Bevellings are ta­ken at this diagonal all fore and aft. It is named the second futtock sirmark.

Seventh diagonal terminates the ſecond futtock beads from the fore to the aftermoſt floors, and afore and abaft them it terminates the double futtock heads

in the fore and aft cant bodies. It ſhould be placed in midſhips, as much above the firſt futtock head as the firſt futtock is above the floor head : by which it gives the same ſcarf to the lower part of the third futtock as the firſt futtock does to the ſecond. There are be­vellings taken all fore and aft at this diagonal. It is named the ſecond futtock head.

Eighth diagonal is the ſtation for the ribband and harpin which ſupports the third futtocks, and is there­fore placed between the ſecond futtock head and ninth diagonal. It is alſo a bevelling place, and is named the third futtock sirmark.

Ninth and laſt diagonal is placed the ſame diſtance above the lecond futtock head as that is above the firſt, and terminates all the heads of the third futtocks which are in the frames, as they come between the ports ; but ſuch as are between the frames, and come under the lower deck ports, muſt run up to the under part of the ports, as no ſhort timbers ſhould by any means be ad­mitted under the ports, which require the greateſt poſ­ſible ſtrength. This diagonal is likewiſe a bevelling place for the heads of the third futtocks, and is there­fore called the third futtock head.

The fourth futtock heads are terminated by the un­der part of the upper deck ports all fore and aft, and a ribband is placed fore and aft at the height of the upper breadth line, another between the lower and up­per deck ports, and one at the top-timber line ; which, with the ribbands and harpins before-mentioned, keep the whole body of the ſhip together, and likewiſe in its proper form and ſhape.

It muſt be obſerved, that the diagonal lines laid down in the dimenſions will not correſpond to what has been laid above upon diagonals, as they were drawn diſcretionally upon the body for the purpoſe of giving the true dimenſions of it. Therefore, when the body is drawn in fair, the firſt diagonals (which ſhould only be in pencil) are to be rubbed out, and the proper diago­nals drawn with red ink, ſtrictly adhering to what has been ſaid above.

Sect. III. Of the Inboard Works of the Ship deſcribed in the preceding Sectiοn.

Draughts of the outboard works being now conſtructed, in which every part is deſcribed that is necesſary to enable the artiſt to put the ship in her frames, we muſt now proceed to form another draught of the cavity of the ſhip or inboard works, which muſt be ſo contrived that every thing within the ſhip may be arranged in the moſt commodious manner and to the beſt advantage.

It is uſual to draw the inboard works in the ſheer-draught ; but as this generally occasions much confusion, it is therefore the beſt and easieſt method to appropriate a draught to this particular purpoſe@@.

Take from the ſheer draught the ſtem, ſtern-poſt, counter timbers, and keel, and deſcribe them on an­other paper ; draw in alſo the cutting down, kelſon, apron, tranſoms, faſhion-pieces, and decks, and the up­per line of the ſheer all fore and aft, alſo the timbers and ports.

The beams come firſt under conſideration, and ſhould be ſo diſposed as to come one under and one between each port, or as near as can be to anſwer other works of the ship ; but where it happens that a beam cannot poſſibly be placed under the port, then a beam arm

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