the arches deſcribed, the bend mould muſt be ſo pla­ced on the riſing line of the floor, that the back of it may touch the back of the under breadth ſweep. But the general practice is, to deſcribe all the floor ſweeps with compaſſes, as well as the under breadth ſweeps, and to reconcile theſe two by a mould wſhich is an arch of a circle, its radius being the same with that of the reconciling ſweep by which the midſhip frame was formed. It is uſual for all the floor ſweeps to be of the same radius ; and in order to find their centres a line is formed on the floor plan for the half breadth of the floor. As this line cannot be deſcribed on the ſurface of a ſhip, it is therefore only an imaginary line. Instead of it ſome make uſe of a diagonal in the body plane to limit the half breadth of the floor upon every rising line, and to erect perpendiculars at the ſeveral interſections, in the lame manner as for the midſhip frame.

After the ſweeps are all deſcribed, recpurſe is had to moulds, or some such contrivance, to form the hollow of the timbers, much in the same manner as in whole moulding ; and when all the timbers are formed, they muſt be proved by ribband and water lines, and altered, it necessary, to make fair curves.

The preceding methods of deſcribing the ſeveral planes or ſections of a ſhip being well underſtood, it will be a very eaſy matter to conſtruct draughts for any propoſed ſhip : and as the above planes were de­ſcribed ſeparately and independent of each other, it is therefore of little conſequence which is firſt deſcribed. In the following application, however, the plane oſ ele­vation will be first drawn, then part of the floor plan, and lastly the body plan : and in connecting theſe plans the most rational and simple methods will be employed.

Draw the line *ab* (fig. 33.) equal to 80 feet, from a convenient scale : divide it into as many equal parts plus one as there are to be frames, which let be 16, and through each point of division draw perpendiculars. Make *be* equal to 17 feet, the perpendicular height of the top of the ſtem above the upper edge of the keel, and deſcribe the ſtem by @@Prob. II. Make *ad* equal to 101/2 feet, the height oſ the middle line oſ the wales at the ſtern, and *a e* equal to the propoſed: rake of the post, which may be about 2 feet ; join *de ;* and draw the line f *g* repreſenting the aft-side of the post. Describe the counter and ſtern by Problem VI. and VII. Make ⊕*h* equal to 14 ſeet, the top-timber height at the main frame, and *i k* equal to 18 ſeet, the height at the ſtern ; and through the three points *c, h, k,* deſcribe the curve limiting the top-timbers by Problem I. Make *bd* equal to 10 feet, the height of the middle line of the wales at the item, and ⊕H equal to 6 feet 10 inches, the height at the main frame ; and the curve dHd being deſcribed will repreſent the middle line of the wales. At the diſtance of 101/2 inches on each side of this line draw two curves parallel thereto, and the wales will be completed in this plan. Make *b l* equal to 131/2 feet, the height of the breadth line at the ſtem ; *a m* equal to 12 1/4 feet, the height at the ſtern ; and I⊕ K⊕ equal to 5 feet 10 inches and 7 feet 4 inches reſpectively ; and draw the upper breadth line lKm and lower breadth line lI *m.* From the line *a b* lay down­wards the breadth of the keel, which may he about one foot, and draw the line L *t* parallel to *a b.*

Let the line L *r,* which is the lower edge of the keel, repreſent alſo the middle line of the floor plan. Pro­duce all the perpendiculars repreſenting the frames : make ⊗M (fig. 31.) equal to 11 feet, the main half breadth at midſhips; through *m* (fig. 30.) draw the line m N perpendicular to *a b,* and make *p* N equal to 74 ſeet, and draw the main half breadth line NMr by Problem IV. Deſcribe also the top-timber half breadth line PO *r,* ⊕O being equal to 10 1/2 ſeet, and form the projecting part of the ſtem *qrst.*

In order that the top-timber line, may look fair on the bow, and to prevent the foremoſt top-timbers from being too ſhort, it is neceſſary to lift or raiſe the ſheer from the round of the bow to the ſtem. For this puroſe the following method is uſually employed : Pro­duce the circular ſheer before the ſtem in the plane of elevation at pleaſure ; then place a batton to the round of the bow in the half breadth plan, and mark on it the ſtations of the ſquare timbers and the side of the ſtem ; apply the batton to the ſheer plan, and place it to the ſheer of the ſhip, keeping the ſtations of the timbers on the batton well with thoſe on the ſheer plan for ſeve­ral timbers before dead-flat, where they will not alter ; then mark the other timbers and the ſtem on the ſheer line produced ; through theſe points draw lines parallel, to the keel, to interſect their correſponding timbers and the ſtem. in the ſheer plan ; then a curve deſcribed theſe last points will be the ſheer of the ſhip round the bow, lifted as required : and the heights of the tim­bers thus lengthened are to be transferred to the body- plan as before.

Draw the line AB (fig. 32.) equal to 22 feet, the whole breadth ; from the middle of which draw the.

perpendicular CD : make CE equal to half the thickneſs.

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|
| Dimensions. |  |  |
| Length between the wing tranſom and a perpendicular | | |
| from the rabbet of the ſtem at the height | *F.* | *In.* |
| of breadth line | 80 | 0 |
|  |  |  |
|  |  |  |
| the ſtern | 7 | 6 |
| Top-timber half breadth  Height of the ſtem above the upper edge of | 10 | 6 |
| the keel | 17 | 0 |
| Height of the breadth line at the ſtem | 13 | 6 |
| Height of the breadth line at the ſtern | 12 | 3 |
| Upper height of breadth at the main frame | 7 | 4 |
| Lower height of breadth | 5 | 10 |
| Height of middle line of wales at the ſtem Height of middle line of wales at the main | 10 | 0 |
| frame . . \_ | 6 | 10 |
| Height of middle line of wales at the ſtem. | 10 | 6 |
| Breadth of the wales | I | 9 |
| Height of top-timber at midſhips | 14 | 0 |
| at ſtern | 18 | 0 |