number of rivets required, and is thus determined. Find, by dividing the stress given on the diagram of stresses between the various thicknesses of iron which constitute the bearings, the amount of stress which the plate considered is to carry. It is well, though, to make a liberal allowance, say twenty per cent, for the possibility that the stress may not be divided proportionately to the thicknesses. Next multiply the stress so obtained by the perpendicular distance between the central plane of the re-enforcing plate and that of the plate or web re-enforced: the product will be the moment of the stress upon the re-enforcing plate. Divide this moment by the working bending-moment, taken from Table XXXVI. or XXXVII., for a rivet of the diameter to be employed for the connection: the quotient will be the number of rivets required to resist bending. Next find, from one of the same tables, the working bearing-stress for one of the rivets upon a plate of the thickness of the re-enforced plate or web, and divide it into the stress which the latter carries: the quotient will be the number of rivets required to afford sufficient bearing. The greater of the two numbers thus obtained is the one to be employed. Next make to scale a drawing of the re-enforcing plate, laying out the rivets, if it be possible, symmetrically, and thus determine the length of the re-enforcing plate. In case of a re-enforced pin hole, if the diameter of the hole exceed one-half the width of the plate, it will be necessary to put more rivets in front of the pin hole than behind it; the ratio of the number in front to the whole number being equal to that of the diameter of the hole to the width of the plate.

The method of proportioning splice plates or connecting plates is somewhat similar. For instance, let us take the plates at a joint in the top chord; which joint, for reasons to be stated in Chapter XVIII., is always to be placed a few inches to that side of the pin hole farthest from the middle of the span. The stress on the portions of the plates to this side of the joint is that due to the stress in the panel where the joint occurs; while that on the other portion of the plates is due to the stress in the next panel towards the middle of the span. The number of rivets on each side of the joint will be dependent upon the