Next resolve one-half of the diagonal stress vertically and horizontally into P and P' respectively. Let l represent the distance between the centre of the diagonal and that of the extension plate, and l' the distance between the former and that of the chord-bearing; then

$$V = Pl,$$

$$H = P'l',$$

and

$$M = \sqrt{H^2 + V^2}.$$

If the bridge be a small one, it will be necessary to calculate only the size of the pin at the top of the first vertical post from the end of the bridge, and to make all the intermediate top chord pins of the same size. But, if the bridge be a large one, it will be better to calculate the diameter of the pin on the post midway between the end vertical post and the middle of the span, and to make all the pins between these places of this diameter, and all the others of the same diameter as that at the end of the first vertical post. After the diameters of the top chord pins are determined, the post and chord bearings should be tested by applying one of Tables XXVI. and XXVII., although in most cases they will be found ample.

In double-intersection bridges, where the diagonals are halved, and coupled on pins passing through the middle of the posts, the size of any one of these pins may be found from the moment

$$M = \frac{Sw}{2},$$

where S is the stress on the diagonals as given on the diagram of stresses, and w the width of one of the main diagonals.

In all pin proportioning it must be kept in mind that the diameter of the pin is never to be less than eight-tenths of the depth of the deepest bar coupled thereon.

The author wishes to call attention to the superiority (in his opinion) of the simple method given in this chapter for proportioning lower chord pins by formula over the apparently more accurate one given in the last chapter.