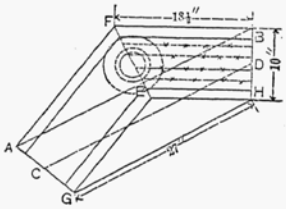
a connecting-plate is $\frac{1}{2}(0.3 + 0.375) = 0.338$ inch, making the moment $11.6 \times 0.338 = 3.92$ inch tons, which divided by 0.311, the resisting-moment for a $\frac{3}{4}''$ rivet, as given in Table XXXVI., gives thirteen as the number of rivets required to resist bending. From the same table we find by interpolation about 1.36 tons as the bearing-resistance for a $\frac{3}{4}''$ rivet on a 0.3″ plate. The stress transferred to the channel is $2 \times 11.6 = 23.2$ tons, which divided by 1.36 gives seventeen as the number of rivets required for bearing. It will be convenient to use sixteen rivets, in four rows of four in a row. We can do so legitimately, as the calculation calling for seventeen is merely approximate.

It is evident, without calculation, that sixteen rivets will be enough for the connecting plates on the batter-brace side of the pin hole, for the stress is less and the thickness of web slightly greater.

To make the outer plate fit between the flange rivet heads, we cannot have it much more than seven inches wide, unless the said rivet heads be countersunk.

Next let us lay out the hip to scale, as in the accompanying figure, spacing the rivet holes according to the rules given in Chapter II., and allowing three inches of length extra for the part which connects with the batter brace, so as to provide for the portal-strut connection. This approximation is accurate enough for a bill of iron. The circles are those for the pin and the limiting distance for non-countersunk rivets. The rivet spacing is three inches along the horizontal lines.



To calculate the weight of an inner plate, we may divide it into two parts by the line *AB* in the figure. The area of the lower part is equal to the length of *CD* multiplied by the perpendicular distance between *AB* and *GH*, and that of the upper part by one-half the product of *AB* and *EF*. These dimensions are recorded approximately in the "Bill of Iron." The length of the outer connecting-plate is, of course, measured along its centre line.