ber of rivets for the jaw plate, because it has to act as a re-enforcing plate also. First we must determine the size of the pin which attaches the vibration rods. The diameter of each rod being $1\frac{1}{8}''$, the greatest working-stress thereon is $7.5 \times 0.994 = 7.5$ tons, nearly. The lever arm is $\frac{1}{2}(\frac{1}{4} + \frac{3}{8} + \frac{8}{9}) = \frac{11}{8}''$, making the moment $\frac{11}{8} \times 7.5 = 6.56$ inch tons. Consulting Table XII., we find $1\frac{5}{8}''$ as the diameter required. Table XXVII. shows that there is more than sufficient bearing. Assuming five tons upon the re-enforcing plate, we find the number of five-eighths inch rivets required to resist bending to be

$$\frac{5 \times \frac{1}{2}(\frac{1}{4} + \frac{3}{8})}{0.225} = 5,$$

so that the dimensions in the drawing are ample.

Let us assume the dimensions for portal connecting-plates to brackets and name plates as $\frac{1}{4}'' \times 8'' \times 18''$.

The section of a connecting-plate for an intermediate strut should be $\frac{3}{8}'' \times 3''$; and we will use three rivets for the connection to the post, and four for that to the strut: it would be useless to figure upon these numbers, as the stress is so small. Owing to the peculiarity of the vibration-rod connection, each plate will have to be about two feet long, as can be seen on Plate VI.

Omitting sidebrace connection, the next item is the end lower lateral strut connection to pedestal, which is by means of a jaw plate $\frac{5}{8}'' \times 5''$. The stress on the strut was found to be 9.75 tons, making 4.88 tons on each channel. The number of three-fourths inch rivets required will therefore be

$$\frac{4.88 \times \frac{1}{2}(\frac{1}{4} + \frac{3}{8})}{0.389} = 6.$$

There is no need of figuring for bearing. This would make the total length of jaw plate about three feet, as noted on the "Bill."

For the strut at the fixed end, a plate $\frac{1}{2}'' \times 5'' \times 2'$ will answer the purpose.

The next item is the hip cover plate, which we will make of the same section as the chord plate, and eighteen inches long.