as the intensity of working-stress, which divided into 42.315
gives 16.03 as the section required. Subtracting 3.91, and mul-
tiplying the remainder by \(\frac{1}{6}\), gives 20.2 pounds per foot as the
weight of each channel of the batter brace.

Next let us proportion the posts. We see immediately, from
the small stress in the centre post, that its section will be the
smallest ever used, viz., that of 5" 7# channels (vide p. 8): so
there is no need of calculating the section required. Let us
assume six-inch channels for the next post: the number of
diameters will then be forty-eight, and the intensity for two
hinged ends 1.335: which, divided into 10.05, gives 7.53 square
inches, corresponding to two 12.55-pound channels. These are
not so economical as seven-inch channels: so we will try the
latter. The ratio is 41\(\frac{1}{4}\), and the corresponding intensity 1.656,
which divided into 10.05 gives 6.07 square inches, correspond-
ing to channels weighing 10.12 pounds per foot. The smallest
 procurable seven-inch channels weigh 10.5 pounds per foot,
which size we will therefore adopt.

Let us assume nine-inch channels for the next post, making
the ratio 32, and the intensity 2.193, which divided into 17.25
gives 7.86 square inches, corresponding to channels each weigh-
ing 13.1 pounds per foot. As the lightest nine-inch channels
weigh 14.5 pounds per foot, it will be necessary to employ
these, unless eight-inch channels be more economical. Let us
try. The ratio is now 36, and the intensity 1.937; making the
area 8.91, and the weight of one channel 14.85 pounds per foot,
On account of the smaller sizes of lattice bars and stay plates.
the eight-inch channels will prove more economical, in spite of
their larger section: so we will adopt them.

Next let us proportion the bottom chord, recollecting, that, in
the two end panels, an allowance must be made for one rivet
hole in each inner bar, the rivets being half an inch in diameter.
It is to be noticed that the proportion of width to depth of
chord-bars in the centre panels is about one to five, because
there are four bars in a panel, and that the depth of the end
panel bars approaches the limit for stiffened bars.

From Table VI. we find the size of the hip verticals to be
1 16" square.