not one of the least of the excellencies of the pin-connection system that the chords, posts, and tension-members may be made to unite at the centre of their several sections, and by proportioning the box chord as above this may be accomplished very fully. The advantage of a cast-iron joint box consists in the very perfect attainment of this principle, as such boxes insure an absolutely uniform distribution of pressure over the surfaces of contiguous chord sections. This principle is about as far lost sight of in riveted work as it is possible to be. In such work the chords have no stiffening along the inner edges of the vertical plates or sides to which the web system is riveted, and the increase of area is made by riveting on plates to the upper side of the top chord, or lower side of the bottom. The centre of section is not at the middle of the sides, as usually assumed, but approaches the top or bottom plates, and in large spans, where the strains are great, necessitating a large area of section (placed mostly in the above plates), the centre of section approaches the plates very rapidly. In applying the formula for posts, therefore, to such chord sections, the diameter used for determining the ratio of "length to diameter" must not be taken as equal to the side of the least circumscribing rectangle, but must be a much smaller quantity. Just what this quantity is may be ascertained by reference to special treatises on engineering, since it involves considerations too technical to introduce into a book of this character. It will be sufficient for our purpose if the reader realizes that a box or trough-shaped compression