material is saved in the construction of the cross bearers, and in lateral bracing.

The preference to be given to the trapezoidal truss in this case, is on account of the bearing points, (the joints of the cylinders,) being in the same horizontal plane, and not at different elevations as in the arch.

The cross bearer for a track on the top may be as seen in Fig. 20, Pl. 3. The cast iron portion straight, and formed to fit the cylinders at the ends, where they are secured by bolts. On the other hand, the wrought iron part, which acts as a chord chain in the other cross bearer, acts as a suspension chain in this, having its connections essentially the same in both cases. The verticals and diagonals, as well as the mode of applying the track timbers, are also the same as in the case of Fig. 18.

The lateral, or horizontal diagonals, may be as shewn in Fig. 19, with or without the hole at the angle, and passing through elongated holes near the ends of the bearer, may be secured by pin or wedge.

The chain pin for trusses sustaining the track on the top, need not be adapted to receive the vertical by a hole in the upper side, but may be formed by welding the ends of 4 square bars, rounding the welded parts to receive the chain links, and opening the middle portion for the diagonals to pass through. Fig. 21, Pl. 3, shews a middle cross section of a pin formed in this manner, with the diagonals passing through, and the vertical standing on the top.

It will be most economical to make the height of the truss in this plan, equal to \( \frac{1}{6} \) the length of span, but circumstances may sometimes render it advisable to reduce it to \( \frac{1}{4} \) or \( \frac{1}{3} \). The diagonals should incline at 45°, though a small deviation may be made without great detriment to economy.

This plan, with the single cancel, as in Fig. 7, is good, perhaps the best, for any span under 75 feet. If carried beyond that, it would, perhaps, be best to give more length without increasing the height, by making more