to plate. This idea was adopted in the modified design and is shown in Fig. 3.

At the skewback there is a large quantity of steel very closely spaced, as will be seen from Fig. 3, which shows sections through the junction of the top chord with the lower chord. The contractor had to use special care to get the concrete worked around the reinforcing.

There are 16 hangers, 8 on each side of the bridge, each hanger having a section 11 ins. by 13 ins. overall, as shown in Fig. 6. These hangers consist of six 1-in. rods, bound with 3/16-in. stirrups spaced at 8-in. centres, and encased in concrete. Some trouble was experienced in concreting the suspension members, or hangers, as the contractor did not concrete them before placing the steel in the arch rib. It was the intention of the designer that these members should be concreted from the top before placing the steel for the arch ribs.

The first concreting done on the bridge was the floor system. After all the other portions of the floor system had been poured, the parts immediately adjacent to the skewbacks were poured at the same time as the ends of the arch ribs and the junctions of arches and bottom chords, or skewbacks. Then the arch ribs were carried on up toward the crown, approximately equal progress being made at both ends of the bridge. The contractors for both Etobicoke and Bronte bridge used a concreting tower and chutes. The actual time required for concreting was about six days.

There are two 6 ft. sidewalks, cantilevered onto the lower chords. The sidewalk floor is concrete, 4½ inches thick. The clear width of each sidewalk is 6 ft. The roadway floor is concrete, 8 inches thick at each curb and 9¼ inches at the crown.

The distance centre to centre of lower chords is 21 ft.

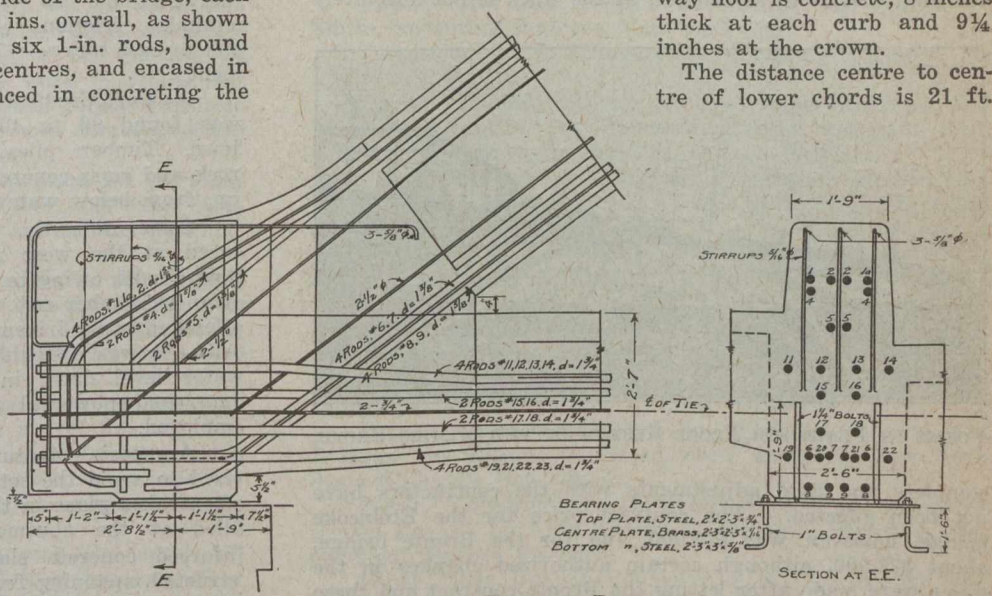

FIG. 3—SECTIONS THROUGH JUNCTION OF TOP AND BOTTOM CHORDS, BRONTE BRIDGE, SHOWING REINFORCING AND METHOD OF ANCHORAGE

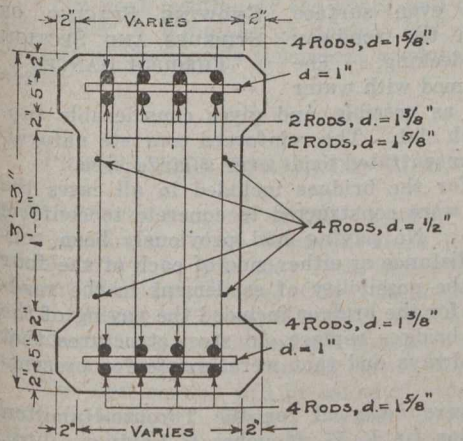

FIG. 1—CROSS-SECTION THROUGH TOP CHORD AT FIRST HANGER

10 ins., while the clear width of the roadway is 20 ft. In designing the bridge, a live load of 100 lbs. per sq. ft. of floor surface was assumed. The dead load per lineal foot is 8,700 lbs., or a total weight of superstructure amounting to

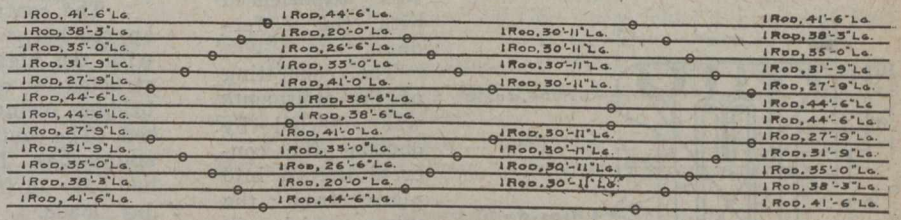

FIG. 4—DIAGRAM SHOWING THE STAGGERING OF JOINTS IN EACH BOTTOM CHORD—CIRCLES INDICATE TURNBUCKLES

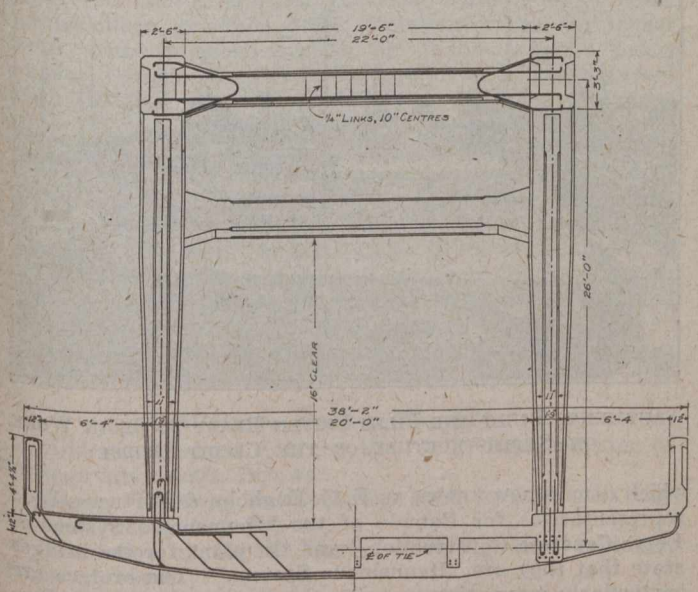

FIG. 2—CROSS-SECTION AT CENTRE OF BRONTE BRIDGE

over 556 tons. The concentrated load assumed was 20 tons on two axles at 10 ft. centres and 6 ft. gauge, with two-thirds of the weight on the rear axle.

The concrete used in the arch ribs, ties, hangers and bracings was 1:2:4 mix, excepting for the connection between the arch rib and the lower chord, which was 1:1¾:3½ mix.

In regard to the falsework, the specification required the concrete to be considered as a liquid weighing 180 lbs. per cu. ft. for vertical loading, or 120 lbs. per cu. ft. for horizontal loading. It was required that the working unit stresses for hemlock timber should not exceed 650 lbs. per sq. in. for bending, 250 lbs. per sq. in. for compression perpendicular to the grain, and 750 lbs. per sq. in. for compression parallel to the grain; the working unit stresses for other timber to be in proportion to these stresses as determined by the engineers.

The contractor for the Bronte bridge was the Lewis Construction Co., Toronto; for the Credit and Etobicoke bridges, the Frid Construction Co., Hamilton; and for the Mimico bridge, the Toms Contracting Co., Toronto.

At the Credit River, the superstructure has not yet been started, although the abutments have been built. At Mimico, the abutments have been built and the form-work for the floor system is in place. The Bronte bridge is entirely finished excepting the rubbing down. The Etobicoke