

working, and enhanced speed in operation. The invention aroused instant attention, as its engineering features were too pronounced to be ignored. In some quarters the claims of the inventor were criticised, but the opportunity arose whereby he was able to demonstrate the practicability of his idea, and to establish his contentions in no uncertain manner. The Metropolitan West Side Elevated Railroad desired to get into the business centre of Chicago, but was faced by the Chicago River. The company wanted to lay down four roads, for which the right of way had been secured. This extended between two existing swing bridges, and although the railway company at first concluded that the swing bridge would meet their requirements, they found it impossible to adopt this solution, for the simple reason that there was no space in which to place the structure, as the existing bridges were too close together.

As a solution of the difficulty, an eminent American engineer suggested that a bridge, similar in character to the

**Triumph of
the Scherzer
Bridge.**

Tower Bridge and working upon the same principle, should be adopted. The authorities acceded to the proposal, and the plans were taken in hand. As the latter matured, however, certain drawbacks were observed. At last the railway management called in Mr. Scherzer to determine whether his new idea was applicable to the situation, and, if so, would it be suitable to the purposes demanded. Time was pressing, since the remainder of the track was almost completed. Mr. Scherzer had been turning over in his mind the possibility of evolving what he termed "a rolling lift system," and he saw that it could be incorporated in this case very efficiently, so he prepared plans in accordance with his ideas. The first designs were submitted to the management, and they were so impressed with its advantages that they placed the contract in his hands.

The bridge is, in reality, in two sections. Two duplicate structures, each carrying two sets of metals, are built side by side, and firmly coupled together so as to be operated as one bridge. Inasmuch as it might be desired to use each section separately, the designer introduced facilities whereby, within ten minutes, the coupling can be severed, and each bridge operated independently of the other, so that the railway has a crossing at all times. The movable span is 114 feet, centre to centre of bearings, and the channel between the masonry piers is 108 feet. This structure is designed to act upon either the arch or cantilever principle. When acting as a cantilever the live load is supported by the tail girders, which are locked under the projecting approach spans, the latter being firmly anchored into the masonry. The counterweighting is so carried out that upon opening the tail and centre locks, the leaf rises to an angle of about 30 degrees, so that only the minimum of energy is required to open it still wider or to close it. As a rule, the bridge can be opened or closed within thirty seconds, and is ready to permit trains to pass within a minute of its commencing to close.

This particular bridge constituted a severe test for the new idea, inasmuch as the Chicago waterway is very busy, while the railway traffic is heavy. On the average,

**1,200 Trains
Per Day.**

1,200 trains cross the bridge during the twenty-four hours, while the bridge itself has to be opened about forty times a day to permit vessels to pass. Rapid working in this instance was of paramount importance, so that the railway traffic might not be hindered more than was absolutely necessary. Experience has demonstrated very conclusively the many advantages of this type of bridge. In fact, the railway company were so impressed with its superior features that immediately afterwards they approached