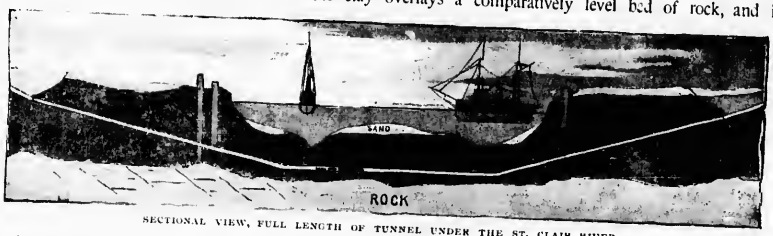
"pocket" of quicksand and water, with once in a while a rock or boulder, the clay was the only material met. The borings were made by means of cylindrical steel shields, with cutting edges, driven forward by hydraulic rams, and as fast as the clay was cut away, a section of the iron wall of the tunnel was bolted to its fellow-section, and thus the wall was completed, as the work progressed.

The accompanying illustrations will give a good idea of the nature of the river bed, as well as the general contour of the tunnel. It will be seen that the clay overlays a comparatively level bed of rock, and in some

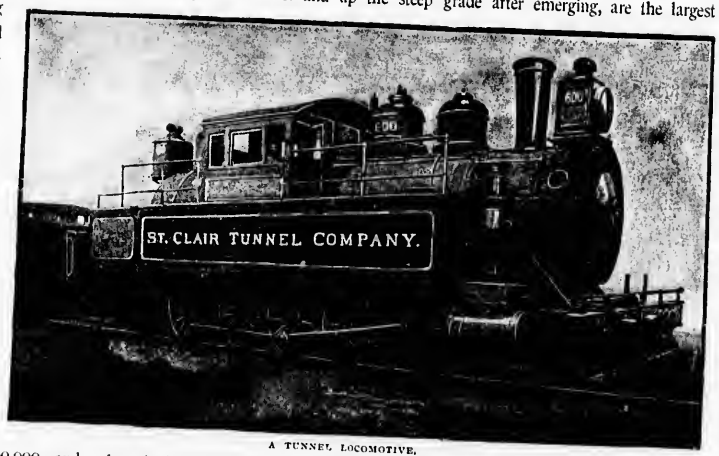


SECTIONAL VIEW, FULL LENGTH OF TUNNEL UNDER THE ST. CLAIR RIVER.

places is itself overlaid with a bed of sand. Had the ledges pushed upward into the clay, to any extent, or the sand pockets penetrated downward, the work would have been much more difficult.

The rails of the track rest upon cross-ties, only six inches apart, laid on stringers, which in turn rest on a bed of brick and concrete, filling the bottom of the tube.

The engines used to pull the trains through the tunnel and up the steep grade after emerging, are the largest in the world, having ten driving wheels, and weighing nearly 200,000 pounds. The boilers are 74 inches in diameter, the fireboxes 132½ inches long and 42⅛ inches wide, and the cylinders are 22 inches in diameter, with 28-inch stroke. These monster engines were built especially for this service by the celebrated BALDWIN LOCOMOTIVE WORKS, of Philadelphia, Pa.



A TUNNEL LOCOMOTIVE.

The cost of this great tunnel was $2,700,000, and when it is understood that 4,000 cars can be daily moved through it, and this is contrasted with the slow and laborious transfer by ferry, it will readily appear that the enormous expenditure was one which will yield a quick and profitable return. The honor of promoting the enterprise is due to Sir Henry Tyler, of England, President of the Grand Trunk Railway, and he has been ably assisted by Sir Joseph Hickson, late General Manager. The engineers of the work were: Joseph Hobson, chief engineer; T. E. Hillman, first assistant engineer; M. S. Blaiklock, second assistant engineer. The success of undertaking has placed the Grand Trunk Railway far in advance of all its competitors in the matter of crossing the river, and thus made easy of solution the problem of rapid transfer, to which this stream has heretofore presented so many obstacles.