in panels adjacent to the loaded point, and consequently, a tendency to kink in the upper chord, by opening the joint above the loaded point upon the under side, and the next joint either way, upon the upper side. Hence the compression of certain chord segments would be thrown upon the extreme upper side at one end, and the lower side at the other end. This would be decidedly an unfavorable condition, which the panel rods are used to obviate by distributing the load of loaded points over adjacent, and more remote parts of the truss. Otherwise, the bridge would act under a passing load, somewhat in the manner of a pontoon bridge.

By estimating a reasonable amount of material for posts and panel ties, the figures in the table, opposite the first two trusses would be materially increased.

Hence, it must be obvious that the necessary material for the two above named trusses, is not so fully represented in the table, as in the case of the other four; with regard to which — assigning proper values to M in the different columns of the table, and assuming the members to adhere to one another as firmly as the different portions of each cohere among themselves, a complete truss would be formed in either case (of dimensions as above assumed), sufficient to be used in a bridge required to bear a gross load equal to 4 times the weight of superstructure; provided the proper ratio of safe variable load to weight of structure be as 3 to 1; as is nearly the case with regard to a 100 foot bridge.*

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* M, in the preceding table, represents a piece of iron, 15' long sufficient to sustain with safety, a weight W, equal to \( \frac{1}{4} \) of the gross maximum load for one truss of a 100ft. bridge. Allowing 1,000lbs. to the lineal foot for movable, and 333lbs. for permanent load, W, represents \( \frac{1}{4} \times 133,333lbs. = 16,666lbs. \). Then, reckoning the safe stress of