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THE EAST RIVER BRIDGE.

For the first time in the history of the world a bridge now spans the East River. The cities of New York and Brooklyn are connected; and although the connection is but a slender one, still it is perfectly possible for any venturesome mortal to make the transit from shore to shore with safety. The completion of the foot bridge marks the beginning of the era of active work on the superstructure of the great fabric. We have already explained how the heavy wire ropes, on which the ten cradles are suspended, were brought over from anchorage to anchorage. The cradles on the main span are nearly 48 feet long; and they are suspended at such a deflection that the main strands, while being made, will be within easy reach of the men who are to regulate the wires. They are constructed of oak, and the center of the floors is made in part of iron rods, so as to admit of the free passage of the wind, and thus reduce oscillation. In order to give access to these cradles, the temporary foot bridge, above referred to, and of which an excellent idea can be obtained from the engravings presented herewith, has been recently constructed.

Two designs were made for this part of the work: one providing for a bridge in a low position at the level of the floor of the main bridge; the other 60 feet above, at the level of the cradles and strands. Both positions have their advantages and disadvantages. From the low foot bridge, the regulation of the strands in the cables can be more easily accomplished; but access to the cables could only be had by means of long vertical rope ladders, difficult and dangerous to climb.

The intermediate cradles would have been almost inaccessible. Provision for safety against storms could per-

haps be equally well made in both cases. The important consideration, however, which led to the adoption of the high position, was the accommodation of the shipping, as the low foot bridge would have at once formed a barrier above the water, while the high one is fully 210 feet over the river. This distance will be maintained for a year or more,

on the cables, with two inch spaces between the slats for the free passage of the wind. The slats are held in place by longitudinal strips, 3 by 1½ inches, to which they are fastened by round clinch nails. These strips are secured to the cables by U-shaped stirrups, plate washers, and nuts. The floor was laid in sections of from 12 to 16 feet in length at a time.

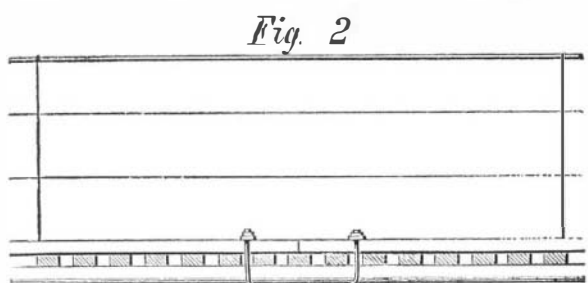
Chief Engineer Roebling does not hesitate to express his belief that this frail structure may be disabled more than once by violent gales before the main cables are completed. Its principal security against the wind is a pair of inverted storm cables, assisted by a number of underfloor stays in the main span. In the land span, the guys lead directly to the anchorages in the ground. The ropes are all secured together laterally. It is of but little moment how much the cradles may sway about in the middle of the span; but all great waves must be checked before they reach the towers, where alone the ropes can be injured. This is done by the underfloor stays and by securely fastening the ropes to the masonry. The inverted parabolic storm cables serve rather to prevent the foot bridge being carried away bodily.

We are indebted for our information to the report of Engineer Roebling, and to the courtesy of Assistant Engineer W. H. Paine.

GERMAN STEEL IRON.—Messrs. Asbeck, Ostbaus & Co., a German firm, are manufacturing a substance which they term steel iron in five different varieties, so that they can furnish steel upon iron, iron between two layers of steel, steel core and iron skins, iron core and steel skins, and other combinations.



THE FOOT BRIDGE OVER THE EAST RIVER, NEW YORK.



when the lowering of the cable strands will slightly curtail it. The construction of the foot bridge is clearly shown in Figs. 2, 3, and 4. It is made of oak slats 3 by 1½ inches, laid directly

