the several cases; § except that $ep$ and $fp$ may suffer a nominal stress, not precisely determinable, under a load progressing from $a$ to $l$. Also $gn$ may sustain some more weight with $i$, $j$, and $k$ unloaded, than with the truss fully loaded. It is deemed safe to provide that $gn$ be able to sustain a weight of $\frac{3}{4}W$; $fo$, to sustain $\frac{1}{4}W$, and $ep$, $\frac{1}{4}W$, a little more or less as the judgment or calculations of the designer may dictate.

The preceding explanations are thought to be sufficient to guide as to the computation of stresses upon the other arm of the bridge, whether equal or unequal to the arm $al$.

The superstructures of swing bridges should be thoroughly cross-tied and braced laterally, and the king posts (represented by $ax$ and $yz$), well secured by arch braces or other efficient means transversely; and if the space $az$ be too great for floor joists or rail stringers without intermediate support, an intermediate beam may be suspended from the crossing point of $ay$ and $xz$, or stringers may be trussed.

CLXXXV. Whatever advantages either of these plans (Figs. 71 and 72), may have over the other, are probably not very great. I find a greater amount of action (stress into length of parts), upon material in chords of the long arm, in plan Fig. 71, including the suspension rod $eb$, than in that of Fig. 72, by some 5

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§ It will be seen that $tu$ is under less tension strain (as $23w'p$ to $36w'p$), and $ts$ under greater strain (as $21$ to $20$), when the truss is on the swing, than when fully loaded on both arms (upon the above assumptions of $w=3w'$, and $2W$ bearing at $l$), and that $tu$ has the max. tension with bridge on the swing, while $tx$ has its maximum with bridge fully loaded. $ma$ is always under compression. In the lower chord, $e$ is the changing point, and parts at the left have their max. comp. with bridge fully loaded, and those on the right, when on the swing.