mark, that the adoption of such a radical change—although clearly a matter of necessity—was nevertheless a virtual surrender of what had been previously claimed for this plan of truss, and had been in a great measure the means of giving it an enviable reputation, and was undoubtedly a step taken in the wrong direction. It may also be remarked, without intending offense, that if the combination of the arch and truss was considered inconsistent, when previously practised in the days of the Burr Bridge, it is difficult to perceive why a simple change of circumstances should have led to its approval now.

It will be observed that the arch of the Burr Bridge, Fig. 1, abuts upon the masonry in precisely the same manner as the arch of what is denominated the "Improved Howe Truss," Fig. 3, and the difference between the two consists simply in the mode of connection with the truss, and not in any change of principle, or method of action.

It will be seen that the Burr arch is securely fastened to the posts and braces of the truss, forming a solid unadjustable mass. In Fig. 3, the arches are not fastened to the braces or rods, but have an independent connection with the lower chord of the truss, by means of rods radiating from the former to the latter. By this method it was supposed that any desirable adjustment could be effected, and that the strain could be put upon either system, or equally upon each.

This new arrangement, although plausible in theory, is found impossible in practice, for the following reasons:

1st. The rods from the arch to the lower chord are of various lengths, consequently their contractions and expansions must vary proportionately.

2d. Not a single rod in the arch is of the same length as those in the truss, hence the expansion and contraction of