

The draw was built open upon false-works extending up and down the river ; on the removal of the temporary supports it became a beam balanced upon its centre, and the same circumstance is repeated whenever the draw is open. The top chord is then in tension, and the bottom chord in compression, the strains tending to distort the beam in the manner shown in Fig. 1. The strains are greatest at the centre, where the moment of flexure is :—

$$M = - \frac{364^2 \times 960}{8} = - 15,899,520 \text{ pounds.}$$

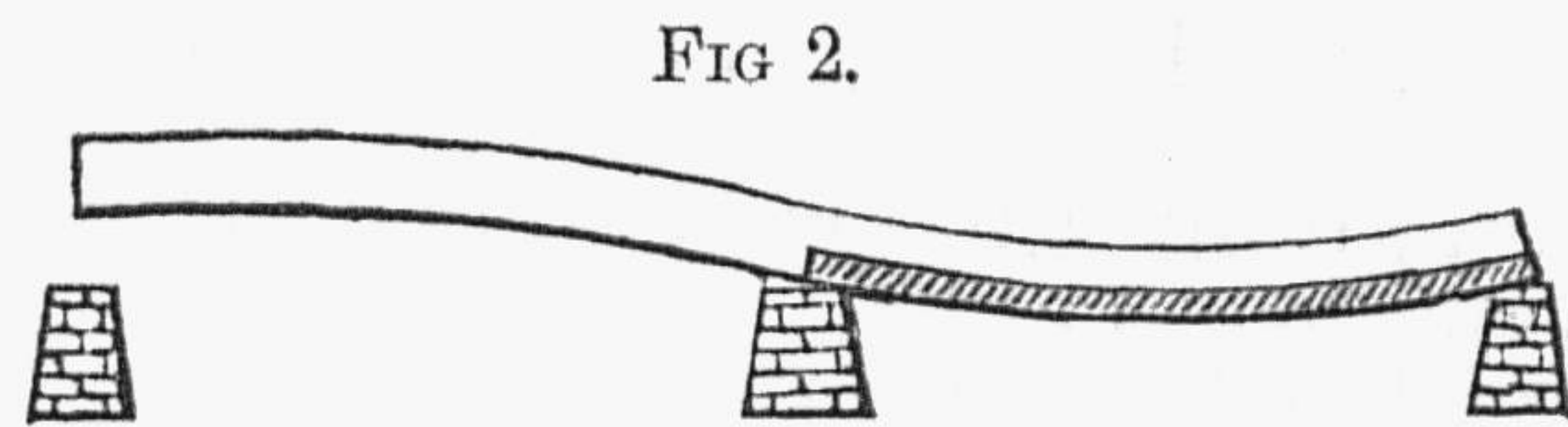
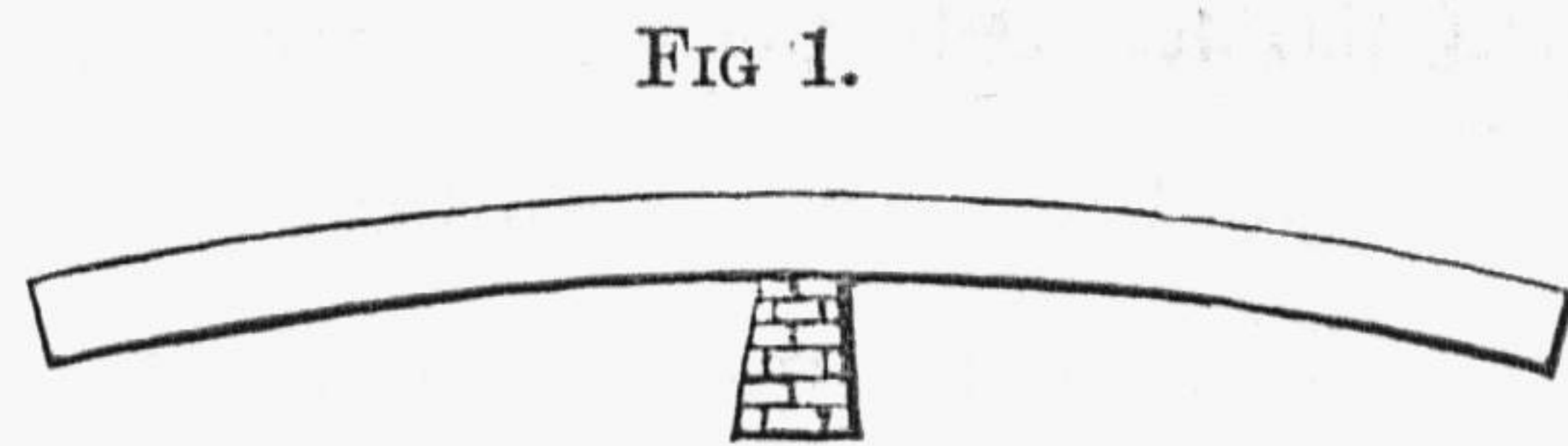
and the moments throughout the beam will be proportional to the external ordinates of a parabola.* The chord strains will be equal to the moments divided by the depth of truss, the central strain being

$$- M \div 34.3 = 463,500 \text{ pounds.}$$

When the draw is closed, the wedge-plates are driven home under the end posts, giving the truss a bearing on the piers at each end. The power applied through these wedges is not sufficient to lift the ends of the draw, but merely to bring them in contact with the end supports, and prevent them from settling when a moving load passes. The whole weight continues, as before, to be carried by the pivot pier, and no change takes place in the strains.

When a train enters the draw, the variable load thrown upon one arm, will be borne in part by the wedges and in part by the turn-table. It will cause the loaded arm to deflect, and at the same time lift the end of the unloaded arm from its bearing on the wedges ; the distortions caused by these deflections will be similar to those shown in Fig 2, and will increase from the instant the engine enters the draw until the whole arm is covered by the load.†

The strains at the centre and in the unloaded arms remain unchanged ; those in the loaded arm become equal to the sum of the strains already existing, plus



* A diagram of the curves indicating the Moments in the Draw, is given on Plate XII ; the curve of Moments in the Open Draw is drawn in a plain black line.

† The passage of a heavy freight train has caused the further end of the draw to rise $\frac{7}{8}$ of an inch.