

THOSE DEFECTIVE HANGERS.

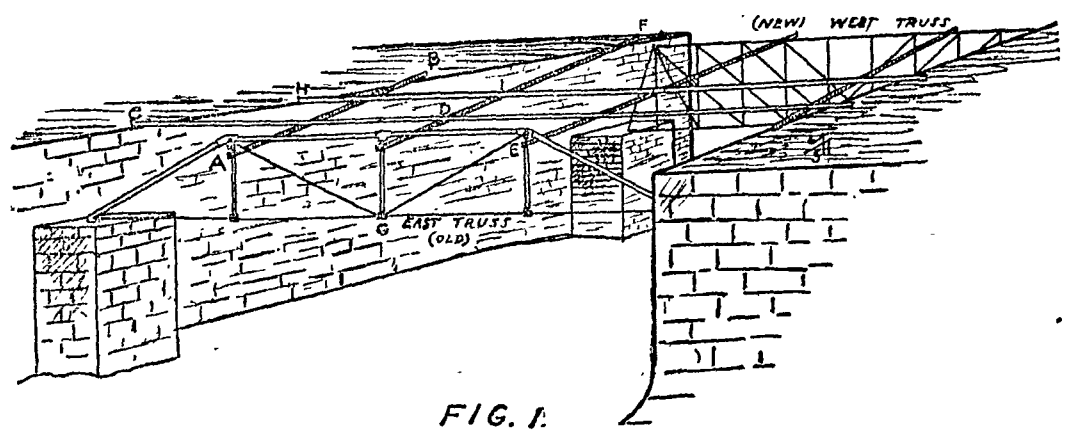


FIG. 1.

EXPLANATION OF THE MAIN THEORY REGARDING THE CAUSE OF THE DISASTER—BADLY RUSTED WELDS.

The following explanation, prepared by a gentleman who has made a special study of the cause of the disaster at Bussey bridge, will make clearer the statement written for the Engineering News and published in THE GLOBE Thursday morning. The statement in the Engineering News refers to the defective character of two hangers which were found to have been seriously rusted along the welds at the lower ends.

Figure 1 shows in outline the general arrangement of the bridge. It will be seen that the two trusses are connected by floor

so carefully investigated by the Engineering News.

The location of these hangers is shown (with diagonals and bracing removed) in Figure 2, where FF is the inclined end post and EE the top chord, each of which bears upon the end joint block CC. Through this casting passes the pin AA, and from this pin the floor beam, DD, is hung by the hangers or stumps, BB. The pin AA also passes through the upper loop of the hangers, and a pin, GG, passes through their lower loops and

Fig. 3, where the rusted section is shaded. It will be seen that A is evidently an old break, being almost entirely eaten across by the rust, besides being split up from the eye along the line of the weld. The other link is more perfect, C being evidently a fresh break, although it is rusted and split along the weld to B. The form of these links is such as to cause what is called "eccentric loading," because the centre of the lower eye is not in

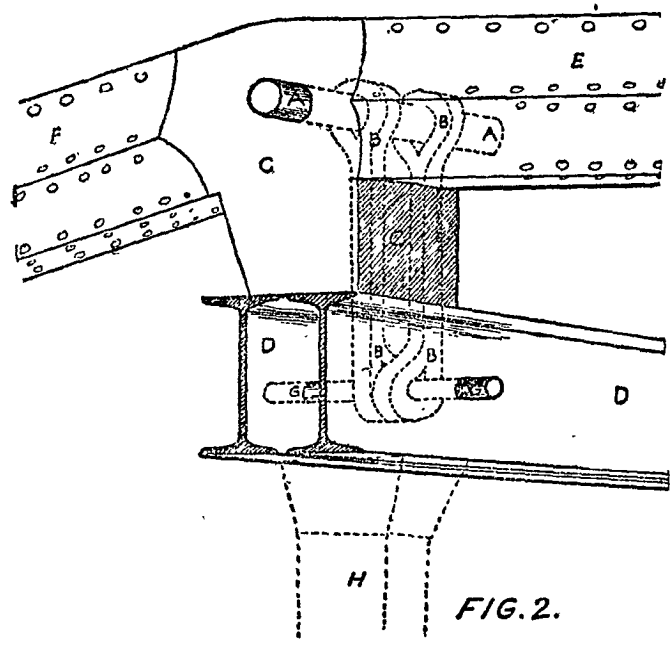
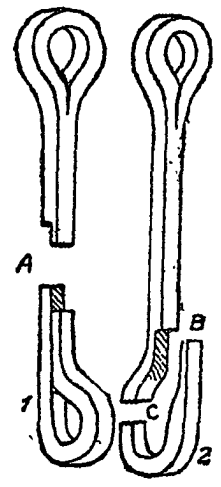


FIG. 2.



- FRACTURE AT A
- FRACTURE AT B (RUSTED ALL ALONG. WELD)
- FRACTURE AT C (NEW BREAK)

FIG. 3.

beams, upon which the two stringers are laid. Upon these stringers are laid the cross-ties and rails of the track, which are not shown in the drawing. Both floor beams and stringers are trussed; the rods are, however, not shown.

The first two floor beams, AB and DF, are hung at one end from the chord of the old truss, while the other end rests upon the abutment, owing to the skew. On these rest the stringers HI and CD. A is the "end joint block," from which was hung the floor beam AB by the hangers or stirrups mentioned in the railroad commissioners' hearing, and which have been

all through the two I beams, DD, thus suspending the floor beam. The hangers being inside the box-like casting, CC, it is evident that it was impossible to inspect or to paint them, a portion of the lower ends only, at BB, being visible. Under the floor beams is the post H, which, however, gives little support.

The appearance of these hangers has led to the theory that they gave way first, allowing the floor-beam to drop (the post H toppling over) and the train to cut through the bridge, tearing down the trusses.

The appearance of the broken hangers, with the fractured sections, is shown in

the line of the pull, the lower loop acting precisely as a hook would, thus bringing a great bending strain, which would naturally cause it to break at C. It is the pieces numbered 1 and 2 that disappeared soon after the accident and which are reported to be in the possession of the "Engineering News."