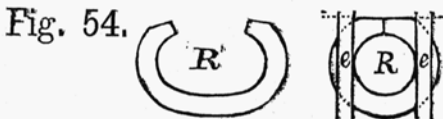


space equal to the diameter of the upright.

In Fig. 52, *s-w* is a part of the extension of the beam, for supporting the side-walk; *s*, a cast iron saddle, weighing about 4lb., for joist bearings, and *e*, a cross-section through the splice.

To afford a proper bearing upon the connecting-block, I propose to use a wrought iron Ring, (*R*, F. 54,) high enough to throw the whole bearing upon the extension plates *e e*, and 3-4th" to 1" in width, except upon the side next the end of the flange beam, where it is to be clipped down to $\frac{1}{2}$ ". This however, is not an essential point. In case of bridges already erected, the ring will have to be left open, as seen at *R'*, and, when used, heated and closed around the upright.



Instead of the lateral bracing of wood, mentioned about two thirds down P. 69, wrought iron diagonal ties, usually called *Sway-rods*, have been generally used, in connection with wooden, as well as iron beams; being made of rods 5-8th" to 1" in diameter, according to character and dimensions of bridges, and bolted to the beam, 1' or $1\frac{1}{2}$ ' inside of the upright, by an eye at each end of the rod.

These rods are also provided with a screw and swivel adjustment near one end of each.