To introduce the solid wrought beam in bridges with Side-walks, (constructed for wooden beams,) I propose the following plan.

Let the beam be cut—say 1" shorter than the space between opposite uprights. Then, take for each end of the beam, two plates, ½" thick, about 7½" wide, or, as wide as the space between flanges of the beam at 1½" from centre, or a little less, so that one being placed on each side, they will be kept far enough apart to admit the upright between them. The plates should be long enough to lap 20" upon the beam, and extend to outside of side-walk. They may be bolted by two 1" bolts near the end of the lap, and one near the end of the beam, by the upright; as seen under the letter u in the dia-

![Diagram](image-url)

gram; F. 53. A 1½" bolt in centre of depth, and 7 or 8 inches from end of beam, will serve both to aid in holding the plates in place, and to connect the Sway-rods, l. These plates should not be cut by bolt or rivet holes in the upper part, except at considerable distance from the upright, u.

Small bolts or rivets, r, r &c., should be inserted once in 9 or 10 inches near the lower edge, with thimbles to stay extension plates apart, leaving a