(No Model.)

# F. CAVALLARO.

## BEAM AND GIRDER SUPPORT.

No. 495,783. Patented Apr. 18, 1893.

Fig. 1

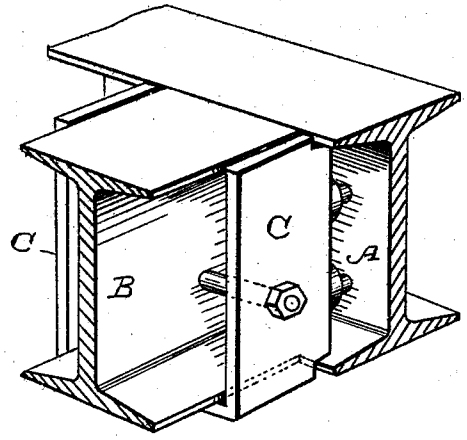



Fig. 2.

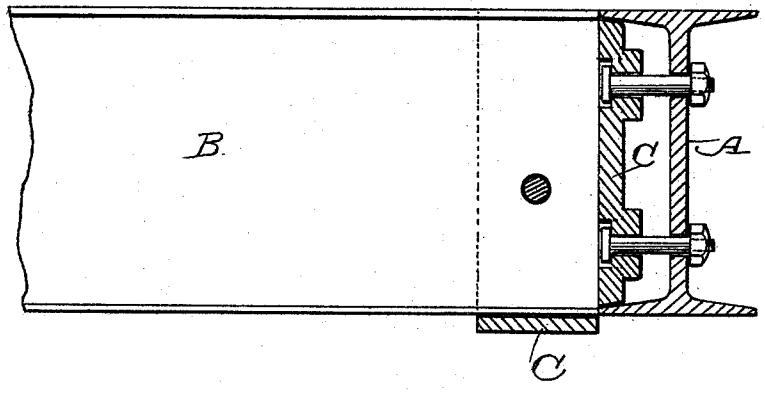
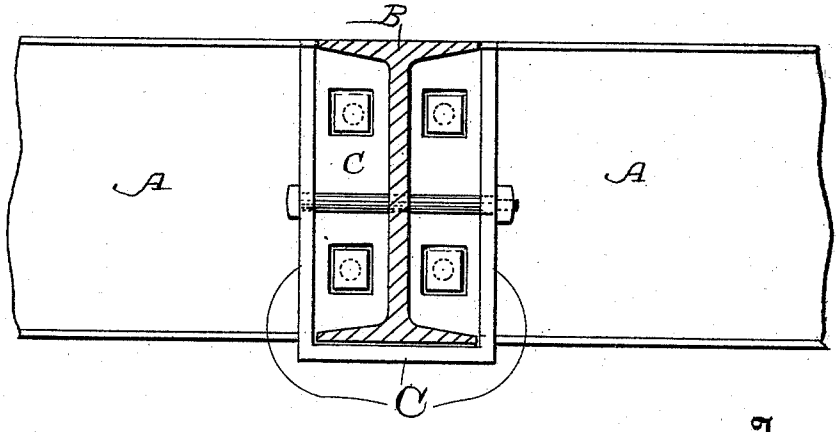



Fig. 3.

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# UNITED STATES PATENT OFFICE.

FRANCESCO CAVALLARO, OF SAN JOSÉ, CALIFORNIA.

## BEAM AND GIRDER SUPPORT.

SPECIFICATION forming part of Letters Patent No. 495,783, dated April 18, 1893.

Application filed February 10, 1893. Serial No. 461,794. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCESCO CAVALLARO, a citizen of the United States, residing at San José, Santa Clara county, State of California, have invented an Improvement in Beam and Girder Supports; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device for supporting the ends of beams or girders which abut against other beams or girders at any angles thereto.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is a vertical section of the girder A, and the supporting box C. Fig. 3 is a vertical section of the girder B and elevation of the box C.

The object of my invention is to provide an easily adjustable support for the abutting ends of beams or girders where they are attached to other correspondingly shaped beams or girders and at any angle thereto, without cutting away or weakening the abutting beams.

The device may also be used to support the ends of abutting wooden beams, in place of the stirrup ordinarily used.

A represents an iron **I** beam or girder, and B is a similarly shaped beam or girder which abuts against the first one. It has hitherto been customary, where such beams are united, to support the abutting beam upon the flange of the first one, and in order to do this and retain the upper surface of the abutting beam upon a level with the other, it is necessary to cut away the two flanges of the abutting beam, so that the lower edge of the web can rest upon the flange of the beam against which it abuts, and this greatly weakens the abutting beam and makes its supporting edge so narrow as to often endanger the strength of the supporting flange of the other beam. In order to overcome this difficulty, and provide a support for the abutting beam, in which the full strength of both beams is retained, I form a box or casing C which is fixed to and supported by the first beam A, and in turn supports the abutting beam. The upper part of this casing is left open. The angle made at the junction of the back and bottom plate is such that the inner surface of the bottom plate is just flush with the bottom of the girder or beam to which it is to be attached, and this inner surface is the support for the lower surface of the abutting beam B. When this beam is thus supported, it will be seen that the top of the beam will be just flush and level with the top of the beam which supports it, and no portion of the abutting beam needs to be cut away. If the abutting beam is light or if made of wood, the support may be made of any metal, and only the vertical back and the horizontal base will be necessary, but for heavy work I make the support with vertical sides which are separated sufficiently to receive the full width of the top and bottom flanges of the abutting beam, and the beam is easily let into its place from above without any twisting or turning, such as would be necessary if the rib of the beam extended inwardly far enough to rest upon the flange of the beam which supports it. The inner side or back of the case is cast or formed with projecting enlargements, through which bolt holes are made, and corresponding holes are made in the beam A through which bolts pass. The holes which are made through the back of the support C are made rectangular, and of a size sufficient to receive the bolt heads which thus lie flush with the inner surface of the back and present no obstruction to the introduction of the supported beam. At the same time, the projections upon the outer surface of the back are of sufficient diameter and size to give the requisite strength to the back which would otherwise be weakened by reason of the counter-sinking of the bolt heads. This construction holds the bolts steadily, and prevents their being turned when the nuts are put upon the opposite ends of the bolts and screwed up against the rib of the supporting beam. The back through which the bolts pass is made sufficiently shorter than the sides, so that it will just enter between the top and bottom flanges of the supporting beam, and when the bolts which secure it to the beam are drawn tight, it is firmly fixed and practically becomes a part of the beam. It thus forms a supporting box, into which

the end of the transverse beam to be supported is set with its top and bottom flanges just flush with those of the other beam. One or more bolt holes are made through the sides of the support, and corresponding holes in the rib of the transverse beam, and bolts passing through these holes, lock the whole firmly together and prevent its being moved or withdrawn endwise, in case of separation or springing of the walls. If the abutting beam is of less depth than the supporting one, the bottom plate of the support may be raised until the tops of the beams are level.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A beam and girder support consisting of a casing having a horizontal bottom on a level with the bottom of the supporting beam and open top, a back made shorter than and adapted to enter between the top and bottom flanges of the supporting beam, projections formed upon the outer face of the back, holes made centrally through said projections, and corresponding holes through the rib of the supporting beam, bolts fitting said holes, and countersunk openings in the inner face of the back into which the bolt heads are received and prevented from turning when the nuts are screwed upon the opposite ends to unite the casing to the beam, substantially as herein described.

2. A beam and girder support, consisting of an open topped box having a bottom, the upper surface of which is flush with the bottom of the supporting beam and adapted to receive and support the end of the abutting beam, parallel sides between which the top and bottom flanges of the abutting beam are received, a back made sufficiently shorter than the sides to enter and fit between the top and bottom flanges of the supporting beam, holes and countersunk openings through said back for the reception of the bolt heads, thickened extensions upon the outer face of the back, with holes through which the bolts pass, corresponding holes through the rib of the supporting beam, and nuts screwed upon the ends of the bolts which project through the rib, whereby the support is bound and secured to the supporting beam, and the beam to be supported rests therein with its top and bottom flanges flush with those of the supporting beam, substantially as herein described.

In witness whereof I have hereunto set my hand.

FRANCESCO CAVALLARO.

Witnesses:

A. S. MACKENZIE,

WILLIAM BURTON WARD.