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A. W. SULLIVAN & W. RENSHAW.  
STRUCTURAL BEAM FOR RAILWAY CARS.  
APPLICATION FILED OCT. 2, 1902.

NO MODEL.

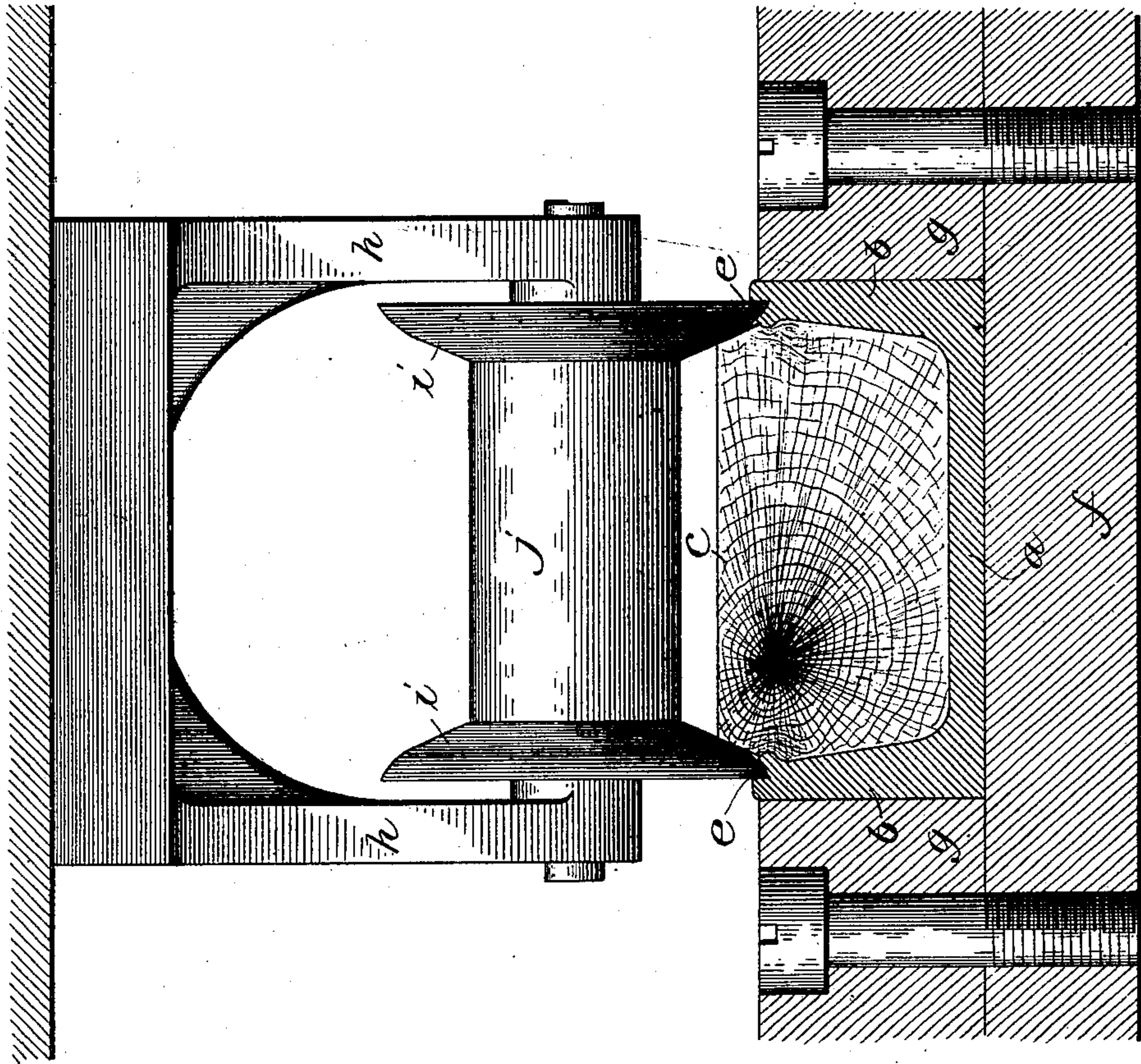


Fig. 1.

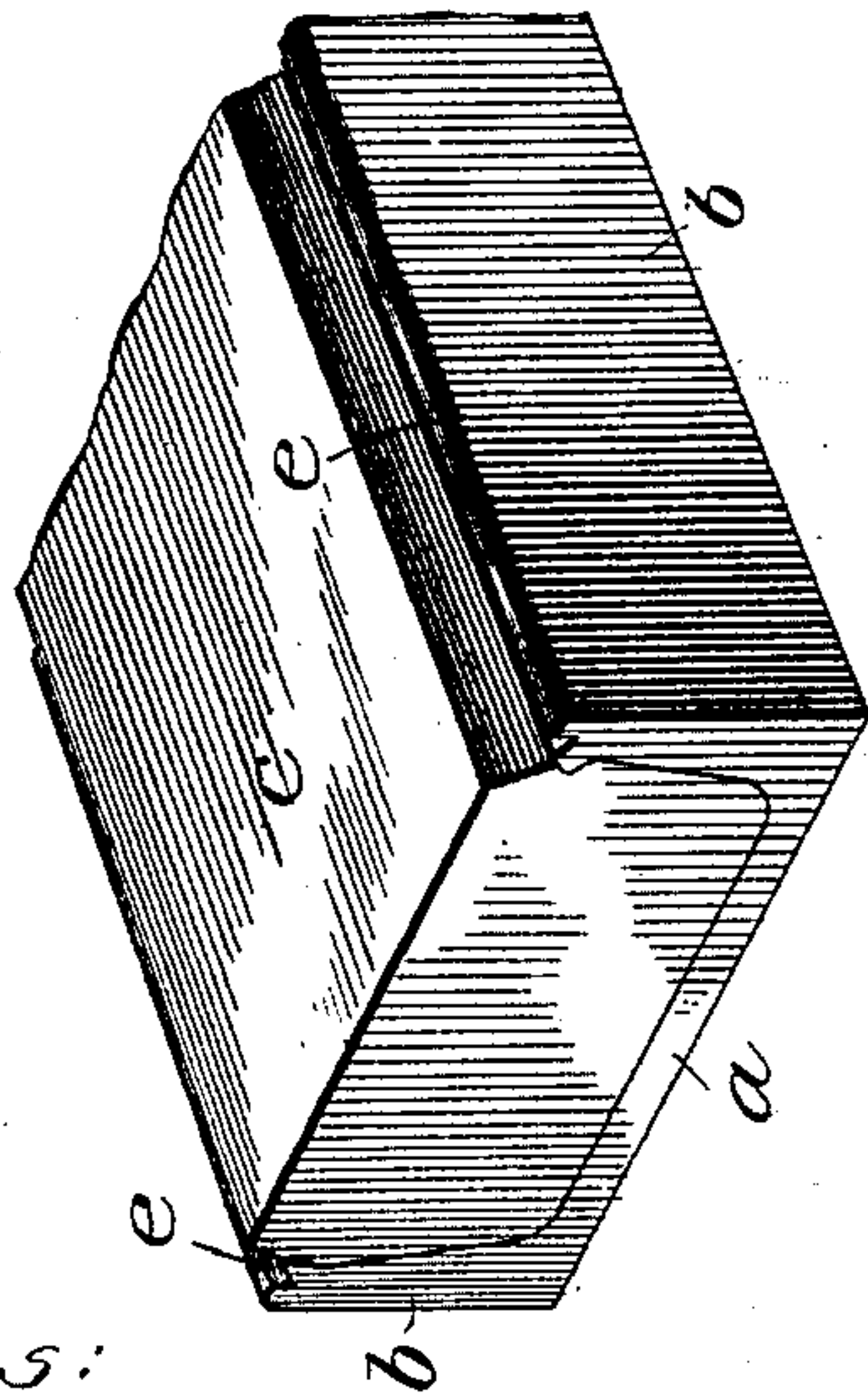
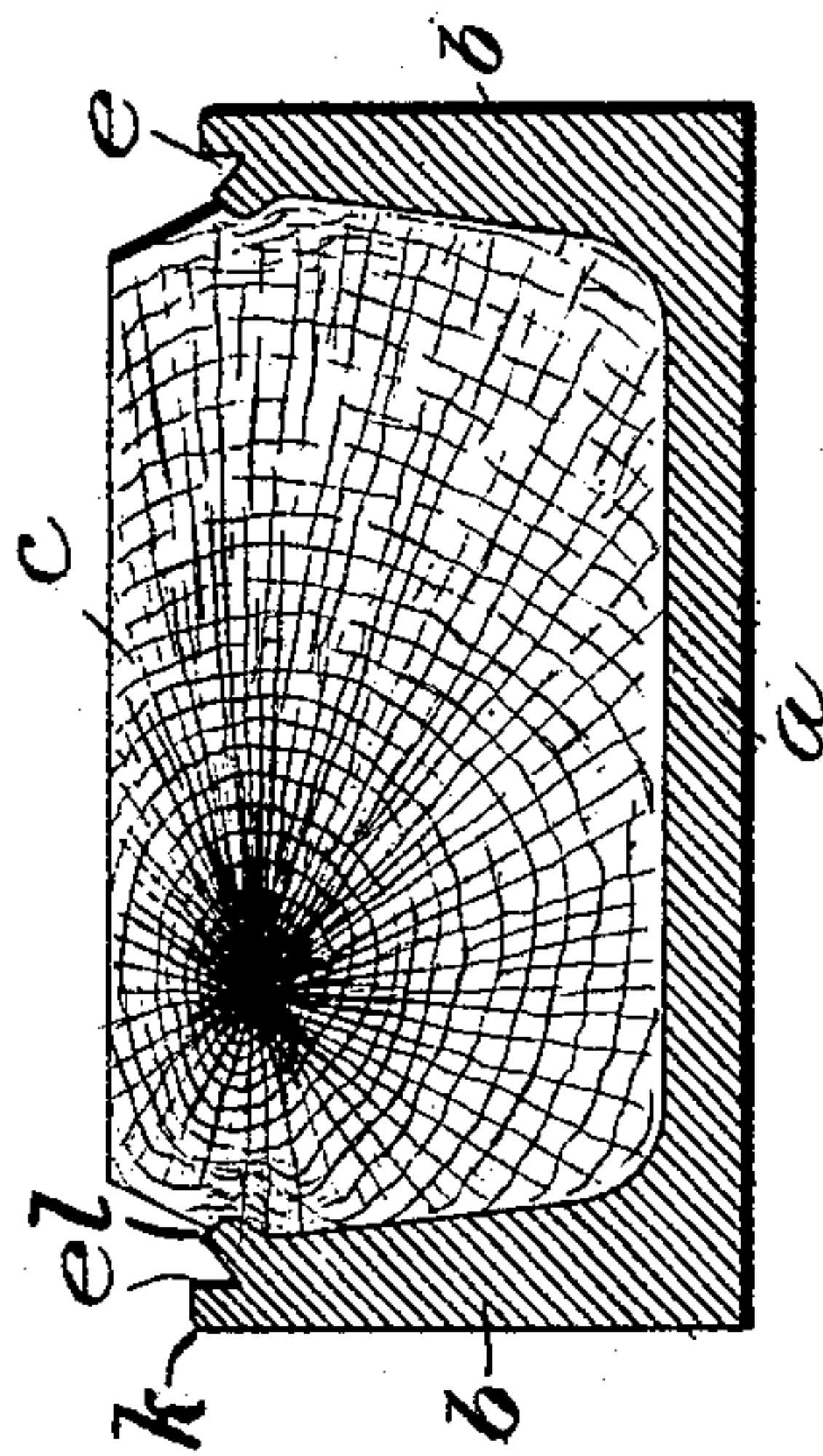


Fig. 2.



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# UNITED STATES PATENT OFFICE.

ALBERT W. SULLIVAN AND WILLIAM RENSHAW, OF CHICAGO, ILLINOIS.

## STRUCTURAL BEAM FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 753,934, dated March 8, 1904.

Application filed October 2, 1902. Serial No. 125,619. (No model.)

*To all whom it may concern:*

Be it known that we, ALBERT W. SULLIVAN and WILLIAM RENSHAW, citizens of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Structural Beams for Railway-Cars, of which the following is a specification.

This invention relates particularly to the construction of a new article of manufacture—viz., a post or beam for railway-cars, naval and other architecture—all of which will more fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient structural post or beam composed of two parts—a metallic and a wooden part—so constructed that all fixtures or beams may be attached or fixed to the wooden part in a permanently secure manner.

Further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists principally in a structural post or beam composed of a metal member having a channel portion and a filler of wood or similar material crimped therein.

The invention consists, further, in a post or beam formed of a metallic member having a channel portion with crimped sides and a filler of wood or similar material held in the channel thereof by the crimped sides of the metal portion.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a post or beam constructed in accordance with these improvements; Fig. 2, a cross-sectional view of the same; and Fig. 3, an end view of a post, exhibiting the apparatus for manufacturing or crimping the parts together.

In the art to which this invention relates it is well known that structures, particularly railway-cars, are at the present time constructed largely of metal members, structural steel, and iron, and, further, that to these metals other fibrous parts must be secured in order to hold and tie the structure, with its different parts, tightly together. To accomplish these

results, it has been customary heretofore to provide channel-beams with fillers extending partially around the same, which fillers are held in position by bolts, screws, nuts, and the like. This method is very objectionable in that the fillers are liable to become loose and apt to rattle and by vibration become separated from the beam or post, particularly during any sudden shock or jar, in consequence of which any parts mounted upon or secured to the fillers become loose and insecure and the integrity of the structure thereby impaired, all of which is seriously objectionable and expensive to remedy.

The principal object of this invention, therefore, is to provide a beam of such construction and arrangement that the wood and metal portions are to all intents and purposes made permanently one integral member, all of which will more fully hereinafter appear.

By this invention the result is attained without puncturing, indenting, or reducing in width the outer surfaces or sides of the channel or beam within which the filler is contained, thereby preserving its external shape and its strength and enabling its full dimensions to be utilized in giving a bearing to or making connection with other structural parts.

In constructing a post or beam in accordance with these improvements we provide a metal member formed in the shape of a channel-beam having a web portion *a* and two integral main flanges *b*, extending at an angle thereto. We arrange in the channel portion of this metal member a wood filler *c*, preferably of hard maple and of substantially the same shape in cross-section as the contour of the channel in the metal member. To hold the metal and wooden fillers securely together, we cut a groove *e* in the upper surfaces or edges of the main flanges of the metal member in such a manner that the edge of the flange is split or cut into two integral flange portions *k* and *l*. During the cutting process the inner flange portions of such sides or main flanges are at the same time forced inwardly into intimate contact with the sides of the hardwood filler, the outer portions remaining in position to form the desired outer contour of such portions of the beam. By



this action the sides of the wood adjacent to the crimping or inwardly-extending edges of the metal member are compressed and the wood forced downwardly and inwardly into intimate contact with the walls of the channel. 5 The wood is so compressed that the slack or play thereof is all taken up, and the wood is in such condition that it can never shrink so as to provide space for any play between it and the 10 metal member, all of which is well understood and appreciated by those skilled in the art.

To manufacture this beam, we place the metal portion *a* on the bed of a planer or similar machine *f* and between guides *g*, as shown 15 particularly in Fig. 3. In the tool-post of the planer and held in a suitable frame or tool-holder *h* we arrange a spool-shaped crimping-cutter formed of two circular-cutting crimping-flanges *i* with a rotatable body por- 20 tion *j* between them. The wooden filler *c* is placed in the channel and the planer run under the tool, so that its cutting edges cut into the upper edges of the flange of the metal beam, form a groove therein, and crimp the 25 edges *l* inwardly to hold the wood in firm engagement with the metal portion.

We claim—

1. As a new article of manufacture, a structural post or beam composed of a metallic 30 channeled member having a web and two in-

wardly-extending flanges grooved and crimped inwardly at their upper edges, and a filler of wood or similar material arranged in the channel of the metal member and held therein by the crimped flanges of the metal portion, 35 substantially as described.

2. As a new article of manufacture, a structural beam consisting of a filler portion composed of wood, and a metallic member comprising a web portion having integral flanges 40 extending at an angle therefrom such flanges having split edges the inner integral portions of which extend into the body of the filler, substantially as described.

3. As a new article of manufacture, a struc- 45 tural beam consisting of a filler portion composed of wood, and a metallic member comprising a web portion having integral main flanges extending at an angle to the outer surface thereof, such flanges having their edges 50 divided into inner and outer integral flange portions, the inner one of which extends inwardly at an angle to the main flange and into intimate contact with the wooden filler, substantially as described.

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