May 25, 1926. 1,586,053

J. G. SNYDER

METAL BEAM

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Fig. 1.

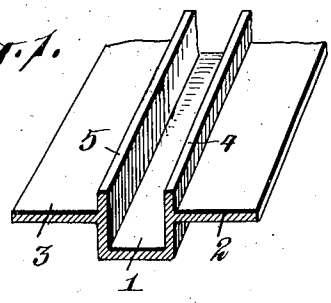


Fig. 3.

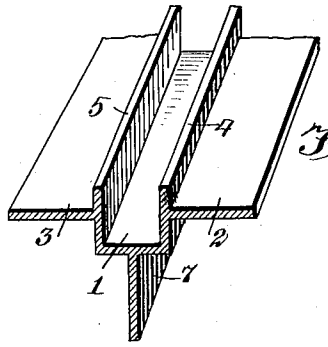


Fig. 2.

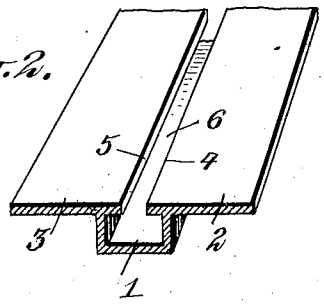


Fig. 4.

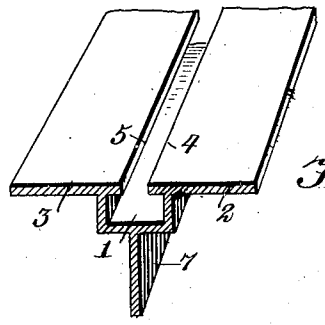


Fig. 5.

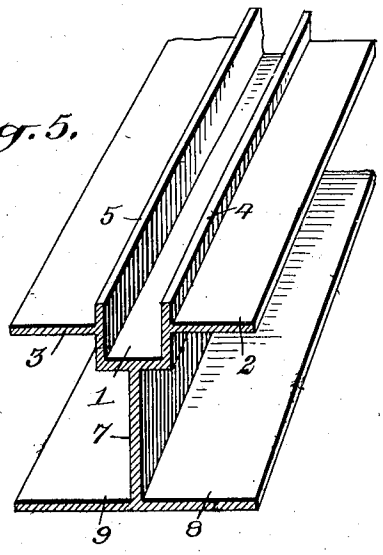
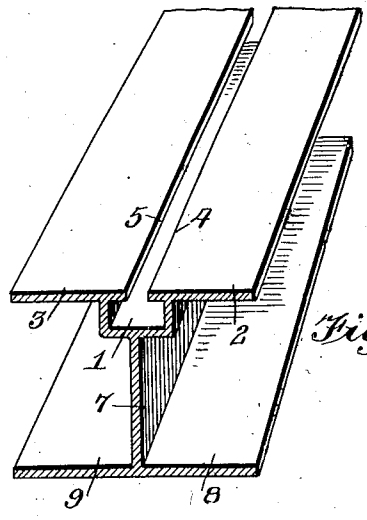


Fig. 6.



WITNESSES

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METAL BEAM

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Fig. 7.

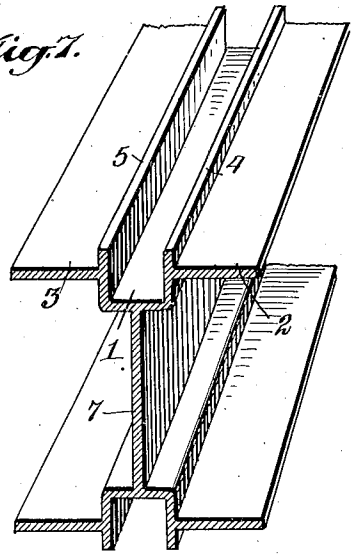


Fig. 8.

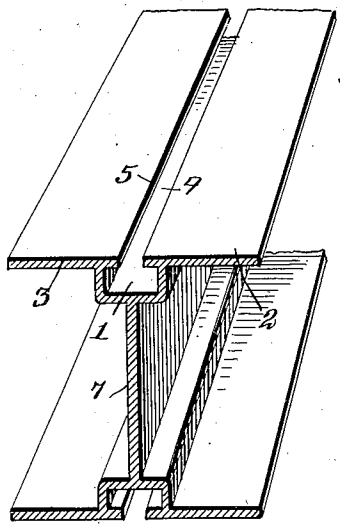


Fig. 9.

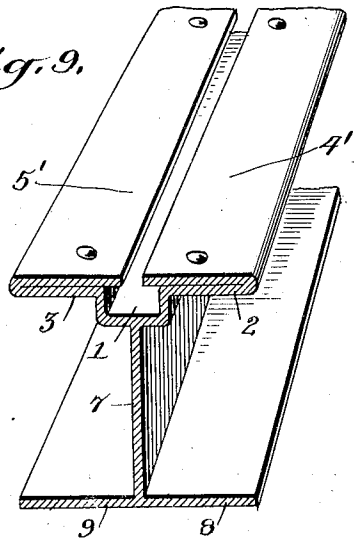
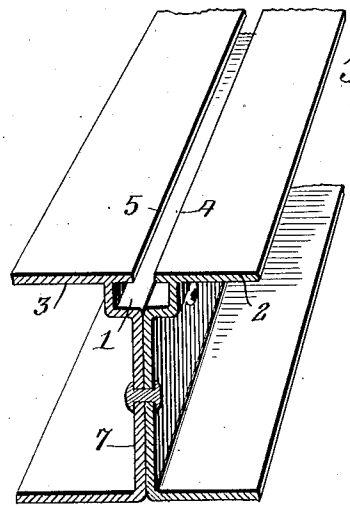


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN G. SNYDER, OF NEW YORK, N. Y.

METAL BEAM.

Application filed June 11, 1925. Serial No. 36,496.

This invention relates to metal beams and has for an object to provide an improved construction wherein a comparatively strong, stiff construction is presented formed in such a manner as to use a minimum amount of metal for the results secured.

Another object in view is to provide a beam in which a U-shaped formation is presented in the center, either with or without flanges positioned adjacent the depression.

A further object of the invention is to provide a beam wherein a substantially U-shaped portion is presented centrally of the beam structure with flanges capable of use in an upstanding position or in a bent down position overhanging the depressed portion.

An additional object is to provide a beam in which a U-shaped center is provided in connection with a web with or without a foot or base.

In the accompanying drawings—

Figure 1 is a perspective view of a short section of beam disclosing an embodiment of the invention.

Figure 2 is a perspective view of the structure shown in Figure 1 but with the flanges formed over the depressed central portion.

Figure 3 is a view similar to Figure 1 but showing a modified form of the invention wherein a depending web is utilized.

Figure 4 is a view similar to Figure 3 but showing the upstanding flanges formed or bent down to a horizontal position.

Figure 5 is a perspective view similar to Figure 3 except that the web is provided with a base.

Figure 6 is a view similar to Figure 5 except that the same shows the flanges bent down to overlap the depressed portion.

Figure 7 is a view similar to Figure 5 except that the same formation is presented on each edge of the web.

Figure 8 is a view similar to Figure 7 except that the upstanding flanges have been formed over the depressed or grooved portion.

Figure 9 is a further modified form of the invention wherein the upstanding flanges are arranged at the edges of the beam instead of near the center, said flanges being shown as bent down and riveted in their lowered position.

Figure 10 is a view similar to Figure 5 except that the beam is made in two parts and secured together.

Referring to the accompanying drawings by numerals, 1 indicates a depressed central portion depending from the members 2 and 3 which act as a body. Extending upwardly from the side walls of the depressed portion 1 are flanges 4 and 5, which if desired, may be left as shown in Figure 1 when the beam is used or may be turned over as shown in Figure 2 whereby a grooved structure will be presented having a slot 6. By the construction disclosed, it will be noted that the depressed portion or grooved structure is provided centrally of the body and extends for the full length thereof either with upstanding flanges or flanges formed as extensions or continuations of the body positioned to overlap the depressed portion 1. It is evident that the beam could be used for buildings or for many other purposes and may be used merely as supporting members or may be used in the form shown in Figure 2 whereby tying members may interlock with the flanges 4 and 5 which present overhanging shoulders as illustrated in Figure 2. It is also evident that different metallic members may be riveted, bolted, spot welded or otherwise secured to the beam without departing from the spirit of the invention.

In Figures 3 and 4, a slightly modified form of beam is shown in which the depending portion 1 is provided with a depending web 7 which makes a substantially T-shaped structure of the entire beam. The use of the web 7 will not in any way interfere with forming the flanges 4 and 5 in a lowered position as shown in Figure 4.

Figures 5 and 6 show another form of the invention wherein the parts are identical with that shown in Figures 3 and 4 except that the web 7 is provided with flanges 8 and 9 acting as a base for the remaining part of the beam. As in the other forms of the invention, the flanges 5 and 6 may be upstanding or may be formed down as illustrated in Figure 6

whereby they present overhanging shoulders for the depressed portion 1.

Figures 7 and 8 show another form of the invention wherein the opposite edges of the web 7 are provided with a structure similar to that shown in Figures 1 and 2 whereby a depressed portion with co-acting flanges is provided on each edge of the web and when turned down as shown in Figure 8 a grooved structure is presented having overhanging shoulders.

In Figure 9, an additional form of the invention is shown which is similar to that shown in Figures 5 and 6 except the upstanding flanges 4′ and 5′ extend from the outer edges of the body members 2 and 3 and are then preferably formed over and secured in their folded position as shown in Figure 9 by rivets, though bolts, spot welding or other means might be used.

Figure 10 shows an additional form of the invention disclosing in cross section a structure similar to that shown in Figure 6 but illustrating the principle of forming any of the modifications in two parts and securing them together in some manner, as for instance, by rivets. In this form of the invention, as well as in all the other forms, integral overhanging shoulders are provided which overhang a depressed portion or grooved structure whereby co-acting and interlocking tongues or tying members may be used to tie the beam in place. It is perfectly evident that the head of a bolt could be inserted into the grooved structure 1 and articles clamped to the beam by tightening the nut on the bolt, the head of the bolt pulling against the under surface of the respective shoulders or flanges 4 and 5.

What I claim is:

1. A metal beam, comprising a body provided with a longitudinally positioned depression, and a pair of upstanding flanges arranged on each side of said depression.

2. A metal beam, comprising a body formed with a substantially U-shaped depressed portion, a web extending from said depressed portion, and flange members extending from the juncture of the depressed portion and the body.

3. A metal beam, comprising a body formed with a longitudinally positioned depressed portion, a flange extending from the juncture of each side of the depressed portion and the body, and a web extending from the center of the depressed portion in a direction at right angles to the body.

4. A metal beam, comprising a body formed with a depressed portion, a flange extending from each edge of the depressed portion at the point of juncture of the body therewith, a web extending from the center of said depressed portion, and a base for said web extending on each side thereof.

5. A metal beam, comprising a web, a construction substantially U-shaped in cross section extending from each edge of the web and facing in opposite directions, a member extending at right angles to the web and formed integral with the respective U-shaped structures, and a flange member on each side of each of said U-shaped structures,

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