June 2, 1931. S. HANSSON 1,807,912

CONTAINER

Filed July 20, 1929

Fig. 1.

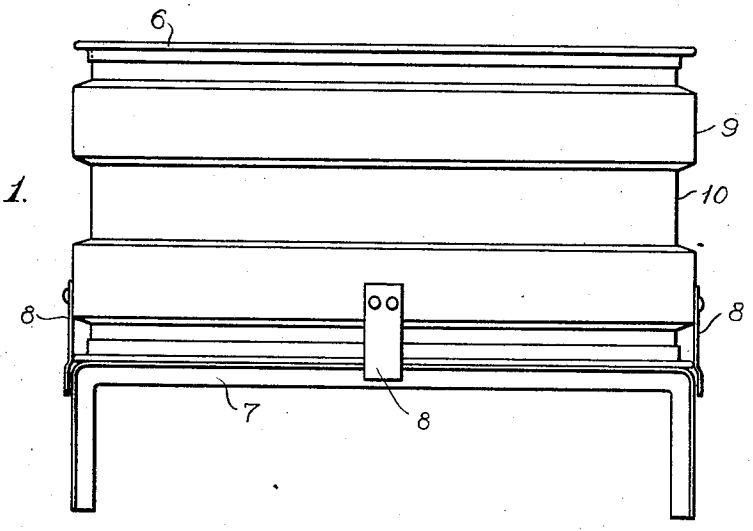


Fig. 2.

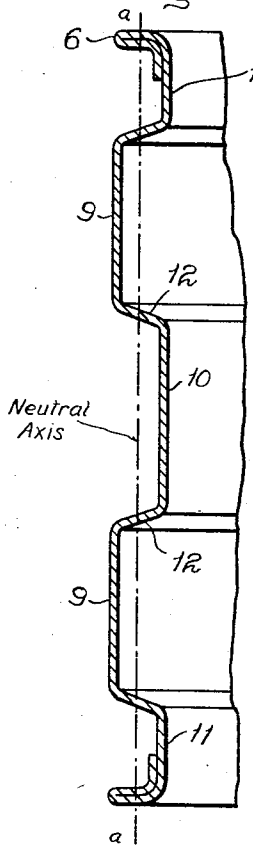


Fig. 3.

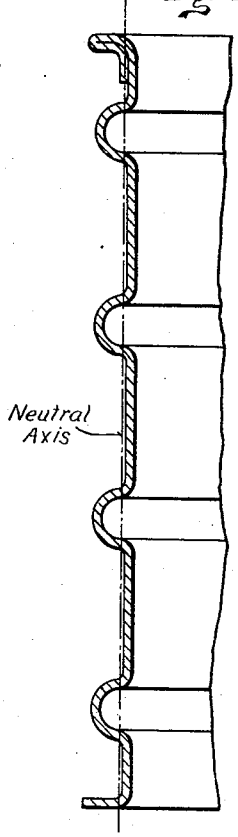


Fig. 4.

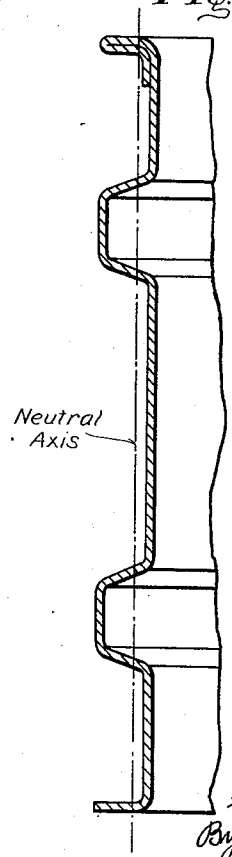
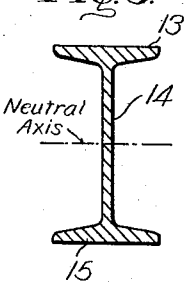


Fig. 5.



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UNITED STATES PATENT OFFICE

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CONTAINER

Application filed July 20, 1929. Serial No. 379,636.

My invention relates to containers of box-like character, and more particularly to containers that are especially suited for use in transporting heavy materials, such as metal scrap, and small metal articles such as bolts, nuts, casting, etc.

Containers of this character must be capable of supporting very heavy loads and it is of course desirable that they be constructed of as light weight material as possible, but having sufficient strength to withstand service conditions.

My invention has for its object the provision of a container that, for a given weight or thickness of material, has great strength compared to various forms of containers heretofore employed.

One form which my invention may take is shown in the accompanying drawing wherein Figure 1 is an end elevational view of a container mounted upon a supporting table; Fig. 2 is a vertical sectional view, on an enlarged scale, of a portion of the structure of Fig. 1; Figs. 3 and 4 are views similar to Fig. 2, but showing other forms of containers, for the purpose of comparison with Fig. 2, and Fig. 5 is a cross sectional view of an I-beam also included in the drawing for the purpose of comparison and explanation.

As shown in Fig. 1, the container 6 is composed of a metal sheet or sheets rolled or stamped to form interiorly and exteriorly disposed channel portions, and it may be of either rectangular or other form. As shown more clearly in Fig. 2, the container has no top and no bottom, it being simply placed upon a table or platform which serves as a bottom and which is transported with the container from place to place, by a crane or truck, in a manner well-known in steel plants, foundries, machine shops, etc. The container 6 is maintained in centralized position upon the table 7 by means of stop lugs 8.

This invention is directed particularly to the form and location of the channels in the sides of the container. As shown in Fig. 2, I provide exterior or tension channel portions 9 and interior or compression channel portions 10 and 11. It will be understood that any desired number of channel portions 9 and 10 may be provided. The web of the channel 10 is substantially equal in width to the width of one of the channels 9, while the combined widths of the channels 11 are approximately equal to the width of one of the channels 9. The channels 9 and 10 have connecting or flange portions 12 which correspond to flanges of ordinary channel irons and which are shown as inclined relative to the bottom planes of the channels 9 and 10 which may be perpendicular thereto, if desired.

Referring to that portion of Fig. 2, embracing the channel 10 and the upper channel 9, for example, resistance to outward pressure exerted by material within the container is relatively great compared to the thickness of the container wall, by reason of the fact that the double channel-like formation of the wall produces a functional characteristic somewhat as in an I-beam or Z-beam, to resist distortion of the sides of the container. For instance, the bottom portion of the channel 10 corresponds to the flange 13 of the I-beam of Fig. 5, the portion 12 corresponds to the portion 14 of the I-beam, and the bottom portion of the upper channel 9 corresponds to the flange 15 of the I-beam.

Assuming that a thrust is exerted upon the I-beam of Fig. 5 in a downward direction, the upper flanges thereof function as a compression member while the lower flanges function as tension members, the neutral axis as between tension and compression forces being indicated by a dotted line which bisects the web 14. Similarly, in Fig. 2, the inner channels 10 and 11 function as compression members when force is exerted outwardly upon the walls of the container, while the channels 9 function as tension members to resist such outward thrust. Since the combined widths of the inner channels are approximately equal to the combined widths of the outer channels, the neutral axis will be along the line *a*—*a*. The channel portions 9, 10 and 11 may be integrally formed from a single piece of metal or may be separately formed and welded or otherwise secured together, as at points along the lines *a*—*a*, or at other suitable points.

Experiments have shown that by forming the container sides as shown in Fig. 2, with the inner channel portions substantially equal in total width to the total width of the outer channel portions and by having the bottoms of the channel portions flattened, I secure a container that has great resistance to deflection by horizontally-directed pressures against its sides, with a minimum thickness of material and with a minimum overall wall thickness, the overall wall thickness being that defined by the innermost plane of the wall and the outermost plane thereof.

For purpose of comparison, a container formed substantially as in Fig. 2, with the flat bottom channels disposed interiorly and exteriorly of the neutral axis *a*—*a*, is, for a given thickness of material, six times greater than the container of Fig. 3, and has twice the strength of a container constructed according to Fig. 4.

I claim as my invention:—

1. A container having a side wall composed of interiorly and exteriorly-disposed channel portions that extend horizontally and have their bottoms substantially flat, the total width of the inner channel portions being substantially equal to the total width of the outer channel portions and being connected thereto by relatively narrow flange-like portions.

2. A container having a side wall composed of interiorly and exteriorly-disposed channel portions that extend horizontally and have their bottoms substantially flat, the total width of the inner channel portions being substantially equal to the total width of the outer channel portions, and the inner and outer channel portions being connected by relatively narrow flange-like portions disposed diagonally to the plane of said bottom portions.

In testimony whereof I, the said SOREN HANSSON, have hereunto set my hand.

SOREN HANSSON.