July 27, 1937. I. R. SMITH 2,088,120

METHOD OF MANUFACTURING FOUNDRY FLASKS

Filed March 22, 1935

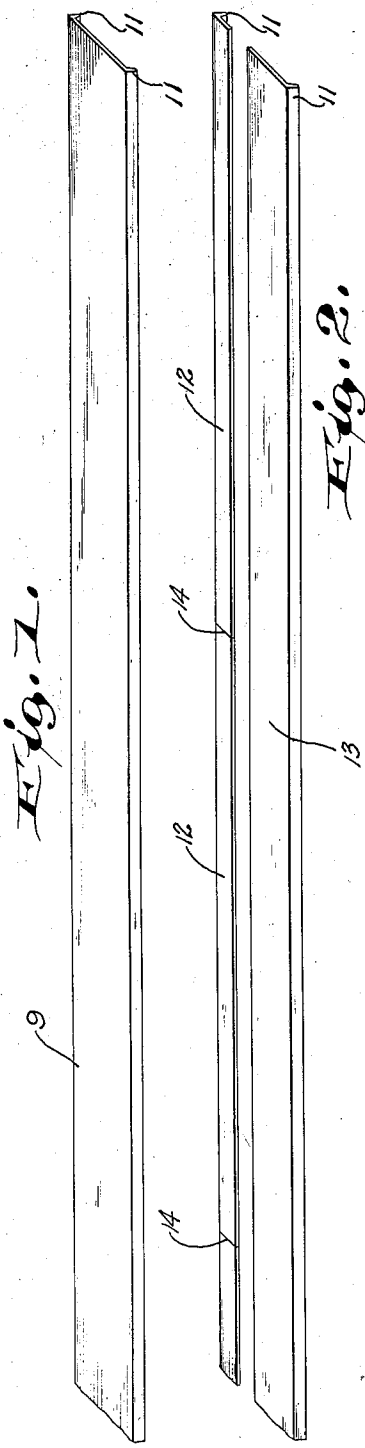

Fig. 1.

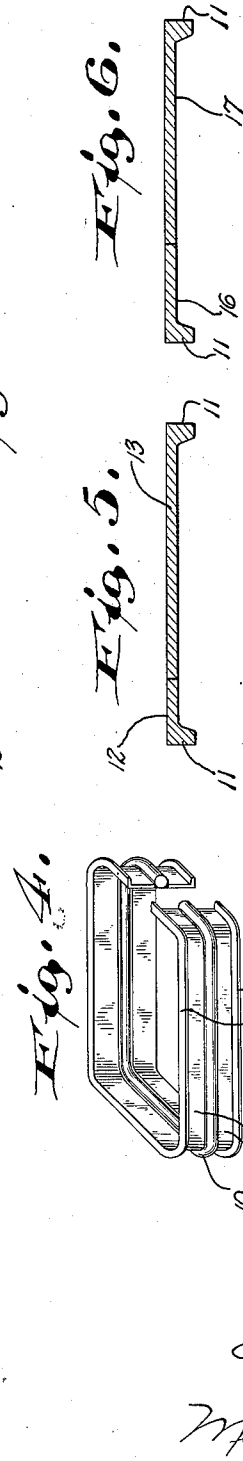

Fig. 2.

Fig. 6.

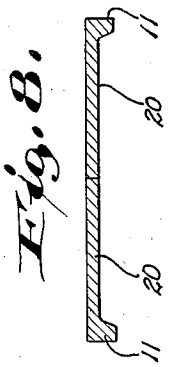

Fig. 8.

Fig. 5.

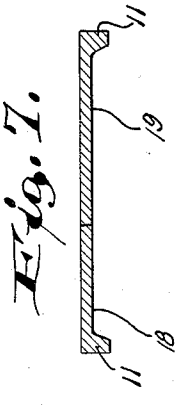

Fig. 7.

Fig. 4.

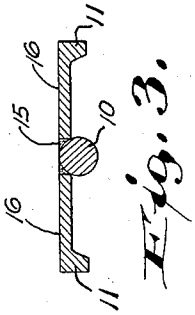

Fig. 3.

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METHOD OF MANUFACTURING FOUNDRY FLASKS

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Application March 22, 1935, Serial No. 12,344

2 Claims. (Cl. 29—148.2)

This invention relates to improvements in the method of manufacturing foundry flasks.

In my co-pending application Serial No. 3,607, is disclosed a foundry flask, each section of which is preferably formed of three elongated strips of metal. One of said strips comprises standard bar stock preferably circular or rectangular in cross section, and the other two strips are flat and formed of rolled metal provided with a flange on one longitudinal edge thereof. The non-flanged edge of one of said last mentioned strips is adapted to be welded to one side of the standard bar stock, and the non-flanged edge of another of said rolled strips is adapted to be welded to the other side of said standard bar stock. The bar stock is adapted to form a substantially central, longitudinal, twist resisting rib of enlarged cross section, and the purpose of this rib is to provide a strong compact reinforcement so that the flask section will offer maximum resistance to torsional strains. By forming the flask section of three longitudinally joined strips, it is possible to so assemble the same as to have the edge flanges extend in any desired direction, that is, either inwardly or outwardly, depending upon the type of work for which the flask is to be used, and it is also possible by carrying strips of rolled metal of various widths to combine the strips in various ways so as to produce flask sections of any desired heighth within a given range.

In my Patent No. 1,974,292 all of the different rolled metal strips which it was necessary to stock in order to produce flask sections of a selected heighth and cross sectional shape, were of special form and had to be specially fashioned. It was found that this resulted in prohibitive expense for materials. In my co-pending application above referred to, is disclosed a flask section in which standard bar stock may be utilized to provide the twist resisting rib, thereby decreasing somewhat the expense of manufacture, but not to a sufficient extent to make the method commercially practical. It is an object of the present invention to provide a method of forming flask sections of the type disclosed in my former patent and co-pending application wherein the special flanged metal strips may be provided in a plurality of widths in a very inexpensive manner.

A more specific object of the invention is to provide a method of manufacturing foundry flasks wherein channel iron of but one width is so operated upon as to produce an unlimited number of metallic strips of varying widths, each strip having one longitudinal edge flanged so as to be suitable for use in forming flask sections of the type above described.

With the above, and other objects in view, the invention consists of the improved method of manufacturing foundry flasks and all its parts and combinations and all equivalents thereof.

In the accompanying drawing in which the same reference numerals designate the same parts in all the views,

Fig. 1 is a perspective view illustrating a channel iron suitable for use in connection with the improved method;

Fig. 2 is a similar view showing the channel iron slit longitudinally and part slit transversely to provide strips of a desired length and width for forming a particular flask section;

Fig. 3 is a cross sectional view through a flask section, showing the structure thereof;

Fig. 4 is a perspective view showing a partially completed flask section; and

Figs. 5 to 8 inclusive are cross sectional views through the channel iron of Fig. 1, showing how it may be longitudinally slit at various points to produce metal strips of various widths.

In carrying out the improved method, it is necessary to stock but two types of material, channel iron 9, shown in Fig. 1, and bar stock 10. The channel iron 9 may be obtained in any desired length and may be 10 inches in width. It is also provided with flanges 11.

To manufacture a flask section of minimum heighth, a length of channel iron is slit longitudinally in the manner shown in Fig. 2 to provide a strip 12 two inches in width and a strip 13 eight inches in width (see Fig. 5), each strip necessarily having one of the flanges 11 in connection therewith.

The two-inch strip 12 is then cut transversely as at 14 to form a plurality of strips of the required length for the flask section. These two strips are then positioned with their non-flanged edges adjacent the side of the bar stock 10 in the manner shown in Fig. 3, and welding is performed as at 15 in the recesses resulting from the juxtaposition of straight edges adjacent a circular bar. Thus a flask section is formed, one side of which is relatively straight and regular and the other side of which has the major portion of the bar 10 projecting therefrom to form a relatively heavy, solid, twist-resisting, reenforcing rib entirely around the flask section. The flanges 11 may of course be originally positioned to extend in any desired direction. After the various strips have been welded, they are

bent either into half-flask sections or into full flask sections as shown in Fig. 4. The necessary handles and fittings may then be attached thereto in any known manner.

The strip 13 left over from the original channel iron 9 may be put aside and subsequently used when it is desired to manufacture a flask section of maximum heighth.

By longitudinally slitting one of the channel irons 9 in the manner shown in Fig. 6, strips 16, three inches in width, and strips 17, seven inches, may be produced. Similarly, as shown in Fig. 7, strips 18, four inches in width, and 19, six inches in width, may be provided.

By slitting the channel iron exactly in the center, in the manner shown in Fig. 8, five-inch strips 20 may be formed.

It will thus be seen that by stocking only ten-inch channel iron, strips of seven different widths may be formed, each having a flange along one longitudinal edge. This number of strips is sufficient for forming, together with the bar stock 10, flash sections of any required heighth, or cross sectional shape, as they may be combined in any desired manner, and the flanges may be turned either inwardly or outwardly or in different directions from one another, depending upon requirements.

Before the present invention, it was necessary to specially fashion each of the strips 12, 13, 16, 17, 18, 19, and 20, whereas now they can all be provided in a simple manner by slitting a single type of channel iron along a desired line.

After the necessary fittings have been attached to the flask sections shown in Fig. 4, two of said sections may be superimposed, one forming the cope and the other forming the drag of a two-part flask. In view of the fact that both of the flanges 11 extend outwardly in the section shown in Fig. 4, this type of flask is particularly suited for work wherein it is desired to have facility in insertion of the sand and ease of shake-out, and due to the use of both upper and lower flanges, this type of section may be readily used for building up a plural section flask wherein the flanges form seats for the flask section above. If both of the flanges extended inwardly instead of outwardly, the flask section would be particularly suited for work wherein it is required that the sand be retained in position in both directions. The present invention makes it possible to selectively position the flanges during manufacture.

It is obvious that the standard bar stock 10 may be of any other standard cross sectional shape as disclosed in my co-pending application Serial No. 3,607, the circular type being illustrated herein as a more common form.

It is to be understood that all modifications are contemplated as may come within the scope of the claims.

What I claim is:—

1. The method of manufacturing foundry flasks comprising longitudinally slitting a metallic channel along a desired line to provide two metallic strips of predetermined width each having one longitudinal edge flanged, severing said strips transversely to provide strips of predetermined length, welding the non-flanged edge of a selected one of said last mentioned strips to one side of a standard metallic bar of circular and enlarged cross section with the strip so positioned that its flange extends in a predetermined direction, welding the non-flanged edge of another selected strip to the other side of said standard metallic bar with said strip so positioned that its flange extends in a predetermined direction with respect to the flange of the first strip to form a foundry flask of predetermined heighth and cross sectional shape, and bending said joined strips to requisite form.

2. The method of manufacturing foundry flasks comprising longitudinally slitting a metallic channel along a desired line to provide two metallic strips of predetermined width, each having one longitudinal edge flanged, severing said strips transversely to provide strips of predetermined length, welding the non-flanged edge of a selected one of said last mentioned strips to one side of a standard metallic bar of circular and enlarged cross section, welding the non-flanged edge of another selected strip to the other side of said standard metallic bar to form a foundry flask of predetermined heighth, and bending said joined strips to requisite form.

IRVING R. SMITH.