

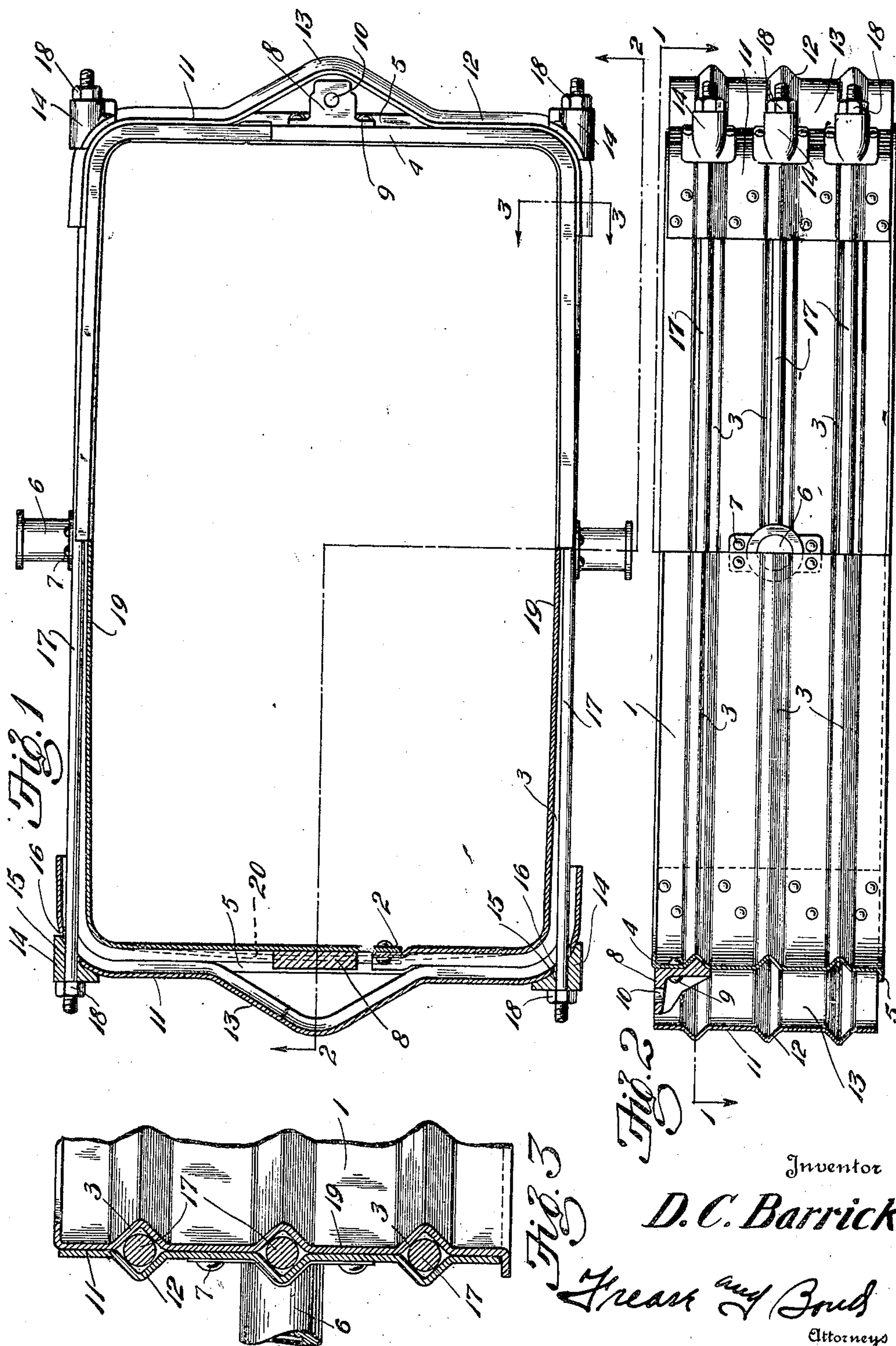
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FOUNDRY FLASK

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UNITED STATES PATENT OFFICE.

DONALD C. BARRICK, OF CANTON, OHIO, ASSIGNOR TO THE UNION METAL MANUFACTURING COMPANY, OF CANTON, OHIO, A CORPORATION OF OHIO.

FOUNDRIY FLASK.

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To all whom it may concern:

Be it known that I, DONALD C. BARRICK, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Foundry Flask, of which the following is a specification.

This invention relates to improvements in foundry flasks and more particularly to flasks constructed of sheet metal and provided with reinforcing means to prevent the flask from warping or twisting, due to the weight of the sand and the casting molded therein.

The usual form of foundry flask comprises two similar sections generally known as the cope and drag, provided with means for attaching the two sections together. These flasks were commonly formed of wood, but owing to the molten metal and burning gases which are necessarily brought into contact with the flasks, it has been found desirable to construct the sections of the flasks of sheet metal.

Experience has proven, however, that flasks formed of plain sheet metal do not have the required strength and rigidity to withstand the rough usage to which the flasks are subjected, this being especially true of larger flasks such as are used for molding heavy castings.

The objects of the invention are to provide a sheet metal foundry flask having longitudinally disposed tie rods for reinforcing and bracing the flask and placing a tension upon the side walls of the flask, each flask section being preferably provided with corrugations and the tie rods being located therein.

The above and other objects may be attained by constructing the flask as illustrated in the accompanying drawing, in which—

Figure 1 is a plan view partly in section taken on the line 1—1, Fig. 2;

Fig. 2, a side elevation partly in section taken on the line 2—2, Fig. 1; and

Fig. 3, an enlarged section taken on the line 3—3, Fig. 1.

Similar numerals of reference indicate

corresponding parts throughout the drawing.

Referring to the construction illustrated in the accompanying drawing, the body portion 1 of the flask section is formed of one or more sheets of metal, the overlapping ends thereof being connected together as at 2. This body portion of the section is preferably rectangular and provided with the spaced, longitudinal corrugations 3, which may be of V-shape, as illustrated and which extend inward.

The upper and lower edges of the flask section are bent inward and outward, as indicated at 4 and 5 respectively. The section illustrated in the drawing is the lower or drag section, and it will be understood that the upper or cope section is of the same form, being inverted, however, before it is placed upon the drag section.

The usual trunnions 6 may be connected as by the rivets 7 to each side of the flask section and the pin lugs 8 may be connected to the ends as by the rivets 9, these pin lugs being of usual construction and provided at the upper edge of the drag section and at the lower edge of the cope section, the usual guide pins being placed through the registering apertures 10 of the pin lugs.

The U-shaped sheet metal member 11, provided with outwardly pressed corrugations 12 registering with the corrugations 3 of the body member, is located around each end of the flask section and may be provided with the outwardly curved portion 13 to accommodate the adjacent pin lug.

Bosses 14 are provided at the corner portions of each of the U-shaped members, being attached to the corrugations 12, each of said bosses having a central bore 15 registering with an aperture 16 through the adjacent corrugation 12, of the U-shaped member.

Tie bars 17 are located within the corrugations 3 of the flask section and extend through the bosses 14, the extremities of said tie bars being threaded to receive the nuts 18 by means of which the U-shaped members 11 are drawn toward each other,

thus clamping them upon the body portion of the flask, and placing a pressure upon the side walls 19 of the flask, causing said side walls to be slightly bowed, as shown in Fig. 1 of the drawing.

If desired, the curved portions 13 of the U-shaped members may be omitted and the pin lugs may be connected to the outer faces of the U-shaped members instead of directly to the body portion of the flask, as these curved portions 13 are merely provided as a protection to the pin lugs to prevent the same from being disturbed in handling of the flasks.

It will also be understood that although the construction illustrated may be preferred, the invention may be attained by varying different members of the device as by eliminating the corrugations or by increasing the length of the legs of the U-shaped members, the invention residing in the connection of the U-shaped members to the body portion of the flask by means of the tie bolts which place sufficient pressure upon the side walls of the flask to produce a camber which will sustain the same against distortion due to the weight of the sand and castings placed therein, and which will prevent crushing or bending of the flask from blows or rough handling.

As the camber is produced in the side walls of the flask due to the pressure at opposite ends within the edges of the side walls, there may be a tendency to bow the end walls inward and to overcome this, the end walls may be normally bowed slightly outward as indicated in dotted lines at 20 in Fig. 1, thus permitting said end walls to be flattened under pressure as shown in full lines.

I claim:—

1. A foundry flask comprising a rectangular sheet metal body portion, reinforcing plates upon opposite sides of the body and tie rods connecting said reinforcing plates.

2. A foundry flask comprising an oblong body portion, reinforcing members at the ends thereof and tie rods connecting said reinforcing members.

3. A foundry flask comprising a rectangular body portion provided with longitudinal corrugations, reinforcing members at opposite sides of the body portion and tie rods connecting the reinforcing members and located within the corrugations.

4. A foundry flask comprising an oblong sheet metal body portion provided with longitudinal corrugations, reinforcing members at the ends of the body portion and tie rods connecting the reinforcing members and located within said corrugations.

5. A foundry flask comprising a rectangular sheet metal body portion having longitudinal corrugations, U-shaped plates surrounding opposite sides of the body portion

and tie rods connecting said U-shaped plates and located within the corrugations.

6. A foundry flask comprising a rectangular sheet metal body portion, U-shaped plates surrounding opposite sides of the body portion and tie rods connected to the U-shaped plates.

7. A foundry flask comprising an oblong sheet metal body portion, U-shaped members surrounding the ends of the body portion and tie rods connecting the U-shaped members.

8. A foundry flask comprising an oblong sheet metal body portion having longitudinal corrugations, U-shaped members surrounding the ends of the body portion and tie rods connecting the U-shaped members and located within said corrugations.

9. A foundry flask comprising a rectangular sheet metal body portion, U-shaped members surrounding opposite sides of the body portion and provided with corrugations and tie rods connecting the U-shaped members and located in corrugations.

10. A sheet metal foundry flask comprising an oblong body portion, U-shaped members surrounding opposite ends of the body portion and provided with corrugations and tie rods connecting the U-shaped members and located in the corrugations.

11. A foundry flask comprising a rectangular sheet metal body portion having pin lugs upon opposite sides, reinforcing members upon said sides of the body portion and provided with offset portions receiving the pin lugs and tie rods connecting the reinforcing members.

12. A foundry flask comprising an oblong sheet metal body portion provided with pin lugs upon opposite ends, U-shaped reinforcing members surrounding the ends of the body portion and provided with offset portions receiving the pin lugs and tie rods connecting the U-shaped members.

13. A foundry flask comprising a sheet metal body portion, reinforcing members upon opposite sides of the same and tie rods connecting the reinforcing members.

14. A foundry flask comprising a sheet metal body portion, reinforcing members upon opposite sides of the same and tension means connecting the reinforcing members.

15. A foundry flask comprising an elongated sheet metal body portion, reinforcing members at the ends thereof and tension means connecting said reinforcing members.

16. A foundry flask comprising a sheet metal body portion, having pin lugs upon opposite sides, reinforcing members surrounding said sides of the body portion and provided with offset portions receiving the pin lugs.

17. A foundry flask comprising an elongated sheet metal body portion, U-shaped members surrounding opposite ends of the

body portion, and means for drawing said U-shaped members toward each other.

18. A foundry flask comprising a rectangular sheet metal body portion, reinforcing members upon opposite sides of the body portion, tie rods connecting the reinforcing members and means upon the tie rods for drawing the reinforcing members toward each other to place a tension upon the side walls of the body portion.

19. A foundry flask comprising an oblong sheet metal body portion, U-shaped members surrounding opposite ends of the body portion, tie rods connecting the U-shaped members together and means upon the tie rods for drawing the U-shaped members toward each other to place a tension upon the side walls of the body portion.

DONALD C. BARRICK.