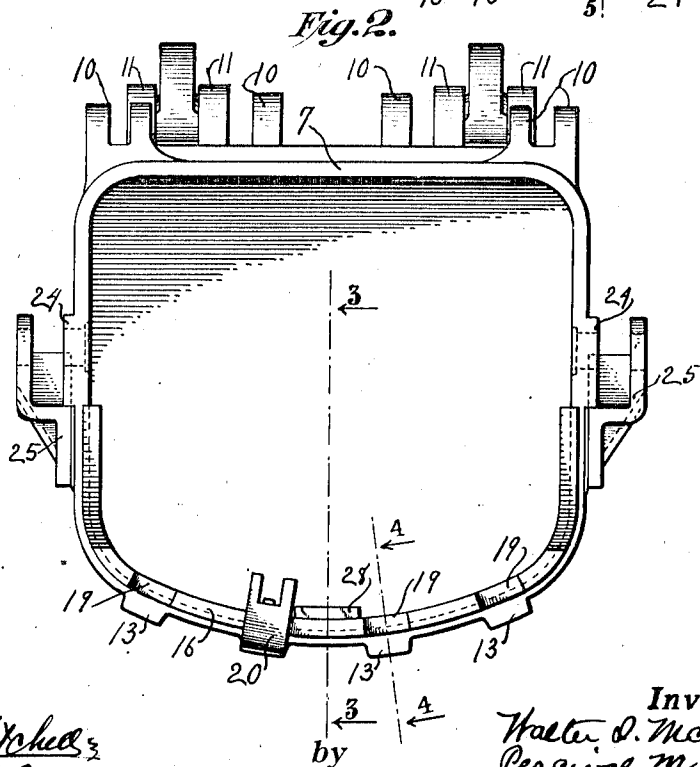
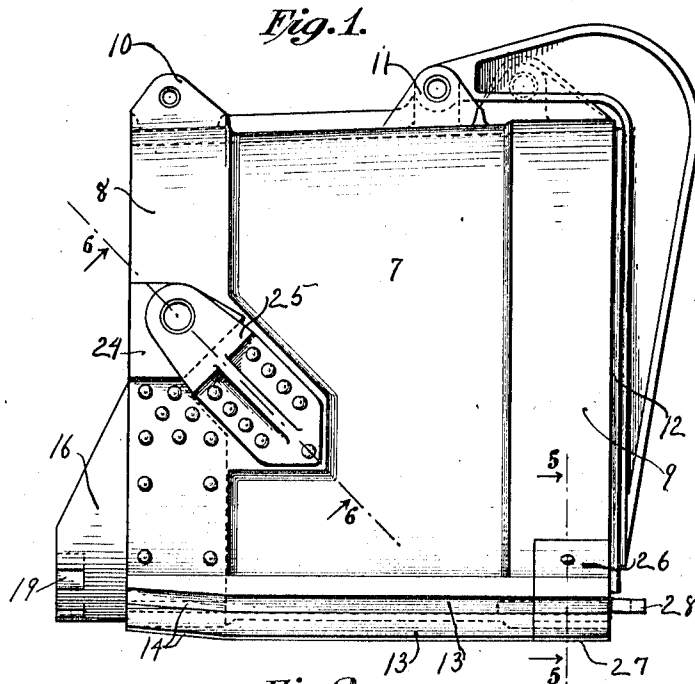


W. S. McKEE & P. M. VILAS.
 CAST METAL DIPPER BODY.
 APPLICATION FILED JAN. 11, 1912.

1,031,138.

Patented July 2, 1912.

3 SHEETS—SHEET 1.



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3 SHEETS--SHEET 2.

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3 SHEETS-SHEET 3.

Fig. 7.

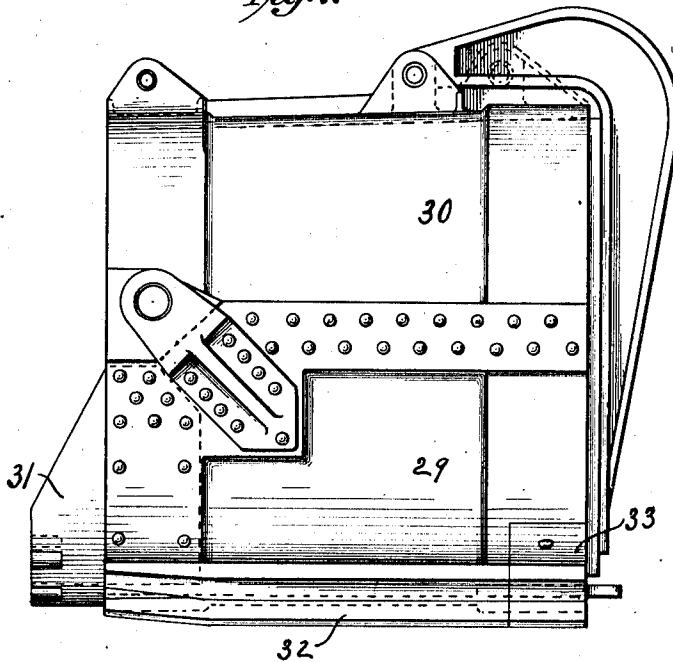
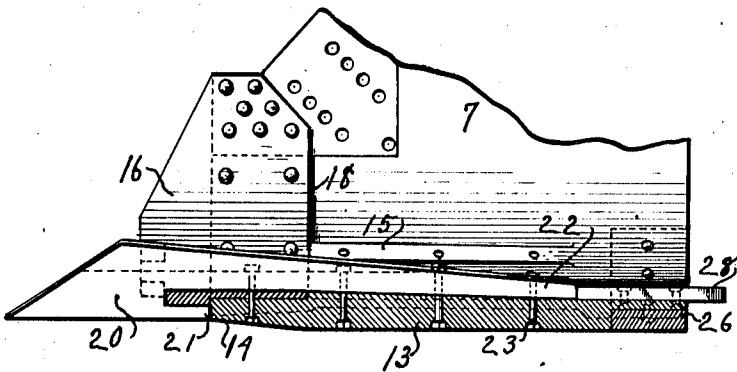


Fig. 8.



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UNITED STATES PATENT OFFICE.

WALTER S. McKEE, OF GLENCOE, ILLINOIS, AND PERCIVAL M. VILAS, OF MINNEAPOLIS, MINNESOTA, ASSIGNORS TO EDGAR ALLEN AMERICAN MANGANESE STEEL COMPANY, OF AUGUSTA, MAINE, A CORPORATION OF MAINE.

CAST-METAL DIPPER-BODY.

1,031,138.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed January 11, 1912. Serial No. 670,601.

To all whom it may concern:

Be it known that we, WALTER S. McKEE, a citizen of the United States, and a resident of Glencoe, in the county of Cook and State of Illinois, and PERCIVAL M. VILAS, a citizen of the United States, and a resident of Minneapolis, in the county of Hennepin and State of Minnesota, have made and invented certain new and useful Improvements in Cast-Metal Dipper-Bodies, of which the following is a specification.

Our invention relates to dippers for excavating, dredging and similar machines designed to scoop up or dig a material and deposit it upon cars, scows, or similar devices for transporting the material to a distance, and more particularly to such dippers as are formed from cast metal such as cast manganese steel.

The main or body portion of dippers of the type above referred to are in accordance with the most approved practice formed from two manganese steel castings each comprising approximately one-half of the dipper body, the two parts being secured together along joints in the sides of the dipper; and one object of our invention is to provide a dipper body formed in a single piece from cast manganese steel, whereby the same is materially simplified, the cost thereof greatly reduced, and a stronger body procured than when the same is formed in several parts.

Further objects of our invention are to provide various detail features in and relating particularly to cast metal dipper bodies formed in a single piece although the same are also capable of use with dipper bodies formed from cast metal in two or more pieces.

With the above objects of invention in view, our invention consists in the various features hereinafter particularly referred to and described, and claimed in the clauses of the concluding claims, and in such variations and modifications thereof as will be obvious to those skilled in the art to which our invention relates.

In the drawings accompanying and forming a part of this application, and wherein the preferred embodiment of our invention is illustrated; Figure 1 is a view showing our improved dipper body in side elevation; Fig. 2 is a view showing the same in plan;

Fig. 3 is a fragmentary view showing a section upon a plane indicated by the line 3—3, Fig. 2; Fig. 4 is a fragmentary view showing a section upon a plane indicated by the line 4—4, Fig. 2; Fig. 5 is a fragmentary view showing a section upon a plane indicated by the line 5—5, Fig. 1; Fig. 6 is a fragmentary view showing a section upon a plane indicated by the line 6—6, Fig. 1; Fig. 7 is a view showing a side elevation of the dipper body made up of two parts and equipped with certain features of our invention; and, Fig. 8 is a view similar to Fig. 4 but showing a tooth member secured to the front wall of the dipper.

Referring to the drawings, the reference numeral 7 designates the body portion of our improved dipper, the same being strengthened at its upper and lower ends by means of ribs 8, 9 and having a plurality of lugs 10 formed upon its rear wall to which lugs the mechanism for operating the dipper is pivotally connected, but which mechanism is not shown as the same forms no part of our invention. Lugs 11 are also provided upon the rear wall of the dipper body, which lugs serve as supports for the hinged bottom 12 of the dipper. The body portion and the parts above referred to, are formed from cast metal and in a single piece, the body being commonly made from cast manganese steel.

The dipper body 7 is provided with a series of longitudinally extending ribs or runners 13 also formed integrally therewith, which runners come in contact with the bank when the dipper is in use and thereby protect the front wall of the dipper from excessive wear, and prevent the front wall from wearing through while the remaining portion of the dipper body is in serviceable condition. These ribs are preferably beveled at their upper ends as shown at 14. The dipper body is also provided with a series of longitudinally extending tooth seats 15 located upon the inner surface of the front wall and formed integrally with the body portion 7.

The reference character 16 designates a lip formed separate from the dipper body and detachably secured to the front portion of the upper edge thereof, this lip being made detachable in order that it may be renewed when worn without necessitating the

renewal of the entire body portion of the dipper. The lip is rabbeted, as best shown at 17, Fig. 4, and the lower edge 18 thereof abuts against the upper ends of the tooth seats 15 above referred to. The thicker upper edge of the lip extends over the upper edge of the dipper body as best shown in Fig. 4, in order to secure a strong joint between the lip and body and provide an increased thickness of lip at the place where it is subjected to the greatest wear. The upper edge of the lip 16 is provided with a series of notches 19 within which notches the upper portions of detachable tooth members lie, and whereby sidewise movement of said members is prevented, a plurality of such tooth members being ordinarily provided, although only one is shown. Each of the members 20 has a depending hook portion 21 extending over the edge of the lip and downward along the exterior surface thereof and the lower end of which abuts against the upper edge of the body portion to thereby form a firm support for the tooth member; and the said member has a shank portion 22 which extends along the inner surface of the body portion and rests upon the tooth seats 15 hereinbefore referred to. The tooth member is secured to the dipper body by means of bolts, rivets or equivalent fastening devices, as shown at 23; which fastening means extend through the longitudinally extending ribs 13.

In referring to the member 20 as a tooth member, it is intended to include the same whether made in a single piece, as shown in the drawings, or with a detachable point, it being common in the art to form a dipper tooth either as a single integral structure, as shown in the drawings, or with a detachable point portion at its upper end.

The reference character 24 designates projecting lugs located adjacent the upper edge of the dipper body and formed integrally therewith, and 25 are ears located one upon each side of the dipper body and secured thereto, the upper ends of which ears abut against the lugs 24, which lugs therefore receive the greater part of the strain when the dipper is in use, it being understood that the ends of a suitable lifting bail are connected with the dipper through these lugs.

The reference character 26 designates a wearing piece formed separate from the dipper body and secured to the lower edge of the front wall thereof, as will be understood from Fig. 1. This wearing piece is made detachable from the dipper body in order that it may be renewed when worn, and the location thereof is at the place where the greatest amount of wear occurs when the dipper is in use, from which it follows that this wearing piece may be renewed when worn without necessitating the renewal of the entire dipper body; it being found in practice that

a single dipper body may be used indefinitely if provided with a detachable wearing piece, such as 26, whereas if such piece was not provided the lower edge of the front portion of the body would be worn to such an extent as to seriously interfere with the further use of the dipper after a comparatively short time. The wearing piece 26 fits into a recess extending across the dipper front and formed in the exterior surface of the rib 9, and the same is provided with a series of ribs 27, which ribs form continuations of the ribs 13 when the wearing piece is secured in place. A further object of the wearing piece 26 is to prevent the rivets whereby the stirrup 28 is secured in place from being worn away, the stirrup being provided, it will be understood, for the purpose of receiving the end of a latch, not shown, carried by the swinging door 12 and whereby it is held in a closed position. The wearing strip 26 extends across the entire front of the dipper, as shown in Fig. 5, and terminates adjacent the place where the front and sides merge with one another.

In Fig. 7 I have shown a dipper body made up of two parts 29—30 each of which parts form substantially one-half of the dipper body, and which parts are joined together along a vertically extending point, as shown located in the sides of the dipper body, and mid-way between the front and rear faces thereof. In this figure, the front portion 29 of the dipper body is provided with a detachable lip 31 similar to the lip 16 and with a series of longitudinally extending ribs 32 similar to the ribs 13 hereinbefore referred to. The lower edge of the front of the dipper is also provided with a detachable wearing piece 33 similar to the wearing piece 26, and which wearing piece rests in the recess in the front wall of the dipper and has ribs which form continuations of the ribs 33, the same as hereinbefore explained when describing the form of our invention shown in Figs. 1 to 6.

Having thus described and explained our invention, we claim and desire to secure by Letters Patent:

1. In a dipper for excavating, dredging, and similar machines, a dipper body having a series of longitudinally extending ribs formed integrally therewith and located upon the outer surface of its front wall and the upper ends of which ribs are beveled.

2. In a dipper for excavating, dredging, and similar machines, a dipper body having a recess formed in the outer surface of its front wall adjacent the lower edge thereof and extending across the front of said body; and a detachable wearing piece secured in place within said recess.

3. In a dipper for excavating, dredging, and similar machines, a dipper body having a series of longitudinally extending ribs

formed integrally therewith and located upon the outer surface of its front wall; and a wearing piece formed separate from said body and detachably secured to the lower edge of the outer surface of the front wall of said body, said wearing piece having a series of ribs which form continuations of the ribs aforesaid when said wearing piece is in place.

4. In a dipper for excavating, dredging and similar machines, a dipper body having a series of longitudinally extending ribs formed integrally with and located upon the outer surface of the front wall thereof and the upper ends of which ribs are beveled; a lip formed separate from said body and detachably secured to the upper edge thereof, said lip having a recess formed in its upper edge; and a tooth member formed separate from said body and having a shank portion extending along the inner surface of the front wall of said body and a hook portion extending over the edge of said lip and downward along the exterior surface thereof and the extremity of which hook portion abuts against the upper end of one of said ribs, the upper portion of said tooth member lying within the recess aforesaid in said lip.

5. In a dipper for excavating, dredging

and similar machines, a dipper body having a series of longitudinally extending ribs formed integrally with and located upon the outer surface of the front wall thereof and the upper ends of which ribs are beveled; a lip formed separate from said body and detachably secured to the upper edge thereof; and a tooth member formed separate from said body and having a shank portion extending along the inner surface of the front wall of said body and a hook portion extending over the edge of said lip and downward along the exterior surface thereof and the extremity of which hook portion abuts against the upper end of one of said ribs.

Signed at Chicago, in the county of Cook, and State of Illinois, this 29th day of December, 1911.

WALTER S. McKEE.

Witnesses:

M. B. MYERS,

J. H. HUGHES.

Signed at Minneapolis, in the county of Hennepin, and State of Minnesota, this 4th day of Jan., 1912.

PERCIVAL M. VILAS.

Witnesses:

M. E. McKONE,

J. N. THULL.