W. S. McKEE & P. M. VILAS.

CAST METAL DIPPER FRONT.

APPLICATION FILED JAN. 11, 1912.

1,033,818.

Patented July 30, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

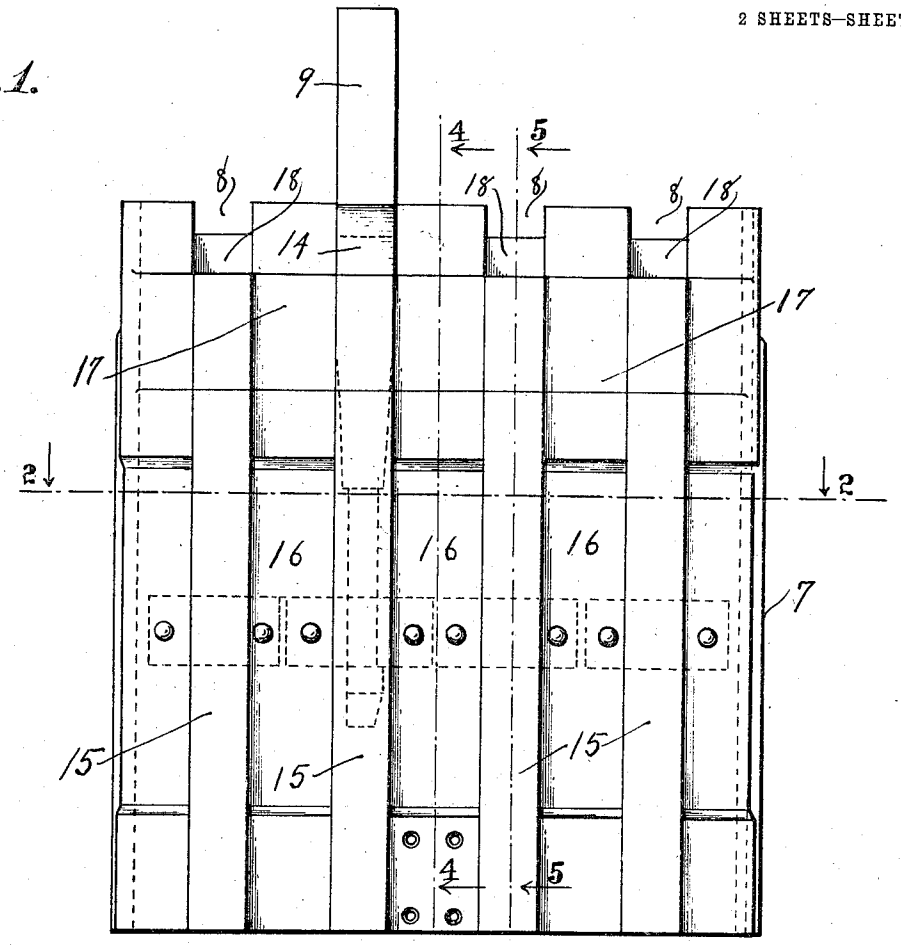
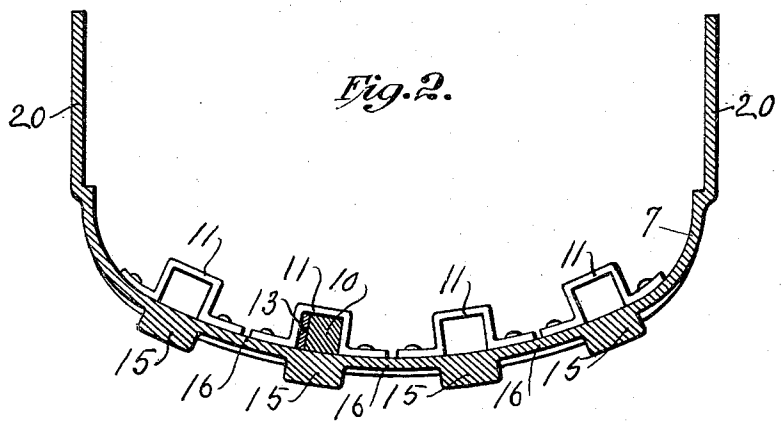


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

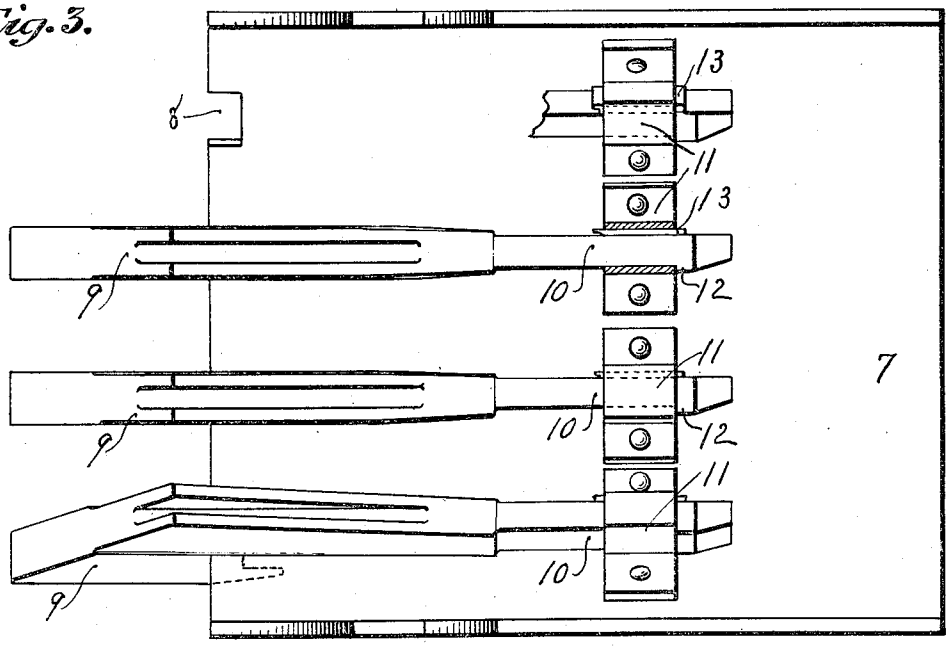


Fig. 4.

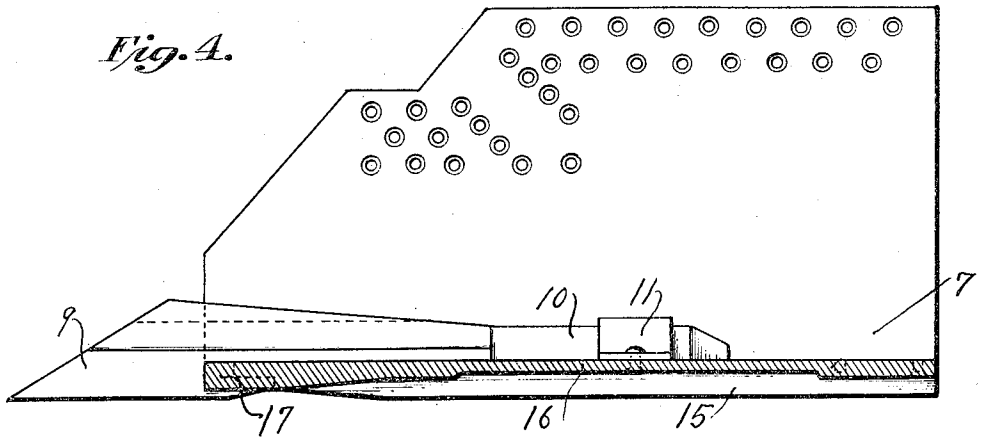


Fig. 5.

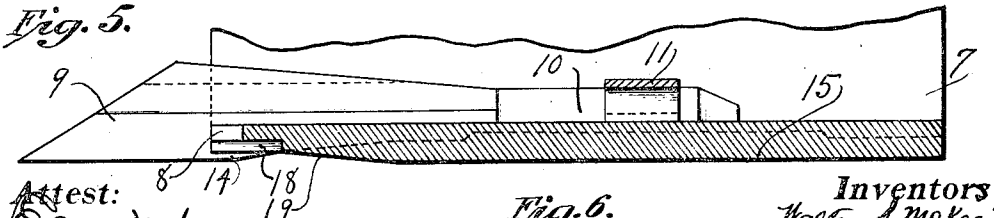
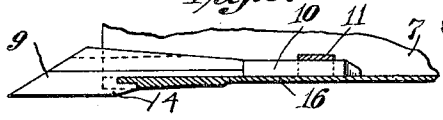


Fig. 6.



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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-FRONT.

1,033,818. Specification of Letters Patent. Patented July 30, 1912.

Application filed January 11, 1912. Serial No. 670,602.

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-Fronts, of which the following is a specification.

Our invention relates to fronts for dippers for excavating, dredging, digging and similar machines, and more particularly to that type of front for dippers which is formed in a single piece of cast metal, the object being to simplify and strengthen the front, and to provide for securing detachable dipper teeth thereto in a simple and effective manner.

With the above and other objects of invention in view, our invention consists in the improved integral cast metal dipper front hereinafter described, claimed and illustrated in the accompanying drawings wherein the preferred embodiment of our invention is shown.

Referring to the drawings: Figure 1 is a view showing a front elevation of our improved dipper front; Fig. 2 is a view showing a section upon a transverse plane indicated by the line 2—2, Fig. 1, looking down; Fig. 3 is a view showing our improved dipper front as seen from a point within the dipper body, and illustrating the manner of securing the teeth in place; Fig. 4 is a view showing a section upon a vertical plane indicated by the line 4—4, Fig. 1 looking toward the left; Fig. 5 is a similar view taken upon the line 5—5, Fig. 1; and, Fig. 6 is a view drawn to a different scale illustrating a section upon the plane corresponding with the plane of Fig. 5, and showing a dipper tooth secured in position to the front.

Referring to the drawings, the reference character 7 designates our improved integral cast metal dipper front as a whole. The upper edge of the front, that is the edge which contacts with the bank when the dipper is used for digging, is provided with a plurality of notches shown at 8 within which notches, a portion of the upper portion of detachable dipper teeth 9 lie when the teeth are secured in place, as shown in Figs. 1 and 6, the sides of which notches therefore serve to prevent sidewise movement of the upper ends of the detachable teeth. The detachable dipper teeth are each provided with an extended shank portion 10 which lies against the inner surface of the front when the dipper teeth are secured in place, and 11 are stirrups secured to the inner surface of the front, and through which the lower ends of the shank portions 10 extend. The lower ends of the shanks are provided with shoulders 12 which may be moved sidewise to engage beneath the lower ends of the lugs 11, and keys 13 are provided to force the lower ends of the shanks sidewise and hold the shoulders 12 thereof beneath the stirrups. The dipper teeth are thus held in position and prevented from moving in the direction of their length by the shoulders 12 and stirrups 11, and the outer or upper ends of the teeth are prevented from moving sidewise by the sides of the recesses 8. The teeth are provided each with a hook portion shown at 14, which extends a short distance downward over the exterior surface of the upper end of the front as best shown in Fig. 6 to prevent the upper ends of the teeth from moving toward the axis of the dipper.

The dipper front 7 is provided with a plurality of projecting ribs 15 spaced apart from one another and connected so as to form a continuous front by intermediate portions 16, which intermediate portions are thinner than the ribs 15, but are thickened at their upper ends as shown at 17 to thereby provide additional strength at the upper edge of the dipper to resist a strain transmitted to the front through the teeth in digging. The notches 8 are therefore formed in a thickened portion on the front and additional bearing surface is therefore provided at the sides of the teeth.

Our improved dipper front is provided with recesses shown at 18, which recesses are located upon the exterior surface of the front and extend downward from the bottom wall of the notches 8, within which recesses the end of the hook portions 17 of the teeth lie, and which recesses furthermore contribute additional side support for the teeth.

The notches 8 and recesses 18 are located in line with the upper ends of the ribs 15, and the upper ends of said ribs are prefer-

ably beveled as shown at 19 in order that they may slide easily over the surface or bank being dug away, it being understood that the said ribs form runners for the dipper and prevent the intermediate portions 16 of the front from coming into contact with the bank when the dipper is used.

The improved dipper front above described is designed to be secured to a dipper back, as will be understood, and forms substantially one-half of the body, to which end side projecting portions 20 are provided, which portions are provided with rivet holes as shown in Fig. 4, so that the front may be secured to the back to thereby form a complete dipper body.

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

1. A front for dippers for excavating or similar machines formed in a single piece of cast metal and having a plurality of notches formed in its upper edge; together with a like number of projecting ribs formed integrally with and located upon the exterior surface of said front and extending longitudinally thereof, and the upper ends of which are beveled and terminate adjacent the bottoms of said notches.

2. A front for dippers for excavating or similar machines formed in a single piece from cast metal and having a plurality of notches formed in its upper edge, and a like number of recesses formed in the upper end of its exterior surface and extending downward from the bottoms of said notches; together with projecting ribs formed integrally with and located upon the exterior surface of said front and extending longitudinally thereof, and the upper ends of which terminate at the lower ends of the recesses aforesaid.

3. A front for dippers for excavating or similar machines formed in a single piece from cast metal and having a plurality of notches formed in its upper edge, and a like number of recesses formed in the upper end of its exterior surface and extending downward from the bottoms of said notches; together with a corresponding number of projecting ribs formed integrally with and located upon the exterior surface of said front and extending longitudinally thereof, and the upper ends of which are beveled and terminate at the lower ends of the recesses aforesaid.

4. A front for dippers for excavating or similar machines formed in a single piece from cast metal and having a series of projecting ribs spaced apart from one another and the upper ends of which are beveled; said front having intermediate portions between and of less thickness than said ribs, and the upper end of which intermediate portions are thickened.

5. A front for dippers for excavating or similar machines formed in a single piece from cast metal and having a series of projecting ribs spaced apart from one another and extending to the upper portion of the front, the upper ends of said ribs being beveled; and a like number of notches formed in the upper edge of the front and located in line with said ribs; said front having intermediate portions between and of less thickness than said ribs, the upper ends of said intermediate portions being thickened.

6. A front for dippers for excavating or similar machines formed in a single piece from cast metal and having a series of projecting ribs spaced apart from one another, and a like number of notches formed in the upper edge of said front and located in line with said ribs; said front having intermediate portions between and of less thickness than said ribs, and the upper ends of which intermediate portions are thickened, the upper ends of said ribs being beveled.

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 Jany., 1912.

PERCIVAL M. VILAS.

Witnesses:
M. E. McKone,
J. N. Thull.