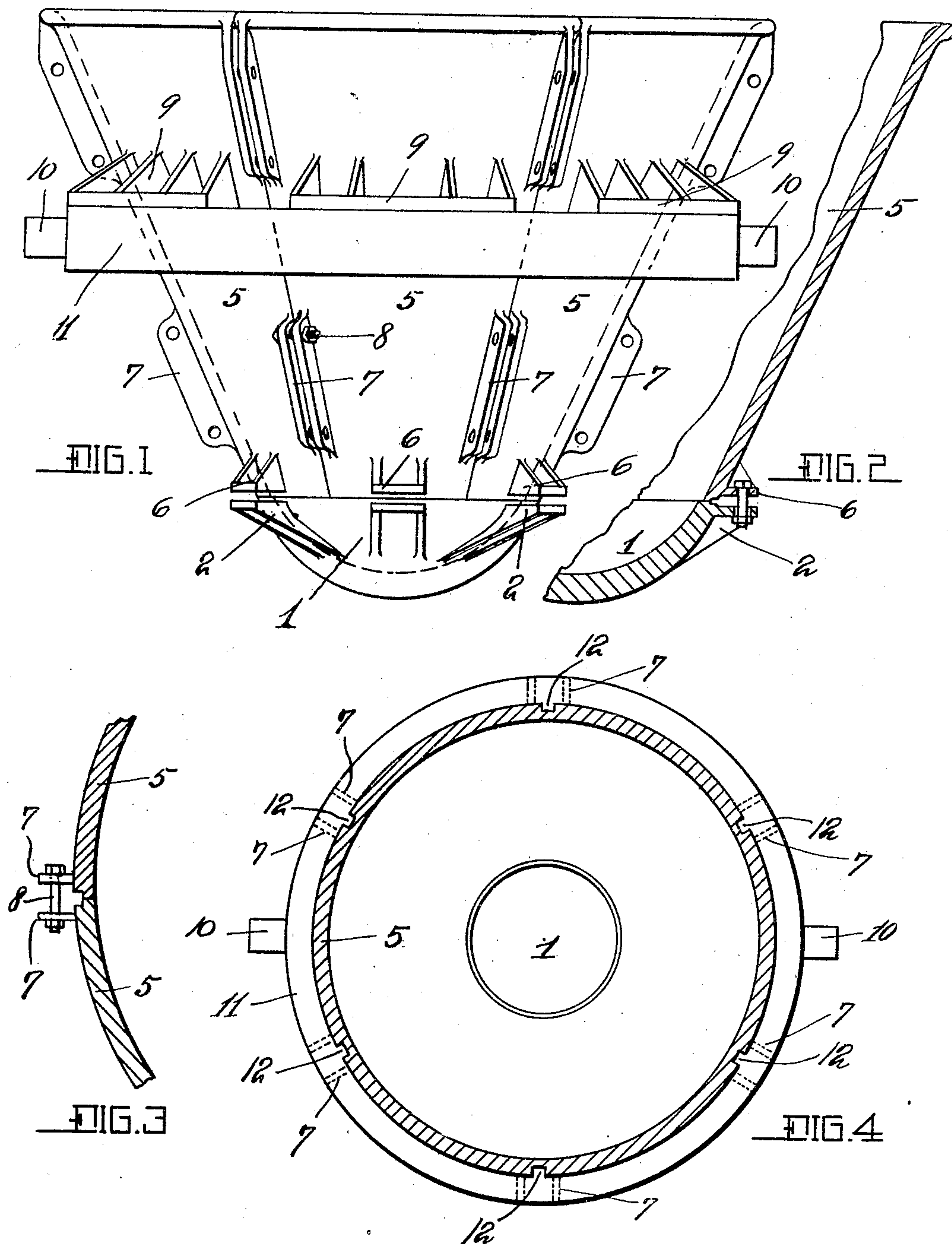


No. 890,941.

PATENTED JUNE 16, 1908.

M. H. TREADWELL.
LADLE.

APPLICATION FILED JULY 10, 1907.



Witnesses.
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UNITED STATES PATENT OFFICE.

MUNSON H. TREADWELL, OF NEW YORK, N. Y.

LADLE.

No. 890,941.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed July 10, 1907. Serial No. 383,005.

To all whom it may concern:

Be it known that I, MUNSON H. TREADWELL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Ladles, of which the following is a full, clear, and exact specification.

This invention relates to ladles, and more particularly has reference to a ladle composed of segments, and a method of making the same.

In my Patent No. 856,744, dated June 11, 1907, I have described a ladle composed in part of segments, and the present invention has for its object to provide an improved construction of ladle over that described in said patent, but of the same general character, together with a method of casting the ladle in one piece, in such manner that it can afterwards be divided into sections, capable of independent renewal.

In carrying out my invention, I have provided a ladle composed of a plurality of segments forming the sides of the ladle, and preferably carrying a separate bottom or bowl section, said segments being provided with lugs for the attachment of a bail whereby to support the ladle.

According to my improved method of casting a sectional ladle in one piece, I propose to provide a mold such as is used for casting the ordinary one piece ladle, with inserted bars or ridges which will nearly touch the core, so as to form when the metal is cast, segments of the thickness of the ladle separated by narrow thin strips where the bars or ridges come. The function of these narrow or thinner portions is to form lines of cleavage along which the metal will break when the ladle is heated to thereby form the segmental ladle. Also, the segments are provided with lugs at either side of the thinner portions through which fastening bolts will be passed to hold the segments together after they have cracked apart along the lines of cleavage. Supporting lugs will also be cast in the segments for the attachment of the bail.

The invention further comprises improvements in the details of construction and arrangement of parts, as will more fully appear in connection with the description of the accompanying drawings, wherein

Figure 1 is an elevation of a ladle embodying the invention. Fig. 2 is a vertical section of a fragment thereof. Fig. 3 is a horizontal

section of a portion of the rim showing the segments machined to fit, and Fig. 4 is a section showing the segments cast in one piece separated by thinner portions forming lines of cleavage.

The ladle is preferably cast in two sections, in which 1 represents a bottom section having cast thereon external lugs 2 which have holes therein for passage of bolts for securing the bottom to the top. The bolts fit loosely to permit expansion. The top of the ladle is composed of a plurality of segments 5 having the lugs 6 at the bottom cooperating with the lugs 2. Also, each segment 5 is provided with vertical lugs 7 adjacent the edges, so as to carry bolts 8 for securing adjacent segments together. Each segment further carries horizontal lugs 9 having holes therein for attaching a bail 11 whereby to support the ladle from the segment.

In the prior patent above mentioned, the weight of the ladle is carried by either the bottom section or an intermediate section, but this present construction principally distinguishes therefrom in that the segments themselves carry means for engaging the bail. 11 is the bail having trunnions or handles 10 for supporting it, according to whether the ladle is mounted on a truck, or carried by a long handle. Such a ladle as has thus far been described can be made up of separately cast segments with their edges fitted together by machining, chipping, or by filling the interstices between the edges with clay to prevent leakage of molten material. This ladle will also be expansible similarly to that described in the aforementioned patent. Preferably, however, I have devised a method of casting a sectional ladle in one operation and in a single mold. According to this method, I prepare a mold having cored out therein the lugs before described, and between the lugs 7, I place bars of steel, or form ridges therein projecting towards the center core of the ladle, so that when the ladle is cast, grooves as 12, Fig. 4, will be formed therein. These grooves will consequently form thinner portions or lines of cleavage and will be of the same number as the number of segments in which the ladle is to be divided, herein shown as six. If now the ladle be heated, the unequal expansion will cause the weakest portions, that is where the grooves 12 are, to separate first, thereby forming the segmental construction. By reason of the lugs 7 and the bolts carried

thereby, this fracture will not destroy the ladle or prevent its being used. Furthermore, in case it should be desired to machine or finish the edges of the segments, the one piece casting can be easily broken apart and then reassembled after the edges have been finished. In such a ladle, in case one section burns out, it can be readily replaced by another, the segments preferably all being alike, and the new section can be fitted in by chipping or machining as before described, in case the lines of fracture should not be exactly straight. It will be understood that wherever desirable the securing bolts will be loosely fitted, both to permit expansion and contraction, and also to permit the replacement of a damaged section by a new one.

It will be observed that the greatest dimension of the segments herein described, is vertical, and this is of advantage by reason of the fact that where the sections have their greatest dimension horizontal, there may be a tendency for the sections to bow upward when heated, thereby separating at the horizontal joints and permitting escape of the molten material. As herein shown a segment having its greater section vertical, will not tend to bow upwardly when heated, and cause a leak between its lower edge and the bottom. Instead, it will expand evenly, so that there will be no tendency to leakage by separation at the joints. At the same time, the segments can expand and contract freely with changes in temperature.

The details of construction can be modified

and changed in various particulars, and the invention is not to be restricted to the specific construction shown and described.

Having thus described my invention, I declare that what I claim as new and desire to secure by Letters Patent, is,—

1. A cast ladle composed of sections separated by thinner portions forming lines of cleavage.

2. A ladle having a portion cast in one piece and provided with grooves forming lines of cleavage, and fastening means connecting said sections across said grooves.

3. An annulus for a ladle cast in one piece, and having grooves therein from top to bottom.

4. A ladle comprising an annulus cast in one piece and having grooves cored therein extending from top to the bottom, and a bottom section carried by said annulus.

5. A ladle composed of an annulus cast in one piece and having grooves cored therein from one side to the other, whereby to form lines of cleavage, independent fastening means extending across said lines of cleavage, and a bottom section secured to said annulus at points between said lines of cleavage.

6. A ladle having grooves in the side thereof to form segments.

In testimony whereof I affix my signature, in presence of two witnesses.

MUNSON H. TREADWELL.

Witnesses:

JULIAN S. WOOSTER,
EDMUND O. DUBOCC.