

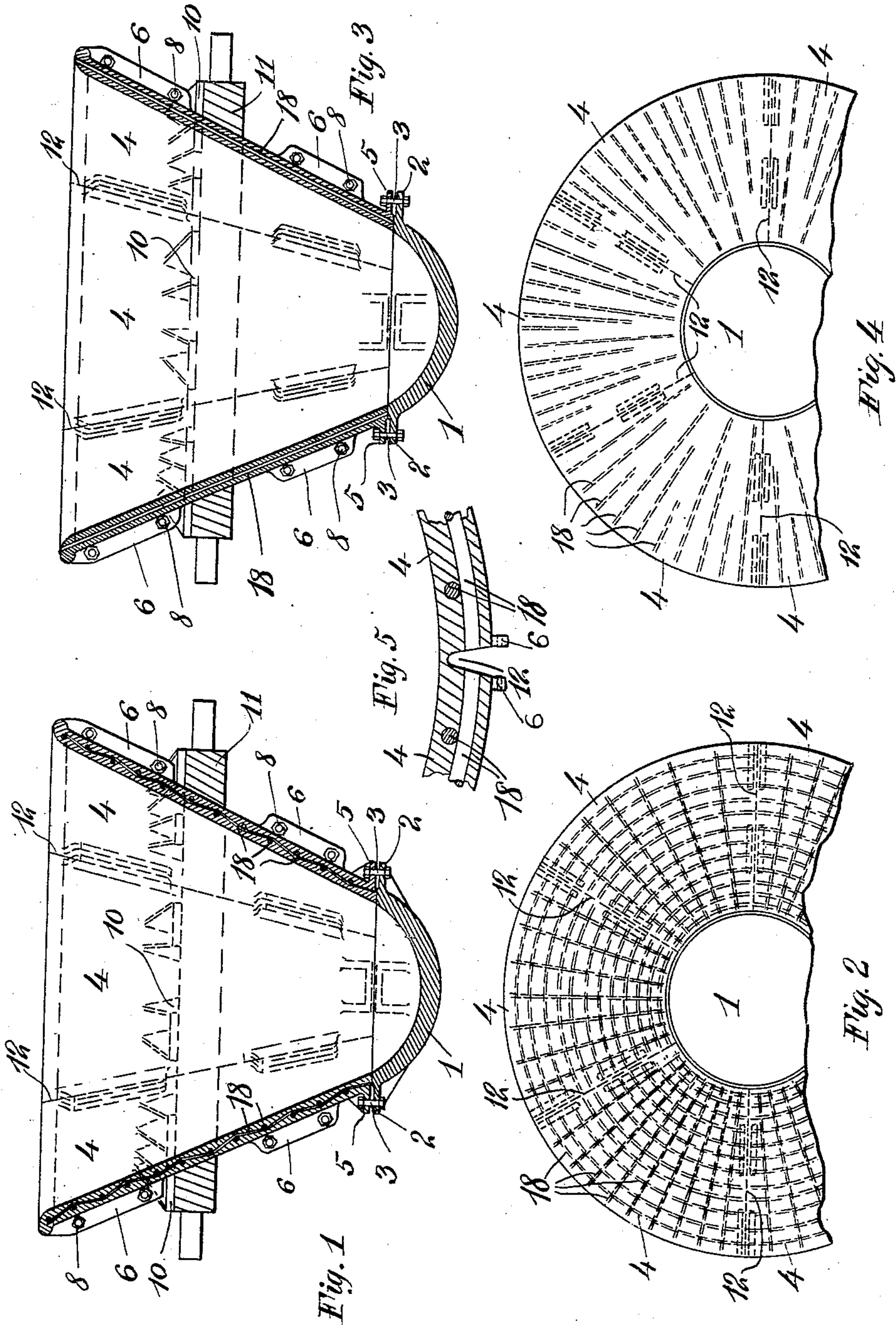
M. H. TREADWELL.

LADLE.

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915,250.

Patented Mar. 16, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

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

LADLE.

No. 915,250.

Specification of Letters Patent.

Patented March 16, 1909.

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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 ladles of the general type described in United States Letters Patent No. 856,744, dated June 11, 1907, and No. 890,141, dated June 16, 1908.

The object of the invention is to provide a cast metal ladle having wire reinforcements cast therein, whereby in case of fracture by reason of temperature variation, a hole will not be formed in the ladle and thereby permit escape of the contents. Also, the ladle will be made up of segments having reinforcements therein, together with a separable bowl or bottom section.

The invention will be more fully understood when taken in connection with the description of the accompanying drawing, wherein—

Figure 1 is a sectional view of a ladle embodying the invention; Fig. 2 is a partial plan view; Fig. 3 is a view similar to Fig. 1, of a modification; Fig. 4 is a plan view thereof; and Fig. 5 is a detail view, showing the manner of casting the segments all in one piece with lines of cleavage cored therein.

1 represents a bottom section having cast therein external lugs 2, which have holes therein for the passage of bolts 3, to secure the bottom to the top. The top of the ladle is composed of a plurality of segments 4, having lugs 5 at the bottom adapted to register with the lugs 2 on the bottom section, and also having holes for the passage of the bolts 3, which may be made to fit somewhat loosely in the holes to permit a limited amount of expansion without strain on the bolts. Each segment 4 is provided with vertical lugs 6 at each side, which will also be bored to receive bolts 8 for loosely connecting the segments. Each segment is, furthermore, provided with horizontal lugs 10, to which a bail 11 will be fastened in the usual manner, so that the ladle can either be carried or mounted on a car or other suitable manner. The segments are preferably all cast together in the form of an annulus, in which will be cored grooves 12, as shown in Fig. 5, forming lines of cleavage, so that when there is any tendency to break-

age, the fracture will be along these vertical grooves. Notwithstanding these grooves in an unreinforced ladle, it sometimes happens in practice that a whole section or corner of a segment might break out, and thereby permit escape of the entire contents of the ladle, with consequent injury to the workmen, or damage to the cinder car, this invention being more specially intended for ladles of several tons capacity, which are carried on car frames and in trains. In order to obviate this possibility of accident, each segment is cast with a reinforcing structure therein, composed of wire or rods, such as wrought iron. These rods 18 may extend both vertically and horizontally, as in Figs. 1 and 2, forming a meshed reinforcement, analogous to wire netting, or, as in Figs. 3 and 4, they may extend in one direction only, preferably vertically. As shown in Fig. 4, these reinforcing rods 18 vary in length, on account of the tapering form of the segment, being alternately long and short, the long ones extending approximately to the bottom of the section.

It is to be understood that a separate system of reinforcing rods is preferably provided for each segment, so that the intended cleavage along the grooves 12 may take place after the ladle is heated without interference from the rods. This is desirable in practice because with some forms of horizontal reinforcements, the expansion of the cast iron ladle section may differ from that of the rods and thereby set up objectionable stresses throughout the entire structure, whereas with an independent system of reinforcements in each segment this difficulty will be overcome without permitting the broken part of a segment to drop out. It will be seen that in case one section should burn out, as frequently happens, it can be replaced by another section, which is a further advantage of having the sections independently reinforced, since in case there did not happen to be a spare reinforced segment at hand, the ordinary cast segment could be provided.

It is thought from the foregoing description that the advantages of this invention will be clear, and it will be understood that the details of construction and the particular form of reinforcement adopted, and the arrangements of the reinforcing rods, whether mesh or otherwise, can be varied without departing from the scope of the invention.

Having thus described my invention, I de-

clare that what I claim as new and desire to secure by Letters Patent, is:

1. A cast ladle having reinforcing rods cast therein.
- 5 2. A cast ladle having a separable bottom section and a cast top section having reinforcing rods cast therein.
3. A cast ladle made up of a bottom section and segmental side sections, each segmental section having an independent system of reinforcing rods cast therein.
- 10 4. An annulus for a ladle cast in one piece, having grooves therein from top to bottom to form segments, and reinforcing rods independently cast in each segment.
- 15 5. A ladle comprising an annulus cast in one piece having grooves cored therein extending from top to bottom to form seg-

ments, reinforcing rods cast in said annulus extending from top to bottom, and a bottom section carried by said annulus. 20

6. A ladle composed of an annulus cast in one piece having cleavage grooves formed therein extending from top to bottom, reinforcing rods cast in said annulus between said 25 grooves extending from top to bottom, fastening means extending across said lines of cleavage, and a bottom section secured to said annulus.

In testimony whereof I affix my signature, 30 in presence of two witnesses.

MUNSON H. TREADWELL.

Witnesses:

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