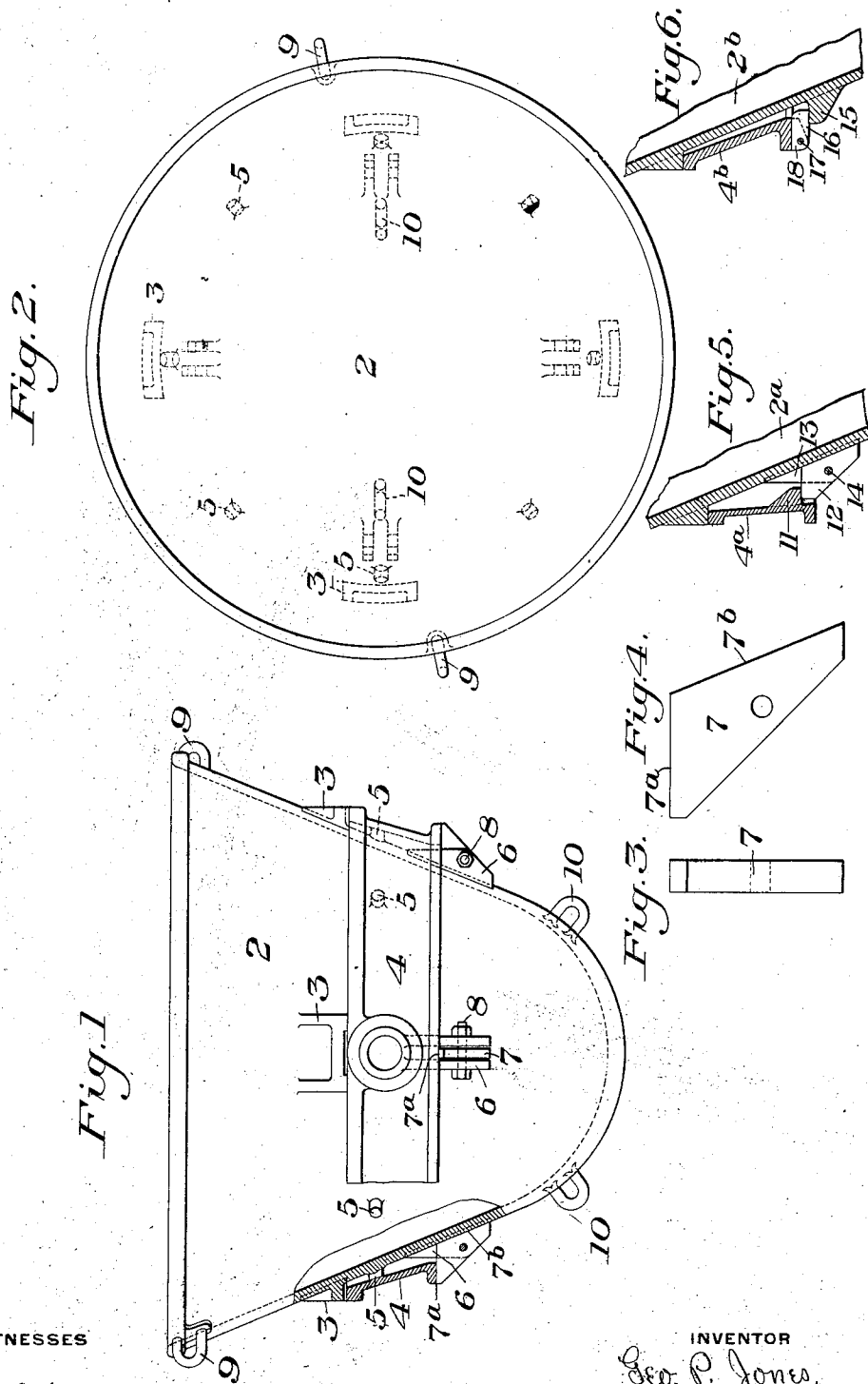


933,732.

Patented Sept. 7, 1909.



WITNESSES

R. A. Baldwin
 G. L. Winters

INVENTOR

Geo. P. Jones,
 by Baker, Byrnes & Carmichael,
 his Attys

UNITED STATES PATENT OFFICE.

GEORGE P. JONES, OF YOUNGSTOWN, OHIO, ASSIGNOR TO THE WILLIAM B. POLLOCK COMPANY, OF YOUNGSTOWN, OHIO, A CORPORATION OF OHIO.

LADLE CONSTRUCTION.

933,732.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed April 15, 1909. Serial No. 490,157.

To all whom it may concern:

Be it known that I, GEORGE P. JONES, of Youngstown, Mahoning county, Ohio, have invented a new and useful Ladle Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation partly in section of a ladle constructed and arranged in accordance with my invention; Fig. 2 is a top plan view of the same; Figs. 3 and 4 are detail elevations on a larger scale showing the clamp by which the ladle is secured in place on the trunnion ring or other support for the ladle as shown in Figs. 1 and 2. Figs. 5 and 6 are detail sectional side elevations showing modified forms of construction for the ladle clamping means forming part of this invention.

My invention relates to the construction of ladles used for handling molten materials, and means for securing the ladles in place on the supporting apparatus, upon which they are removably mounted.

The invention more particularly relates to the construction of cinder ladles used with ladle cars employed in transporting molten blast furnace slag and to the means employed in securing such ladles on the trunnion ring forming part of such cars.

The object of my invention is to provide a ladle of improved construction having novel means for securing the ladle in place on the trunnion ring or its equivalent support upon which such ladles are mounted when in use.

In the drawings, 2 represents the ladle, which is provided with a plurality of brackets or feet 3. The ladle is shown in the drawings as being supported by the feet 3 upon the trunnion ring 4 forming part of a cinder ladle car.

As shown in Figs. 1 and 2, a series of bosses or lugs 5 are provided on the outer surface of the ladle, in order to prevent side-wise movement of the ladle in the trunnion ring, the outer ends of these lugs being arranged to engage with the inner surface of the trunnion ring 4 in which the ladle is placed to center the ladle in the ring. The ladle is also provided with a series of pairs of lugs or ears 6, these ears being located on the ladle in such manner that they will easily pass through the trunnion ring in put-

ting the ladle in place on the trunnion ring. For the purpose of fastening the ladle in place and preventing its dislodgment from the trunnion ring while being tilted a clamp 7 is employed having one edge 7^a contacting with the under side of the trunnion ring 4 and an edge 7^b which engages with the side of the ladle when the clamp 7 is placed between the lugs 6 forming each pair of such lugs. The clamps 7 are held in place by means of the bolts 8. The ladle is provided with the usual lugs or ears 9, which are used in handling the ladle in putting it in place on the cars, and similar lugs 10 are provided on the lower portion of the ladle for the purpose of tipping it.

As shown in Fig. 5 the inside surface of the trunnion ring 4^a is provided with a series of lugs 11 and these lugs engage with the clamps 12 which are secured to the lugs or ears 13 on the ladle 2^a by the bolts 14 to secure the ladle 2^a in place on its trunnion ring 4^a.

In Fig. 6 the lugs 15 on the ladle 2^b are engaged by clamps 16 which are secured by the bolts 17 to ears or lugs 18 on the trunnion ring 4^b, the clamps 16 also serving to center the ladle in the ring.

The advantages of my invention will be apparent to those skilled in the art. The feet 3 provide a strong and simple support for the ladle in holding it in place on the car. The use of the clamp for securing the ladle in position provides a simple and efficient means for fastening the ladle and its support together. The clamping means is easily attached or detached, as is required and permits of the free expansion or contraction of the ladle in its supporting trunnion ring.

While I have shown my invention as constructed with a cast metal ladle, the invention is equally applicable to a built-up metal plate construction or other form of such ladle.

Modifications in the construction and arrangement of the parts may be made without departing from my invention. The number of supporting feet on the ladle may be varied or other means provided for supporting the ladle in place, and the number of clamps used may be changed, without departing from my invention.

I claim:—

1. A ladle having means engaging the sup-

port upon which said ladle is mounted and clamping means engaging with the ladle support for securing the ladle thereon said clamping means being detachably secured
5 to the ladle; substantially as described.

2. A ladle having means engaging the support upon which said ladle is mounted and means detachably secured to lugs on the ladle engaging with the support in securing the
10 ladle thereon; substantially as described.

3. A ladle having a bracket engaging the support upon which the ladle is mounted, independent lugs on the ladle and clamping means adjustably secured to the lugs and arranged to engage with the support and secure the ladle thereon; substantially as described.
15

4. A ladle having a plurality of feet on its sides engaging the trunnion ring on which
20 said ladle is mounted, and a clamp engaging with the trunnion ring in securing the ladle in place thereon and a lug on said ladle to which the clamp is detachably secured; substantially as described.

5. A ladle having ladle supporting means formed integral therewith for supporting said ladle on the ladle trunnion ring, and a plurality of lugs in a plane lower than that of said supporting means, said lugs being
25 provided with detachable clamps for securing the ladle in place on said trunnion ring; substantially as described.
30

6. A ladle having ladle supporting means thereon for supporting said ladle on the
35 ladle trunnion ring, and a plurality of pairs of lugs in a plane lower than that of said ladle supporting means, said lugs being provided with detachable clamps for securing the ladle in place on said trunnion ring;
40 substantially as described.

7. A ladle having ladle supporting means thereon for supporting said ladle on the ladle trunnion ring, and a plurality of pairs of lugs on the ladle in a plane lower than that of said ladle supporting means, said
45 lugs being provided with detachable clamps for securing the ladle in place on said trunnion ring; substantially as described.

8. A ladle having a plurality of ladle supporting bracket feet, ladle supporting means
50 engaging the feet, a plurality of lugs on said ladle, and clamps secured to said lugs and engaging with the ladle support for holding the ladle in position on said supporting means; substantially as described.
55

9. A ladle having a plurality of bracket feet for supporting the ladle, ladle supporting means engaging the feet, a plurality of lugs on said ladle, and clamps detachably secured to said lugs for holding the ladle in
60 position on said supporting means, said clamps engaging with the side of the ladle and under surface of the ladle support; substantially as described.

10. A ladle having a plurality of bracket
65 feet for supporting the ladle, ladle supporting means engaging the feet, a plurality of lugs on said ladle, and clamps detachably secured to said lugs for holding the ladle in position on said supporting means, said
70 clamps engaging with the ladle support in securing said ladle in place; substantially as described.

In testimony whereof, I have hereunto set my hand.

GEO. P. JONES.

Witnesses:

PORTER POLLOCK,
W. G. WILSON.