May 13, 1924. 1,493,714

C. F. WELLS

LADLE CARRIER

Filed Feb. 14, 1921 2 Sheets-Sheet 1

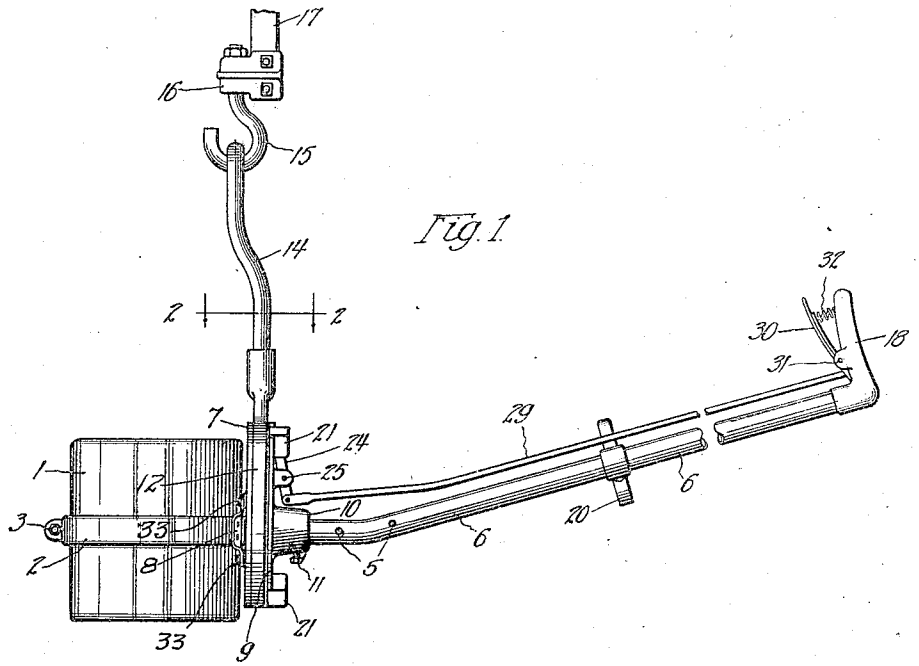
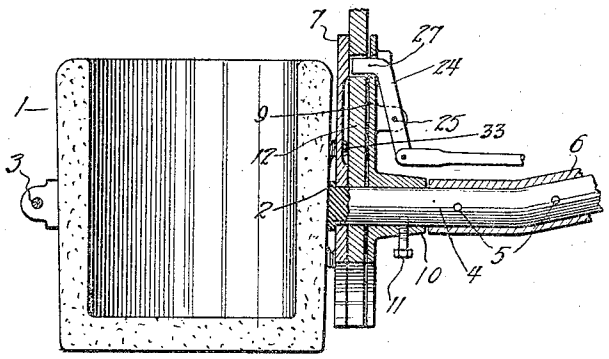


Fig. 1.

Fig. 3



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Fig. 1.

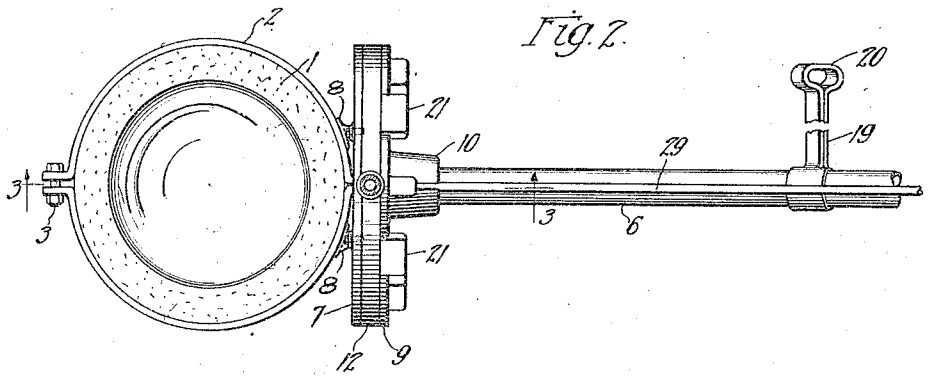


Fig. 5.

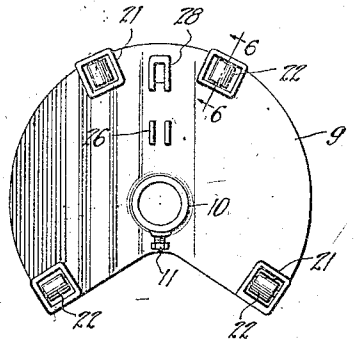


Fig. 4.

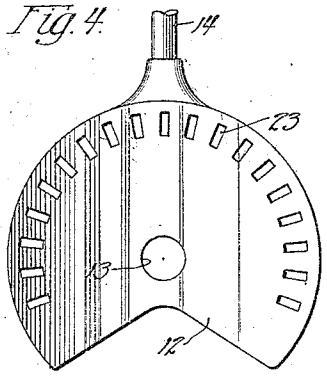
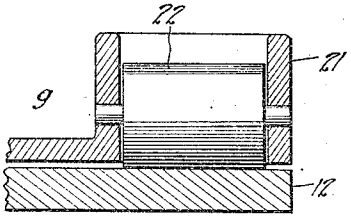


Fig. 6.



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UNITED STATES PATENT OFFICE.

CLAYTON F. WELLS, OF CHICAGO, ILLINOIS.

LADLE CARRIER.

Application filed February 14, 1921. Serial No. 444,711.

To all whom it may concern:

Be it known that I, CLAYTON F. WELLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ladle Carriers, of which the following is a specification.

My invention relates to improvements in handles or shanks for foundry ladles, and has reference particularly to facilities whereby the shank is supported and manipulated so as to position the ladle and pour the metal therefrom.

In factory work it is customary to use hand ladles whenever the weight of the metal required is not too great for a man to carry and pour, this practice being preferred as the metal can be handled more quickly and conveniently in hand ladles than in the mechanically supported or controlled ladles, such as have been available heretofore.

It is the object of my invention to provide a mechanically supported ladle which obviates the disadvantages of previous ladle supports and renders it possible to utilize and manipulate the supported ladle with the freedom and convenience of the ordinary hand ladle. Other objects are to mount the ladle and shank in an improved manner on an overhead carrier so that the ladle maintains an upright position and is easily manipulated for positioning and pouring; to provide a hanger which is connected with the ladle or ladle shank in such a manner that the equilibrium or balance of the ladle and shank is not materially affected by differences in the quantity of metal contained in the ladle; to make provision for differences in the size of ladles and expansion and contraction thereof; to provide pivotal movement of the ladle and its shank on the hanger so that the ladle may be tipped for the purpose of pouring the contents therefrom; to provide an improved pivotal connection which serves to maintain the parts in equilibrium and enables the pouring to be effected with ease; to provide a lock arranged so as to be conveniently manipulated by the operator and adapted to hold the ladle and shank against pivotal movement; and in general to provide a mechanically supported ladle shank which is simple and inexpensive and capable of operation and use in substantially the same manner as the ordinary hand ladle.

On the drawings

Fig. 1 is a side view of a ladle carrier embodying my invention;

Fig. 2 is a top view thereof with a portion of the handle or shank omitted, and the hanger in section on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a side view of the hanger plate to which the shank is pivoted;

Fig. 5 is a side view of the bearing plate on the ladle shank; and

Fig. 6 is an enlarged sectional view on the line 6—6 of Fig. 5, showing one of the rollers on the bearing plate which engages against the hanger plate.

Referring to the drawings, the reference numeral 1 indicates the ladle which is of the ordinary type and mounted in the usual manner in a band 2 which telescopes the slightly tapered exterior of the ladle 1 to a point substantially midway between the top and the bottom thereof. This band 2 is preferably split at one side and has the ends connected together by a bolt 3 to afford adjustment for different sizes of ladles or expansion or contraction thereof, and at the opposite side, the band is formed with an extension 4 which projects through the plates 7, 9 and 12, and has the outer end inserted, and secured by the pins 5, in the end of a tubular shank 6 which is preferably bent upwardly at a slight inclination, as shown in Figs. 1 and 2.

The plate 7 is secured to the band 2 by brackets 8 which are riveted or otherwise fastened to the band 2 at opposite sides of the extension 4 and have upper and lower ears bolted at 33 to the plate 7. The plate 9 is spaced from the plate 7 and has a hub 10 embracing the band extension 4, and provided with a set screw 11 whereby the plate 9 is adjustably secured on the extension 4 at the required distance from the plate 7, the end of the shank 6 being arranged at a suitable distance from the plate 7 to afford the required adjustment of the plate 9 on the extension 4. A hanger is employed for suspending the ladle and shank from an overhead support 17, and comprises the hanger rod 14 which has the plate 12 on the lower

end interposed between the plates 7 and 9 of the shank and provided with a bearing opening 13 through which the extension 4 extends for pivotally supporting the ladle shank on the hanger. The support 17 may be a part of a crane, trolley or other carrying mechanism and has a hook 15 onto which the upper looped or hooked end of the hanger rod 14 is engaged, and this hook 15 is preferably pivoted vertically to the support 17, as for example to the bracket 16 of the support, so that the parts supported by the hook 15 are capable of being readily turned to any desired position.

To prevent binding and facilitate pivotal movement of the ladle and shank in the hanger plate 12, a number of rollers 22 are arranged at intervals around the plate 9 in housings 21, and bear against the outer face of the hanger plate 12. For the purpose of holding the ladle in the upright position or any position of its pivotal adjustment to which it may be tipped, the hanger plate 12 is provided with a number of notches or apertures 23 arranged at intervals around the periphery and there is a locking dog 24 pivoted at 25 in lugs 26 on the outer face of the plate 9, and having an inturned end 27 working in a guide 28 of the plate 9 and adapted to be projected into or withdrawn from the notches or apertures 23 of the plate 12. The other end of the dog 24 is connected by means of the rod 29 which extends along and close to the pipe 6 to a grip lever 30 which is pivoted at 31 on a handle 18 at the outer end of the shank 6, a spring 32 being interposed between the lever 30 and handle 18, and serving, through the rod 29, to hold the dog 24 in engagement with the notches 23.

To enable the pivotal operation of the shank to be conveniently effected for pouring the contents of the ladle, the shank 6 is provided intermediate its ends with a laterally extending arm 19 with a handle 20 at the outer end which because of its lateral displacement from the pivotal axis of the shank 6 renders the tipping of the ladle completely under control of the operator.

It will be observed that inasmuch as the hanger plate 12 is disposed close to ladle 1, the shank 6 and its attachments serve to counter-balance the ladle 1 and its contents, and in order to maintain the ladle and shank substantially in equilibrium or balance at all times regardless of the quantity of metal contained in the ladle the hanger rod 14 is extended upwardly and also offset as shown in Fig. 1 toward the ladle so that the elevated point of connection of the hanger with the hook 15 as well as the offset in the hanger rod serve to hold the structure in such a manner that the equilibrium thereof is not materially affected by variations of the quantity of metal contained in the ladle, and the latter remains at all times in upright position, except of course when tipped by the operator by rotation of the shank in the bearing plate 12 for pouring the metal from the ladle.

While I have shown and described my invention in a preferred form, I am aware that various changes and modifications may be made without departing from the principles of my invention, the scope of which is to be determined by the appended claims.

I claim as my invention:

1. In a device of the class described, the combination of a hanger having an apertured plate at the lower end, a ladle having a shank pivoted in the hanger plate adjacent the ladle, and provided with a plate at each side of the hanger plate, and means on one of the shank plates adapted to interlock with the hanger plate to hold the shank against pivotal movement in the hanger plate.

2. In a device of the class described, the combination of a ladle having a shank extending laterally therefrom, a pair of spaced upright plates on the shank adjacent the ladle, a hanger having an upright bearing plate at the lower end interposed between the spaced plates of the shank, and pivotally supporting the latter, and anti-friction bearings interposed between the bearing plate and one of the shank plates.

3. In a device of the class described, the combination of a ladle having a laterally extending shank with a handle at the outer end, and a pair of spaced upright plates adjacent the ladle, a hanger having an upright bearing plate at the lower end interposed between the shank plates, and pivotally supporting the shank, a plurality of apertures in the bearing plate, a dog on one of the shank plates adapted to engage said apertures so as to hold the shank against pivotal movement in the bearing plate, and means at the shank handle for controlling the operation of the dog.

4. In a device of the class described, the combination of a ladle having a laterally extending shank with spaced upright plates adjacent the ladle, a hanger having an upright bearing plate at the lower end interposed between the shank plates, and pivotally supporting the shank, roller bearings interposed between the bearing plate and one of the shank plates to facilitate pivotal movement of the shank in the bearing plate, means for interlocking one of the shank plates with the bearing plate, and an operating member for said means on the outer extremity of the shank.

5. In a device of the class described, the combination of a ladle having a laterally extending shank, a hanger swingingly supported at its upper end and pivoted to the ladle shank adjacent the ladle, said hanger

being offset over the ladle so that the center of gravity of the combined ladle shank and hanger is not substantially changed by variations in the contents of the ladle.

6. In a device of the class described, the combination of a ladle having a laterally extending arm, a hanger to which the arm is pivotally connected adjacent the ladle, and means connected with the hanger at a point at an elevation above and offset laterally over the ladle for supporting same so that the center of gravity of the supported structure is substantially unaffected by the variations in the contents of the ladle.

7. In a device of the class described, the combination of a ladle, a hanger extending upwardly at one side of and held in a fixed relative position with respect to the ladle, a handle extending laterally from the ladle at the opposite side of the hanger and means for suspending the hanger at a distance above the center of the ladle greater than the distance from the center of the ladle to the lower end of the hanger.

8. In a device of the class described, the combination of a rigid hanger, a ladle supported by the hanger at one side of the lower end of the latter, an arm extending laterally from the opposite side of and rotatable in the hanger for tipping the ladle sidewise, said hanger being connected with the ladle and handle to prevent movement of the combined ladle and handle relatively to the hanger in a vertical plane transverse to the plane of tipping operation of the ladle, said hanger being suspended at an elevated point above the ladle so that the center of gravity of the supported structure is substantially unaffected by variations in weight of the contents of the ladle.

9. In a device of the class described, the combination of a ladle having a laterally extending handle, a bearing at the side of the ladle for pivotally supporting the combined ladle and handle, and a rigid hanger projecting upwardly from said bearing, and having a pivotal connection at the upper end offset laterally over the ladle.

CLAYTON F. WELLS.