No. 680,139. Patented Aug. 6, 1901.

# G. M. FERRY & D. LAING.

## LADLE CAR.

(Application filed Nov. 26, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

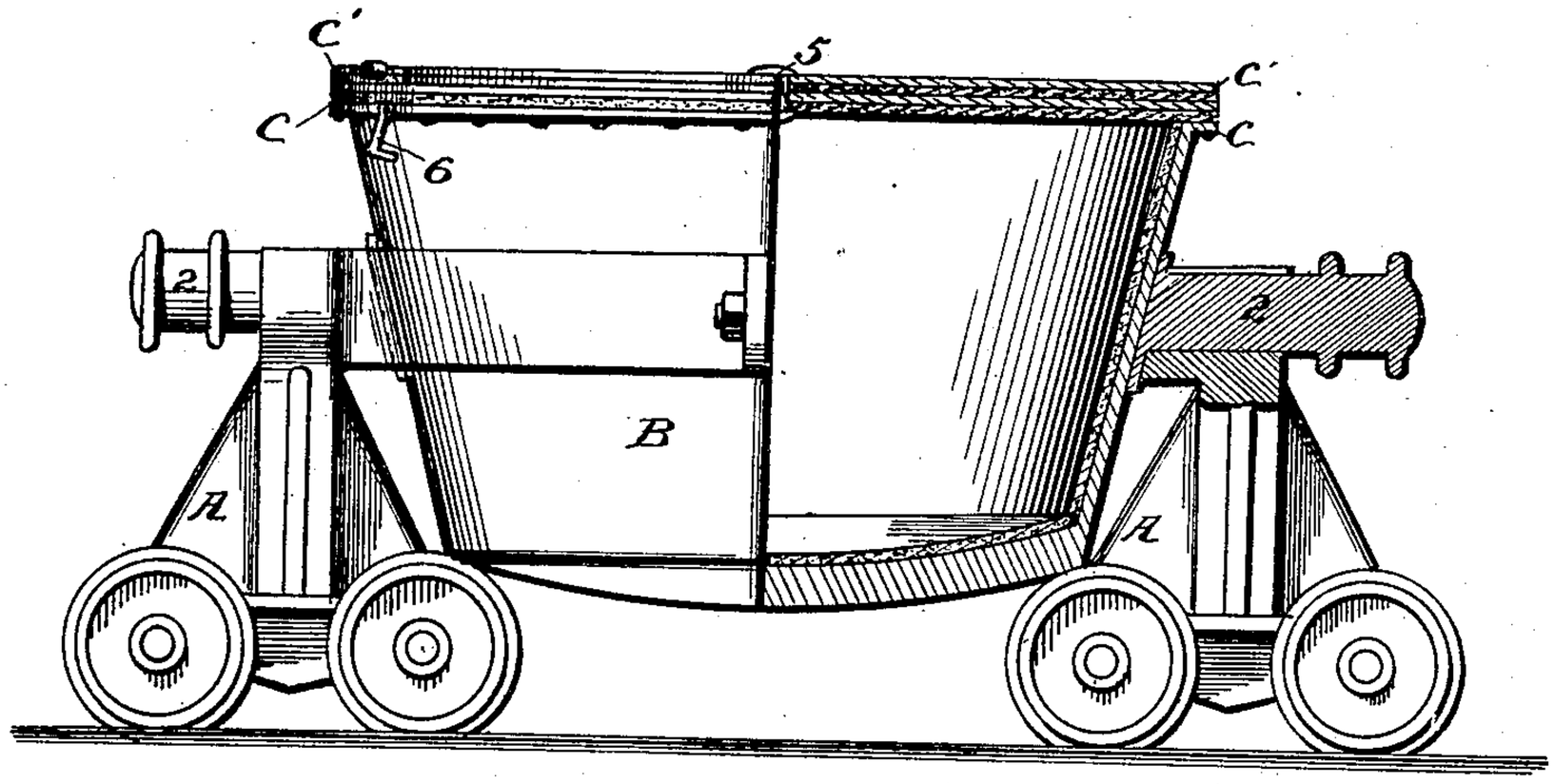


Fig. 2.

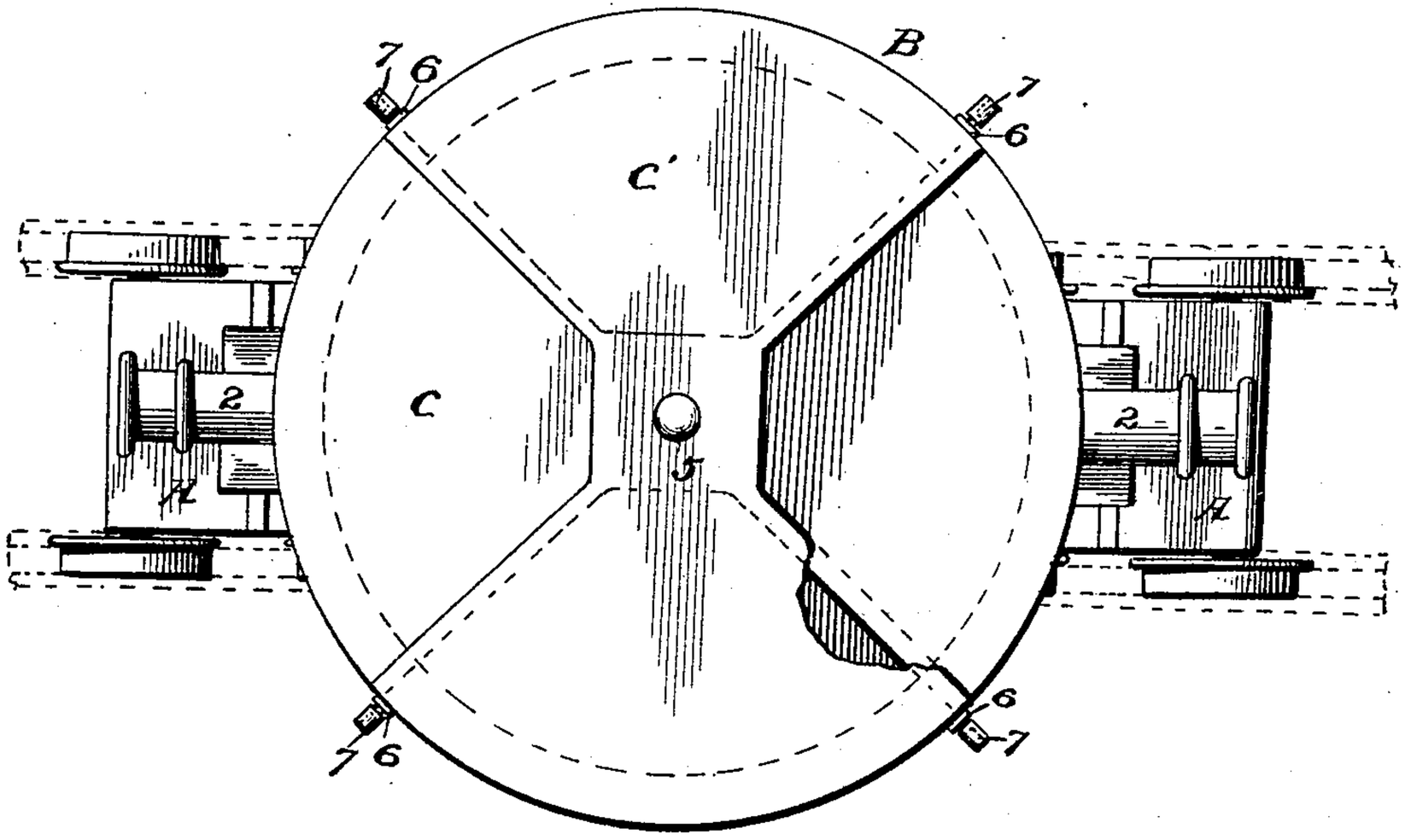


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*Fig. 3.*

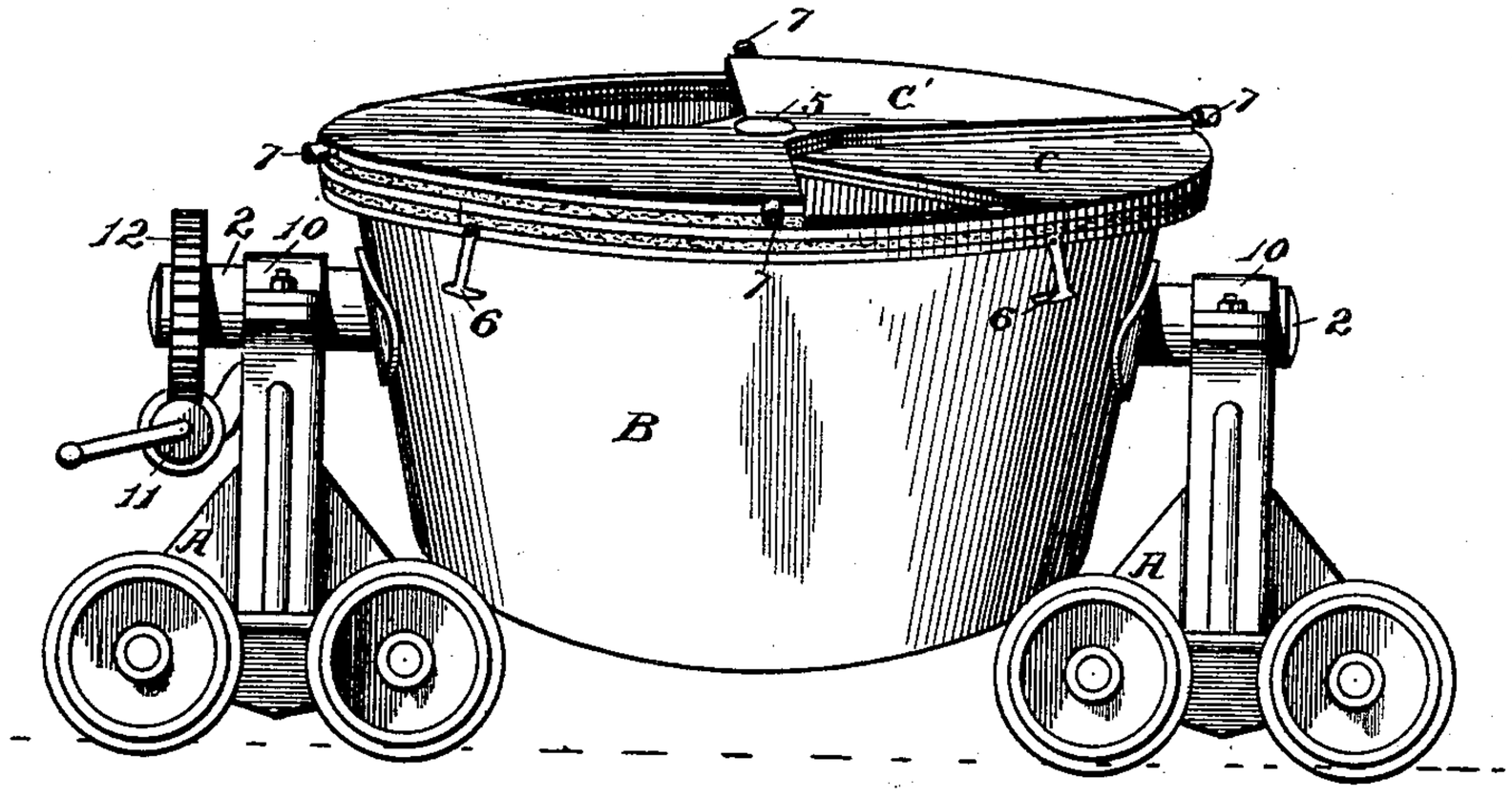
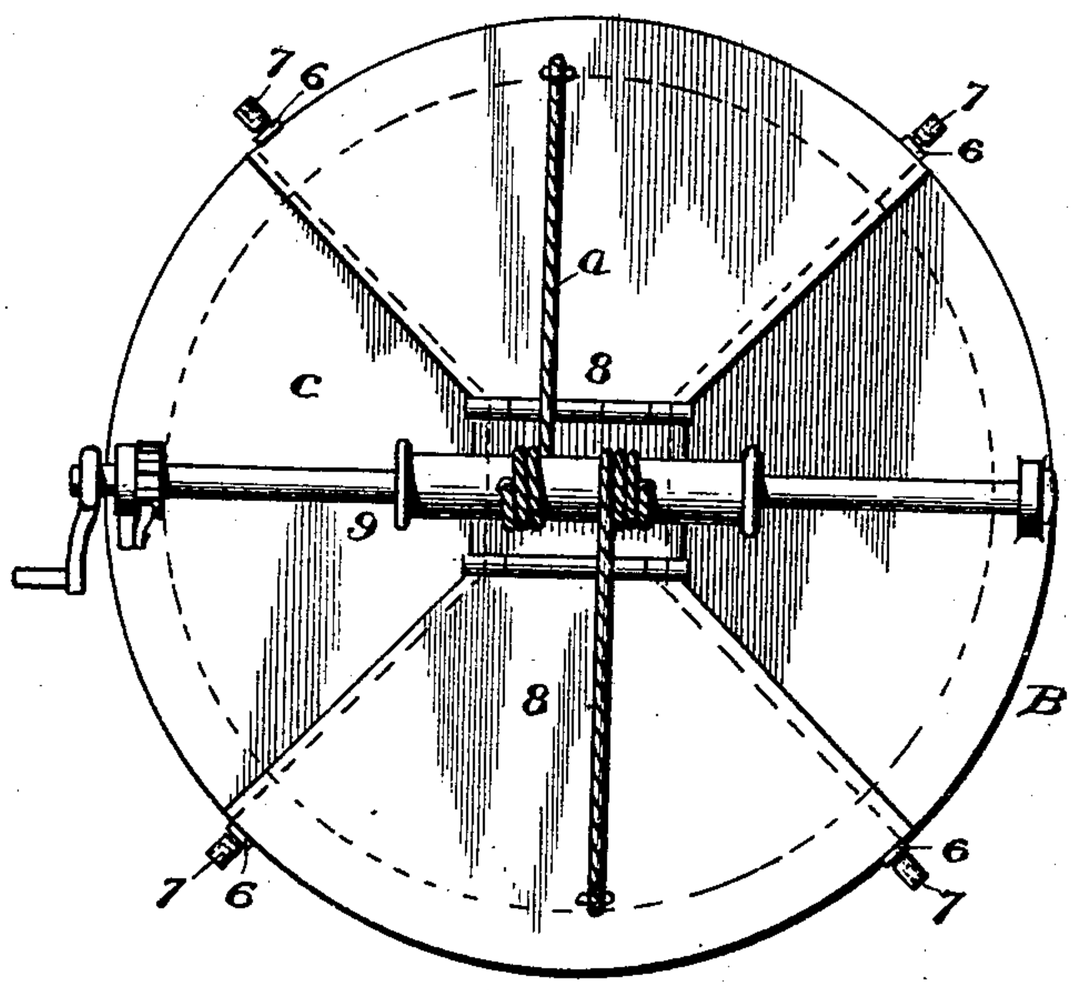



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

GEORGE M. FERRY AND DAVID LAING, OF DUQUESNE, PENNSYLVANIA.

## LADLE-CAR.

SPECIFICATION forming part of Letters Patent No. 680,139, dated August 6, 1901.

Application filed November 26, 1900. Serial No. 37,833. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE M. FERRY and DAVID LAING, citizens of the United States of America, and residents of Duquesne, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Ladle-Cars, of which the following is a specification.

Our invention relates to an improvement in ladle-cars, and more particularly to a cover for the ladle.

It is frequently necessary to convey the molten metal some distance from one furnace to the various apparatus employed in treating it. In so doing a certain percentage of the molten mass loses its fluidity and becomes hardened, accumulating on the lining of the ladle in the form of what is known as "ladle-scrap." In the output of a single furnace or plant the annual expense of recovering and remelting this ladle-scrap becomes an item of considerable magnitude. While it is not lost, it is necessary to dig it from the ladle, and this requires time and the attendant expense before it can be remelted. Not infrequently the removal of the scrap results in the injury of the lining to the extent that it becomes necessary to reline or patch the interior of the ladle with fire-brick or other refractory material.

It is the object of our invention to absolutely prevent this increased expense resulting from the hardening and reworking of a certain percentage of the metal, or at least materially reduce this percentage of loss.

In short, the desideratum is economy of production; and with this object in view our invention consists in a portable ladle having a lid or cover capable of opening at either side, whereby the molten metal can be poured out from one side or the other, as is found most convenient.

It further consists of certain novel features of construction and combinations of parts, which will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation, a part being broken away. Fig. 2 is a plan view. Fig. 3 is a view of a cinder-car with our improvements applied, and Fig. 4 is a modification.

A represents a truck, and B is a ladle removably supported therein and provided with trunnions 2 2 at the forward and rear ends by means of which the ladle is raised and tilted in either direction for pouring the metal.

C C′ indicate the lid-cover. This is preferably made of two plates substantially similar in general outline, as shown in Figs. 1 and 2. The plate C is stationary, it being secured at its ends to the upper edge of the ladle, at the front and rear thereof. The other plate C′, of corresponding shape, is pivoted at its center by means of a pin or bolt 5 to the center of plate C, whereby it is capable of turning in either direction, its object being to register with the plate C when the ladle is opened to pour the metal or to change it or to cover the openings formed in plate C when the ladle is closed.

Various means may be employed for locking the movable plate, and as a simple expedient for the purpose we have shown a latch 6, located at a convenient point on the ladle, or more than one latch may be used, if desired. On the movable plate one or more outwardly-projecting sockets 7 7 may be secured, and over these the latch or latches 6 swing to lock the movable plate either in open or closed position. The sockets serve another function, as the name implies, which is to receive an iron bar by which to swing the lid or cover back and forth as occasion may require the opening or closing of the ladle.

It will be understood that the movable plate C′ controls the openings in plate C, and when it is desired to either fill or empty the ladle this movable plate C′ is swung around to register with plate C, and during transportation the movable plate is given a quarter-turn to close the two openings simultaneously. In this way the contents of the ladle is sealed and exposure to the air is prevented and its fluidity is maintained, making it possible to pour the entire contents and avoiding the expense and trouble heretofore mentioned of removing the hardened metal which accumulates upon the linings when it becomes chilled by exposure to the air for any length of time. Furthermore, by thus closing the ladle the objectionable and dangerous splashing of the molten metal resulting from moving it from apparatus to apparatus in its process of treatment is absolutely precluded.

In Fig. 3 we have shown our improvement applied to a so-called "cinder-car," in which the ladle-trunnions are permanently journaled in bearings 10 10 in the truck-frame, and as a convenient means to an end a worm 11 and worm-gear 12 are used for tilting and locking the ladle while on the truck.

A slight alteration in the lid or cover is indicated in the modified form illustrated in Fig. 4, which consists in providing hinged lids 8 8, thus making them movable vertically instead of horizontally, as hereinbefore described. When this construction is employed, some means—such as a windlass 9, for instance, and a chain *a*—is used for raising and lowering either or both lids singly or simultaneously.

It is evident that other slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of our invention, and hence we do not wish to limit ourselves to the exact construction set forth; but,

Having thus described our invention fully, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a truck, of a ladle pivotally mounted therein, said ladle having oppositely-located openings, a lid for these openings, and means for simultaneously removing the lid from both openings.

2. A ladle having oppositely-located openings, a lid or cover for said openings and means for simultaneously removing the lid from both openings.

3. A ladle having a top with oppositely-located openings, lid for the openings, refractory lining for the top and lid and means for simultaneously removing the lid from both openings.

4. A ladle having a top with oppositely-located openings, lid for the openings, means for simultaneously removing the lid from both openings, and bearings located opposite each other and adjacent to the solid portion of the top.

5. The combination with a truck, a ladle pivoted thereon and means for swinging it in either direction to pour the metal contained therein, of a lid or cover composed of two plates, one stationary and having openings in its opposite sides and the other pivoted at its center to the center of the stationary plate and capable of swinging on its pivot whereby to simultaneously cover the openings in the stationary plate.

6. A ladle having a lid or cover thereon composed of a stationary plate having an opening therein, and a movable plate for covering or uncovering said opening, said movable plate provided with a socket, wherein to receive a bar for moving the plate and a catch adapted to engage the socket whereby to lock the movable plate.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE M. FERRY.
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Witnesses:
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