No. 733,253. PATENTED JULY 7, 1903.

M. McDOWELL.

LADLE TRUCK.

APPLICATION FILED JUNE 5, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

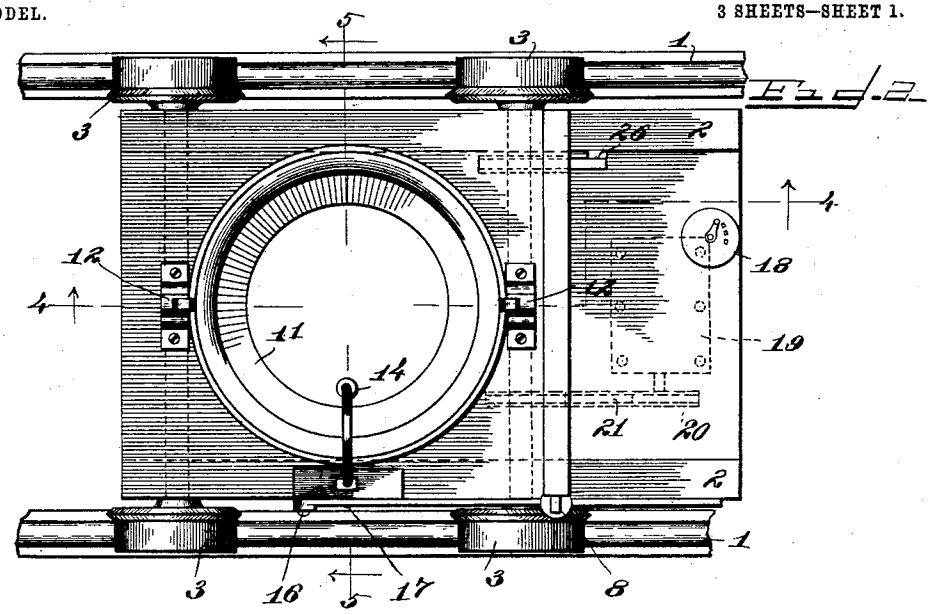


Fig. 2.

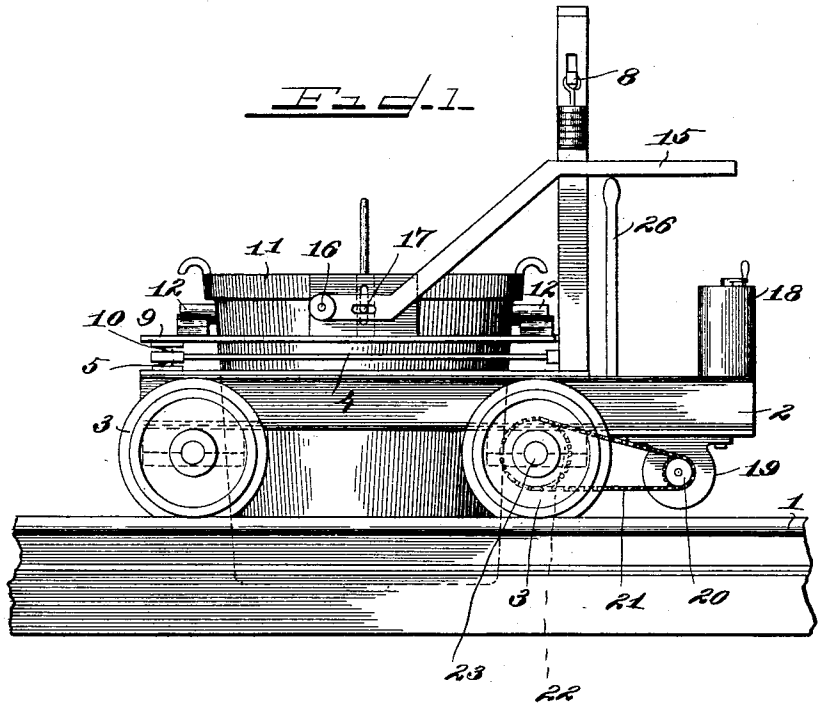


Fig. 1.

Witnesses.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 4.

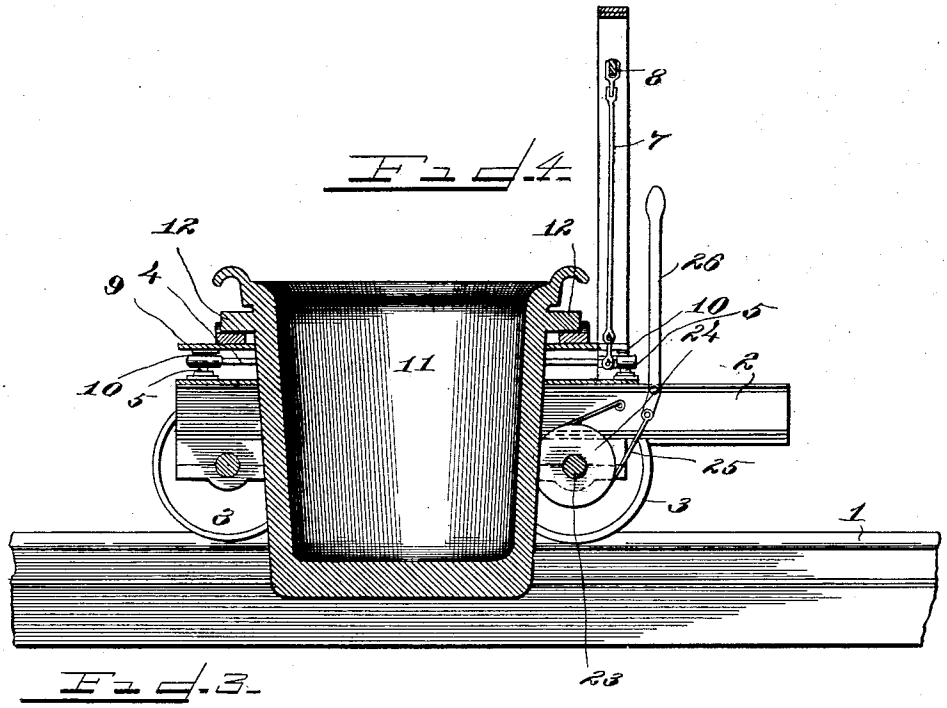


Fig. 3.

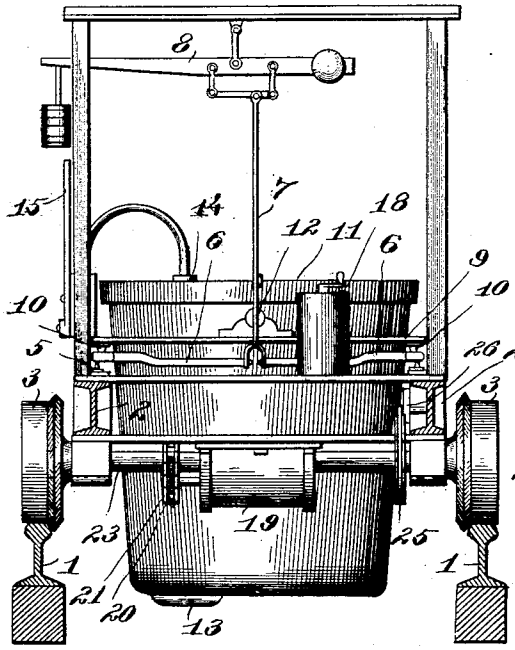
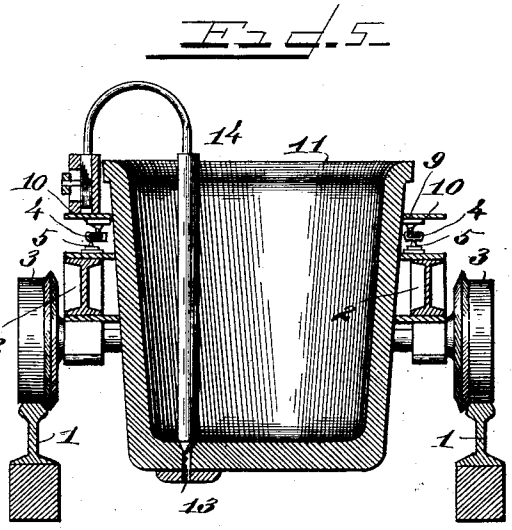


Fig. 5.



Witnesses.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 6.

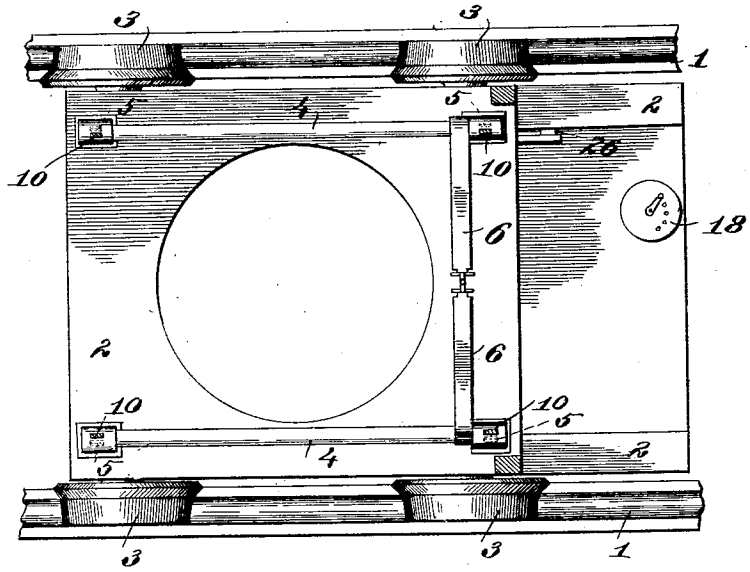
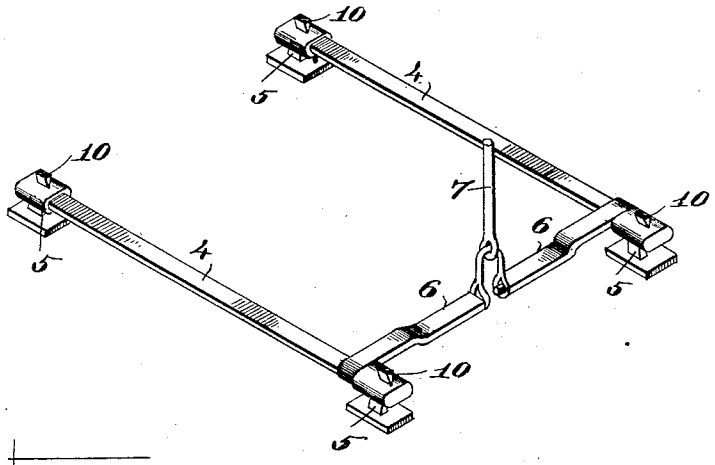


Fig. 7.



Witnesses—

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No. 733,253. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

MALCOLM McDOWELL, OF CHICAGO, ILLINOIS.

LADLE-TRUCK.

SPECIFICATION forming part of Letters Patent No. 733,253, dated July 7, 1903.

Application filed June 5, 1902. Serial No. 110,281. (No model.)

To all whom it may concern:

Be it known that I, MALCOLM McDOWELL, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ladle-Trucks, of which the following is a description.

My invention belongs to that class of devices designed to receive molten metal and transfer and deliver the same either for casting into ingots or billets or to one or more suitable apparatuses for further treating and reducing the same.

The object is to provide simple and effective means for so transferring the metal and delivering or distributing the same in measured quantities with exactness from the same charge in the ladle.

It also has in mind securing the results above set forth in a rapid and economical manner.

To this end my invention consists in the novel construction, arrangement, and combination of parts shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference-figures indicate like or corresponding parts, Figure 1 is a side elevation of my improved device. Fig. 2 is a top plan of the same. Fig. 3 is an end elevation of the same with the brake-lever broken away to show the construction. Fig. 4 is a longitudinal section in line 4 4 of Fig. 2. Fig. 5 is a transverse section in line 5 5 of Fig. 2. Fig. 6 is a detail plan of a simple weighing mechanism, and Fig. 7 is a perspective view of the same.

In the drawings, 1 1 represent the rails of a track extending to suitable molds, furnaces, or other apparatus. 2 is a truck-body supported upon wheels 3 3, adapted to run on the rails. The truck-body is provided with any preferred form of weighing mechanism. As shown, bars 4 4 are provided near their ends with knife-edge supports 5 5, permitting a rocking movement in a direction transverse to their length. Said bars are provided near one end with arms 6 6, secured thereto and extended to connect with the rod 7, controlling the operation of the scale-beam 8. A platform 9 rests upon knife-edge supports 10, positioned on the bars 4 4. The said supports 10 are offset and located within the vertical plane of the supports 5 5, so that any weight upon the platform 9 tends to rock said bars and oscillate the arms 6 6 and operate the beam 8.

A casting or distributing ladle 11 is supported on the platform, as at 12 12. The whole constitutes mechanism indicating the weight of the contents of the ladle at different periods. The ladle is preferably of the "bottom-pour" class, being provided with a draw-hole 13 and a plug 14, arranged to control the flow of metal through the same. Any preferred means may be employed to manipulate the plug 14. As shown in the drawings, a lever 15, pivotally supported, as at 16, engages an extension of the plug, as at 17, affording effective means to control the operation of the plug and the discharge of the metal.

As thus far described, the ladle being charged with a quantity of molten metal, the truck is moved along to a point over one of the ingot-molds, furnaces, or other apparatus, and the scales being set to indicate the quantity by weight of metal desired to discharge the plug 14 is raised, permitting the metal to flow through the hole 13 until the falling of the beam 8 indicates the desired quantity has been discharged. The plug is immediately reset, the truck moved along to the next mold, furnace, or point of discharge, and the operation repeated. It is obvious that by this means the metal may be distributed with exactness to furnaces, rotary ballers, or other apparatus, an important point in the casting, mixing, or manipulating of the material. Ingots cast in this manner will be of substantially uniform weight and dimensions, rendering them more easily handled and transported.

Any preferred means may be employed for controlling the motion of the car or truck. Thus it may be controlled entirely by hand or it may be provided with its own motor and suitable means for braking. Electricity, compressed air, or other well-known means may be employed to provide suitable power. As shown, an electric motor supplies the power. A storage battery (not shown) or its equivalent is provided with a controller 18, regulating the current to the motor 19, which trans-

mits the power through a sprocket 20 and chain 21 to the sprocket-wheel 22, secured to the axle 23, Figs. 1, 2, and 3. It is desirable that means be provided to brake the truck and hold it fixedly in any desired position. For this purpose any preferred means may be employed. As shown, Fig. 4, the axle 23 is provided with a pulley or friction-wheel 24. A band 25 embraces the periphery of the wheel, and a lever 26, connected to the band, affords an effective brake mechanism and complete control of the truck. The controller 18, lever 15, and brake-lever 26 are arranged near one another, so that a single operator may control the truck and the discharge of the metal, the truck preferably being provided with a platform or floor for the operator to stand on while so employed. The scale-beam 8 is also within easy reach, as shown, for the same purpose.

After thus describing my improvement it is obvious various immaterial modifications may be made without departing from the spirit of my invention. Hence I do not wish to be understood as limiting myself to the exact form and construction shown.

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

1. A device of the kind described, comprising portable weighing mechanism, in combination with a casting or distributing ladle, supported upon and carried thereby, substantially as described.

2. A device of the kind described, comprising a portable truck provided with weighing mechanism, in combination with a casting or distributing ladle supported upon and carried by the weighing mechanism and forming a part thereof, substantially as described.

3. A device of the kind described, comprising a portable truck provided with weighing mechanism, in combination with a "bottom-pour" casting or distributing ladle supported upon and carried by the weighing mechanism and forming a part thereof, and means for controlling the discharge of the molten metal from the ladle.

4. A device of the kind described, comprising a portable truck provided with weighing mechanism, in combination with a "bottom-pour" casting or distributing ladle supported upon and carried by the weighing mechanism and forming a part thereof, a vertically-movable plug controlling the discharge from said ladle, and means for vertically moving said plug.

5. A device of the kind described, comprising a truck provided with weighing mechanism, and means for propelling and controlling the movement of said truck, in combination with a casting or distributing ladle supported upon the weighing mechanism and forming a part thereof.

6. A device of the kind described, comprising a truck provided with weighing mechanism, and means for propelling and controlling the movement of said truck, in combination with a "bottom-pour" casting or distributing ladle supported on and forming a part of said weighing mechanism, and means for controlling the discharge from said ladle.

7. A device of the kind described, comprising a truck provided with weighing mechanism, a motor arranged to propel said truck, and a controller governing the operation of said motor, in combination with a casting or distributing ladle supported on and forming a part of said weighing mechanism and means for controlling the discharge from said ladle.

8. A device of the kind described, comprising a truck provided with weighing mechanism, a motor arranged to propel said truck, a controller governing the operation of said motor, and brake mechanism for said truck, in combination with a casting or distributing ladle supported on and forming a part of the weighing mechanism, and means for controlling the discharge from said ladle.

9. A device of the kind described, comprising a truck provided with weighing mechanism, an electric motor arranged to propel said truck, a controller governing the operation of said motor, means for supplying electrical energy to the motor, and brake mechanism for the truck, in combination with a casting or distributing ladle supported on and forming a part of the weighing mechanism, and means for controlling the discharge from the ladle.

10. A device of the kind described, comprising a truck provided with weighing mechanism, a motor arranged to propel said truck, a controller for governing the operation of said motor, brake mechanism for said truck, a brake-lever for controlling the same and an operator's platform on said truck, in combination with a casting or distributing ladle supported on and forming a part of the weighing mechanism, and means for controlling the discharge from the ladle.

11. A device of the kind described, comprising a truck provided with weighing mechanism, a motor arranged to propel said truck, a controller governing the operation of said motor, brake mechanism for said truck, a brake-lever controlling the same, and an operator's platform carried by the truck, in combination with a casting or distributing ladle supported on and forming a part of the weighing mechanism and a lever controlling the discharge from the ladle, the scale-beam, brake-lever, controller and discharge-lever being arranged in convenient proximity with the operator's platform, substantially as described.

MALCOLM McDOWELL.

Witnesses:
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CHARLES I. COBB.