(No Model.) 4 Sheets—Sheet 1.

J. KENNEDY.

CINDER CAR FOR BLAST FURNACES.

No. 266,480. Patented Oct. 24, 1882.

Fig. 1.

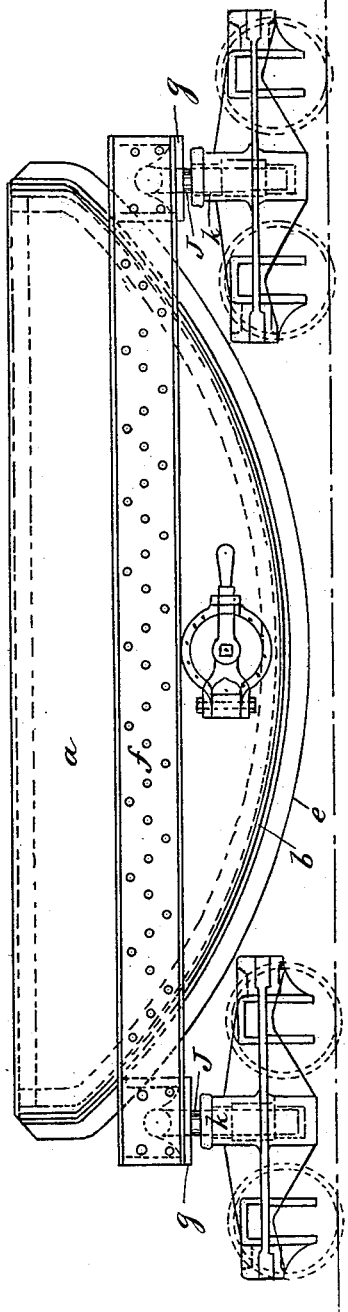

Fig. 2.

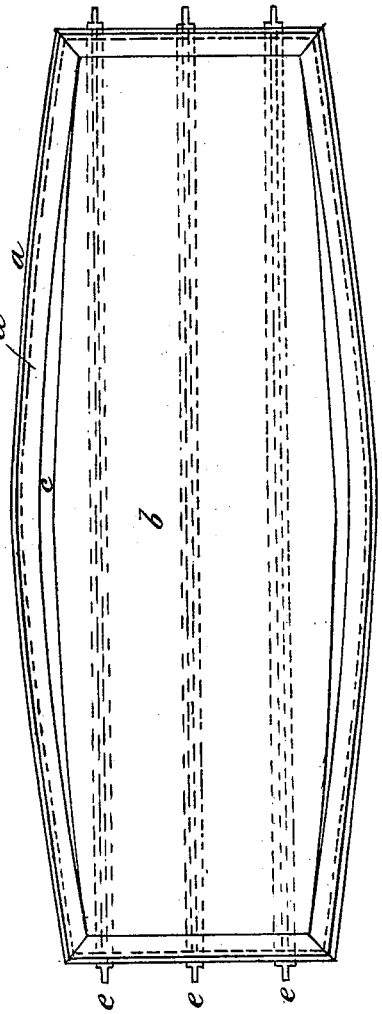

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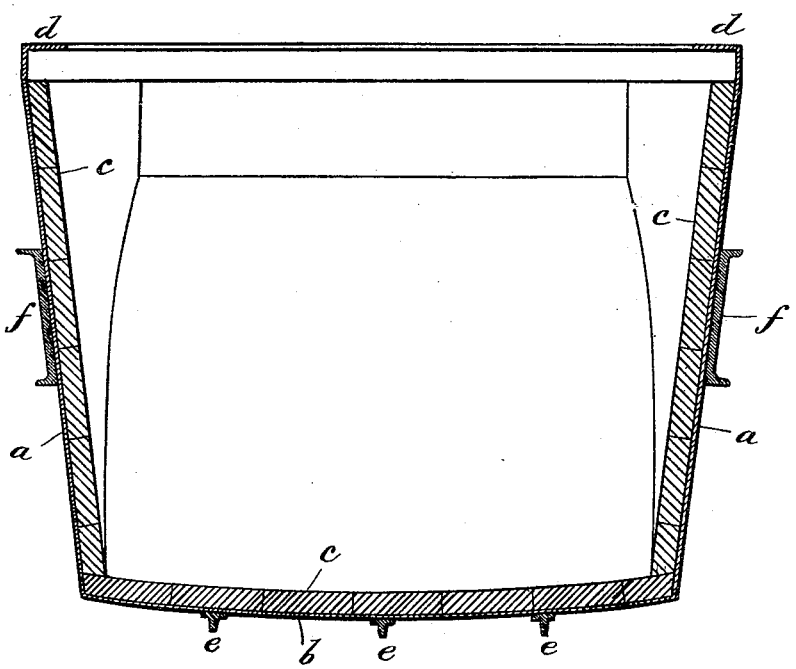
Fig. 3.



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(No Model.) 4 Sheets—Sheet 3.

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CINDER CAR FOR BLAST FURNACES.

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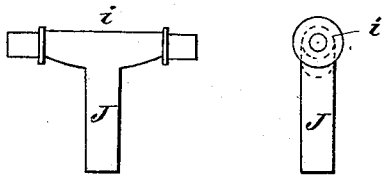
Fig. 4.



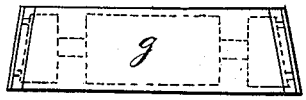


Fig. 5.

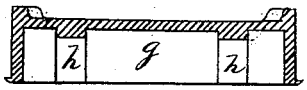


Fig. 6.

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(No Model.) 4 Sheets—Sheet 4.

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CINDER CAR FOR BLAST FURNACES.

No. 266,480. Patented Oct. 24, 1882.

Fig. 7.

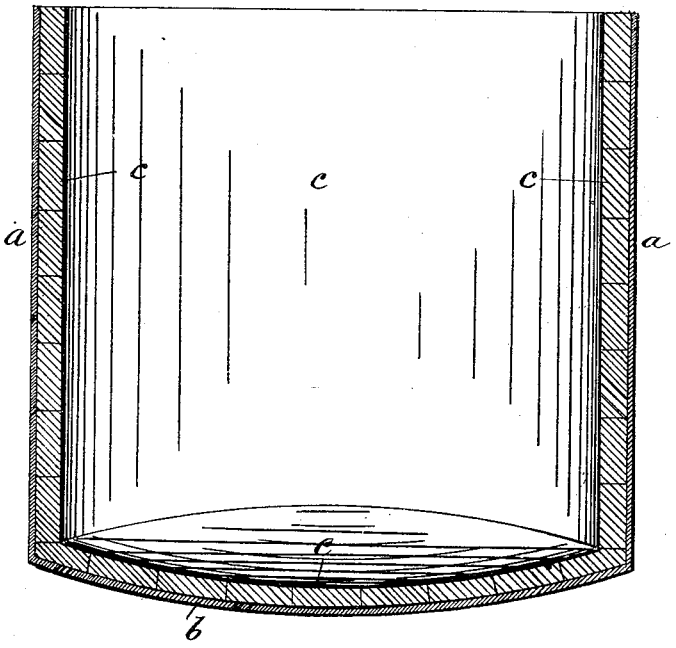
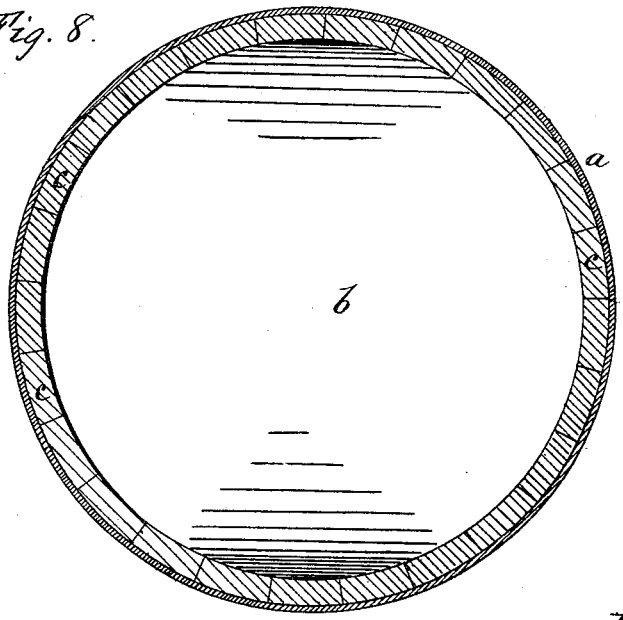


Fig. 8.



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UNITED STATES PATENT OFFICE.

JULIAN KENNEDY, OF BRADDOCK, PENNSYLVANIA.

CINDER-CAR FOR BLAST-FURNACES.

SPECIFICATION forming part of Letters Patent No. 266,480, dated October 24, 1882.

Application filed Jun 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, JULIAN KENNEDY, of Braddock, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Cinder-Cars for Blast-Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a side elevation of my improved cinder-car. Fig. 2 is a plan of the car-body. Fig. 3 is an enlarged transverse vertical section of Fig. 2. Fig. 4 shows a front elevation and end view of the T-headed center post. Fig. 5 shows respectively a bottom view and longitudinal vertical section of the bolster, and Fig. 6 a transverse section of the same. Figs. 7 and 8 are respectively a vertical section and horizontal section of a modified car-body.

This invention relates to that branch of blast-furnace equipment known commonly as a "cinder-car"—a car usually composed of a cast-iron box set on a truck. The usual practice is to tap the cinder into this box, then move it into the open air, and after it has cooled sufficiently to solidify the cinder or slag remove the latter by dumping the box or body or by lifting out the cake of cinder by means of a hook inserted in the mass while liquid and anchored therein by solidification of the slag. This practice demands a small car which can be handled in the described manner, and renders difficult the subsequent disposition of the large cakes. Besides, in the modern practice of the blast-furnace the flow of cinder is sometimes so great that it cannot be handled by these small cars.

The object of this invention is to provide a form of car which permits of construction on a large scale while facilitating the disposal of its contents.

To these and other ends my invention consists in constructing the car-body with arched sides and bottom of plate-iron and lining the same with fire-brick, whereby the lining is prevented from floating out of position when the car is full of cinder; further, in providing the car with a large swinging door at its lowest level; and, further, in the construction and arrangement of parts, substantially as hereinafter described and claimed.

I form a shell of plate-iron, consisting of the sides *a* and bottom *b*. The bottom *b* has a double curvature, sweeping in one curve from end to end and another curve from side to side. The sides *a* incline inwardly to a slight extent from top to bottom, and are curved from end to end. All these curvatures are arranged with the concavity toward the interior of the car. Thus constructed, a lining, *c*, of fire-brick is set on the bottom and built along the sides, and the arched form of both bottom and sides prevents the bricks *c* from becoming detached and floating out when the car is filled with the molten cinder. The side linings are held in place by the angle-iron *d*, which is set on around the upper edge of the car. The bottom is re-enforced by the T-iron stiffening-ribs *e*. Having in view the preservation of the lining by giving it the form of an arch, it is obvious that such form may be produced in a variety of ways, all within the scope of this invention. As an illustration, the sides *a* may take the form of a cylinder, as shown at Figs. 7 and 8, and the bottom arched in either double or single curvature. This form may be advantageously used on broad-gage tracks.

To the sides *a* of the car-body I rivet the channel-bars *f*, which conform in curvature and are as much longer than the body as will permit of the bolting between them of the bolsters *g*. These are of cast-iron, and are fixed firmly in position. Near each end of the bolster *g*, I cast the web *h*, open on the under edge to form a bearing for the T-head *i* of the center post, J, which allows a free vertical play to either end of the car without straining any of its members. The trucks are each formed with a socket, *k*, to receive the center post, J, thereby allowing the horizontal sway required in going around very sharp curves. The car is thus arranged to accommodate itself to all curvatures and inequalities of track.

By the foregoing construction I can build a car capable of taking ten or twelve tons of slag at one time; but as such a mass cannot be conveniently dumped or emptied by the crane, I construct it with a large door, M, at the lowest point on one side, as shown. When the car has arrived at the cinder-dump the door M is opened and the contents of the car flows out

rapidly, since the mass of cinder is so great that it remains fluid for a long period after its discharge from the furnace.

I claim as my invention—

1. A cinder-car body composed of plate-iron shell and lining of refractory blocks, the sides and bottom being arched throughout, substantially as described.

2. A cinder-car body having its sides composed of plate-iron lined with refractory blocks, both sides and lining being arched, substantially as described.

3. A cinder-car body having its bottom composed of plate-iron lined with refractory blocks, both bottom and lining being arched, substantially as described.

4. A car-body having the inclined sides *a* arched, as described, throughout, in combination with the curved channel-bars *f* and suitable bolsters, substantially as set forth.

5. In a car, the combination of the bolsters *g*, having bearings *h* and attached to the car-body trucks, having vertical socket *k* and T-headed center post, *i* J, substantially as described.

6. A cinder-car having the plate-iron sides *a*, continuously-arched refractory lining *c*, and angle-irons *d* to retain the lining, substantially as described.

7. A cinder-car having the plate-iron sides and continuously-arched refractory lining, with an opening or openings in said sides and a door therefor, substantially as described, whereby the fluid cinder may be quickly discharged.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JULIAN KENNEDY.

Witnesses:
T. J. McTIGHE,
D. E. DAVIS.