

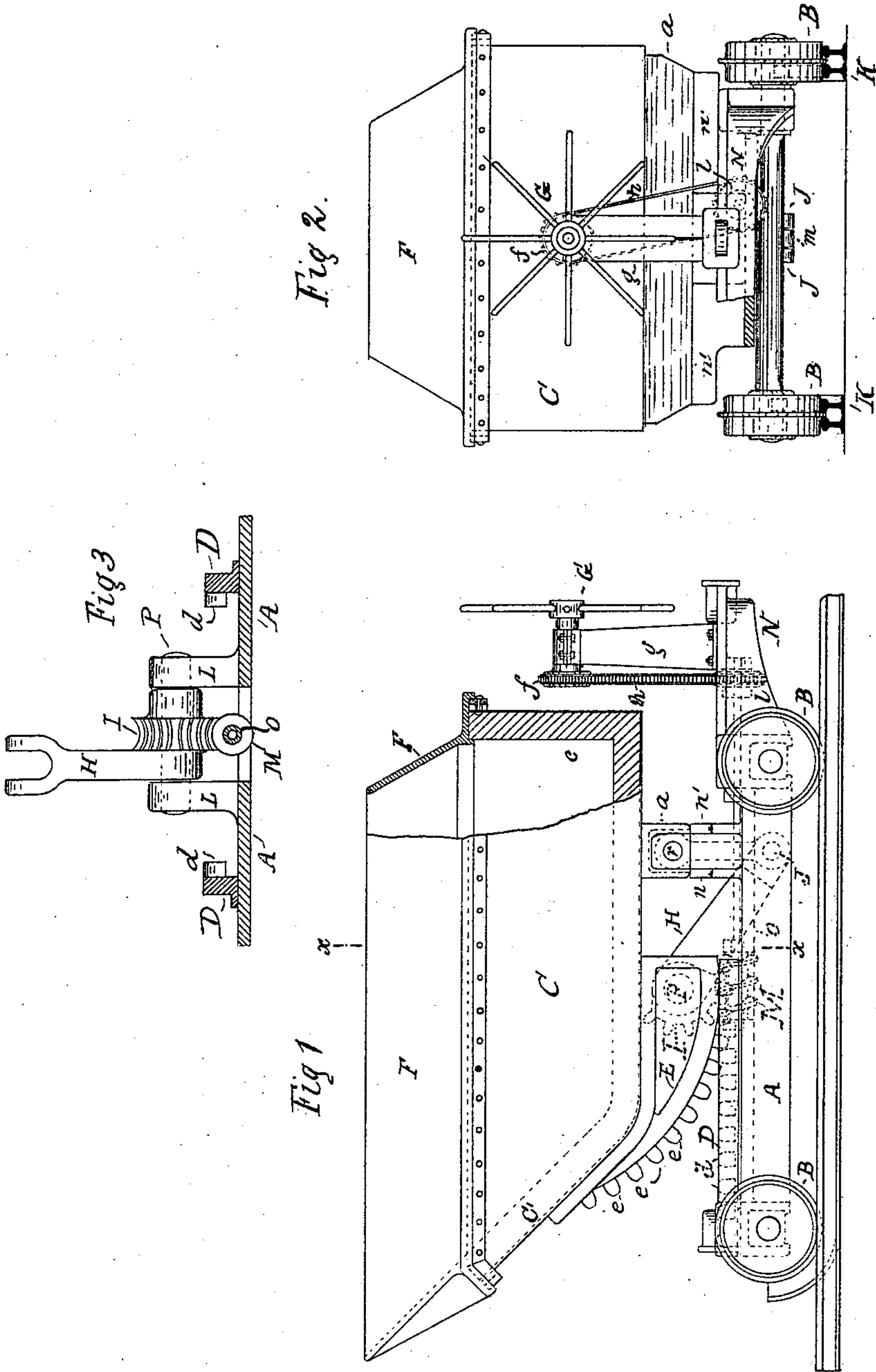
(No Model.)

J. M. HARTMAN.

DUMPING CAR.

No. 321,024.

Patented June 30, 1885.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN M. HARTMAN, OF PHILADELPHIA, PENNSYLVANIA.

## DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 321,024, dated June 30, 1885.

Application filed March 14, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. HARTMAN, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Cars for Transporting and Dumping Liquid Cinder, of which improvements, the following is a specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a view in side elevation of the car and truck, a portion of the car-body being shown in vertical section. Fig. 2 is an end elevation of the same; and Fig. 3 is a partial transverse section on the line *x x* of Fig. 1, showing the details of the tilting mechanism as seen from the rear when the car is tilted forward in an extreme position.

In cinder-cars as heretofore constructed it has been usual to swing the car-body upon trunnions arranged at the sides or ends. This mode of construction takes up so much room for the bearings and dumping mechanism that the car-body is necessarily of small size compared with the gage or the length of the truck. Furthermore, the suspension of the car-body upon trunnions permits the body to sag when loaded, and the exposure of the gearing at the sides, &c., renders it liable to be destroyed by the melted cinder falling thereon. To obviate these objections I support the car-body from beneath upon a rolling hinge so constructed as that the center of gravity shall always be maintained within the line of support at the dumping end of the truck, thus not only permitting the car-body to occupy the full width of the truck, but covering and shielding all the moving parts.

My improvements also relate to the construction of the car-body itself in the following particulars: Instead of constructing the body in hemispherical or cubical form, with the sides practically vertical near the top, and lining the interior throughout with brick, as has heretofore been customary, I make the front end with a sharp inclination and use it as a spout to pour out the cinder. Furthermore, I stop the lining at a point some distance below the top and construct the top edge or rim of removable plates of cast-iron, preferably overhanging the interior. By this

means I avoid the "skull" or hardened surface which forms on top of the cinder from accumulating around the rim. Where it is in contact with a brick surface this skull adheres very fast thereto and rapidly increases, requiring to be dug off several times in the course of a day, and occasioning the destruction of the lining. It will not, however, adhere strongly to the cast iron, and as the plates overhang, the small amount that does remain drops off on cooling, and is taken out in the next flush of cinder.

In the drawings, A represents the car-truck, provided with double tread-wheels B, to permit the use of temporary tracks K K for extension of the line.

Along each side of the truck, and extending from a point over the front axle to a point slightly in rear of the truck-center, are raised strips or rails D D, of iron, having a series of teeth or cogs, *d d*, on their inner sides.

Near the rear axle of the truck are two transverse girders or beams, *n n'*, extending across from side to side. These serve as supports for the rear end of the car-body when in its horizontal position, the front end being at all times supported upon the rails D D, in a manner which will presently be described.

The car-body C is constructed of iron, with three sides vertical and the front C' inclined, the interior being covered with a fire-brick lining, *c*, to the extent shown.

Above the lined portion are the overhanging plates F, of cast-iron, which form the top edge or rim of the body.

A transverse hollow beam, *a*, is secured across the bottom of the body C, near its rear end, and when the car is in a horizontal position rests upon the girders *n n'*.

The front end of the body is supported by means of the two segments E, arranged along the bottom on each side.

The periphery of the segments rests upon the rails D, and on the inner side of each segment are radially-projecting teeth *e*, which engage with the lateral teeth *d* of the rails.

When the car is tilted forward so as to discharge its contents, the segments E rock upon the rails D, and the engaging of the teeth prevents them from slipping.



The tilting mechanism is constructed and operated as follows: Upon the rear end of the truck is a projecting platform, N, having a vertical post, *g*, carrying a hand-wheel, G, which is provided with a chain-gearing, *f h l*. This gearing actuates the shaft *o* of a screw, M, (see dotted lines, Fig. 1,) which engages with a worm-wheel sector, I, secured to a horizontal transverse shaft, P. This shaft P turns in bearings L L, mounted upon the truck A between the rails D D, (see Fig. 3,) and carries a lever-arm, H, rigidly attached to the shaft. The other end of the lever H is slotted to receive the end of a link, *m*, pivoted thereto at J, and also pivoted at *r* within the girder *a*, which, as before stated, is fastened to the bottom of the car-body. The link *m* and arm H thus form a jointed lever, which affords the play rendered necessary by the peculiar tilting movement.

In order to tilt the car-body forward, the hand-wheel G is turned to the right in Fig. 2, thus actuating the screw M and revolving the sector I downward, so as to raise the lever-arm H. This movement raises the rear end of the car-body C by means of the link *m* and rocks the sectors E forward upon the rails. The movement of the lever-arm H continues until it is nearly vertical, (in which position it is shown in Fig. 3;) but at no time does the center of gravity of the load pass forward of the front axle of the truck, although the front point of support moves constantly forward. When the contents have been discharged, the hand-wheel G is turned in the op-

posite direction, and allows the body C to descend until the sides of the girder *a* rest upon the girders *n n'*. These movements are all effected with a minimum expenditure of power, and the proper projection of the dump is obtained without any sensible displacement of the car-body relatively to the truck.

Having thus described my invention, I claim, in a cinder dump-car, the following combination of parts:

1. The combination of the body, toothed sectors attached thereto, toothed rails D, arranged upon the truck beneath said sectors, the jointed lever attached to the rear portion of the car, and means whereby said lever is raised, substantially in the manner and for the purposes set forth.

2. The combination, with a car-body supported upon sectors and rails which terminate in rear of the front axle of the truck, and having suitable tilting mechanism applied at the rear end of said body, of an inclined end or spout extending forward beyond said axle, whereby a maximum projection of the load is effected without bringing the center of gravity forward of the axle.

3. The combination of the car-body having a fire-brick lining which terminates below the top thereof, and the removable cast-iron plates F, arranged above the lined portion, substantially as set forth.

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Witnesses:

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