2 Sheets—Sheet 1.

M. VAN WORMER.

DUMPING-CAR.

No. 193,101. Patented July 17, 1877.

Fig 1.

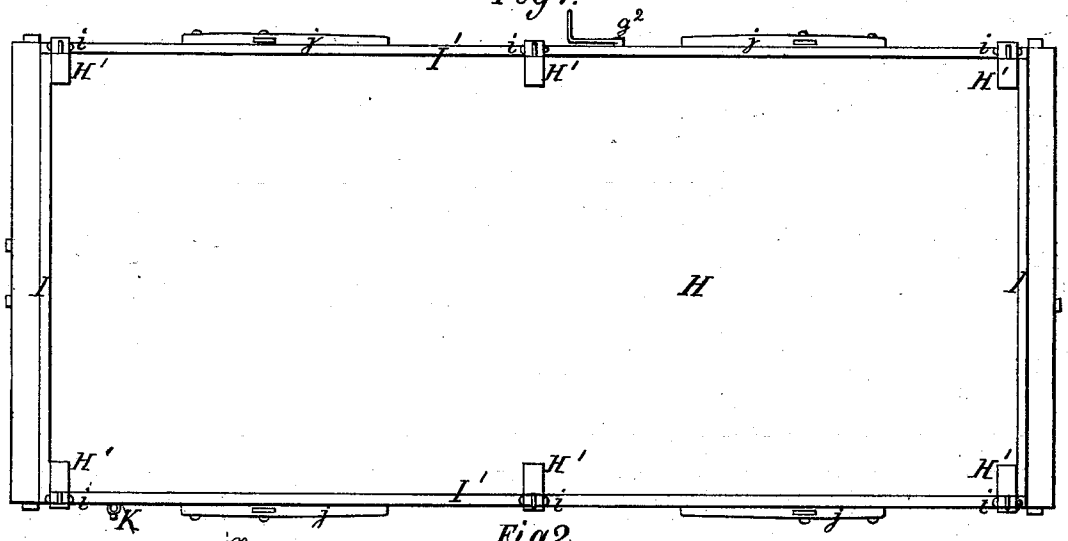


Fig 2.

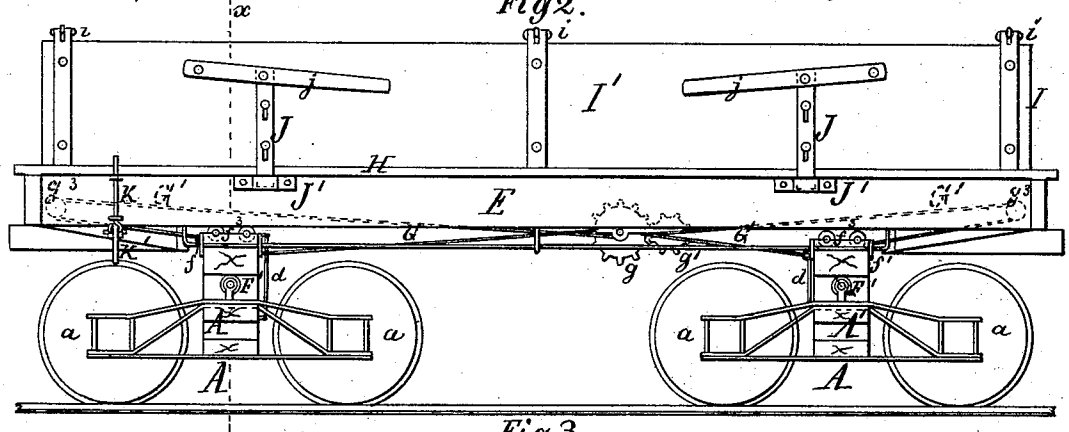
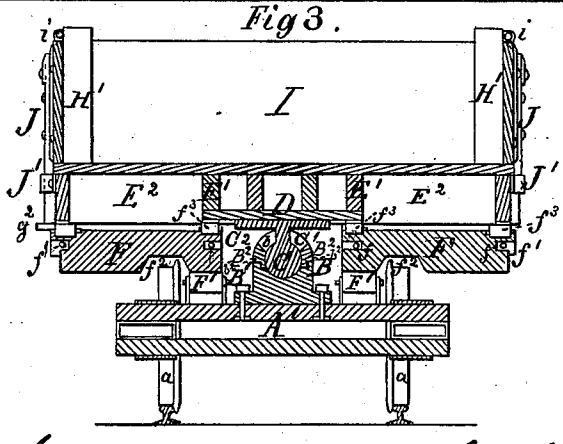


Fig 3.



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2 Sheets—Sheet 2.

M. VAN WORMER.

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Fig 4.

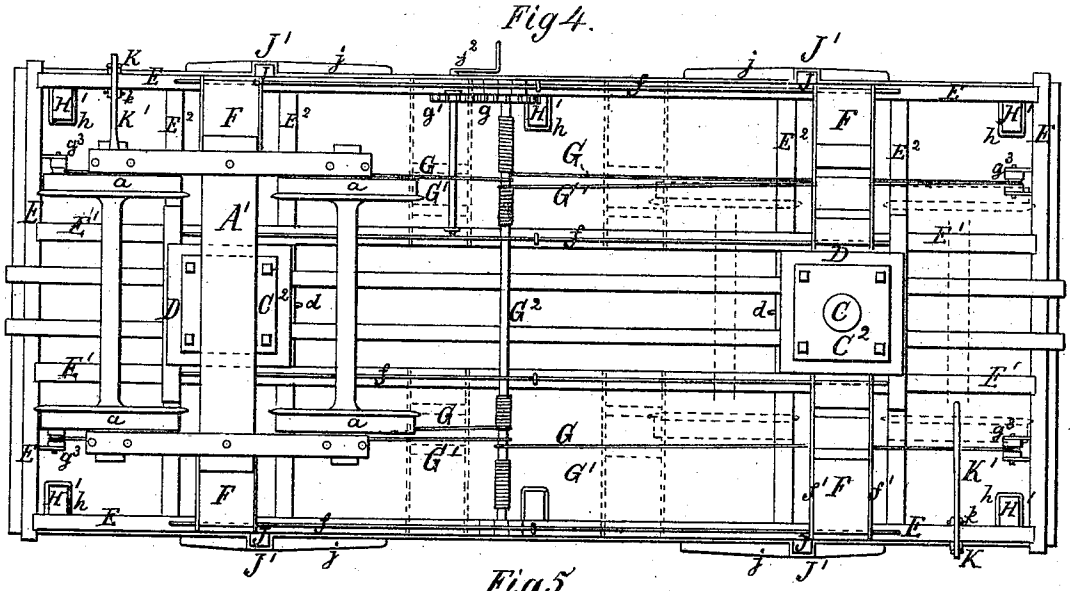


Fig 5.

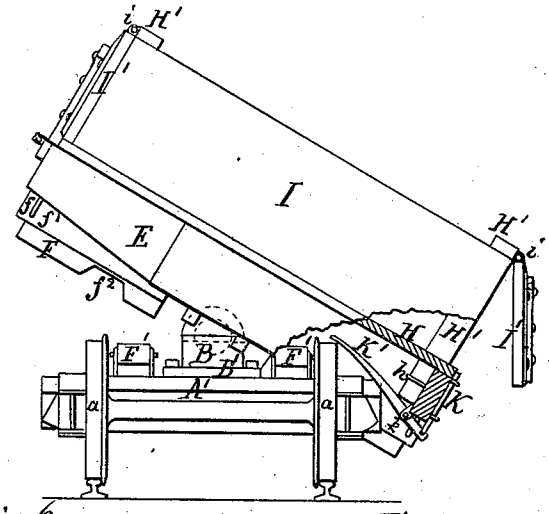


Fig 6.

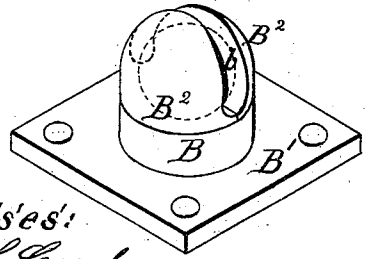
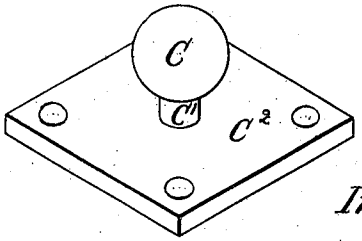


Fig 7.



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UNITED STATES PATENT OFFICE.

MATTHEW VAN WORMER, OF DAYTON, OHIO.

IMPROVEMENT IN DUMPING-CARS.

Specification forming part of Letters Patent No. **193,101**, dated July 17, 1877; application filed May 15, 1877.

To all whom it may concern:

Be it known that I, MATTHEW VAN WORMER, of Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Improvement in Dump-Cars, which improvement is fully set forth in the following specification and accompanying drawings, in which latter—

Figure 1 is a top view of one of my improved dump-cars. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical cross-section in the line *x x* of Fig. 2. Fig. 4 is a bottom view of the same. Fig. 5 is an end view of the car in the act of dumping, one part being broken away to exhibit the gate-operating mechanism. Fig. 6 is a perspective view of the bearing of the king-bolt used in my dumping-car. Fig. 7 is a perspective view of the king-bolt used in my dumping-car.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts hereafter fully described and specifically claimed.

In the drawings, A represents a truck, such as is ordinarily used for gondola-cars, having four wheels, *a*, and spring-bed A′, generally termed "cross-timber." Upon two trucks of this description the car-bed rests, and it is fastened thereto by means of universal joints, serving as king-bolts and dumping-bolts. The cross-timber A′ has a socket, B, with a flange, B^1, fastened to it in a central position. The said socket B incloses a ball-head, C, which forms the lower end of the king-bolt C^1. A plate or flange, C^2, is attached to the king-bolt C^1, so that it may be conveniently fastened to a plate, D, on the lower part of the car-frame. The socket B is provided with a transverse slot, *b*, (shown in Fig. 6,) which permits a lateral inclination of the king-bolt and car-body of about forty-five degrees.

The king-bolt C^1, its ball end C, and plate C^2 may be cast or wrought in one piece, as shown, and the socket B contains the bearing of the lower part of the ball C, the upper part of which is covered by two crown-pieces, B^2, fitted upon the socket B by means of a step, b^2, and suitably fastened with bolts or otherwise.

The outer car-frame E is made in the ordinary manner, but is provided with a special cross-shaped dumping-frame, consisting of a number of longitudinal bars, E^1, strengthened above each truck by means of two cross-bars, E^2, with which they are interlocked, the whole of them being securely fastened to the frame E. The cross-bars E^2 are at such distance from each other that when the car is dumped they have the cross-timber A′ of the truck between them, without touching either it or the wheels *a*. The oblong space formed by the crossing of the bars E^1 and E^2 is bridged over by the plate D, which is well fastened to the same, and thereby furnishes a firm connection between the car and its described king-bolt. A staple or chain, *d*, may be fastened between and to one of the cross-bars E^2 and the cross-timber A′, to prevent the truck A from running off if the king-bolt should break.

The car-body is kept in horizontal position by means of transverse slides F, placed between it and the cross-timber A′, and held to the lower surfaces of the car-frame by means of longitudinal guide-rods *f*, which pass either through the said slides or through metallic bearings f^1, attached to the said slides.

To prevent the slides F from striking the wheels *a* when the slide is drawn out so the car may dump, I provide them with cross-channels f^2, of appropriate depth and width.

The cross-timber A has at each side of the socket B a strong friction-roller, F′, by which the slides F are supported without wear when either the slide or the truck moves independently of the other.

Each slide F may be provided at its top with friction-rollers f^3, which bear and travel upon the lower surfaces of the car-frame E and the longitudinal bars E^1.

The tracks of the said rollers F′ f^3 upon the slides F and the car-frame E and bars E^1 may be lined with metal to prevent the wearing away of the wood.

The slides F are moved from and toward the cross-timbers A′ by means of cords or chains G G^1, as seen in Fig. 4. A shaft, G^2, having a wheel, *g*, which is moved by a pinion, g^1, on a crank-shaft, g^2, serves as the drum for winding the said cords or chains upon it, and thereby moving the slides F. The cords G are fastened directly to the shaft G^2 and slides F, and serve to pull the slides from the cross-

timbers of the trucks preparatory to dumping. The cords G^1 are also fastened to the shaft G^2; but they are passed around pulleys g^3 at the ends of the car, and then fastened to the outer sides of the slides F, and they thus serve to pull the slides to their normal position upon the cross-timbers A′. As the car is dumped to one side only at a time, the cords G G^1 of the opposite side are either detached from the corresponding slides, or the car may be provided with one separate shaft, G^2, for each side of the car, in which case another crank-shaft, g^2, is placed on the other side.

The car-body is provided with a flooring, H, fastened upon the frame E and the bars E^1 E^2, and a number of stakes, H′, are inserted in the floor, and are fastened below, by means of staples *h*, to the inner sides of the frame E.

The end-boards I of the car-body are fastened to the stakes, but the side-boards I′ are hinged to the tops of the stakes H′ at *i*, as seen in Figs. 1, 2, 3, 5, so that they may swing outward.

I have shown one board, I′, at each side of the car; but it is more advantageous in cars of great length to have two such boards at each side.

Each side-board I′ is provided with one or more draw-bolts, J, operated by levers *j*, whereby the lower part of the side-board may be fastened in its normal position by pushing the draw-bolt J down into a socket, J′, on the car-frame E.

A draw-bolt, K, is fastened to the side of the car-frame, which, in its normal position, projects above the floor H, and thereby keeps the side-boards or gates I′ closed.

The draw-bolt K is provided with an operating-lever, K′, pivoted at *k* to the car-frame, and being so shaped that when the car is dumped it strikes one of the wheels *a*, and thereby withdraws the draw-bolt K below the bottom surface of the car, thereby permitting the board I′ to swing off, as shown in Fig. 5.

Operation: When the loaded car arrives at its destination, the bolts J of the dumping side are withdrawn from the sockets J′. By turning the crank g^2 on the opposite side the corresponding slides F are moved off the cross-timbers A′, and the car is deprived of its support on the dumping side, and it instantly dumps either of itself or by means of a slight lift on the other side. Near the end of the dumping the lever K comes in contact with the wheel *a*, and by thus moving the draw-bolt K down liberates the board I′, whereupon the load in the car is discharged. The car-body is then swung back in its horizontal position, and the slides F, by reversing the movement of the crank g^2, are moved back to their normal position, for holding the car-body steady before the car is started back to reload.

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

1. The outer frame E of a dumping-car, having the bars E^1 E^2 and the plate D arranged above the supporting-truck, whereby they form a central support for the car-body, and the lateral bars E^2, in dumping, pass down between the cross-timber and the wheels of the truck without touching them, substantially as set forth.

2. The connection between a dumping-car and a truck, consisting of a plate, B^1, having a socket, B, with spherical bearing and crown-pieces B^2, and a plate, C^2, having a neck, C^1, and ball C, substantially as set forth.

3. In a dumping-car, the horizontally-moving slides F, substantially as set forth.

4. The stakes H′, fitted into the floor H of a gondola or dumping car, and fastened to the inner sides of the frame E by staples *h*, whereby their resistance to outward strain is increased, substantially as set forth.

5. The combination of the gate I′ and the lower draw-bolt K, having its fulcrum *k* on the dumping-frame E, whereby the operating-lever K′ is brought in contact with the wheel *a* when dumping, substantially as set forth.

6. The combination of the cross-timber A′, having a friction-roller, F′, and the slide F, substantially as set forth.

7. The combination of the car-frame E and bars E^1, having guide-rods *f*, and the slides F, having friction-rollers f^3, substantially as set forth.

8. The combination of the car-frame E, shaft G^2, cords or chains G G^1, pulleys g^3, and slides F, substantially as set forth.

Witness my hand in the matter of my application for a patent for an improvement in dump-cars.

MATTHEW VAN WORMER.

Witnesses:
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