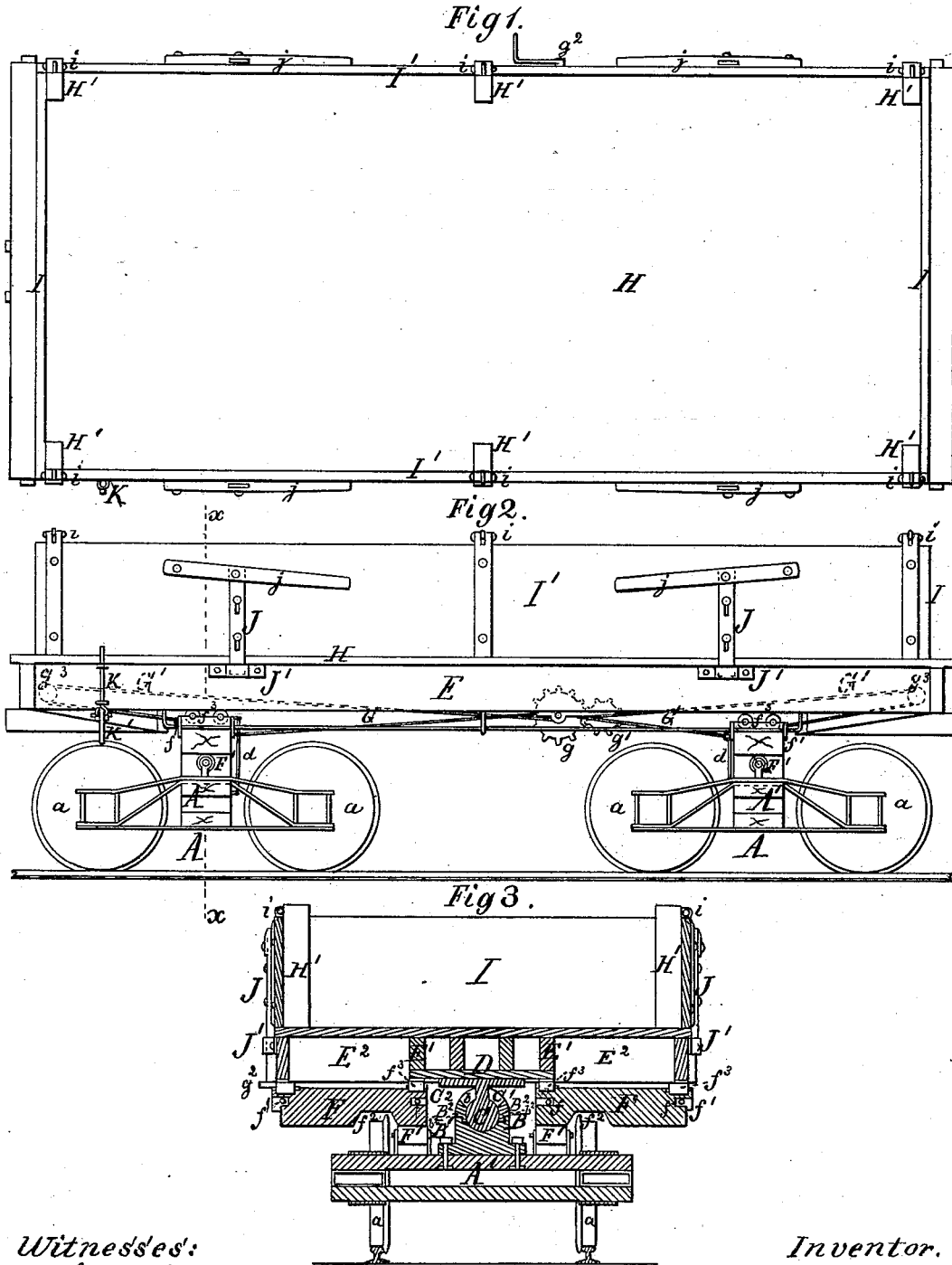


M. VAN WORMER.
DUMPING-CAR.

No. 193,101.

Patented July 17, 1877.



Witnesses:
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Chas. Marshall

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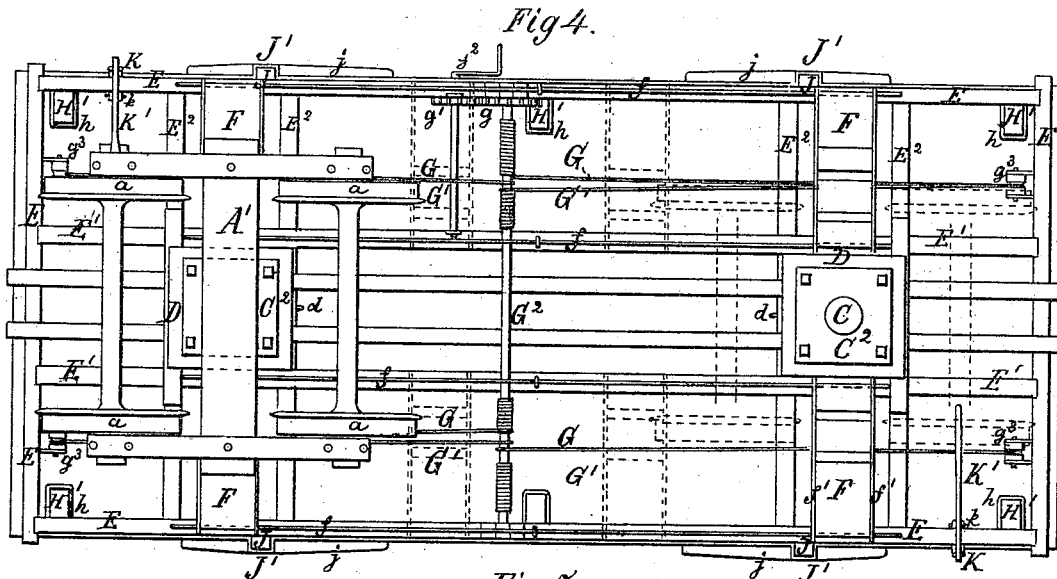


Fig. 5.

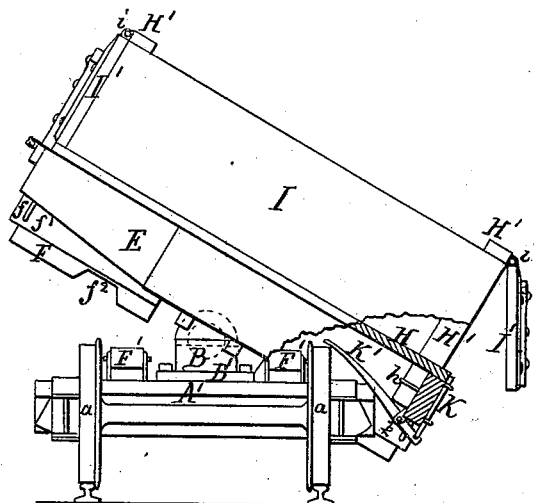


Fig. 6.

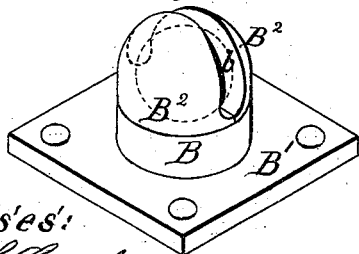
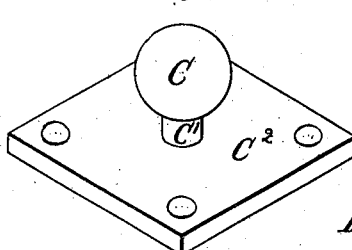


Fig. 7.



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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'*, 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'*. A plate or flange, *C''*, is attached to the king-bolt *C'*, 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'*, its ball end *C*, and plate *C''* 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''*, fitted upon the socket *B* by means of a step, *b''*, 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'*, strengthened above each truck by means of two cross-bars, *E''*, with which they are interlocked, the whole of them being securely fastened to the frame *E*. The cross-bars *E''* 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'* and *E''* 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''* 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'*, 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''*, 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'''*, which bear and travel upon the lower surfaces of the car-frame *E* and the longitudinal bars *E'*.

The tracks of the said rollers *F'* *f'''* upon the slides *F* and the car-frame *E* and bars *E'* 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'*, as seen in Fig. 4. A shaft, *G''*, having a wheel, *g*, which is moved by a pinion, *g'*, on a crank-shaft, *g''*, 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''* 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^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^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.

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Witnesses:

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BRUCE VAN WORMER.