

No. 668,927.

T. R. McKNIGHT.

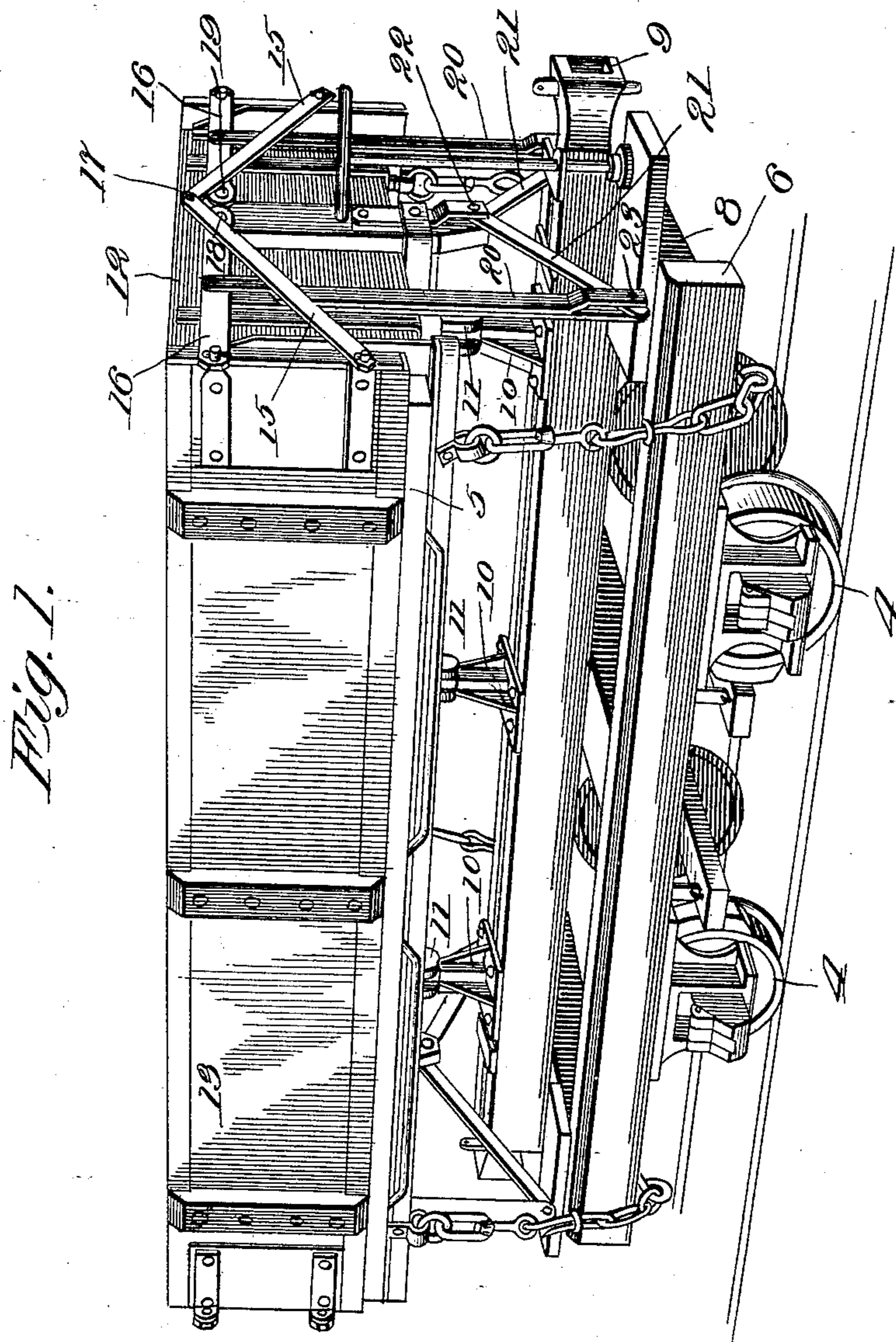
Patented Feb. 26, 1901.

DUMP CAR.

(No Model.)

(Application filed Sept. 20, 1900.)

2 Sheets—Sheet 1.



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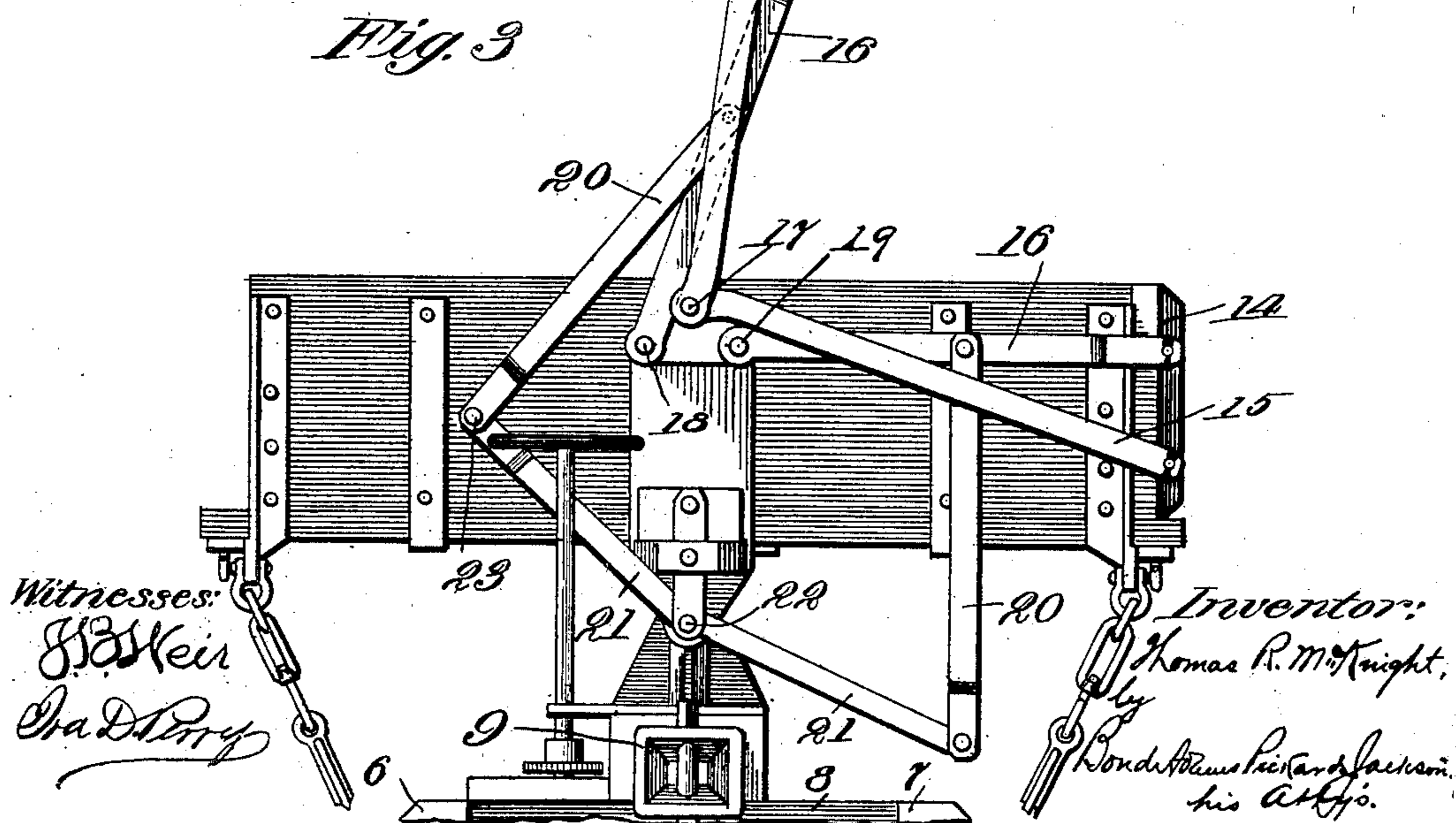
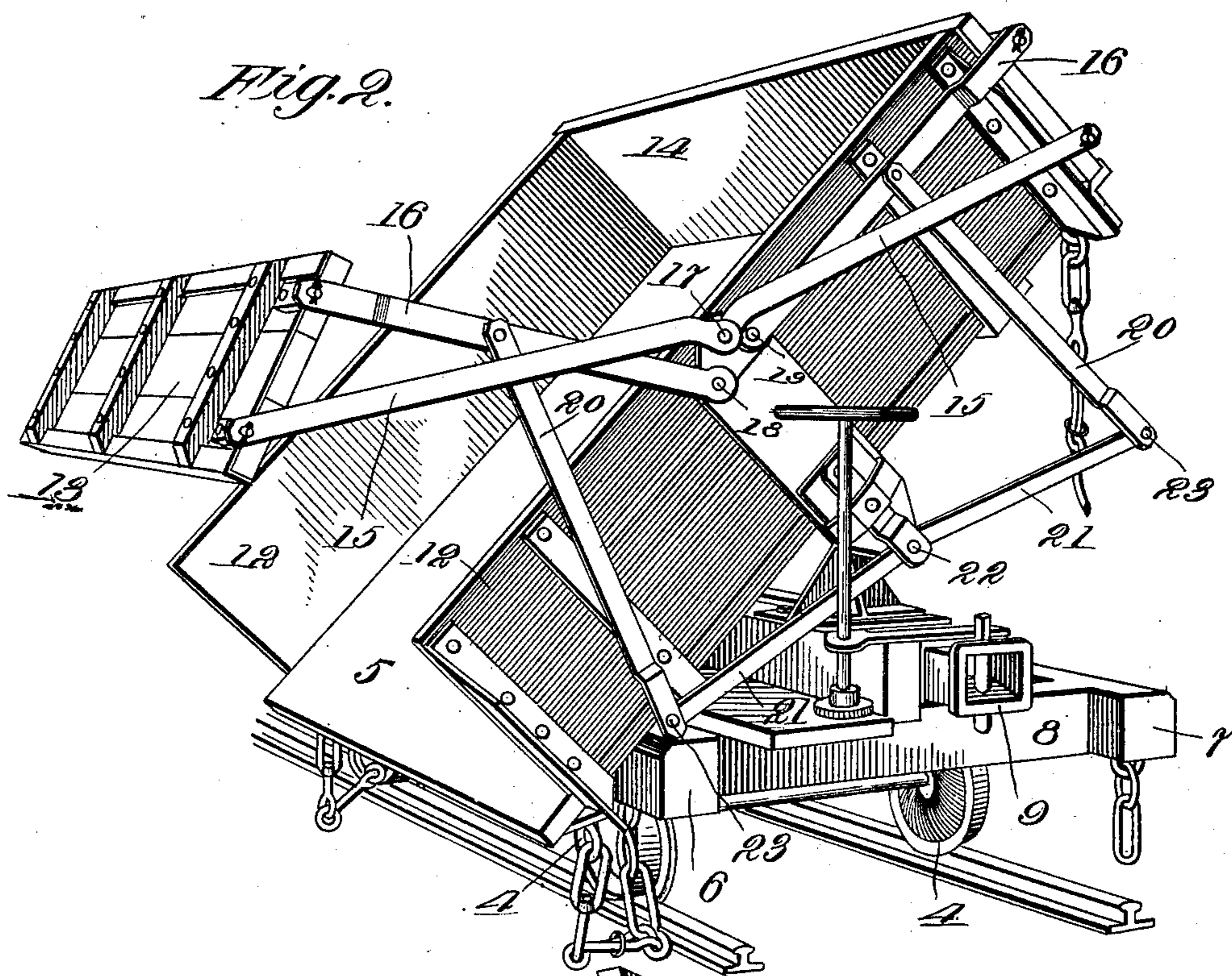
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2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

THOMAS R. McKNIGHT, OF AURORA, ILLINOIS, ASSIGNOR TO THE WESTERN
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DUMP-CAR.

SPECIFICATION forming part of Letters Patent No. 668,927, dated February 26, 1901.

Application filed September 20, 1900. Serial No. 30,549. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. McKNIGHT, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Dump-Cars, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to dump-cars, and has particular reference to dump-cars in which the side-boards of the car-bed are arranged to be raised for the discharge of the load when the bed is tilted. In dump-cars of this class as heretofore constructed the side-boards have been connected to suitable links, said links being arranged to swing on pivots to raise the side-boards to permit the dumping of the load; but the side-boards and links have been fixedly or non-adjustably connected, so that their angular position with reference to each other has not changed when the side-boards were elevated, the side-boards maintaining a tangential position with reference to the arc of the circle in which they were swung when raised and lowered. This construction is objectionable, for the reason that the lower edges of the side-boards project down toward the bed of the car and frequently into the path of the discharging dirt, interfering with its discharge and also with access to the bed from the side.

One of the objects of my invention is to overcome this objection, which object I accomplish by providing for swinging the side-boards when raised so as to turn them into a position approaching parallelism with the bottom of the bed, and in its best form my invention consists in providing means for swinging the lower edges of the side-boards outward and upward when raised, thereby providing a wider space for the discharge of the load.

Another object of my invention is to relieve the side-boards from excessive friction caused by the load when raising them, and this I accomplish by providing mechanism which operates to move the lower edges of the side-boards outward as soon as they begin to rise, carrying them slightly away from the sides of the bed and permitting the side-boards to rise more freely.

Another part of my invention relates to the apparatus for raising the side-boards automatically when the car-bed is tilted to discharge its load. In my Patent No. 612,263, dated October 11, 1898, I have illustrated and described a toggle apparatus for raising the side-boards, in which apparatus the side-boards are raised by toggle-levers pivoted together and to the side-board links and to the truck, the arrangement being such that when the car-bed is tilted the side-boards are raised automatically. My present invention provides certain improvements on the construction of my said patent, such improvements consisting in connecting the toggle-levers to the car-bed instead of to the truck, so that when the car-bed is thrown from the truck, as is frequently the case in apparatus of this character, the toggle apparatus goes with the bed and is less liable to be damaged than where it is connected with the truck. A further improvement consists in pivoting the toggle-levers to the car-bed in line with the axis about which the bed swings, thereby maintaining the toggle-levers in position to operate properly.

In the accompanying drawings I have illustrated my improvements as applied to one style of dump-car; but it should be understood that they may be applied to other styles of cars and to such other apparatus as they are adapted, my invention not being restricted to specific details except in so far as such details are particularly claimed.

In the accompanying drawings, Figure 1 is a perspective view of a dump-car embodying my improvements. Fig. 2 is a perspective view showing the car-bed tilted; and Fig. 3 is an end view of the upper part of a dump-car, illustrating the operation of the side-boards.

Referring to the drawings, 4 indicates the wheels of a truck which supports the car-bed 5. The truck is provided with longitudinal side beams 6 7 and end beams 8, as shown in Figs. 1 and 2, and with the usual draw-bar 9. The truck is also provided with a series of sockets 10, arranged centrally thereof at suitable intervals, as shown in Fig. 1, which sockets receive pins pivotally connected to the under side of the car-bed

along the central line thereof. The pivots of said pins are indicated by 11 in the drawings. The arrangement is such that the car-bed may swing toward either side of the truck about the pivots 11 until the sides of the bed rest on the side beams 6 7, as illustrated in Fig. 2. If the truck is tipped over or derailed, the car-bed may separate from the truck, as the pins which fit in the sockets 10 draw out in the manner described in my former patent above referred to.

12 indicates the ends of the car-bed and 13 14 the side-boards thereof. The side-boards 13 14 extend from end to end of the car-bed and fit closely against the ends 12, as illustrated in the drawings. Said side-boards are each connected to each end 12 by a pair of links 15 16, the links 15 being connected at their inner ends to pivots 17 near the upper edges of the ends 12 and midway of the length thereof, their outer ends being pivotally connected to the side-boards near the lower edges thereof, as shown in Fig. 2. The outer ends of the links 16 are connected to the side-boards 13 14, respectively, near the upper edges thereof, and their inner ends are connected to pivots 18 19, arranged at opposite sides of the pivot 17 and slightly below said pivot. It will be understood that the arrangement of the links 15 16 at both ends of the car is the same. The length of the links 15 is such that when the side-boards are in position across the ends of the car the side-boards will be held tightly in contact with the ends, and the same is true of the links 16. Inasmuch, however, as when the side-boards are in such position the links 15 assume a diagonal relation to the ends of the car, as shown in Fig. 3, as soon as the side-boards are raised their lower edges are carried outward from the car-bed, releasing them from the friction of the load to a greater or less extent and facilitating their elevation. Furthermore, as the side-board 13 is raised its upper edge swings about the axis 18, while its lower edge swings about the axis 17, the result being that as the side-board moves upward its lower edge is thrown outward, so that the side-board approaches a position of parallelism with the bed of the car, thus affording a greater space for the discharge of the load and for access to the car-bed, as hereinbefore described. The same is true of the side-board 14. The side-boards are raised automatically when the car-bed is tilted by means of toggle-levers 20 21, the levers 20 being pivoted to the levers 21 and to the links 16, while the levers 21 are pivoted to the levers 20 and to the car-bed by a pivot 22, which is arranged in line with the pivots 11, as shown in Fig. 3. The levers 21 are of such length that when the car-bed is tilted as shown in Fig. 2, the pivots 23, which connect said levers with the levers 20, lie over and rest upon the upper surfaces of the side beams 6 7, and as the car-bed continues to tilt said levers 20 are carried upward, raising the

links 16 and the side-boards to which they are attached. If the car-bed is thrown off the truck, the levers 20 21 are carried with it and are not displaced.

As shown in Fig. 3, the side-boards, if desired, may be raised to a vertical position, in which case the links 16 assume an inclined position, extending across the pivots 17, which sustain said links, and as the side-boards at such time lie at the opposite side of said pivots 17 from the pivots 18 the side-boards maintain their vertical position without further support.

I have used the term "side-board" herein in a generic sense, and it should be understood that the term as so used includes not only side-boards proper, but end boards and other equivalent devices.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a dump-car, the combination of a car-bed, a side-board therefor, a swinging support for said side-board carried by the car-body, and means for rocking the side-board upon its support when it is raised to move its lower edge outward from the car-bed, substantially as described.

2. In a dump-car, the combination of a car-bed, a side-board therefor, a swinging support for said side-board adapted to carry said side-board up over the car-bed, and means for varying the angle of said side-board to its support, when raised, substantially as described.

3. In a dump-car, the combination of a car-bed, a side-board therefor, links connecting said side-board to the car-bed, and adapted to swing, to carry said side-board up from the side of the car and means for varying the angle of said side-board to said links, when it is raised, substantially as described.

4. In a dump-car, the combination of a car-bed, a side-board therefor, and links at one end of the car-bed connecting said side-board thereto, said links being pivoted at different points to the side-board and to the car-bed, substantially as described.

5. In a dump-car, the combination of a car-bed, a side-board therefor, a link connecting the upper edge of said side-board with the car-bed, and a link connecting the lower edge of said side-board with the car-bed at a point removed from the point at which the first link is connected to the car-bed, substantially as described.

6. In a dump-car, the combination of a car-bed, a pivoted side-board therefor, means for automatically raising said side-board when the dump-car is tilted, and means for turning the side-board upon its pivot to move its lower edge outward as it is raised, substantially as described.

7. In a dump-car, the combination of a car-bed, a side-board therefor, a swinging support for said side-board, means for turning the side-board upon its support to move its lower edge outward when it is raised, and

means for automatically raising the side-board when the dump-car is tilted, substantially as described.

5 8. In a dump-car, the combination of a car-bed, a side-board therefor, a swinging support for said side-board, and means connected only to said car-bed and to the side-board support for automatically raising the side-board when the car-bed is tilted, substantially
10 as described.

9. In a dump-car, the combination of a truck, a car-bed separably mounted thereon and adapted to tilt to discharge its load, a side-board for said car-bed, a swinging support for said side-board, and means connect-
15 ed only with said car-bed for automatically raising said side-board when the car-bed is tilted, substantially as described.

10. In a dump-car, the combination of a car-
20 bed, a side-board therefor, a swinging support for said side-board, and toggle-levers connected to said swinging support and to said car-bed, substantially as described.

11. In a dump-car, the combination of a
25 truck, a car-bed separably mounted thereon and adapted to tilt to discharge its load, a side-board for said car-bed, a swinging support for said side-board, and toggle-levers connected to said swinging support and to
30 said car-bed only for automatically raising the side-board when the car-bed is tilted, substantially as described.

12. In a dump-car, the combination of a pivotally-supported car-bed, a side-board there-
35 for, a swinging support for said side-board, and toggle-levers pivotally connected to the

bed only of the car; said pivotal connections being in line with the axis about which the car-bed swings, said toggle-levers being also connected to said swinging support, substan- 40 tially as described.

13. In a dump-car, the combination of a truck, a car-bed pivotally mounted on said truck and adapted to tilt thereon to discharge its load, a side-board, a swinging support for 45 said side-board, and toggle-levers for operating said side-board, one of said levers being pivoted to the bed only of the car and in line with the axis thereof, said lever being adapted to engage the truck when the car-bed is 50 tilted, the other toggle-lever being connected to the first-mentioned lever and to the swinging support of the side-board, substantially as described.

14. In a dump-car, the combination of a 55 truck, a car-bed detachably mounted on said truck and adapted to tilt thereon to discharge its load, a side-board, a swinging support for said side-board, and toggle-levers for operating said side-board, one of said levers being 60 pivoted to the bed only of the car in line with the axis thereof, said lever being adapted to engage the truck when the car-bed is tilted, the other toggle-lever being connected to the first-mentioned lever and to the swing- 65 ing support of the side-board, substantially as described.

THOMAS R. MCKNIGHT.

Witnesses:

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H. S. MACLAY.