W. ATKINS.

DUMP WAGON.

APPLICATION FILED JAN. 7, 1915.

1,203,299. Patented Oct. 31, 1916.

FIG. 1.

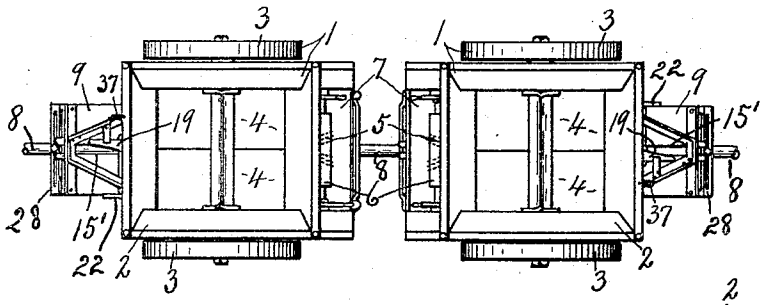


FIG. 2.

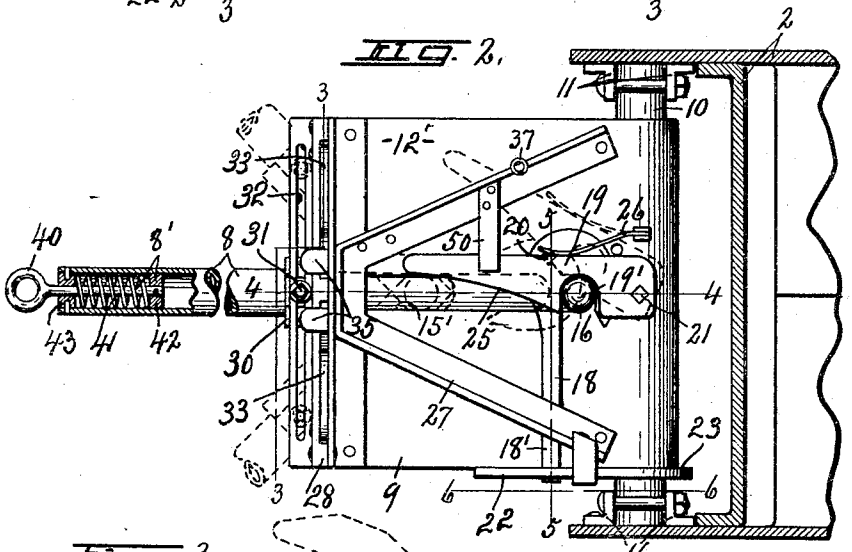


FIG. 3.

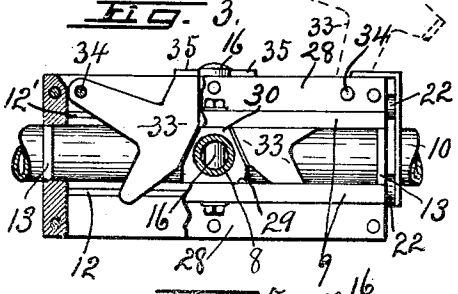


FIG. 4.

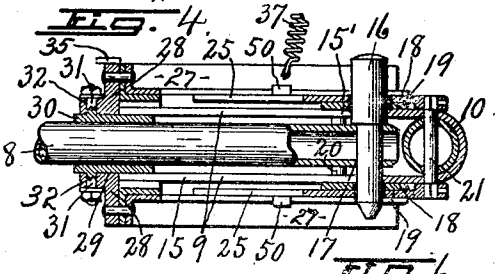


FIG. 5.

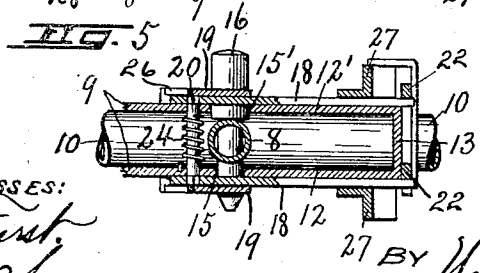
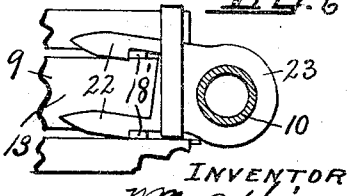


FIG. 6.



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DUMP-WAGON.

1,203,299. Specification of Letters Patent. Patented Oct. 31, 1916.

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To all whom it may concern:

Be it known that I, WILLIAM ATKINS, a citizen of the United States, and resident of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Dump-Wagons, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in couplings for wagon trains of the class set forth in my allowed application #582,678, filed Sept. 19, 1910, resulting in Patent #1,122,241, issued Dec. 29, 1914, and is similar in some respects to the couplings set forth in my pending application #616,136, filed Mar. 22, 1911 resulting in Patent No. 1,140,863, May 25, 1915, in that it contemplates the use of a draw-head hinged to one end of a two-wheeled dump car or wagon to swing vertically and a draw-bar pivotally connected to the draw-head to swing laterally with means for permitting the draw-head and draw-bar to turn transversely to each other. These cars or wagons are adapted to be propelled by motor tractors or animal power for hauling loads of sand, gravel, broken stone and other materials from place to place over more or less uneven roadways in the construction of highways and other road-beds and for any other purpose for which a wagon train of this character might be used.

Heretofore, considerable difficulty has been experienced in connecting or coupling the loaded cars or units to each other and to the motor tractor, particularly when such loaded car or unit which is to be connected to the train is out of alinement therewith, under which conditions it has been necessary to either manipulate the train backward and forward by repeated operations in order to bring the cars to be coupled into approximate alinement, or more frequently to employ some extra means, as a chain or other temporary connection, for drawing the loaded car to be coupled into sufficiently close alinement to receive the permanent coupling, all of which results in considerable annoyance and loss of time, and also necessitates the carrying of these extra connections for temporary use.

The main object is to provide a simple, durable and efficient coupling which will not only permit the units of the train to rock or tilt transversely and vertically relatively to each other, but will also enable those units to be easily and quickly coupled and uncoupled even though they may be considerably out of alinement without the use of temporary connections for bringing them into such alinement, thereby avoiding the annoyances and delays previously referred to.

Another object is to provide means for automatically locking the draw-bar to the draw-head as the adjacent ends of the cars to be coupled are brought into operative proximity.

A further object is to permit the locking device to be quickly released by an operator from one side of the train.

A still further object is to provide means for locking the draw-head and draw-bar against relative lateral rocking movement.

Other objects and uses will be brought out in the following description.

In the drawings Figure 1 is a top plan of a pair of two-wheeled cars or units connected to form a four-wheeled wagon and showing my improved couplings on the outer ends of each car. Fig. 2 is an enlarged top plan, partly in section, of one of the couplings and adjacent end of one of the dump boxes to which the coupling is attached. Fig. 3 is an end view, partly in section, of the same coupling taken on line 3—3, Fig. 2. Figs. 4, 5 and 6 are detail sectional views taken respectively on lines 4—4, 5—5, and 6—6, Fig. 2.

In order that my invention may be clearly understood, I have shown a pair of two-wheeled cars —1— coupled together to form a portion of a wagon train and each consisting of a dump box —2— mounted upon supporting wheels —3— and provided with lengthwise bottom doors —4— which may be hinged in any well known manner to the sides of the box to swing downwardly and laterally in the act of discharging the load. The opening and closing of the doors may be controlled by any of the well known mechanisms, such as under-running cables —5— adapted to be wound upon drums —6— on one end of the dump box.

As illustrated the adjacent ends of the cars —1— are provided with rigid draw-heads —7— connected by draw-bars —8— hereinafter more fully described. The other ends of the cars are provided with vertically movable draw-heads —9— secured

at their inner ends to separate rock shafts —10— which are journaled in bearings —11— on the adjacent ends of opposite sides of their respective boxes —2—. Each draw-head —9— is substantially rectangular in top plan and extends from side to side nearly the full width of the box and consists of upper and lower parallel plates —12— and —12′— spaced apart and connected at the sides by side-plates —13— to form an intervening opening of approximately the full width of the draw-head and extending from the front end thereof to the rock shaft —10— for receiving the adjacent end of a draw-bar —8— of the same construction as that which connects the adjacent ends of the cars.

The plates —12— and —12′— are provided with central lengthwise slots —15— and —15′— extending from their outer ends to points in proximity to the rock shaft —10— in vertical alinement for receiving a coupling pin —16— which is also passed through an aperture —17— in the adjacent end of the draw-bar to form a pivotal connection between the draw-bar and draw-head and allow those parts to turn relatively to each other.

The portion of the coupling pin —16— which passes through the draw-bar —8— and lower plate —12— is of less diameter than its upper end which passes through and some distance above the upper plate, thus forming a shoulder which rests upon the upper side of the draw-bar to limit the downward movement of the coupling pin, as shown more clearly in Figs. 4 and 5, the width of the slots —15— and —15′— corresponding to the diameters of the adjacent portions of said coupling pin. The object of these slots is to form a lengthwise way or guide for the coupling pin and to permit the latter to be inserted into the aperture in the draw-bar at any point in the length of the slot, so that in coupling two cars or units which may be more or less out of alinement with each other, it is only necessary to bring them in such relation that some portion of the slot or guide-way is within the range of sweep of the apertured end of the draw-rod, whereby such end may be registered with the slot to enable the coupling pin to be inserted through both slots and the aperture —17— in the draw-bar, thus establishing connection between the two cars and permitting them to be brought into alinement by drawing the train in one direction or the other, it being understood that the opposite end of the draw-bar is pivotally connected to the adjacent car and permits lateral rocking movement of the end which receives the coupling-pin —17— through the entire width of the free end of the draw-head which permits the cars to be coupled even though they may be out of alinement a distance approximately the full width of said draw-head. When the cars are thus connected by the coupling pin they may be brought into closer operative relation by manipulation of the tractor or other motor power, thereby causing the coupling pin to ride along the slot or guideway until brought against the inner end of the slot in which it is automatically locked during such movement by suitable locking members —18— and —19— which are pivoted respectively at —20— and —21— to the lower and upper plates —12— and —12′—.

The locking members —18— are hook-shape and connected by the pivotal bolt —20— which is located at one side of the slots just in advance of their inner ends in such manner as to normally register the open side of the hook with the slots so that when the coupling pin approaches the inner ends of the slots it will encounter the shorter arm of the hook and automatically rock said hook to its locking position, as shown more clearly in Fig. 2. The opposite arms —as 18′— of the hooks —18— extend laterally to one side of the draw-head when in their locking positions and automatically interlock with suitable detents —22— on a rocking member —23— which is journaled on the adjacent end of the rock shaft —10—. The front ends of these detents —22— are beveled as shown more clearly in Fig. 6 to permit the arms —18′— to ride thereunder for interlocking engagement therewith as the hook —18— is forced to its locking position by the coupling pin —16—. These locking members —18— are adapted to be returned to their normal inoperative positions by means of a coil spring —24— surrounding the pivotal bolt —20— and having one end secured thereto, and its other end secured to the lower plate —12— as shown more clearly in Fig. 5, thus permitting the release of the locking members —18— by simply tripping the detents —22— by hand or by any other available means.

The locking members —19— are provided with open-sided slots —19′— registering with the opening in the hook —18— when the latter is in its locking position to engage and additionally lock the coupling pin at the limit of its inward movement, as shown in Figs. 2 and 4. The outer ends of the locking members —19— are provided with cams —25— extending lengthwise of and across the adjacent slots —15— and —15′—, the free ends of said locking members —19— being normally disposed at one side of the slots so that when the coupling pin —16— is forced inwardly in the operation of coupling the cars, it rides against the cams —25—, thereby rocking them laterally to the position shown by dotted lines, Fig. 2, until registered with the open-sided slots —19′—, whereupon the locking members

—19— are forced to their locking positions by means of one or more springs —26— as shown in Fig. 2. The plates of the draw-head may be made of comparatively thin sheet metal and are stiffened by reinforcing bars or braces —27— as shown in the drawings.

Suitable guide plates —28— are secured to the free open end of the draw-head in spaced relation to form a guide-way or slot —29— of substantially the full width of the draw-head and serves to receive a cross-head or sleeve —30— in which the draw-bar —8— is movable endwise, said sleeve serving as a wear-piece to protect the draw-bar from excessive wear. This sleeve is provided with oppositely projecting studs —31— guided in lengthwise slots —32— in the plates —28— to permit lateral swinging movement of the draw-bar —8— through substantially the full width of the draw-head.

In some instances, it is desired to lock the draw-bar and draw-head against relative lateral movement and for this purpose I have provided the outer end of each draw-head with opposite locking members —33— having their outer ends pivoted at —34— to permit their inner ends to swing vertically into and out of engagement with opposite sides of the draw-bar —8—, as shown by full lines and dotted lines in Fig. 3, said locking members —33— being provided with handles —35— by which they may be manipulated and which also serve as stops for limiting the downward movement of those locking members. Each draw-head is connected to the adjacent end of the box by means of a spring —37— which is adjusted to normally hold the draw-head in a substantially horizontal position, and at the same time to permit it to move vertically as the cars to which the draw-heads are attached pass over uneven surfaces. The end of each draw-bar, opposite that which receives the coupling pin —16—, is provided with a draft section —8′— movable longitudinally and turnable therein, the outer end of the section —8′— being provided with an eye —40— for attachment to another coupling pin or bolt on the adjacent draw-head of another car. A buffer spring —41— is interposed between a head —42— on the inner end of the draw-bar section —8′— and a shoulder —43— on the adjacent end of the draw-bar —8— to prevent excessive shock or jar to the various units of the train, particularly in starting.

The draw-bar —8— connecting the adjacent ends of the cars shown in Fig. 1 is the same as that just described, and therefore, these draw-bars are interchangeable, the telescoping connections between the sections —8— and —8′— permitting the cars to turn or tilt transversely relatively to each other in passing over uneven surfaces. The object of the extra locking members —19— running lengthwise of the draw-head from front to rear is to relieve the strain upon the locking members —18— and their detents —22— by transmitting such strain directly to the locking members —19— in the direct line of draft passing through the pivotal bolt —21—, said locking members —19— being guided in their rocking movement by guides —50—, as shown more clearly in Figs. 2 and 4.

What I claim is:—

1. A draft coupling for wagon-trains comprising a draw-head hinged at one end to swing about a horizontal axis and having its other end provided with a laterally elongated guide-way, a cross-head movable along the guide-way and provided with a lengthwise opening therethrough, a draw-bar slidable endwise in said opening, and means for pivotally connecting the draw-bar to the draw-head at a point between the cross-head and axis of movement of the draw-head to allow said draw-head and draw-bar to swing laterally relatively to each other.

2. A draft coupling for wagon-trains comprising a draw-head hinged at one end to swing about a horizontal axis and having its other end provided with a laterally elongated guide-way, a cross-head movable along the guide-way and provided with a lengthwise opening therethrough, a draw-bar slidable endwise in said opening, means for pivotally connecting the draw-bar to the draw-head at a point between the cross-head and axis of movement of the draw-head to allow said draw-head and draw-bar to swing laterally relatively to each other, and movable means for locking and releasing the cross-head in and from fixed relation to the draw-head.

3. A draft coupling for wagon-trains comprising a draw-head hinged at one end to swing about a horizontal axis and having its other end provided with a laterally elongated guide-way, said draw-head also having a lengthwise guide-way, a hollow cross-head movable along the laterally elongated guide-way, a draw-rod slidable endwise in the cross-head and provided with a coupling pin movable along the lengthwise guide-way, and movable means for locking and releasing the coupling pin in and from a certain position in said lengthwise guide-way.

4. A draft coupling for road vehicles comprising a draw-head hinged at one end to the vehicle and provided with a lengthwise guide-way, an axially movable draw-bar having one end provided with a coupling pin guided in said way, and movable means for locking and releasing the coupling pin in and from a position nearer to

the hinged end of the draw-head than to its opposite end.

5. A draft coupling for road vehicles comprising a draw-head hinged at one end to the vehicle and provided with a lengthwise guide-way, an axially movable draw-bar having one end provided with a coupling pin guided in said way, movable means for locking and releasing the coupling pin in and from a position nearer to the hinged end of the draw-head than to its opposite end, said coupling pin constituting a pivot about which the draw-bar and draw-head are relatively movable, and movable means for locking and releasing the draw-bar and draw-head in and from a definite position.

6. A draft coupling for road vehicles comprising a draw-head having a lengthwise guide-way and a transverse guide-way, a coupling pin slidable in the lengthwise guide-way, a hollow cross-head slidable in the transverse guide-way, and a draw-bar engaged with the coupling pin and slidable endwise in the cross-head.

7. A draft coupling for road vehicles comprising a draw-head having a lengthwise guide-way and a transverse guide-way, a coupling pin slidable in the lengthwise guide-way, a hollow cross-head slidable in the transverse guide-way, a draw-bar engaged with the coupling pin and slidable endwise in the cross-head, and movable means for locking and releasing the coupling pin in and from a definite position with reference to the lengthwise guide-way.

8. A draft coupling for road vehicles comprising a draw-head having a lengthwise guide-way and a transverse guide-way, a coupling pin slidable in the lengthwise guide-way, a hollow cross-head slidable in the transverse guide-way, a draw-bar engaged with the coupling pin and slidable endwise in the cross-head, and movable means for locking and releasing the cross-head in and from a definite position with reference to the transverse guide-way.

9. A draft coupling for road vehicles comprising a draw-head having a lengthwise guide-way and a transverse guide-way, a coupling pin slidable in the lengthwise guide-way, a hollow cross-head slidable in the transverse guide-way, a draw-bar engaged with the coupling pin and slidable endwise in the cross-head, movable means for locking and releasing the coupling pin in and from a definite position with reference to the lengthwise guide-way, and movable means for locking and releasing the cross-head in and from a definite position with reference to the transverse guide-way.

In witness whereof I have hereunto set my hand this 24th day of December, 1914.

WILLIAM ATKINS.

Witnesses:
H. E. CHASE,
ALICE M. CANNON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."