W. ATKINS.

CARRIAGE COUPLING.

APPLICATION FILED MAR. 22, 1911.

1,140,863.

Patented May 25, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

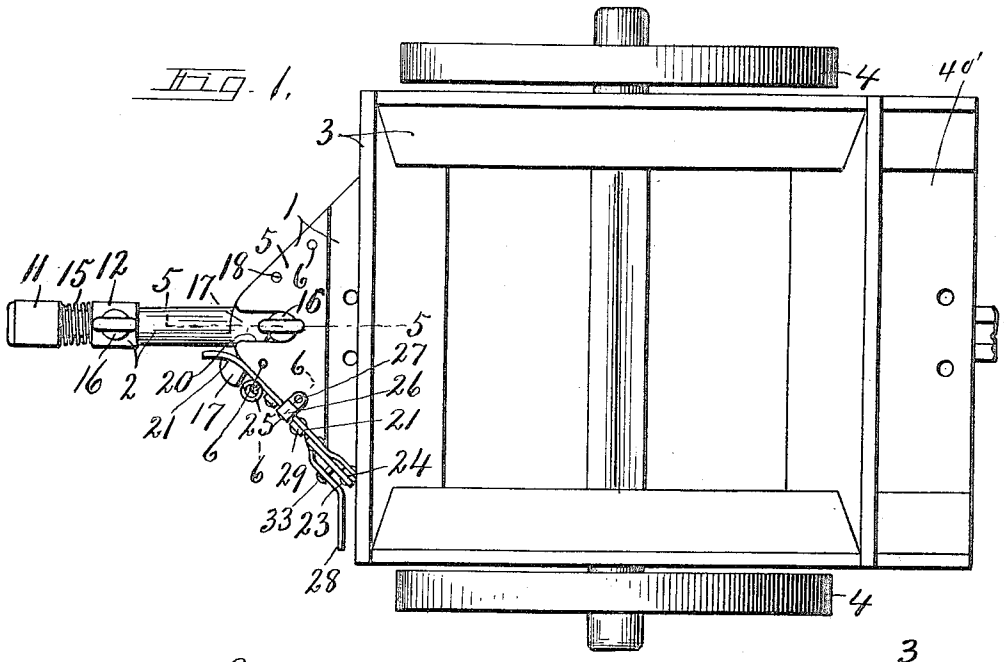
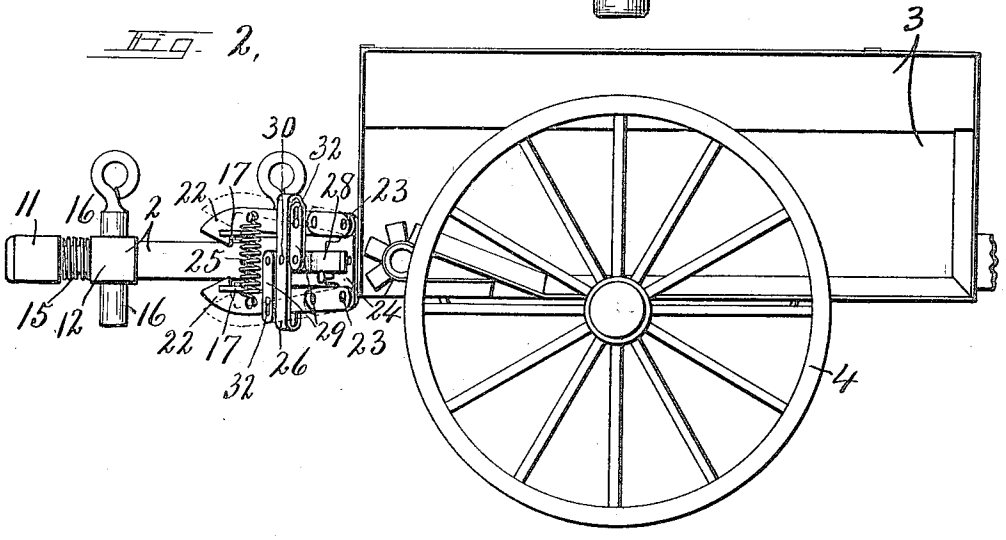


Fig. 2.



WITNESSES

E. J. Stark.

H. E. Chase

INVENTOR.

W. Atkins

By Howard P. Dimon

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 3.

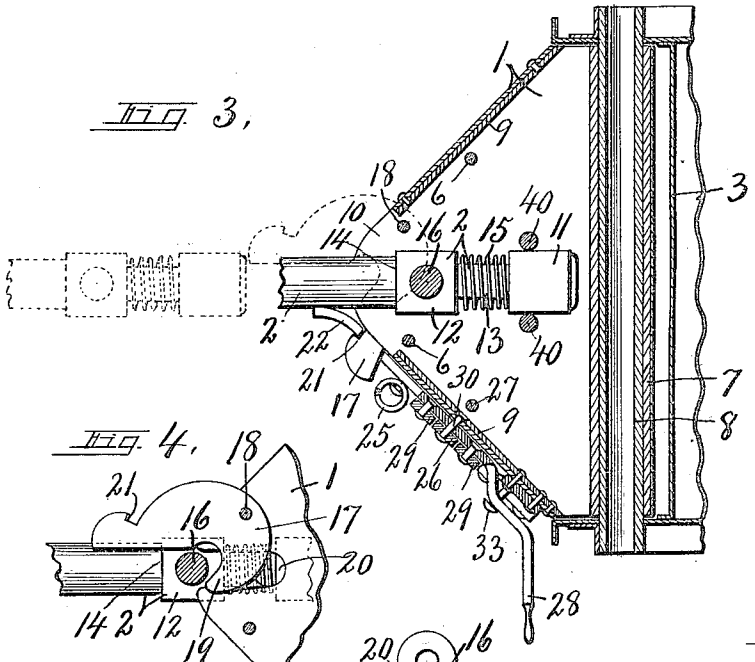


Fig. 4.

Fig. 5.

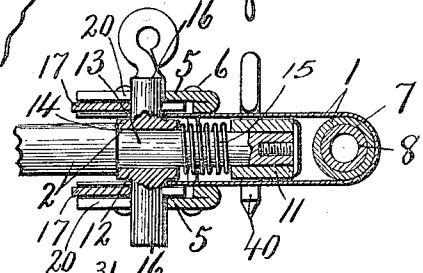


Fig. 6.

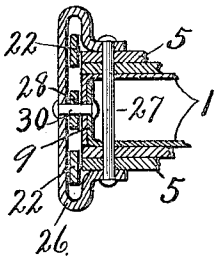


Fig. 7.

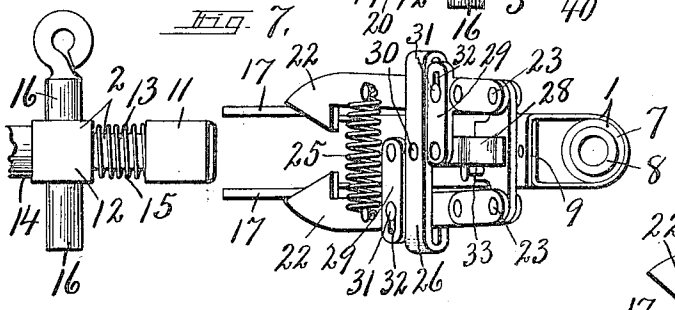
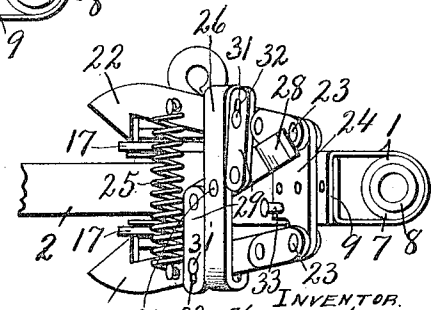


Fig. 8.



WITNESSES

E. J. Staudt.

H. E. Chase

INVENTOR.

W. Atkins

By

Howard P. Denison

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM ATKINS, OF AUBURN, NEW YORK, ASSIGNOR OF THREE-FOURTHS TO ELMORE N. ROSS AND WILLIAM A. TICE, BOTH OF AUBURN, NEW YORK.

CARRIAGE-COUPLING.

1,140,863. Specification of Letters Patent. Patented May 25, 1915.

Application filed March 22, 1911. Serial No. 616,136.

To all whom it may concern:

Be it known that I, WILLIAM ATKINS, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Carriage-Couplings, 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 carriage couplings for wagon trains of the class set forth in my pending application #582,678 filed Sept. 19, 1910 adapted to be used in hauling broken stone, dirt, sand and other material employed in making or resurfacing road beds and other uses where hauling, dumping and spreading of such materials may be desired.

In my pending application referred to, the coupling at one end of each box is flexible vertically and permits relative vertical movement of the boxes connected by such coupling, while the coupling at the opposite end of the same box is inflexible vertically and prevents relative vertical movement of the boxes connected thereby.

In my present application, I make use of the inflexible coupling at one end of the box and provide a new form of flexible coupling at the opposite end of the same box, the inflexible coupling serving to hold the boxes coupled thereby from tilting vertically relatively to each other, while the flexible couplings allow them as a four-wheel unit to move vertically relatively to similarly coupled four-wheel units.

The main object is to provide a quick-shift flexible coupling for the sections of wagon trains of this character whereby the coupled units may have free relative movement vertically, laterally and rotarily without buckling of the coupling or excessive tilting of such units.

Another object is to enable the draw bar to be interchanged end for end so as to interlock with either of the adjacent draw heads and to provide means for locking the draw bar to one of the draw heads against relative lateral swinging movement.

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

In the drawings Figures 1 and 2 are respectively a top plan and a side elevation of a two-wheeled dump cart forming one of the sections of a train and showing one of my improved couplings. Fig. 3 is an enlarged horizontal sectional view through one of the draw heads showing a portion of the draw bar in operative position therein and as locked against relative lateral movement. Fig. 4 is a top plan of one end of the draw bar and adjacent portion of the draw head showing one of the clutch jaws in its open position and the draw rod as partially withdrawn or about to enter the draw head. Figs. 5 and 6 are enlarged sectional views taken respectively on lines 5—5 and 6—6 Fig. 1. Fig. 7 is a side elevation of the coupling showing the draw rod as withdrawn from the head. Fig. 8 is a side elevation similar to Fig. 7 except that the draw bar is inserted into the head and the locking dogs are in their open position for releasing the clutch jaws.

The coupling forming the subject matter of my present invention consists of a draw head —1— and draw bar —2—, the draw head being journaled at one end for vertical swinging movement upon the adjacent end of a dump box —3— which is provided with suitable supporting wheels —4— whereby the vehicle may be drawn over the surface of the ground.

As shown more particularly in Figs. 1 and 3, the draw head consists of lower and upper triangular plates of sheet metal spaced some distance apart one above the other and united at their longer sides or base to each other with their apexes extending forwardly some distance from the junction and provided with reinforcing plates —5— of substantially the same form and secured thereto by rivets —6—. Secured within the base of the draw head is a metal reinforcing sleeve —7— which receives a journal bearing or shaft —8— on the adjacent end of the box —3— for permitting relative vertical rocking movement of the draw head and box as the vehicle is drawn over uneven surfaces, thereby preventing overstraining of the coupling sections. The forwardly converging sides or edges of the lower and upper plates of the draw head are preferably straight and rigidly connected to each other throughout the greater portions of their lengths by reinforcing plates —9—, thereby stiffening the draw head against torsional strains. The front ends of these reinforcing plates —9— terminate some distance short of the apex of the draw head to form an intervening slot or space —10— for the free lateral

swinging movement of the draw head and draw bar relatively to each other when desired.

The draw rod —2— preferably consists of a straight bar of wrought iron, steel or other suitable material having each of its opposite ends provided with a rotary cross head —11— and a swivel block —12— so that it may be interchanged end for end and inserted in either of the adjacent draw heads of contiguous wagons or train sections. The cross heads —11— are preferably rectangular or square in cross section and of substantially the same vertical depth as the distance between the lower and upper plates on the draw head so as to slide laterally therein with an easy sliding fit as one or the other of the carts are turned from a direct course, as for example, in turning a corner, each cross head —11— being rotatably mounted upon the adjacent end of the draw bar so as to permit the draw head and draw bar and corresponding wagon sections to which they are attached to rock laterally as hereinafter described.

The swivel block —12— is journaled and slidable lengthwise upon a reduced round portion —13— of the draw bar between the cross head —11— and a shoulder —14— on said draw bar, the swivel block being held against the shoulder —14— by means of a spring —15— which is interposed between the head —11— and adjacent side of the swivel block. This swivel block is provided with opposite downwardly and upwardly projecting pivotal pins or bearings —16— which are adapted to enter open sided slots —20— extending inwardly from the apexes of the lower and upper plates of the draw head and their reinforcing plates —5—, thereby establishing a pivotal connection between the draw head and draw bar to permit their relative lateral swinging movement. These pivotal pins or journal bearings —16— are held against the rear ends of the slots by movable clutch members —17— which are interposed between the lower and upper plates of the draw head and their reinforcing members —5— and for this purpose are pivoted at —18— to the draw head at one side of the slots which receive the pivotal bearings —16—, said jaws having hook-shaped extremities —19— forming open sided bearings which are registered with the slots in the apex of the draw head for receiving the pins —16—. The opposite ends of the clutch jaws —17— are movable to and from a position across the front ends of said slots and are provided with shoulders —21— for interlocking engagement with a pair of locking dogs —22— which are pivoted at —23— to a suitable bracket —24— on the draw head —1— and are preferably located above and below the horizontal plane of movement of the draw bar or rather above and below the top and bottom of the draw head. These jaws are spring pressed toward each other for automatic interlocking engagement with the shoulders —21— by a spring —25— having its opposite ends attached to the locking dogs —22— to yieldingly hold said dogs in their locking position.

The dogs —22— are guided in their vertical movement against lateral displacement by a guide bar or yoke —26— which is secured by a bolt —27— to the draw head as best seen in Fig. 6. The locking dogs —22— are adapted to be opened against the action of the spring —25— by means of a lever —28— and links —29—, the lever being fulcrumed or pivoted at —30— to the central portion of the yoke —26— between the dogs —22— while the links —29— are pivotally connected to said lever at opposite sides of the yoke or rather at opposite sides of the pivot —30— and are also connected with a lost motion to their respective dogs —22— by means of pins —31— riding in slots —32—, the object of which is to permit the clutch members —17— to engage and open the jaws independently of the lever —28— when forced to the locking position by insertion of the draw rod —2— into the draw head. The pins —31— are, however, normally engaged with the inner ends of the slots when the dogs —22— are in their locking position so that by rocking the lever —28— upwardly, motion will be imparted to the dogs —22— to unlock the same from engagement with the shoulders —21— of the clutch members —17—, thus freeing the draw bar from locking connection with the draw head and permitting said draw bar to be withdrawn, thereby throwing the clutch members —17— to their inoperative position as shown more clearly in Fig. 4.

The rocking movement of the lever —28— is limited by a stop pin —33— as clearly shown in Figs. 7 and 8, said lever preferably extending some distance laterally beyond the outside of the box where it is easily accessible for operation without danger to the operator. The spring —15— serves as a buffer between the head —11— of the draw bar and swivel block —12— to allow a limited endwise movement of the draw bar relatively to the draw head and prevent too sudden jar upon the vehicle when started by a traction engine or other propelling power. It is now clear that the draw head and draw bar are relatively rotatable one upon the other to permit the wagon sections to which they are attached to have a similar relative rocking movement while the draw head and wagon body to which it is attached are also free to rock vertically relatively to each other, thus permitting free longitudinal and transverse

tilting movements of the wagon sections which are coupled together without liability of overstraining the coupling sections or connections between the wagon sections. It is also apparent that the bearings —16— permit the draw head and draw rod to rock laterally relatively to each other although in some instances it may be desirable to lock the draw head and draw bar against such relative lateral rocking movement and for this purpose I have shown in Fig. 3 stop pins —40— passing through vertically registering apertures in the draw head at opposite sides of the inner end of the draw bar in close proximity thereto, said pins being removable at will to permit the relative rocking movement referred to when desired. The rear end of the box is provided with fixed plates —40'— similar to those shown on the front and rear ends of the box of my pending application No. 582,678 filed September 19, 1910, and between which the front end of the next succeeding draw bar of the car is held against relative vertical rocking movement.

In the operation of coupling the draw bar to the draw head, the clutch members —17— are open to the position shown in Fig. 4 with their hook-shaped extremities across the vertically registered slots in the apex of the draw head, whereupon one end of the draw bar is inserted endwise between the lower and upper plates of the draw head with the swivel bearings —16— in registration with said slots so that as the draw bar is forced inwardly into the draw head, said bearings —16— will engage the hook-shaped extremities of the clutch members —17— and thereby rock the same to their closed position or until the shoulders —21— are interlocked with the corresponding shoulders on the locking dogs —22— which hold the clutch members —17— in their locked positions and thereby positively couple the draw head and draw bar together.

In the operation of uncoupling or disconnecting the draw head and draw bar, it is simply necessary to elevate the lever —28— thereby spreading the locking dogs —22— apart and releasing them from engagement with the clutch members —17—, whereupon the draw bar may be withdrawn endwise from the draw head, thereby rocking the clutch members to their inoperative positions as shown in Fig. 4.

What I claim is:

1. In combination with a two-wheel truck having an axle and a dump box centrally secured thereto, a draw-head pivoted to one end of the box and provided with guide plates spaced apart, a swivel block journaled on the head between said plates to swing in a plane at right angles to that of the head, a draw bar, and movable means on the draw-head for engaging the swivel block and holding it in operative connection with said draw-head.

2. In combination with a two-wheel truck having a dump box, a draw-head mounted on one end of the box and provided with opposite parallel plates spaced apart, a draw bar having one end inserted between and pivoted to said plates and provided with a cross head fitting with an easy sliding fit between said plates some distance to one side of the pivotal axis of the draw bar, and means for holding the draw bar in operative connection with the draw-head.

3. In combination with a two-wheel truck having a dump box, a draw-head pivotally mounted on one end of the dump box and provided with forwardly projecting parallel plates spaced some distance apart, and a draw bar pivotally connected to and between said plates.

4. In combination with a two-wheel truck having a dump box, a draw-head pivotally mounted upon one end of the box and provided with forwardly projecting plates spaced some distance apart, a draw bar having a swivel head pivotally connected to and between said plates and having a portion thereof rotatably on the swivel block.

5. In combination with a two-wheel truck having a dump box, a draw-head pivotally mounted upon one end of the box and provided with forwardly projecting plates spaced some distance apart, a draw-head having a swivel block pivoted to and between the plates, and a cross head on the draw bar fitting with an easy sliding fit upon the plates some distance from the swivel block.

6. In combination with a two-wheel truck having a dump box, a draw-head pivotally mounted upon one end of the box and provided with forwardly projecting plates spaced some distance apart, means for holding the plates in fixed relation to each other, a draw bar having a swivel block pivotally connected to and between the plates, said draw bar having a portion thereof slidably mounted in and movable relatively to the swivel block.

7. In combination with a two-wheel truck having a dump box, a draw-head pivotally mounted upon one end of the box and provided with forwardly projecting plates spaced some distance apart, a draw bar having a swivel head pivotally connected to and between the plates, said draw bar having a portion thereof journaled in the draw-head for rotary movement, and a cross head journaled on the rotary portion of the draw bar some distance to one side of the swivel block, and fitted with an easy sliding fit between the plates.

8. In combination with a two-wheel truck having a dump box, a draw-head mounted upon one end of the box and provided with forwardly projecting plates spaced some

distance apart in parallel planes, a draw bar having a swivel block pivotally connected to and between the plates, said draw bar having a portion thereof rotatably and slidably mounted in the swivel block, a cross head journaled on the rotary portion of the draw bar some distance to one side of the swivel block and fitted with an easy sliding fit between the plates, and a spring interposed between the swivel block and cross head.

9. In combination with a two-wheel truck having a dump box, a horizontal journal bearing on one end of the box, a draw-head journaled on said bearing and provided with forwardly projecting plates spaced some distance apart in parallel planes, a draw bar pivotally connected to and between said plates, and a cross head on said draw bar fitted with an easy sliding fit between said plates some distance to one side of the pivot of the draw bar.

10. In combination with a two-wheel truck having a dump box, a draw-head mounted on one end of the box and provided with forwardly projecting plates spaced some distance apart in parallel planes, said plates having slots in their front ends, a swivel block inserted between the plates and provided with bearings entering said slots, clutch members movable across the open sides of the slots for engaging said bearings and holding the swivel block in operative connection with the draw-head, and movable means for holding the clutch members in operative position.

11. In combination with a two-wheel truck having a dump box, a draw-head mounted on the front end of the box and provided with forwardly projecting plates spaced some distance apart in parallel planes, said plates being provided with slots opening from the front edges thereof, a swivel block rotatably mounted in said slots, clutch members movable across the open sides of the slots for holding the swivel block in operative connection with the head, movable means for holding the clutch members in operative position, and a draw rod journaled in the swivel block.

12. In combination with a two-wheel truck having a dump box, a horizontal journal bearing on the front end of the box, a draw-head journaled on said bearing and provided with forwardly projecting plates spaced some distance apart in parallel planes, a draw bar having one end inserted between said plates and provided with a swivel block loose thereon and pivotally connected to the draw-head, cross head journaled on the inner end of the draw head and fitted with an easy sliding fit between said plates, a spring between the swivel block and cross head, and movable means for holding the swivel block in operative connection with the draw head.

In witness whereof I have hereunto set my hand on this 17th day of March 1911.

WILLIAM ATKINS.

Witnesses:

E. F. SPEARING,

H. P. DENISON.

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