

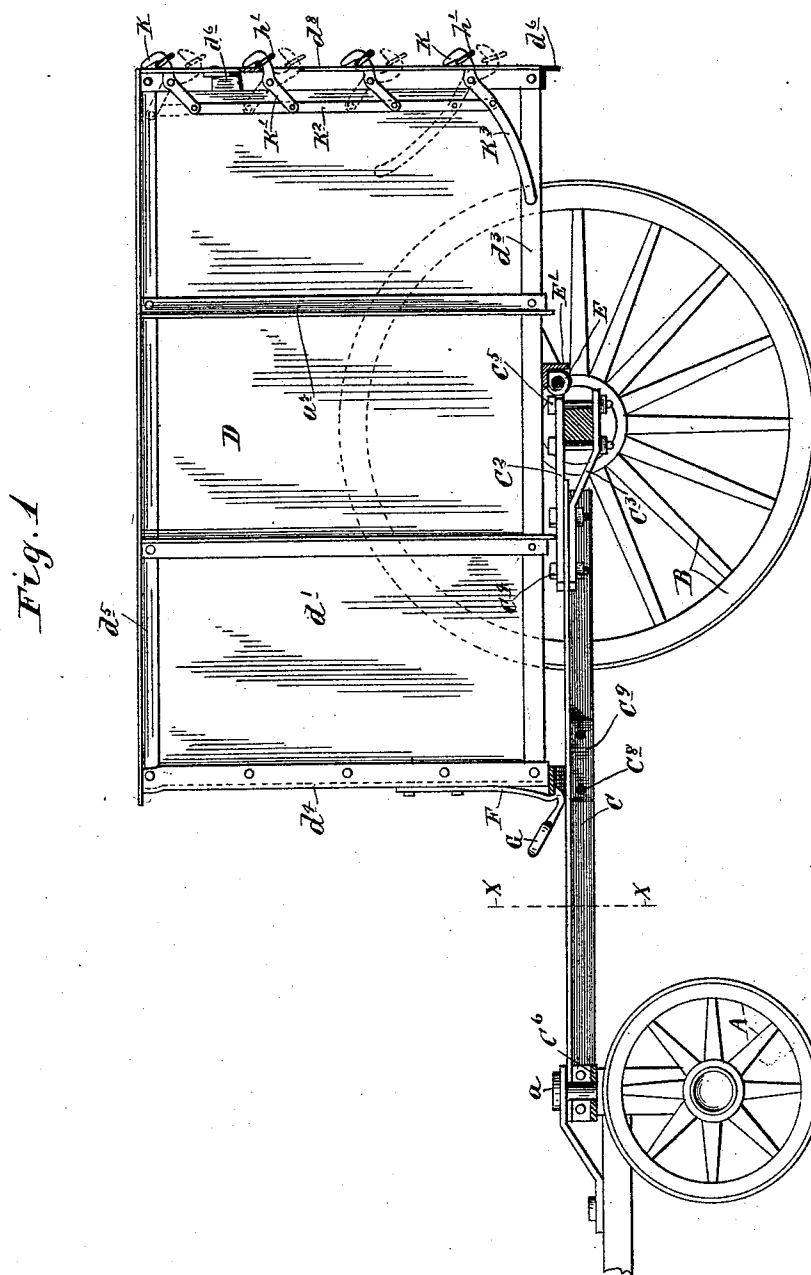
(No Model.)

3 Sheets—Sheet 1.

E. L., G. W. & E. E. HIGGINS.
WOOD CART.

No. 498,056.

Patented May 23, 1893.



Witnesses.
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Frank D. Merchant.

Inventors
Eben L. Higgins, George W. Higgins
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Jas. P. Williamson

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Fig. 2.

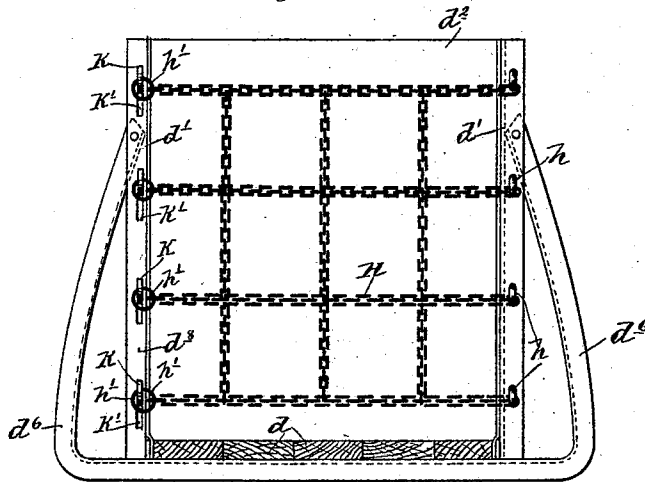


Fig. 3.

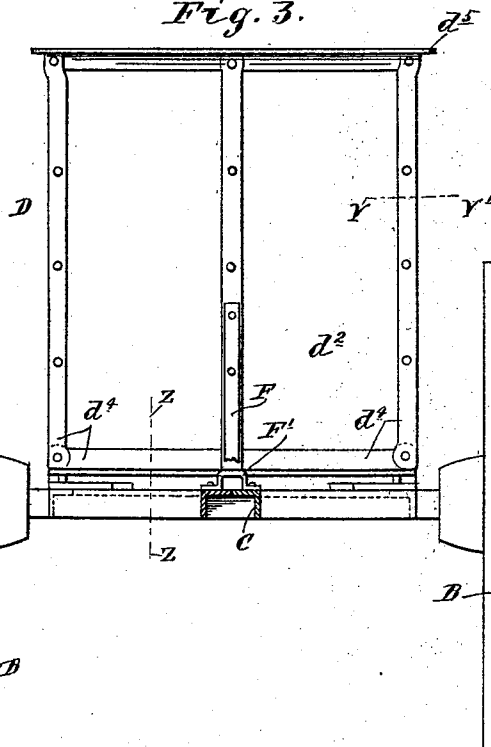


Fig. 4.

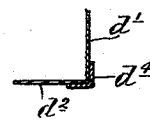
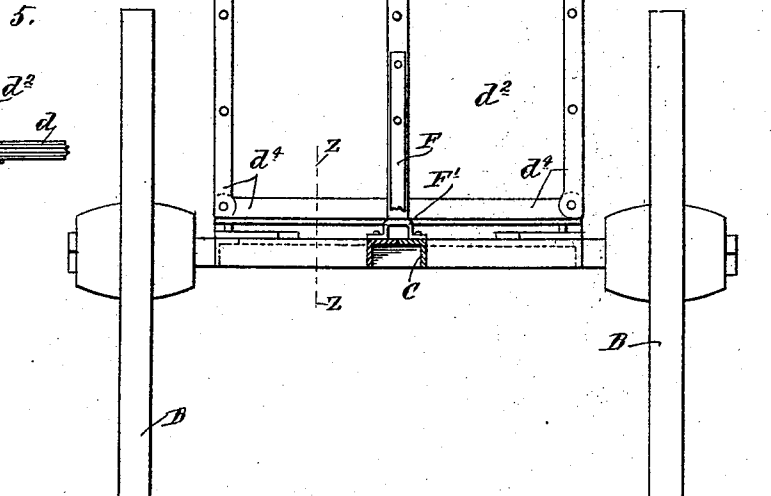
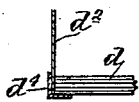


Fig. 5.



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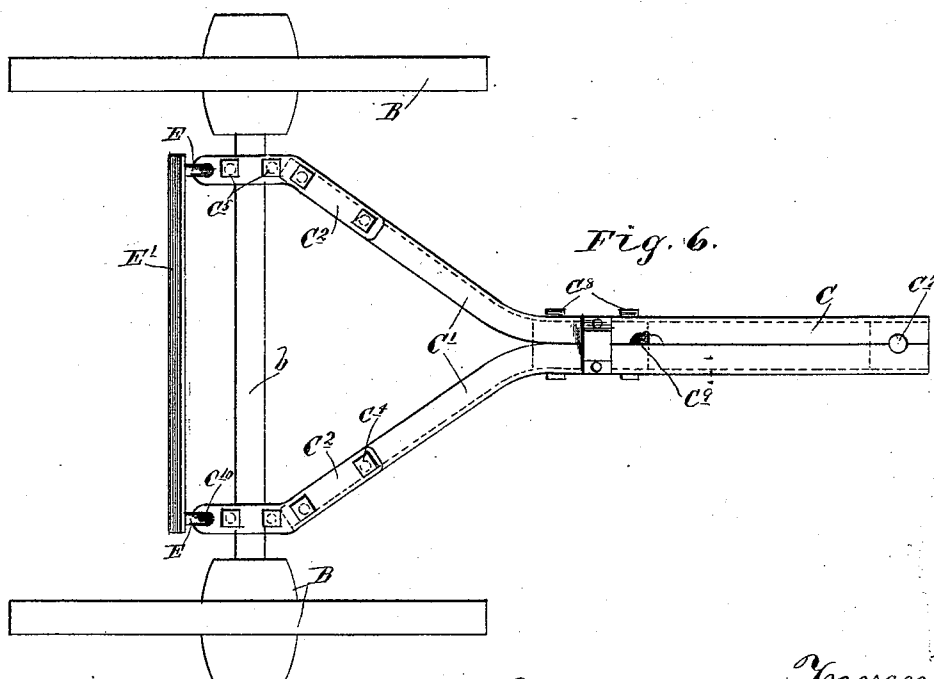
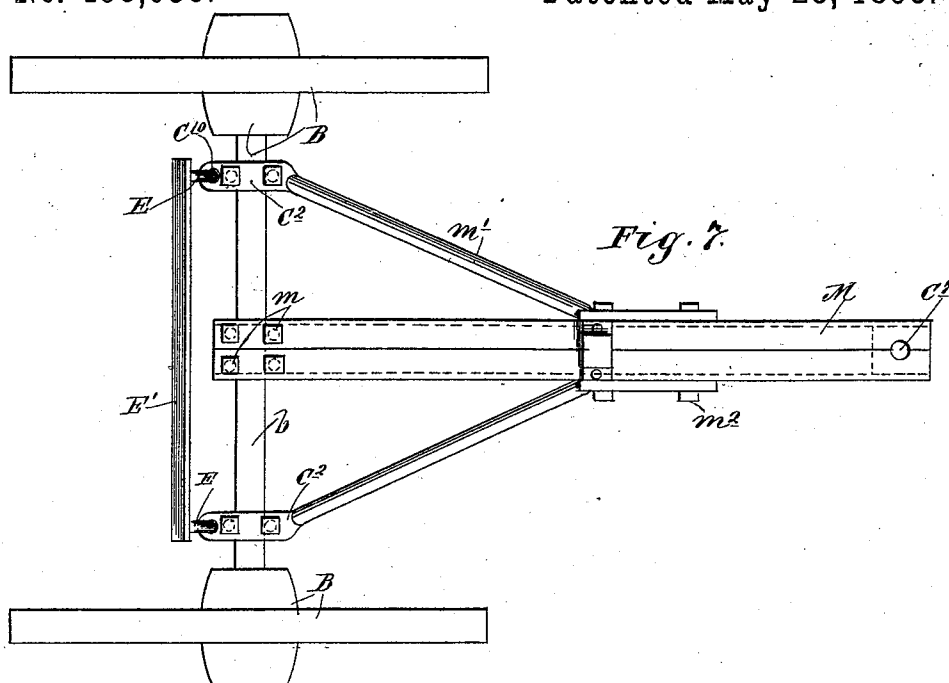
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3 Sheets—Sheet 3.

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WOOD CART.

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UNITED STATES PATENT OFFICE.

EBEN L. HIGGINS, GEORGE W. HIGGINS, AND ELMER E. HIGGINS, OF
MINNEAPOLIS, MINNESOTA.

WOOD-CART.

SPECIFICATION forming part of Letters Patent No. 498,056, dated May 23, 1893.

Application filed February 4, 1893. Serial No. 461,030. (No model.)

To all whom it may concern:

Be it known that we, EBEN L. HIGGINS, GEORGE W. HIGGINS, and ELMER E. HIGGINS, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Wood-Carts; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to dump carts. The invention is especially designed for use on wood carts, of the kind employed for handling sawed and split wood, particularly in the lumber countries for carting away and delivering slab wood from saw mills. This class of carts is provided with a reach rod or coupling pole, for connection with a front pair of trucks to which the team is attached. In loading, the cart proper is disconnected from the team truck, and the front end of the reach rod is held up by a prop. One team truck is made to answer for several carts. The usage to which this class of carts is subjected is extremely rough. The wood is sold by the load; and hence the cart box must be filled. The standard load of green or damp slab wood will weigh about two tons. The wear and tear from the loading, and the jarring strains from the carting and dumping action, under such a load, are so great that all parts of the cart must be made very strong. The blow on the reach-rod, for example, from the loaded box, if the front end of the rod should drop to the ground, which often happens, is something enormous. Hitherto, so far as we are aware, the box and reach-rod of these carts have been made of wood. When so made, to obtain the requisite strength, the wooden parts must have so much mass or bulk as to be cumbersome and heavy. Even when so made, the cart boxes will rapidly wear out, and the reach rods be frequently broken under the rough usage incidental to the service.

One object of our invention, is to provide a cart body and reach rod of great strength and durability, which shall, at the same time, be comparatively light, as compared with the wooden carts.

Another difficulty with carts hitherto made, when used for hauling wood, has been to find a satisfactory end gate. Hitherto, common boards have chiefly been used for that purpose. Under the pressure of the load, it is difficult to take out the boards without breaking. When released at one end, the boards will frequently fly out and be buried under the pile. Ofttimes, the boards will be broken in the dumping strain or from the weight of the wood. Again, the boards will frequently interfere with the dumping of the load, if they should bind or be released at one end only. It takes considerable time for the teamster, to knock out the boards, dig the same out of the pile and restore them to position on the empty cart. Moreover, the end boards will frequently become lost from the empty cart, and much time is taken in hunting up and substituting new ones. A solid end gate hinged to the cart, at one end, or sliding in vertical ways, cannot be employed. The side-wise opening solid gate would not permit the dump of the cart box; and the vertically moving sliding gate would require a crow bar and much time to lift.

The chief object of our invention is, to provide an end gate free from the objections above noted, which can be instantly released, which will give a free dump, which is impossible to break by the usage, and which can never be lost. To this end, we provide a collapsible end gate, which is preferably in the form of chains or a chain net, attached at one end to the cart body and temporarily securable thereto at the other. The securing devices, for the free ends of the chains, are preferably in the form of pivoted latch-hooks, adapted to be set before the dump, to permit the release of the chains from the hooks under the strain from the wood in the dumping action. Such an end gate will instantly collapse and fly out of the road of the wood, when the dump occurs, and, in virtue of its attachment at one end to the cart-box, cannot become displaced.

The special construction of the cart-body and reach-rod, will appear in the detailed description, and be defined in the claims.

Our invention is illustrated in the accom-

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panying drawings, wherein, like letters referring to like parts throughout the several views, Figure 1 is a left side elevation of our improved cart, a part of the running gear being shown in central longitudinal section. Fig. 2 is a rear view of the cart box, removed from the truck. Fig. 3 is a transverse vertical section taken on the line X X' of Fig. 1, looking toward the rear of the cart, a part of the spring latch being broken away. Figs. 4 and 5 are sectional views taken, respectively, on the lines Y Y' and Z Z' of Fig. 3, showing the construction of the corners at the front end of the cart box. Fig. 6 is a plan view of the cart truck proper, with box removed, showing our preferred form of the reach-rod or pole; and Fig. 7 is a similar view, showing a modified form of the reach-rod.

Referring briefly to the cart as an entirety, A and B are respectively the team and body trucks of the cart, connected by a reach rod C; and D is the body or dumping box; hinged to the said rear truck B. The team truck A is of the ordinary form provided with a removable king bolt or coupling pin *a*. The reach-rod C is preferably constructed of a pair of angle irons, having their flange edges secured together, in the form of a channel iron, as shown in Figs. 3 and 6; and having their rear ends C' divergent, forming a Y. These divergent ends of the Y shaped reach-rod, may be directly secured to the axle *b* of the body truck B; but are, as a matter of preference, attached to the said axle by means of upper and under extension bars C² C³, respectively. The forward part of these bars C² C³ are rigidly clamped and secured to the said divergent ends of the reach rod, by means of nutted bolts C⁴ passing through perforations in the said parts; and the rear ends of said bars C² and C³ are clamped onto and securely held with the axle *b* by means of a pair of nutted clamp bolts C⁵ on opposite sides of the axle.

At the front end, the angle irons composing the reach-rod C are united by a U shaped iron C⁶, through perforations C⁷ in which and the upper flanges of the reach-rod, the king bolt *a* of the team truck is inserted in coupling the trucks together. About midway of the reach-rod, the angle irons are again secured together by means of bolts and nuts C⁸ working through a filling block C⁹. As is obvious, in virtue of this construction, the reach-rod, while being comparatively light, will have a great strength both in the vertical and lateral direction. The rear ends of the upper extension bars C² are provided with vertical perforations or hinge-eyes C¹⁰, in each of which work one of a pair of hinge-eyes E rigid on a transverse angle-bar E'. This angle-bar E' is rigidly secured to the bottom of the dump box D, and the engagement of the said hinge-eyes C¹⁰ and E, constitute the connecting hinge between the box and the axle.

Referring in detail to the construction of

the cart box, *d* is the bottom of the box which is preferably made of wood; *d'* are the sides and *d²* is the front end, each of which parts are formed of sheet metal plates. The bottom, the sides, and the front end are all rigidly secured together by means of U shaped metallic yokes *d³*, *d⁴*, *d⁵*, *d⁶* and *d⁷*; these yokes are preferably made of angle irons as shown in the drawings. Of these yokes, the horizontal yoke *d³* forms the bottom corner and brace, and the vertical yoke *d⁴* forms the front end corner and brace, both yokes being formed integral or solid at their meeting or coincident edges. The manner in which the said angle iron braces *d³* and *d⁴* form the corner of the box is illustrated in Figs. 4 and 5. The horizontal yoke brace *d⁵* forms the upper supporting rim of the box. The vertical rear end yoke *d⁶* has its bottom portion secured to the under side of the open end of the box, extends outward beyond the same, is bent upward and inward at the opposite sides of the box, as shown in Fig. 2, and is rigidly secured at its upper ends to the opposite sides of the open end of the box. Preferably the corners of the open end are faced with angle iron posts *d⁸* rigidly secured thereto; and the connection of the upper ends of the yoke *d⁶* to the box, is made to said posts *d⁸*. In virtue of this construction of the yoke *d⁶*, the outer portions of the same taken together with the posts *d⁸*, form triangular braces for the rear end of the box, thus affording an extremely rigid and simple construction. The yokes *d⁷* are intermediate braces for strengthening the central portion of the box, in a lateral direction.

To the front end of the box, located centrally thereof, is secured a spring latch F, provided with a hand piece G. This latch F is automatically engaged by the down motion of the front end of the cart, with a latch lug or catch block F', rigidly secured to the reach-rod; and is disengaged from said latch lug for the purpose of dumping the cart, by means of the hand piece G. The latch lug F' also serves as a stop or rest for the forward end of the box.

H is the collapsible gate which, as shown, is in the form of a chain-net permanently secured to one margin of the open end of the cart by means of eye-bolts *h*. The free ends of the cross chains of the net are provided with enlarged links or hook-eyes *h'* engageable with latch hooks K, for temporarily securing the free end of the gate in its closed position.

The series of pivoted latch-hooks K, are secured to the side of the box at its rear left margin, as shown, working through elongated slots K' in the left vertical angle post *d⁶*, and projecting to the rear of the same. All of the series of latch-hooks K are connected for a common movement, by means of a tie rod K², and one of said hooks, as shown, the lower hook, is provided with a handle extension K³, by means of which the entire series of hooks

may be simultaneously set in either locked or releasing positions.

Referring to Fig. 1, the full lines show the locked positions of the hooks, and the dotted lines indicate the releasing positions of the same. The hooks and their connections are set under sufficient friction to hold the said parts in their releasing positions against gravity. This friction may be given in any suitable way, as by making the pivoted joints of the hooks and their connections sufficiently tight.

It will be observed that the engaging ends of the hooks K, when thrown into the releasing positions, while the box remains in its normal position, will stand at an angle to a horizontal plane, of about forty-five degrees; thence the hook-eyes h' at the free ends of the gate-chains, will not be immediately released. When, however, the cart box is dumped, the said hook-ends will be turned downward, and under the increased pressure of the load in the box, the gate will be thrown open, and to one side, in a collapsed condition. As the chains collapse the very instant that they are released from the hooks, by the pressure from the load, they do not in anywise obstruct or interfere with the dumping of the wood. As they are fast to the box at one end they cannot be displaced or lost. The chains will not break and will last indefinitely.

It is obvious that the hooks K might readily be given sufficient movement, by the action of the hand lever, to release the gate before dumping the cart; but we prefer to construct the same as previously set forth. It is also evident that various other alterations in the construction and arrangement of the devices might be made, without departing from the spirit of our invention. For instance, the collapsible gate might be constructed out of rope or wire cable. In other words, a gate constructed of any material or in any manner which would give a collapsible structure, would fall within the scope of our invention.

The phrase, "collapsible gate" as used throughout the specification, and the claims of this case, is meant to signify a structure having the properties of a chain, rope, wire, net, or in other words, which is not self-sustainable. The chains or chain net are, however, by far the most desirable construction. Rope would not stand the wear and tear from the work for any considerable length of time. Wire cable would answer fairly well, but would not be so flexible as the chains.

The words "permanently" and "temporarily" as used in the description of the fastenings for the flexible gate and in the claims are intended to apply to the functions of the said fastenings in the operation of the gate. As is obvious, the fastenings h , termed "permanent" might readily be made removable in construction.

Fig. 7 shows a modified form of the reach-rod, in which the angle irons M of the rod

are run straight and are secured to the axle at their rear ends by the bolts and nuts m . In this construction, the extension bars C^2 are provided with forwardly projecting angular brace extensions m' which are secured to the sides of the reach rod by means of nuts and bolts m^2 , thus forming side braces for strengthening the reach-rod. The other details of construction used in the truck are similar to those shown in Fig. 6.

The cart-box and reach-rod constructed as herein described, are of less weight than the wooden cart-box and reach-rod hitherto used, and are much stronger and more durable. They will last for a great while under the roughest usage.

The collapsible end gate herein shown and described is, of course, applicable to all kinds of carts, and effects a large economy in time and expense.

What we claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A dumping box for carts or other vehicles provided with a collapsible end gate permanently secured to the box at one margin, and temporarily securable thereto at the other, whereby, when the same is released at one margin, the load may be dumped without interference or loss of the end gate.

2. A dumping box, for carts or other vehicles, provided with a collapsible end gate composed of chains permanently secured to the box at one margin, and temporarily securable thereto at the other, substantially as and for the purpose set forth.

3. A dumping box for carts or other vehicles provided with a collapsible end gate, consisting of a chain net permanently secured to the box at one margin, and temporarily securable thereto at the other, substantially as and for the purpose set forth.

4. In a cart or other dumping vehicle, the combination with a dumping box and a collapsible end gate of fastening or latching devices on the box, for securing the free end of the gate; adapted to be set in advance of the dump, to permit the release of the gate in the dumping action.

5. In a cart or other dumping vehicle the combination with a dumping box and the collapsible end gate, consisting of a series of chains permanently secured to one margin of the box, of a series of pivoted latch hooks on the opposite margin of the box for temporarily securing the free ends of the chains, substantially as and for the purpose set forth.

6. In a cart or other dumping vehicle, the combination with the dumping box and the collapsible end gate consisting of a series of chains attached at one end and free at the other, of a series of pivoted latch hooks for temporarily securing the free ends of the chains connected for a common movement, and a hand device for operating said latches, substantially as and for the purpose set forth.

7. The combination with a dumping box of

- the collapsible end gate consisting of a chain net, permanently attached to the box at one margin, and free at the opposite margin, of the series of pivoted latch hooks on the box connected for a common movement, engageable with eye links on the free end of the chain net, and adapted to be set in advance of the dump to release the free ends of the net on the dumping movement of the box.
8. The combination with the dumping box of the chain net end gate attached at one margin of the box, and pivoted latch hooks, one of which is extended to form a hand lever, and the rod connecting said hooks, the said parts working under friction, adapting the same to stay where set, substantially as and for the purpose set forth.
9. In a dump cart, the combination with the reach-rod, provided with a catch lug, of the dumping box provided at its front end with a spring catch automatically engageable with said lug, and provided with a hand piece for disengaging the spring from the lug, substantially as described.
10. In a four wheeled dump cart, a reach-rod or coupling pole constructed of angle iron for affording great strength with relatively small weight, substantially as described.
11. In a four wheeled cart, a reach-rod or coupling pole constructed of angle iron in the form of a Y, with the divergent parts of the same attached to the cart box axle, whereby the reach rod is self braced from the rear axle.
12. A dump cart box constructed with sheet metal sides and front end, and a series of U

shaped metallic yokes securing said sides and front end together and to the bottom of the box, substantially as described.

13. A dump cart box constructed with sheet metal sides and front end, and a series of U shaped yokes formed of angle iron securing said sides and front end together and to the bottom of the box, substantially as described.

14. A dump cart box constructed with sheet metal sides and front end and a series of U shaped yokes securing said sides and front end together and to the bottom of the box; said yokes comprising the horizontal bottom yoke d^3 , and the vertical end yoke d^4 said yokes d^3 and d^4 forming corner irons for the bottom and front end corners of the box, substantially as described.

15. A dump cart box constructed with sheet metal sides and front end and a series of U shaped yokes securing said sides and front end together and to the bottom of the box; said yokes comprising the rear end yoke d^6 secured to the bottom margin of the rear end of the box, extending outward beyond the box, turned upward and inward, and secured to the sides of the box, or box frame, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

EBEN L. HIGGINS.
GEORGE W. HIGGINS.
ELMER E. HIGGINS.

Witnesses:

GEORGIA KIPP,
JAS. F. WILLIAMSON.