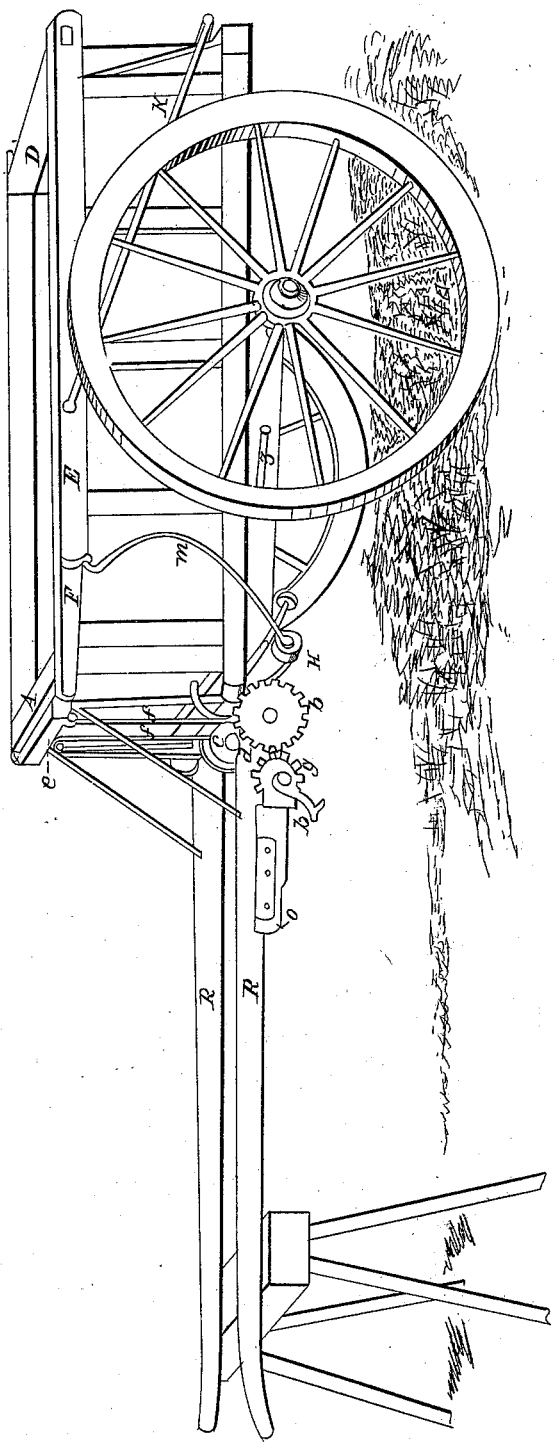
3 Sheets—Sheet 1.

T. MUSSEY.

Dumping-Wagon.

No. 4,250. Patented Nov. 1, 1845.

Fig. 1



3 Sheets—Sheet 2.

T. MUSSEY.

Dumping-Wagon.

No. 4,250. Patented Nov. 1, 1845.

Fig 2.

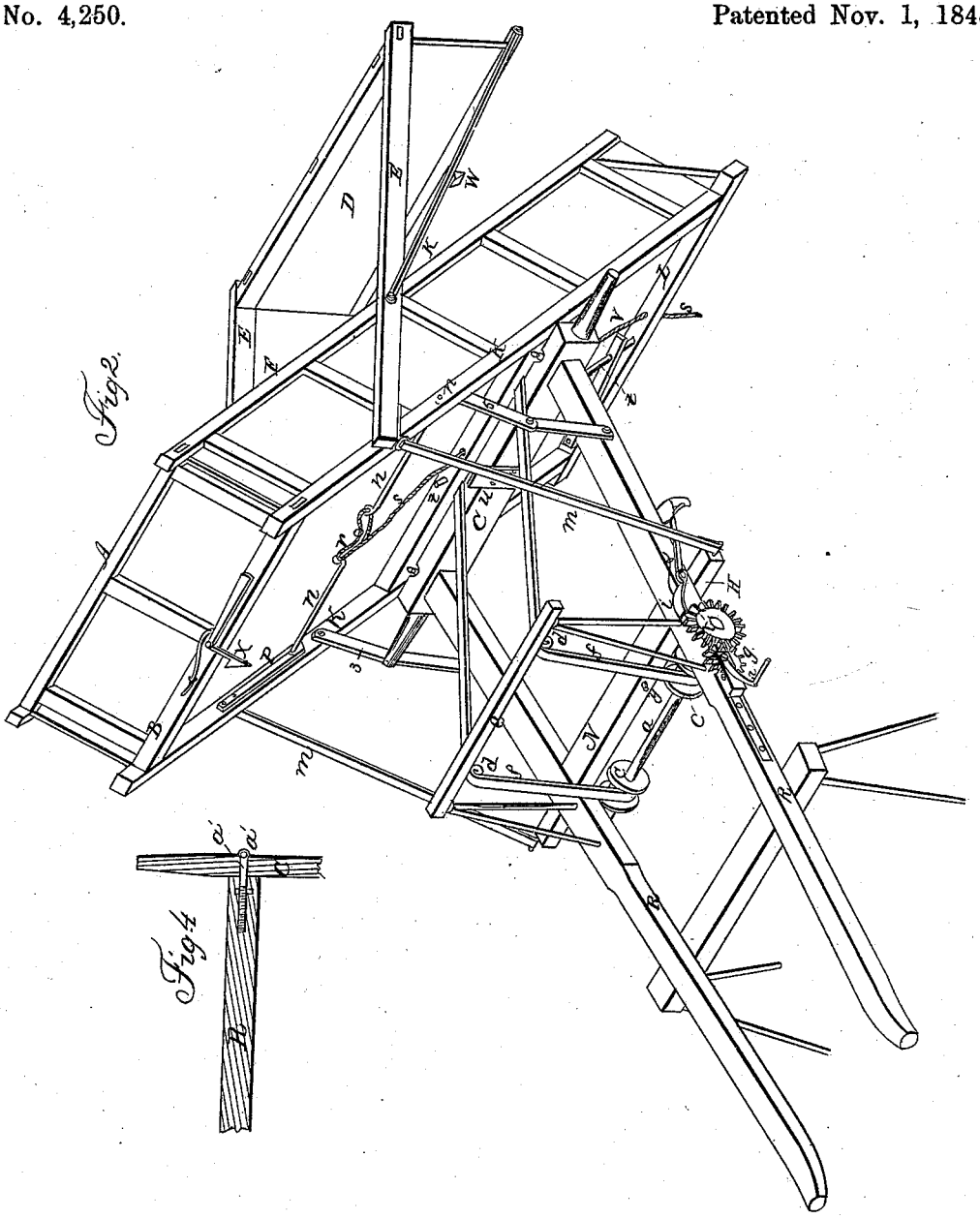


Fig 4.

3 Sheets—Sheet 3.

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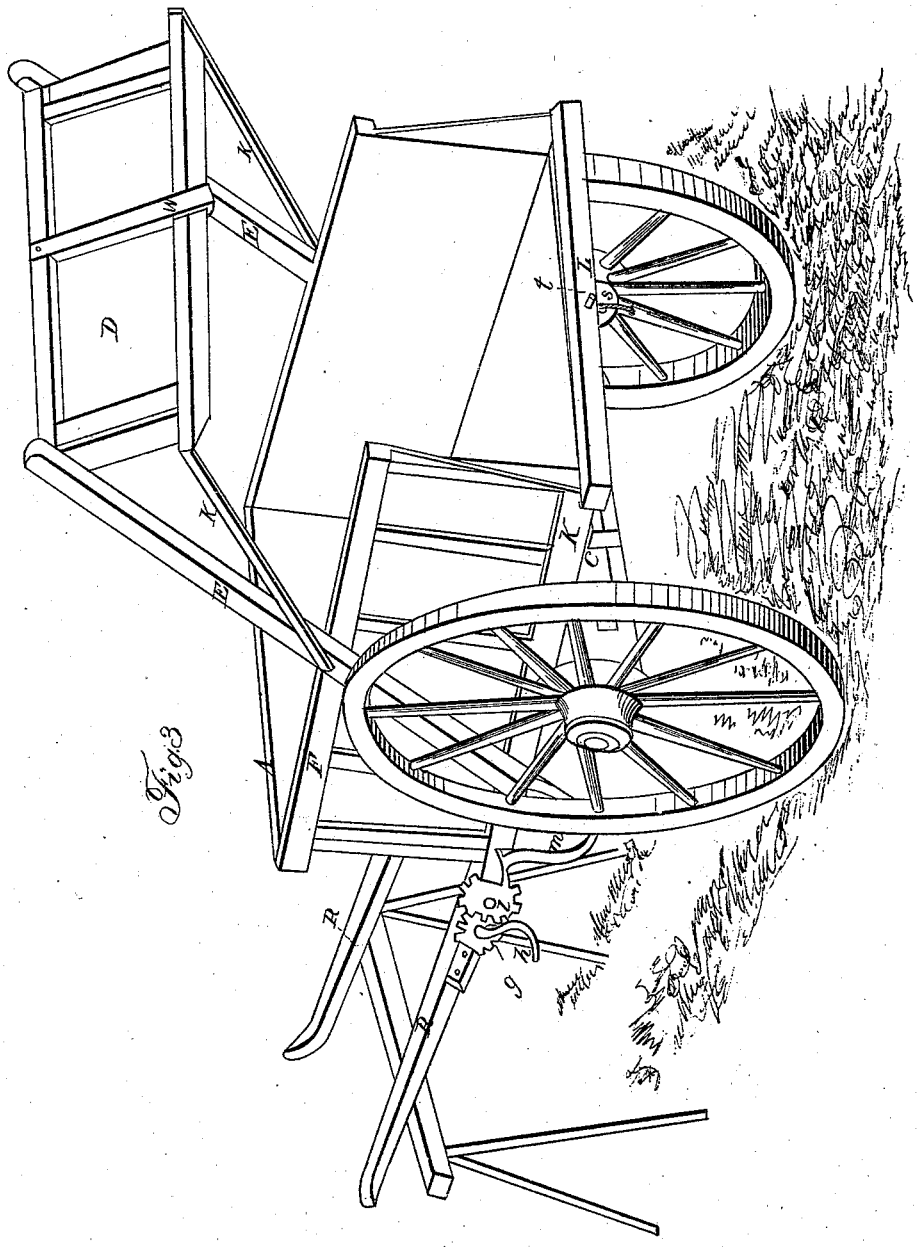

Fig. 3

UNITED STATES PATENT OFFICE.

THOMAS MUSSEY, OF NEW LONDON, CONNECTICUT.

MODE OF OPERATING CART-BODIES.

Specification of Letters Patent No. 4,250, dated November 1, 1845.

To all whom it may concern:

Be it known that I, THOMAS MUSSEY, of New London, in the county of New London and State of Connecticut, have invented certain improvements in the common cart to be used in carting coal, gravel, dirt, and any other material requiring a head and tail board, which may be styled a "labor-saving cart;" and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the cart, as it stands whether loaded or not; Fig. 2 is a perspective view of the front and side as in the act of discharging or dumping the load, and exhibiting the position of the tail board suspended by the levers which control it; Fig. 3 is a perspective view of the side and back of the cart with its tail board thrown up, for the purpose of loading.

It is well known to carters and carmen, that a horse will draw up hill a greater load when a part of it rests on his back, than when he has nothing but his own weight to give him foot hold. But when there is great weight on the fore part of the cart, it requires corresponding strength in the carter to tip up the load.

To obviate this difficulty, multiplied power is used on the principle of the windlass, which is effected in this manner. A bar of iron *a*, about an inch in diameter is fitted, so as to have its bearings attached to the thills or shafts in front of the cart body, one end of the bar projecting from the shaft, on the near side, so as to receive a spur-wheel *b* about 6 or 8 inches in diameter. On the same bar, at a little distance from each of the shafts, are secured two small snails or fixed pulleys *c*, *c*, of cast iron about 2 inches diameter, with holes cast in them, of the size of the bar *a*, and with flanges on the rims so as to admit straps *f*, *f*, of strong harness leather between them of two or more inches wide; one end of each of these straps is sewed to a pin or bolt which passes through the flanges, the other ends pass up over pulleys or rollers *d*, *d*, pendant to a cross piece of wood *e*, (which cross piece is supported by iron studs well braced, and lies close to the cross piece A at the top of the head-boards,) the straps then pass down from the pulleys under the fore cross sill B and thence to the axle C where they are made fast. A small pinion *g* about 3 inches diameter having cogs to match those of the spur wheel *b* on the windlass arbor *a*, is made to work in a plate attached to the side of the thill, thus bringing the pinion *g* in contact with the spur wheel *b* so as to turn it around. To the arbor of the pinion is fixed a crank *h* by which the power of tipping the cart-body is increased by the straps and windlass at the rate of 20 to 1 or more if necessary.

Carts may be made without these fixtures having all the advantages of the self working tail boards, or these may be so attached to the cart by screws that they can be removed and the cart used without them.

One great superiority in the use of the windlass consists in the power thus gained of adapting the cart to hilly roads. In descending a hill it becomes easier for the horse to carry the load when thrown as far as possible back of the axle, which can be accomplished simply by the use of either a ratchet wheel, or a ratchet *i*, made to play into the spur wheel *b* whereby the front of the cart body can be raised to any desirable height, by means of the straps *f*, *f*, passing under the front sill B of the same, as before described, and by the use of sprung or bent thills, the cart can in like manner be let down in front, thus assisting the horse in ascending any elevation.

The tail board D is secured to the cart body by two balance levers (Fig. 2) E, E, to which it is made fast at the top, the bottom being secured by two braces *k* leading forward to the middle of the levers, when they are fastened to the rave of the cart F by bolts, which serve as fulcrums to support and move the tail-board up and down. To the forward ends of the levers iron loops are fastened to receive check straps *m*, *m*, which connect the levers with the ends of the cross piece H, under the thills near the forward end of the cart (Fig. 2) so that when the body is tipped the hind end drops from the tail-board leaving it suspended by the levers which gives the load a free passage to the ground. These straps should be made of good strong harness leather with a buckle on one end so that they may be lengthened or shortened at pleasure in the manner of stirrup leathers.

It will be observed that the straps on the model hang loose allowing the cart to tip

several inches before there is any opening at the tail-board, the object being to throw part of the weight back of the axle before the load begins to discharge, so that the center of gravity having passed that point the load tips much easier going all together. The same effect may be produced by ropes or chains instead of leather and the same for tipping the cart by the windlass. Also rods or hoop iron may be used to connect the levers with the thills, but to give the load liberty to tip before the cart opens behind there must be slots or joints in them to permit them to vary their lengths, so that the object above stated may be attained. Another mode is to connect the thills and levers by simple rods or other fastenings as long only as will reach from one to the other in this case however the cart will begin to open behind as it begins to tip.

To raise and tip by the crank and windlass, studs may be used hanging down by the thills and wound up by the windlass but they look clumsy and are rather in the way.

To facilitate loading the tail-board may be thrown up and so secured in the following manner. About half way between the axle and the front ends of the side sills K K are holes made in the sills through which spring bolts *n n* pass projecting out about $\frac{3}{4}$ of an inch, being within the sweep of the ends of the balance levers, these bolts are riveted into springs P, P, which are screwed to the inside of the sills so that they force the bolts out. The ends of the bolts which come in contact with the levers as the tail-board rises are sloped so as to admit the levers to pass by pushing them in, and when they have passed, the springs force them out, so that they catch and hold the lever till by another process they are drawn in again and this is performed as follows. A wire or cord *r*, is stretched across the underside of the cart connecting the springs and bolts and to this another cord *s*, is fastened near the middle and passes over the axle to the hind end of the cart, where it goes through a hole in the hind cross sill L, or through a staple—the cord having a knot tied in it to prevent its slipping out. The following is the plan for keeping the tail-board firmly down when the cart is traveling over rough roads. A hole is made in the hind cross sill L, near the center through which a rod *t* about $\frac{3}{8}$ of an inch diameter passes steeled at the end to guard it from wearing as it works against a spring catch *w*. This rod extends forward till it abuts against an iron U, projecting up from the axle: at the hind end near the cross sill L a notch is made in the rod to fit it to a slit in the end of a spring *v* screwed on the sill L. This spring forces the rod forward until the end is drawn within the hole, when the forward end of the body of the cart is raised a few inches, but when the cart body is brought down forward to its proper place, the rod comes in contact with the iron U on the axle, which forces it back so that it becomes a catch to hold down the tail-board.

A spring *w* with a catch attached is screwed to the tail-board and this seizes the rod and fastens the tail board but it may be easily raised by pulling a knob on the spring so as to relieve the catch. The cart body is fastened down forward by a spring catch X bolted to the fore cross sill B, and a stud *y* projecting from the cross bar N of the thills.

About 18 inches from the axle on the thills and at the same distance on the side sills K, K, check joints *z*, *z*, are secured to their inner sides by bolts; they lie folded when the fore end of the body is down, but when it is raised for dumping, they open as shown in Fig. 2, and check it at the proper angle for discharging. The thills R R are secured to the axle C by screw bolts *a'*, *a'*, with eyes back of the axle, into which the snipe bills of the cart body constructed as usual are inserted, they should be made pretty stout and long penetrating well into the ends of the thills; when so made and fitted they constitute the strongest, simplest and cheapest fastenings for that part of the cart that can be adopted.

All the apparatus here used may be applied equally as well to ox as to horse carts and the tail-board and levers being secured by bolts may be removed at pleasure.

Having thus fully described the construction and operation of my labor saving cart, what I claim therein as new and desire to secure by Letters Patent, is—

1. The combination of the shaft *a*, crank *h*, pinion *g*, spur wheel *b*, ratchet *i*, pulleys *c*, *c*, and *d*, *d*, straps *f*, *f*, and elevated cross piece *e*, arranged and operating substantially in the manner and for the purpose herein set forth.

2. I also claim the combination of the tail board D, balance levers E, E, straps *m*, *m*, and cross piece H; arranged and operating substantially in the manner and for the purpose herein set forth.

3. I also claim the combination of the bolt *t*, spring *v*, spring catch *w*, upon the tail board, and metallic plate *u*, upon the axle, arranged and operating substantially in the manner and for the purpose herein set forth.

THOMAS MUSSEY.

Witnesses:
Z. C. Robbins,
Henry Sizer.