

A. E. LAWRENCE.
DUMPING WAGON.

No. 467,939.

Patented Feb. 2, 1892.

Fig. 1.

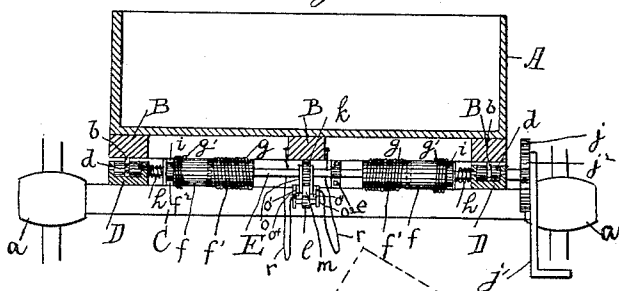


Fig. 2.

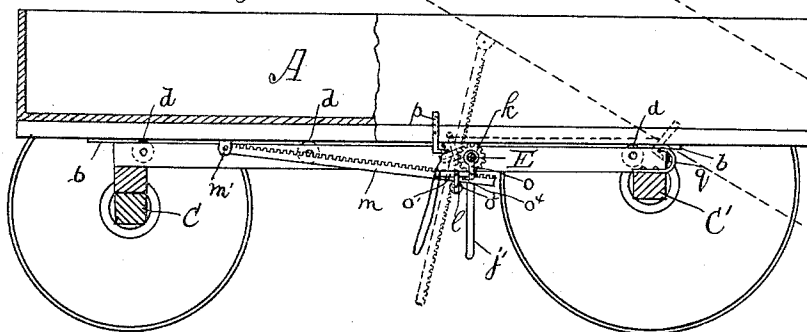
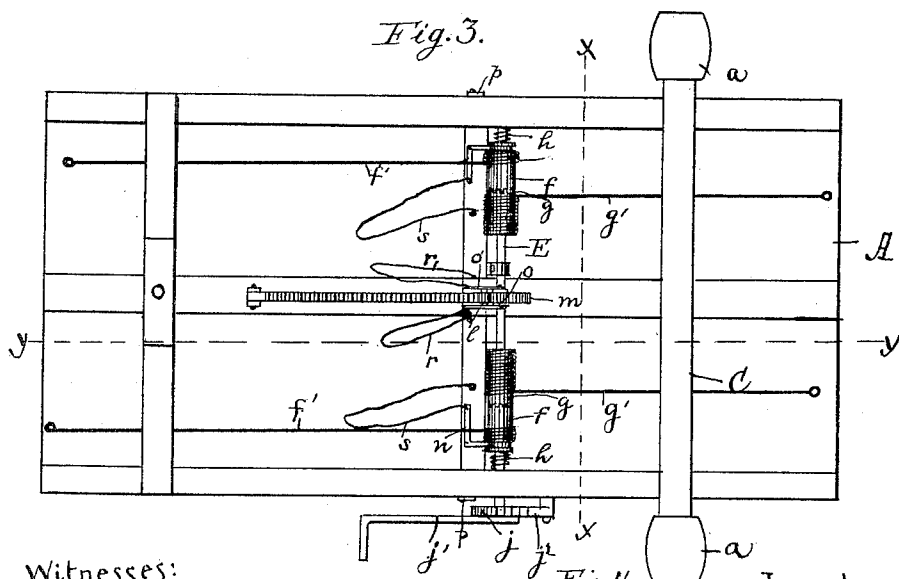
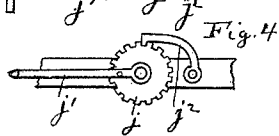


Fig. 3.



Witnesses:

E. S. L. Lawrence
W. P. B. B. B. B. B.



Inventor:
Alfred E. Lawrence
by S. M. Bate
att'y.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

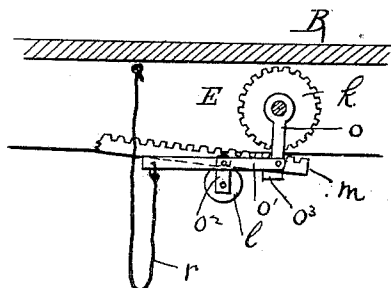
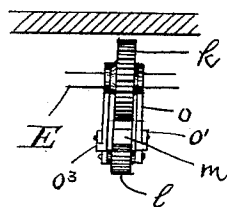


Fig. 6.



Witnesses:
Alfred E. Lawrence
Alfred E. Lawrence

Inventor:
Alfred E. Lawrence
by *S. M. Bates*
his atty.

UNITED STATES PATENT OFFICE.

ALFRED E. LAWRENCE, OF DANVILLE JUNCTION, MAINE.

DUMPING-WAGON.

SPECIFICATION forming part of Letters Patent No. 467,939, dated February 2, 1892.

Application filed August 6, 1891. Serial No. 401,819. (No model.)

To all whom it may concern:

Be it known that I, ALFRED E. LAWRENCE, a citizen of the United States, residing at Danville Junction, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Dumping-Wagons; and I 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.

My invention relates to tilting or dumping carts of that class wherein the weight of the body is distributed on the four wheels about equally.

The object of the invention is to construct a cart which can be dumped without lifting the load bodily, and which can be durably and cheaply constructed.

My cart has a cart-body which is adapted to slide longitudinally on the running-gear, so that it can be run back until its center comes over the rear axle and then tilted up and dumped. It is run back and forth by means of a chain or cord attached at each end of the cart-body and wound on two barrels, one fast and the other loose, on a shaft. The fast and loose barrels are normally in contact and their ends interlock. They are automatically separated when the body is at its tilting position, at which time a rack on the under side of the cart comes to a vertical position and comes into engagement with a pinion on said shaft, so that the shaft, after winding up the cord on the loose barrel which draws the cart-body back, continues to rotate in the same direction and forces up the rack, which is brought into contact with the pinion and so dumps the cart.

I illustrate my invention in the accompanying drawings, in which—

Figure 1 is a cross-section on *xx* of Fig. 3. Fig. 2 is a part section and part elevation on *yy* of Fig. 3, and Fig. 3 is a view of the under side of the cart, looking from beneath. Fig. 4 is a detail of ratchet and pawl. Fig. 5 is an enlarged side view of the rack and the means of supporting its end, and Fig. 6 is an end view of the same.

A is the cart-body, *a* the wheels, *C C'* the axles, and *B B* the stringers on the under side of the cart-body. Attached to the running-

gear on each side is a stringer *D*, directly under the side stringer *B*. Anti-friction rolls *d* are mounted at intervals in the top of the stringer *D*, and in these rolls are grooves within which fits the rail *b*, secured to the under side of the stringer *B*. The cart-body slides longitudinally on these rolls and is held in place laterally by the rail. On each side of the body and at about the middle point is a hook *p*, which engages a lug or fulcrum *q*, secured on the rear axle when the cart is pushed back to its dumping-point. The fulcrum *q* is preferably of wrought-iron and is bolted to the axle and turned up to form a bearing under which the hook *p* strikes when it comes back and which allows it to tilt readily. The cart-body is moved back and forth by means of cords or chains *f' f'*, attached to the forward end of the body on the under side, and cords or chains *g' g'*, attached to the rear end of the cart-body. The cords *g'* are wound upon fixed barrels *g g*, secured on a transverse shaft *E*, journaled to the running-gear. It has a box *e* in the center, and is journaled at its ends in the stringers *D*. The cords *f' f'* are wound on loose barrels *f f* on the same shaft and the ends of the barrels *f* and *g* are constructed with interlocking teeth, so that they form the parts of a clutch. The loose barrel is forced into contact with the fixed barrel by means of a spring *h*, coiled about the shaft *E*. The cords are wound about the barrels so that as one winds up the other will unwind.

I provide means for disengaging the two barrels when the cart is back at its tipping-point. This is done, as here shown, by an elbow-lever *n*, pivoted to the running-gear and having one end play in a slot or annular groove on the surface of the loose barrel *f*. The other end of the lever is connected to the cart-body by a cord or chain *s* in such a way that when the body is at its tipping-point the chain will become taut and pull the end of the lever forward. This movement will press back the loose barrel, disengaging it from the fixed barrel and bringing it loose on the shaft, so that the latter can be turned without drawing on the chain *f'*, which moves back the cart. The cart-body is tilted after it is moved back to its tilting position by a rack and pinion. The rack *m* is pivoted to

the under side of the cart-body toward the front, and its free end is suspended normally below the pinion k by an anti-friction-roll l . When in its normal position, the tooth side of the rack, which is uppermost, is out of contact with the pinion, so that as the cart-body moves back the teeth of the rack will not catch on the pinion. When the pivoted end of the lever arrives at a point directly in front of the pinion, the free end drops down, bringing it into a vertical position, or nearly so. At this point it is desirable to draw it into engagement with the pinion. I accomplish this by hanging the roll l , which supports the rack, on a system of links and levers by which it is made to draw up against the back of the rack when the cart is at its tilting-point. I attach a link o to the shaft at each side of the pinion, and to the lower end of this link o I pivot one end of a lever o' . Pivoted to some point on the lever o' is a second link o^2 , to the lower end of which the roll l is pivoted. It is to be understood that in practice each of these links and levers is duplicated, making one on each side. The rack rests on the roll l and is confined laterally by the links o and the lever o' . On the lower end of the link o there is a stop o^3 , which may or may not be used, which holds the lever o' horizontal. Secured to the forward end of the lever o' is a chain or cord r , which is also attached to the cart-body at a point directly opposite the hook p or the pivoting point of the cart-body. It will be seen that when the cord r comes taut it pulls the end of the lever o' upward and forward and brings the roll in against the back side of the rack, and so forces the rack into engagement with the pinion. On the end of the shaft is a crank j' , a pawl j , and a ratchet j^2 , having square notches, so that the pawl retains the shaft in place at any desired point.

To dump the cart all it is necessary to do is to turn the crank in one direction. The cord f' winds up and pulls the body back until the hook p engages the fulcrum q . At this point the two barrels are separated, as already explained, so that there is no longer a pull on cord f' , and the rack is brought into engagement with the pinion. The shaft continuing to turn in the same direction the rack is forced up and the body tilted to any desired height. The reverse motion is accomplished in the same manner, the rack folding up under the cart-body as the body is drawn forward. The cord g' will become slack while the tilting of the body is taking place. When the shaft is turned in opposite direction, the cord g winds up, and when the body comes to horizontal position the cord becomes taut and draws the body forward and into place. At the same time the loose barrel is released and is again forced into engagement with the fixed barrel.

My invention may be applied to good advantage to railroad or other cars or to any kind of a vehicle.

I claim—

1. In a tilting cart, the combination of a cart-body adapted to slide longitudinally on the running-gear, fulcrums on the rear portion of the running-gear, and hooks on the cart-body for engaging said fulcrums, a rack pivoted to the forward portion of the cart-body, a pinion for engaging said rack, a guide for supporting the free end of the rack below said pinion, but out of engagement therewith when the body is in its forward position, and so arranged as to draw it into engagement with said pinion when the body is at its tilting position, substantially as described.

2. In a tilting cart, the combination of a sliding body, a rack pivoted to the forward part of said body, a shaft and pinion thereon for engaging said rack, an anti-friction roll beneath said pinion on which the free end of said rack rests, a link for suspending said roll, a link suspended from said shaft at the side of said pinion, a lever pivoted at its end to the lower end of one link and at some intermediate point to the upper end of the other link, and a cord connecting the free end of said lever to said cart-body for drawing said lever and said rack into engagement with said pinion, substantially as shown.

3. In a tilting cart, the combination of a sliding cart-body, a shaft journaled beneath said cart-body, a crank for operating said shaft, a fixed barrel on said shaft, a cord adapted to be wound on said barrel and attached to one end of said cart-body, a loose barrel on said shaft, the adjacent ends of said barrels being adapted to interlock when pressed together, a spring for forcing said loose barrel toward said fixed barrel, a lever for drawing back said loose barrel, and a cord secured to the opposite end of the cart-body and adapted to wind about said loose barrel, substantially as shown.

4. In a tilting cart, the combination of a sliding body, a shaft journaled beneath said body, a fixed barrel and a loose barrel normally in contact on said shaft, said loose barrel having an annular groove, a lever for withdrawing said loose barrel, said lever being pivoted adjacent to said loose barrel and having one end playing in said annular groove, a cord attached to the other end of said lever and to the said cart-body, and cords adapted to wind on said barrels, each cord being attached to one end of said cart-body, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED E. LAWRENCE.

Witnesses:

S. W. BATES,

E. DUDLEY FREEMAN.