

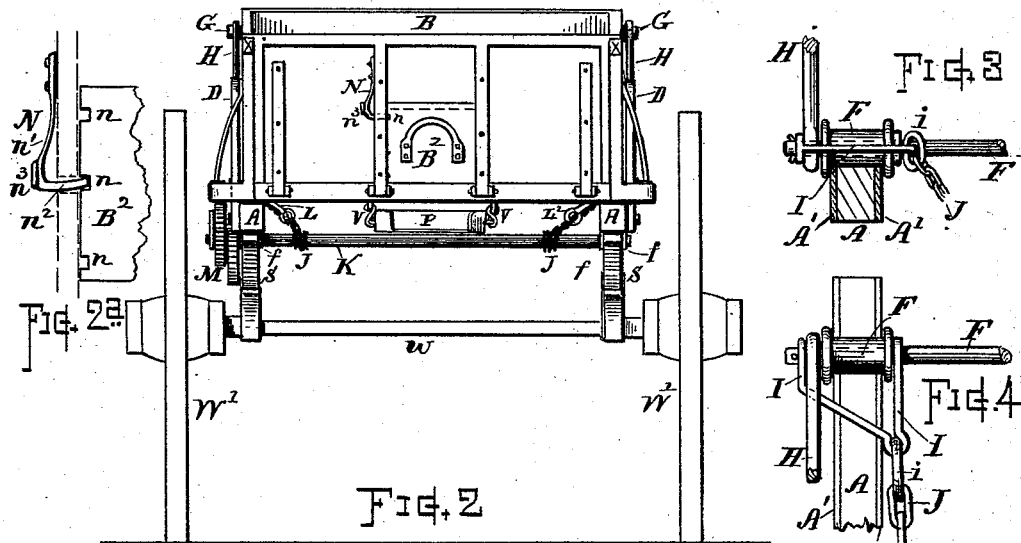
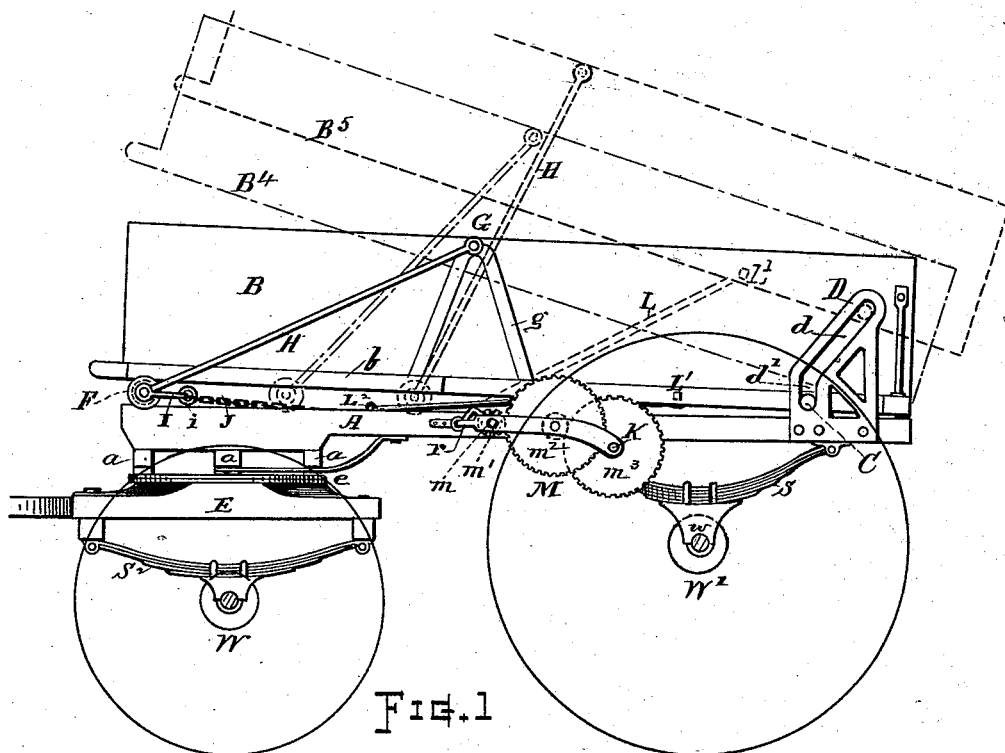
(No Model.)

2 Sheets—Sheet 1.

A. M. & H. V. CHAFFEE.  
DUMPING WAGON.

No. 524,161.

Patented Aug. 7, 1894.



Witnesses

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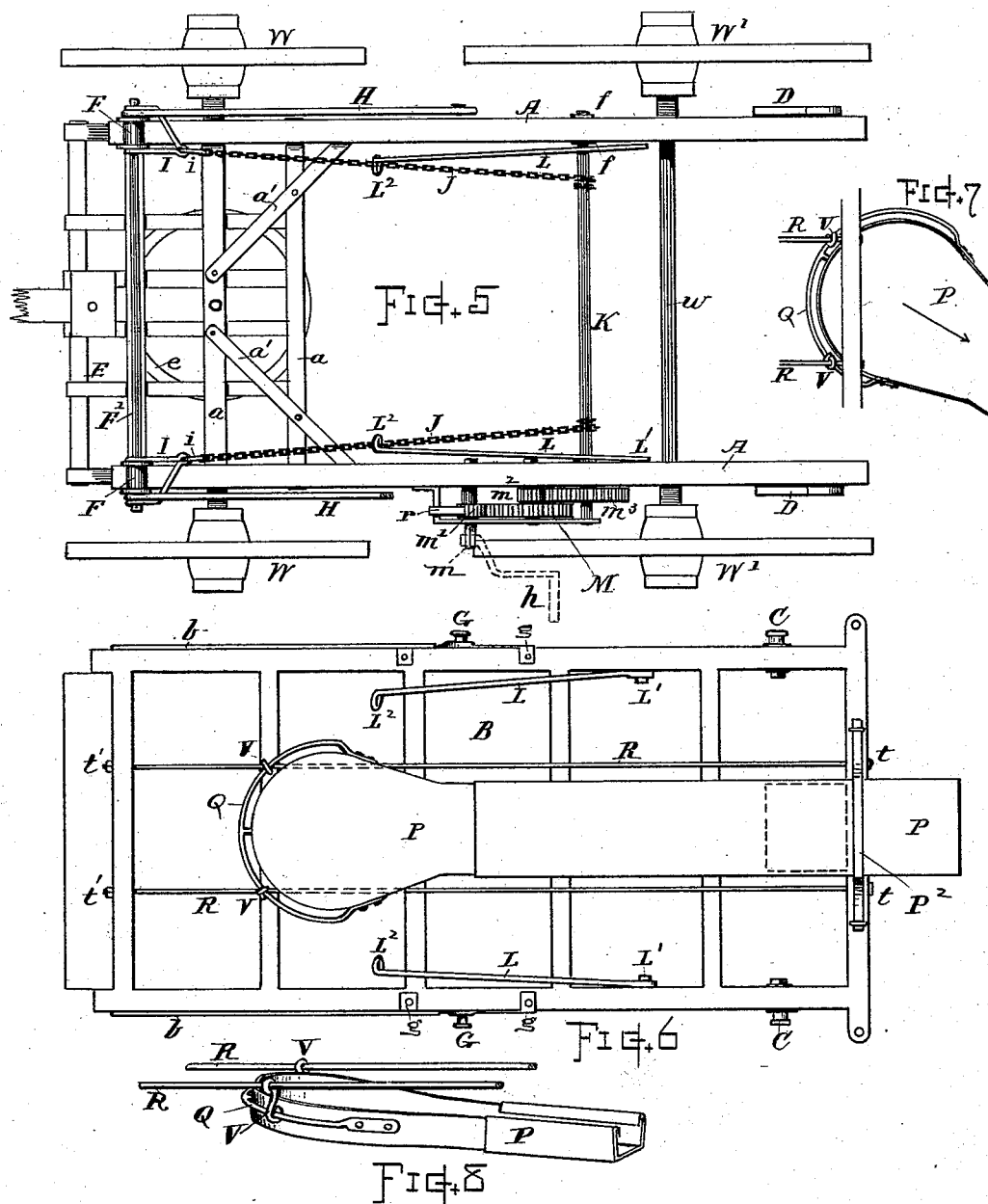
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2 Sheets—Sheet 2.

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# UNITED STATES PATENT OFFICE.

ALFRED M. CHAFFEE AND HERBERT V. CHAFFEE, OF OXFORD, MASSACHUSETTS.

## DUMPING-WAGON.

SPECIFICATION forming part of Letters Patent No. 524,161, dated August 7, 1894.

Application filed March 12, 1894. Serial No. 503,373. (No model.)

*To all whom it may concern:*

Be it known that we, ALFRED M. CHAFFEE and HERBERT V. CHAFFEE, both citizens of the United States, residing at Oxford, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Dumping-Wagons for Coal, &c., of which the following, together with the accompanying drawings, is a specification, sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of our present invention is to provide, in that class of wagons used for the delivery of coal and other materials, a powerful, efficient and easily operated mechanism for giving a tilting or dumping action to the wagon-body. Also, to produce a light, strong and durable wagon and to improve the structural detail of the mechanism to render the apparatus more perfectly adapted to the purposes of its use. These objects we attain by mechanism organized and operating as explained; the particular subject matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a side view of our dumping wagon. Fig. 2 is a rear end view of the same. Fig. 2<sup>a</sup> shows detail of the end gate holder. Figs. 3 and 4 show details of the lifter-bar, its supporting roller and connections. Fig. 5 is a plan view of the running gear, supporting frame and operating mechanism with the body removed. Fig. 6 is a bottom view of the body and delivery chute attachment. Fig. 7 is a part of the chute in plan view. Fig. 8 is a perspective view of the chute attachment.

The construction and operation of our dumping wagon are as follows:

A A denote two longitudinal bearers or sills disposed parallel to each other at a distance apart corresponding to the width of the wagon-body B, and connected together rigidly at or near their forward ends by transom bars *a a*, which are secured to the center-plate or circle *e*, whereby the structure is mounted on the swing-frame E carried by the front axle and wheels W; while at their rear ends said sills A are individually supported in connection with the rear axle W and wheels W', prefer-

ably on springs S arranged as indicated. The sills are made of approximately the same length as the wagon body, say eight feet, more or less, and are preferably formed of a rectangular wood bar with metal reinforce plates A' attached to the opposite sides thereof. (See Figs. 3 and 4.) Diagonal braces *a'* connect the sills and transom bars *a* and maintain the parts rigidly square with each other. Fixed to and projecting upward from each of the sills near its rear end is an upright guiding and supporting bracket D having therein a slot *d* the lower end *d'* of which is vertical, or nearly so, and its upper part backwardly inclined (see Fig. 1).

A shaft F' extends across the front of the wagon beneath the body B, and is provided with flanged rollers F that are supported upon and roll along the respective sills A, which latter serve as tracks for the rolls. Swinging struts or lifting-bars H extend from the ends of the shaft adjacent to said rolls obliquely upward and backward to pivot studs G fixed on the sides of the body near its upper part, as shown; said bars being provided at their ends with eyes that embrace the shaft and pivot, and form hinging joints or flexible connection therewith. The pivot studs G are best provided with sustaining straps *g* that are secured to and pass beneath the sides of the body, as illustrated.

Suitable drag loops I are combined with the shaft and rolls F (see Figs. 3, 4 and 5) carrying rings *i* into which backwardly extending chains J are secured. A transverse shaft K is journaled to turn in bearings fixed to the sill A at the position indicated, and the rear ends of said chains J are attached to said shaft to be wound upon or unwound from the same by rotation of the shaft, which can be effected by the train of operating gears M arranged in connection with said winding shaft and supported in suitable manner at the outer side of one of the sills. Said operating gearing consists preferably of the crank receiving arbor *m* carrying a pinion *m'*, the intermediate gear and pinion *m*<sup>2</sup> mounted on a stud fixed in the frame, and the gear *m*<sup>3</sup> fixed on the end of the winding shaft, said gears meshing together as shown in Figs. 1 and 5. A stop dog

$r$  is provided for locking the gear train to retain the mechanism at any position of adjustment.

The winding shaft K is best provided with collars  $f$  that are rigidly fixed on the shaft and embrace the ends of the bearing boxes for retaining the sills against lateral displacement in relation to each other, thus avoiding the necessity of other framing therefor than the front transoms  $a$ .

Beneath the body there are two forwardly extending push-bars or rods L that have their rear end pivoted to an under part of the body at  $L'$ , and their front end formed with a transverse eye  $L^2$  through which the chain J is rove, as indicated in Fig. 5.

The rear part of the body is provided with laterally projecting studs C that extend through the slots  $d$  in the brackets for hinging and retaining the body in connection with the sills; said studs being best provided with caps that prevent lateral spread of the frames. The studs C and brackets D also hold the body from swinging sidewise at its forward end, the bars H in a measure assisting to keep the body in proper lateral alignment.

When in normal position the body rests at its rear end on the sills A and at its front end on the rolls F which lie on the sills at the position shown in full lines Fig. 1; the studs C occupying the lower end of the vertical portion of the slots  $d$  in the guide brackets D.

In the operation for tilting the wagon body, the operator places the crank  $h$  on the arbor  $m$  and by means of the crank and gear-train M rotates the winding-shaft K, winding in the chains J thereby drawing backward the shaft  $F'$  to which the lift-bars H are connected; the rolls F running on the sills A causing the inclined lift-bars to assume a more nearly upright position and consequently elevating the front end of the body while the rear end rests upon the sill (see dot-and-dash lines Fig. 1). When the body has reached the position indicated at  $B^4$  the rings  $i$ , or suitable stops on chains J engage the eyes  $L^2$  of the push-rods L. Also at such position the studs C have risen in the slots  $d$  to the inclined portion thereof; then the further winding in of the chain J while further elevating the lift-bars H also at the same time forces backward the push-rods L that are attached to the body at  $L'$ , thus moving the entire body rearward and causing the studs C to slide up the incline slots  $d$  thus effecting the elevation of the body to the position indicated at  $B^5$  on Fig. 1, by dotted lines. The contents of the wagon can thus be dumped by releasing the end board  $B'$ , or delivered through the end-gate into the chute to be thereby conducted into the coal-hole or place of deposit. By reversal of this operation and the unwinding of the chains J the wagon body is readily let down to its normal position. By means of the rolls F traveling upon sills A, and the lift-bars H acting in conjunction therewith and the pivots G, a very powerful, efficient

and easily operated apparatus is produced. Also, by the arrangement of the bars L and slotted brackets D the elevation of the body can be effected in an automatic and highly satisfactory manner.

By making the slots  $d$  vertical at their lower ends the body is retained against rearward movement until its forward end has been elevated to the desired degree and until the rings I have been drawn back to meet the eyes of the push-bars, thus rendering the operation more perfectly under control and regular in its order of action.

It is obvious that the rollers, lifting bars and winding chain appliances may be employed without using the slotted brackets D, the body being simply hinged at its rear end to the sills, or with the studs C serving merely as stationary pivots instead of movable pivots; such arrangement may, in some instances, be employed but does not afford elevation at the rear of the body and is not therefore deemed as desirable as the form shown with the brackets vertically and obliquely slotted. The body is best provided with metal chafeplates  $b$  along its lower part where the lifting bars H strike the sides thereof in the various positions of elevation.

The rear end board of the body is hinged to swing downward and is also provided with a delivery opening and closed by a sliding gate  $B^2$  as indicated; this gate we provide with notches  $n$  in one side (see Fig. 2<sup>a</sup>) and combined therewith we arrange a spring holder N having a flat portion that screws onto the frame, a spring portion  $n'$  and a bolt or nose  $n^2$  that extends through the frame and engages the notch in the slide, and a thumb-flange  $n^3$  for retracting the bolt.

Underneath the bottom of the body B we provide two parallel rods R R secured only at their front and rear ends to the body frame, as at  $t t'$ . The coal delivery-chute P, which is arranged to be drawn out and slid under the body, has its head suspended from said rods by means of a semi-circular bail Q, attached to the head, and loose running connectors or hooks V that can slide freely on said rods and also on the bail Q, thereby forming a flexible running connection that not only allows the chute to be drawn out to rearward, but also permits of the chute being swung to a position of right or left inclination, as indicated by Fig. 7. When under the body the rear end of the chute P is suspended by a leather strap  $P^2$ , or other convenient fastening, secured to clips or eyes fixed on the body frame, as indicated in Fig. 6. The chute P is omitted from the drawings Fig. 1 in order to more clearly illustrate the action of the wagon-body adjustment and the mechanism for effecting the same.

What we claim, and desire to secure by Letters Patent, is—

1. In a dumping wagon the side brackets having the slot therein for the body-retaining studs shaped as shown, the lower part of said

slot to resist backward movement of the stud until the wagon front is at a given degree of elevation, and the upper part to afford backward and upward movement thereof; in combination with the sills, lifting mechanism mounted thereon for elevating the body, and push-bars engaged and actuated by said lifting mechanism, for imparting endwise movement to the body when elevated above said  
10 given degree, substantially as set forth.

2. The combination with the sills mounted on front and rear traveling wheels, the slotted side brackets fixed to said sills near their rear ends, and the wagon body having lateral  
15 studs engaging with said slotted brackets, the lifting-bars pivoted to the sides of said body, the rollers and roll-shaft carrying the lower

ends of said lifting-bars, said rollers running upon said sills as a track, the winding shaft, the chain connecting said rollers and lift-bar 20 carrying devices with said winding-shaft, the push-bars pivoted to the body and having eyes that engage with said chain, and the crank-actuated gearing for rotating said winding-shaft, substantially as set forth. 25

Witness our hands this 3d day of March, A. D. 1894.

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