No. 647,284. Patented Apr. 10, 1900.

S. J. WETMORE.

DUMPING WAGON.

(Application filed Apr. 7, 1897. Renewed Oct. 28, 1899.)

(No Model.) 3 Sheets—Sheet 1.

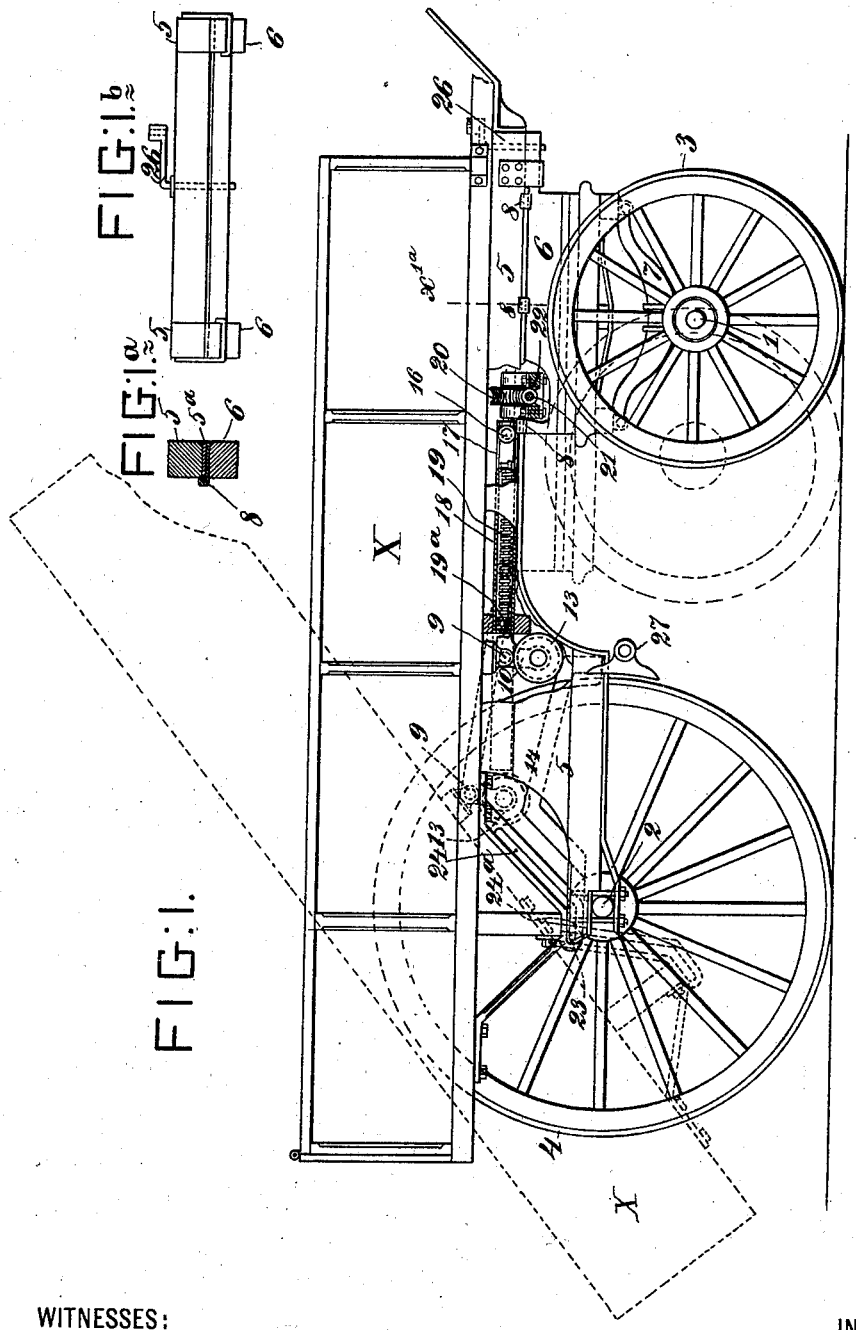

FIG. 1.

FIG. 1a.

FIG. 1b.

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FIG. 6.

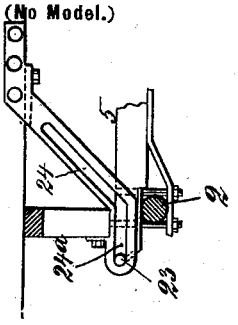

FIG. 5.

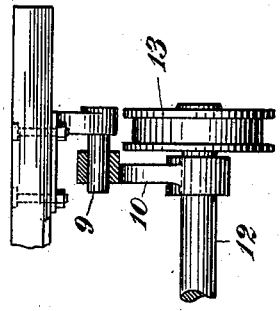

FIG. 2

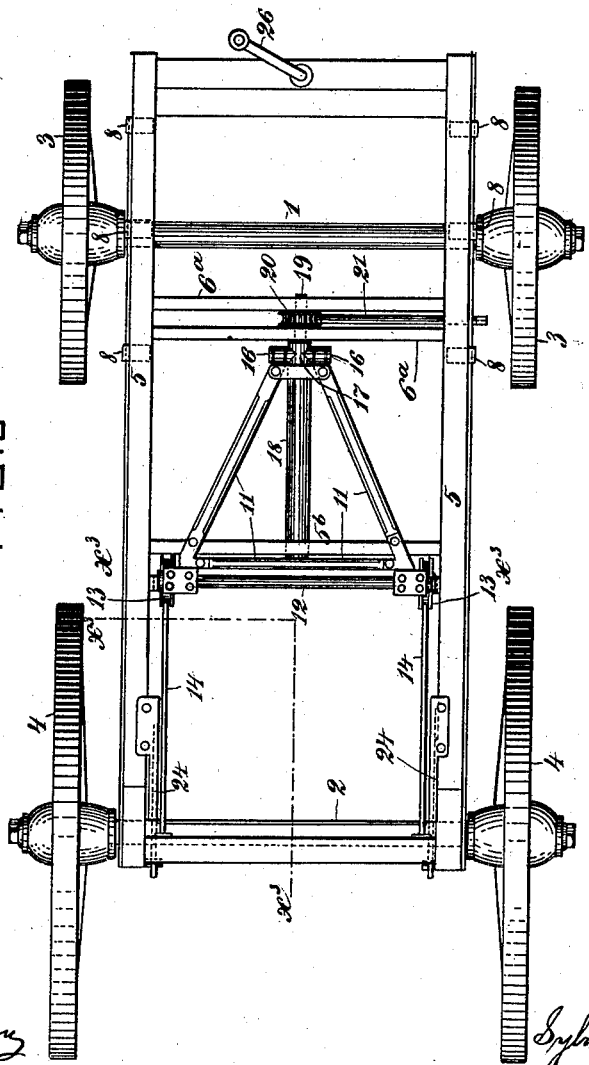

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FIG. 4.

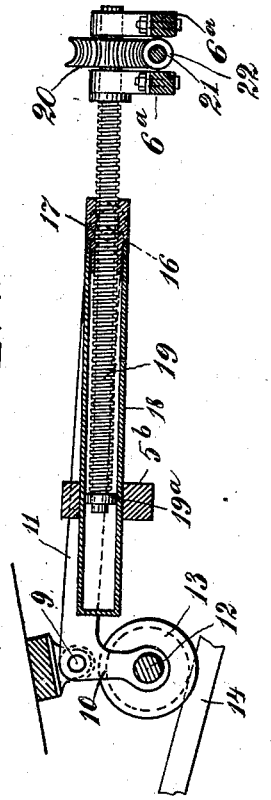
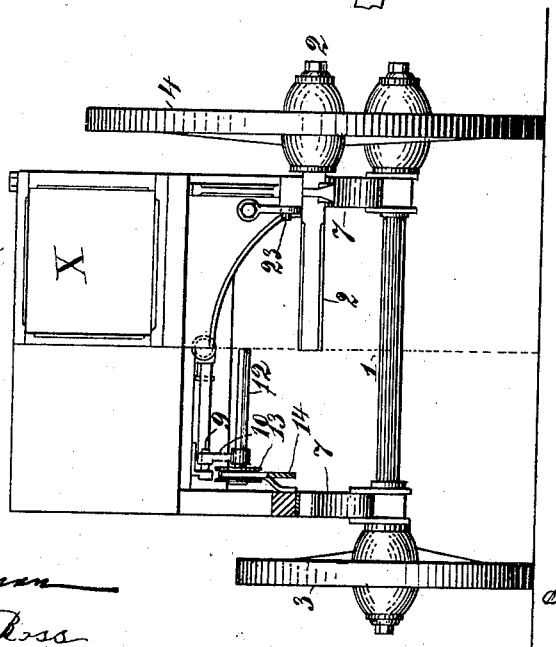


FIG. 3.



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SYLVESTER J. WETMORE, OF NEW YORK, N. Y.

DUMPING-WAGON.

SPECIFICATION forming part of Letters Patent No. 647,284, dated April 10, 1900.

Application filed April 7, 1897. Renewed October 28, 1899. Serial No. 735,046. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER J. WETMORE, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Dumping-Wagons, of which the following is a specification.

This invention relates to the general class of dumping-wagons which have four wheels and in which the body of the wagon is elevated as well as tilted for dumping; and the invention consists partly in the dumping mechanism and partly in the construction whereby the dumping may be effected either by the backing effort of the horses or by hand, as preferred.

The invention will be fully described with reference to the accompanying drawings and its novel features carefully defined in the claims.

In the said drawings, Figure 1 is a side elevation of the wagon with some of the parts broken away to better show the construction, the dotted lines in the figure showing the positions of the parts when the body is dumped by backing the front wheels. Fig. 1^a is a cross-section at x'^a in Fig. 1, showing the keepers on the bed-pieces; and Fig. 1^b is a front view of the fixed frame and bed-piece frame, showing the locking device for securing them together. Fig. 2 is a plan of the wagon below the body. Fig. 3 is a rear elevation of the wagon as to the right-hand half and a vertical transverse section as to the left half, the plane of the section being indicated by the line x^3 in Fig. 2. Fig. 4 is an illustrative view, on a larger scale than the principal views, showing the operation of the screw in dumping by hand. Fig. 5 is a fragmentary detail view of the trunnion-mounting of the body. Fig. 6 is a fragmentary illustrative view of the guide for the rear end of the body in dumping.

1 and 2 are respectively the front and rear axles, and 3 and 4 are respectively the wheels on said axles. 5 is the fixed frame, secured at its rear end to the hind or rear axle and arched up at about the middle of its length, its front end resting upon bed-pieces 6 of a frame, carried on the springs 7, which are interposed between it and the front axle. The front portion of the running-gears may have the usual hounds and fifth-wheel and be arranged to turn on a king-bolt, as usual.

The front end of the frame 5, as stated, rests on the bed-pieces 6, and on the latter are fixed metal keepers 8, which take over the projecting edges of the metal guide-plates 5^a on the lower faces of the respective side bars of the frame 5. Fig. 1^a is a detail cross-section showing how these keepers 8 are constructed and arranged. With this construction the front wheels may be backed in under the frame 5, the keepers 8 playing along the edges of the plates 5^a; but when the wagon is being driven or under normal conditions the frame 5 is locked to the bed-pieces 6 by means seen in Fig. 1^b and which will be hereinafter more fully described.

The body X, which may be of any suitable pattern, rests on the frame 5 and is pivotally mounted near the middle of its length and preferably a little forward of the middle. On the body (see Figs. 2 and 3) are trunnions 9, which project inwardly from pendent brackets secured to a cross-beam on the bottom of the body and have bearings in brackets 10 on the base of a triangular frame 11. (Seen in the plan.) Just below the trunnions 9 and in the brackets 10 is rotatively mounted a cross-shaft 12, on the respective ends of which are fixed grooved wheels 13, which are adapted when the body is pushed backward in dumping to roll up inclined tracks 14, fixed on the frame 5.

The oblique members of the triangular frame 11 before referred to extend forward and have bearings at the front ends which receive trunnions 16 on a nut 17, fixed to a tube or guide-sleeve 18, which has a bearing at its rear end in a cross-beam 5^b of the frame 5, in or through which it is adapted to play or slide. Extending through the nut 17 and sleeve 18 is a screw 19, which has bearings at its front end in two cross-beams 6^a, connecting the bed-pieces 6, and between these beams and fixed to the shank of the screw 19 is a worm-wheel 20. At its rear end, within the sleeve 18, the screw 19 has a bearing-collar 19, which fits snugly, but movably, within said sleeve. Mounted in bearings in the bed-pieces 6 is a cross-shaft 21, on which is a worm 22, which gears with the wheel 20. The projecting end of the shaft 21 is adapted to receive a crank

or other means for rotating the shaft when desired.

By following the construction described it will be noted that the bed-pieces 6 are connected to the body X through the medium of the nut 17, which is connected with the body through the frame 11, and the screw 19, connected with said bed-pieces; also, that when the bed-pieces 6 are moved back under the frame 5 by backing the front wheels the body X will move with it, and when the screw 19 is rotated by means of the worm-gearing described the body X will be moved backward independently of the bed-pieces 6 by the travel of the nut 17 rearwardly along the screw 19. The nut being coupled to the oblique members of the triangular frame 11, which is coupled at its rear end or base to the trunnions 9 on the wagon-body, it follows that the body must move rearwardly with said nut. The oblique members of frame 11 are made to turn about the trunnions or journals on the nut 17 as the body rises at its trunnions 9, and the nut cannot rise. Hence the rear end or base of the triangular frame 11 rises as the wheels 13 roll up the inclined tracks. It may be said here that by preference the wheels 13 do not bear on the tracks normally or while the wagon is being driven from place to place and that they will be so placed by preference that the body will move rearwardly about three inches before the said wheels come to a bearing on the tracks. This prevents the hammering of the wheels on the tracks while the laden wagon is being driven through the streets or over rough roads.

At the rear end of the frame 5, just back of the rear axle, are inwardly-projecting studs 23, one at each side of the frame, and these studs each engage a slotted guideway on and pendent from the wagon-body. This guideway consists of a front portion 24, which is inclined downwardly and rearwardly, say, at about forty-five degrees, and of a horizontal portion 24^a, which forms an extension of the lower extremity of the oblique portion 24 and is preferably of such length as to allow the stud or pin 23 to play about four inches.

As before stated, the frame 5 and the bed-frames 6 should be locked together under normal conditions, and while this may be effected in many ways it is preferred to frame a cross-bar in the front ends of the bed-pieces 6, which will normally occupy a position directly under the transverse beam or bar at the front end of the fixed frame 5, as seen in Fig. 1^b. Registering holes or sockets are formed in the two bars and a pin inserted to lock the two parts together. The crank 26, used for operating the screw 19, may be used for a locking-pin, as indicated in the detail view Fig. 1^b.

The mode of dumping by backing will now be explained. The wagon is backed up to the dumping-point and the pin (or crank) 26 withdrawn. The driver now backs the front wheels under the frame 5 (see dotted lines in Fig. 1) and the body X is carried back. The first movement—say about three inches—does not elevate the body; but the wheels 13 now reach the inclined tracks 14 and travel up the same. The body X rises at its trunnions; but these being set a little in front of the middle of the length of the body and the tail or rear end of the latter being the heavier the front end of the body tends to rise. The studs 23 being also engaged in the horizontal portion 24^a of the guideway on the body until the body shall have moved back about four inches, tends to hold down the rear end of the body. As the body moves on rearwardly and upwardly the studs 23 engage the inclined portions 24 of said guideways on the body, and as the dumping proceeds the parts gradually assume the positions seen in dotted lines in Fig. 1. After the dumping the forward pull on the front wheels will bring the body back again to its normal position.

The hind or rear wheels of the wagon should be locked or held during the dumping operation, and this may be done with an ordinary brake, of which one of the shoes 27 is seen in Fig. 1. It has been deemed unnecessary to further illustrate and describe an ordinary wagon-brake in this application.

When for any reason it is not desired to effect the dumping by backing the front wheels, as above described, the load may be dumped by hand, as will now be explained.

The operator applies the crank 26 to the projecting end of cross-shaft 21, and by rotating it he rotates the screw 19, thus driving the nut 17 toward the rear. As this nut is coupled by its trunnions to the triangular frame 11 and the base of the latter is coupled to the wagon-body through the trunnions 9 on the latter, the body must move backward and the dumping is effected, as will be readily understood.

It may sometimes happen that the front wheels of the wagon will be blocked, so that the horses cannot back them to effect the dumping in that way—as, for example, they may cut deep in sandy ground—and in that case the driver uses the screw for dumping by hand. The screw is also useful where the driver wishes to distribute the load, as road metal, over a considerable surface, in which case he simply tilts the body X slightly and then drives along, thus sifting out the load gradually. The guide 24 enables the driver to do this, as he can with it arrest the descent of the heavier tail of the wagon-body at any point desired. In some cases, however, where the wagon is designed for carrying adhesive substances, such as wet clay or mortar, the guide 24 may be wholly omitted, so that when the body at its rear end passes off its support on the rear axle by the movement of the body to the rear it will drop suddenly and with a jolt or jar, which loosens and detaches the material in the body. The inclined guide eases the body down, as will be understood.

As herein shown, the wagon is adapted for

dumping either by backing the front wheels under the fixed frame or by means of the operating-screw and nut, as before stated, and this construction is preferred; but it will be obvious that when the dumping is effected by backing the nut and screw are inert and the swing-frame 11 may be considered as merely hinged to the bed-piece frame on the front axle. On the other hand, when the dumping is effected by hand through the medium of the nut 17 and operating-screw 19 the bed-piece frame may be considered as a part of the fixed frame 5, of which it will under these conditions be really a part.

It will be obvious that the putting of the trunnions or pivots 9 on the wagon-body instead of on the brackets 10 is merely a matter of convenience. They may be on either part, and the same may be said of the trunnions 16 on the nut 17. So long as the swing-frame 11 is pivotally attached the particular construction is not important.

Having thus described my invention, I claim—

1. A dumping-wagon having a fixed frame mounted on the rear axle, a bed-piece frame mounted on the front axle and supporting the front end of said fixed frame, means for connecting said frames together in a readily-detachable manner, whereby when disconnected the bed-piece frame may be moved rearwardly under the fixed frame, a wagon-body mounted movably on the fixed frame, a swing-frame under the wagon-body, said swing-frame being connected with the bed-piece frame at its front end and pivotally connected to the wagon-body at its rear end on trunnions 9, and having brackets 10, which provide bearings for a cross-shaft 12, on which are grooved wheels 13, the said shaft and wheels, upwardly-inclined tracks 14, on the said fixed frame, for the said wheels to roll up in dumping, downwardly-inclined slotted guides 24, on the wagon-body to depress its rear end in dumping, and studs 23 on the frame engaging the slots in said guides, substantially as set forth.

2. A dumping-wagon having a fixed frame mounted on the rear axle, a wagon-body mounted on said frame and movable thereon, a bed-piece frame mounted on the front axle and supporting the front end of the fixed frame, guides on the fixed frame which keep it alined with the bed-piece frame, the latter being adapted to slide under the fixed frame from front to rear, a swing-frame under the body and coupled pivotally thereto at its rear end, intermediate mechanism coupling the front end of said swing-frame pivotally to the bed-piece frame, means for detachably connecting together the bed-piece frame and the fixed frame, means for elevating the pivotal point of the body in dumping, and a guide for the rear end of the body in dumping, substantially as set forth.

3. In a dumping-wagon, the combination with the fixed frame 5, the wagon-body X, mounted movably thereon, the inclined tracks 14 on the fixed frame, the swing-frame 11, under the body, in the rear end of which the wagon-body is pivotally mounted and the wheels 13 on said frame 11, adapted to roll up said tracks when the wagon-body is moved to the rear and thus elevate the pivotal point of the body, of means for guiding the rear end of the body in dumping and means for moving the wagon-body rearwardly over the fixed frame.

4. In a dumping-wagon, the combination with the running-gears and a frame mounted thereon, of the wagon-body mounted movably on said frame, the swing-frame 11, in the rear end of which the wagon-body is pivotally mounted, the operating-screw 19, rotatively mounted in the frame on the running-gears, the nut 17 on said screw, said nut having trunnions which find bearings in the front end of the swing-frame, the long, screw-inclosing sleeve 18, which forms a continuation of said nut, the bearing-collar 19^a, adapted to center the screw in the sleeve, said sleeve having a guide-bearing in the frame in which the screw is mounted, and screw-gearing for rotating said operating-screw, substantially as set forth.

5. In a dumping-wagon, the combination with the rear axle, of the fixed frame 5, having an elevated front portion and a depressed rear portion at the rear axle, the wagon-body mounted on the elevated front portion of the fixed frame and adapted to be moved rearward for dumping, slotted guides 24 on the wagon-body, inclining downward and rearward from the bottom of the wagon-body to the depressed portion of the fixed frame at the rear axle, said guides having horizontal portions extending rearwardly from their lower ends, studs on the depressed portion of the fixed frame engaging the respective slotted guides, and means for moving the wagon-body rearwardly on the fixed frame, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SYLVESTER J. WETMORE.

Witnesses:
HENRY CONNETT,
PETER A. ROSS.