T. WRIGHT.

DUMP WAGON.

APPLICATION FILED JUNE 21, 1913.

1,157,486.

Patented Oct. 19, 1915.

2 SHEETS—SHEET 1.

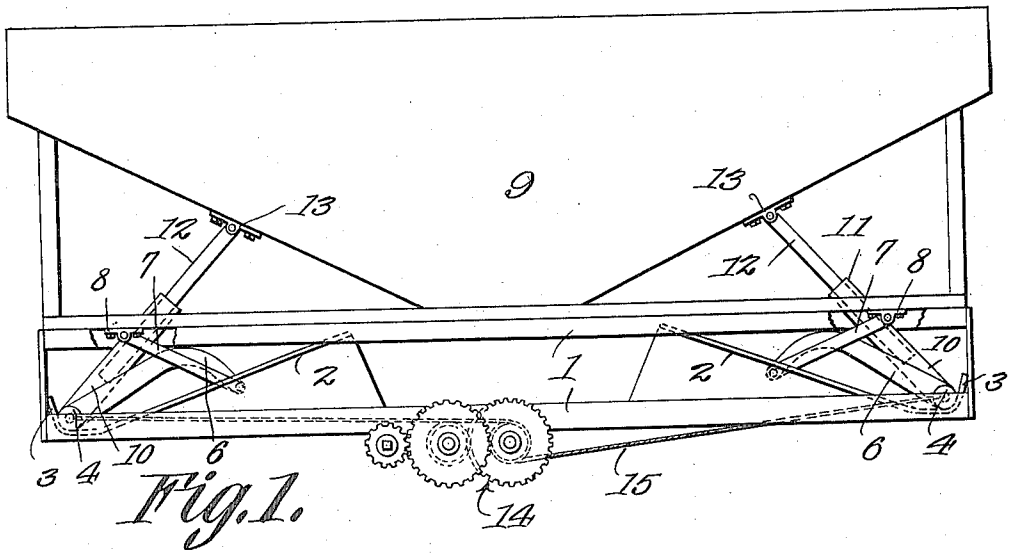


Fig. 1.

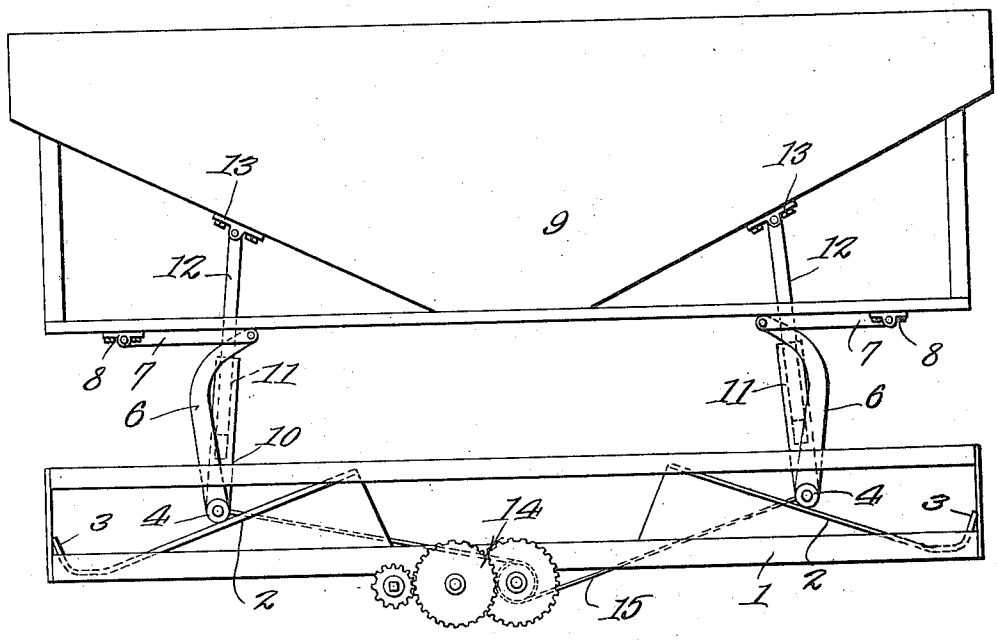


Fig. 2.

Witnesses

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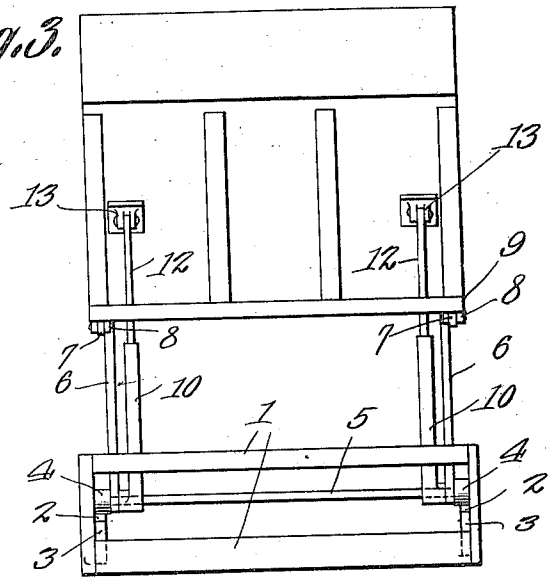
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Fig. 3.



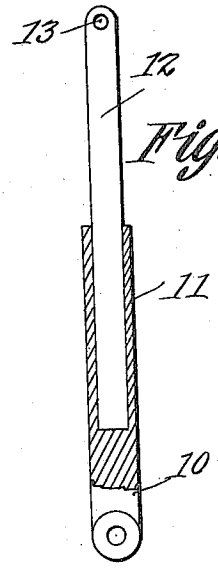


Fig. 4.

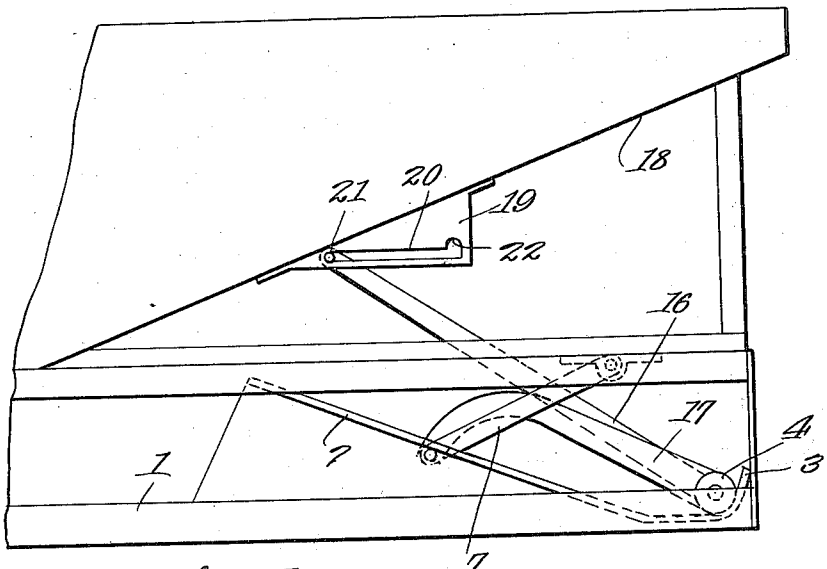


Fig. 5.

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UNITED STATES PATENT OFFICE.

THOMAS WRIGHT, OF JERSEY CITY, NEW JERSEY.

DUMP-WAGON.

1,157,486. Specification of Letters Patent. Patented Oct. 19, 1915.

Application filed June 21, 1913. Serial No. 775,115.

To all whom it may concern:

Be it known that I, THOMAS WRIGHT, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Dump-Wagon, of which the following is a specification.

This invention relates to wagons of that type shown more particularly in Patent No. 1,019,211 issued to me on March 5, 1912, wherein the elevation of the body is effected by the manipulation of lifting arms or cams. It has been found that where cams of this type are depended upon as the sole means for elevating the body, considerable difficulty is experienced in effecting the initial movement of the body in an upward direction, this being due to the fact that the lifting arms or cams are extended almost horizontally and the power required to operate them and elevate the body is thus rendered excessive.

It is the object of the present invention to avoid this objectionable result by providing supplemental means whereby the body may be raised initially before the lifting arms or cams are brought into action.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings:—Figure 1 is a side elevation of a wagon body having the present improvements combined therewith, the said body being shown in its normal or lowered position. Fig. 2 is a similar view showing the body raised off of the chassis. Fig. 3 is an end elevation of the parts in the position illustrated in Fig. 2. Fig. 4 is a view partly in section and partly in elevation through one of the lifting members. Fig. 5 is a side elevation of a portion of a wagon having modified means for elevating the body.

Referring to the figures by characters of reference 1 designates the chassis of the wagon, the same being provided with rails 2 fixedly mounted therein and converging upwardly toward each other, the said rails being oppositely disposed and being provided at their outer or lower ends with upturned portions 3 constituting stops or abutments.

Mounted on the rails 2 are rollers 4, these rollers being arranged in pairs and the rollers of each pair being connected by a cross rod 5. Extending from each rod adjacent each end thereof is a cam shaped lifting arm 6, the curved terminals of the arms being extended inwardly and downwardly under normal conditions and being connected, by links 7, to shackles 8 which are fastened in any preferred manner to the bottom of the body 9 of the wagon. Each rod 5 also has arms 10 extending therefrom and provided with tubular portions 11 in which are slidably mounted extensions 12. These extensions are pivotally connected, as at 13, to the body of the wagon. It is to be understood that when the wagon body is in its lowermost position, as shown in Fig. 1, the lower end of the extension 12 bears against the inner end of the recess or bore in arm 11.

Suitable winding mechanism indicated generally at 14, is carried by the chassis 1 and chains 15 or the like extend from this mechanism to the respective rods 5. The chains are so arranged relative to the winding mechanism that they will both be simultaneously wound or unwound, according to the direction in which the winding mechanism is moved.

When it is desired to elevate the wagon body, the mechanism 14 is actuated so as to wind the flexible connections 15. These connections will thus pull on the rods 5 and cause the rollers 4 to travel along the inclined rails 2. Thus the arms 10 will thrust against the extensions 12 and cause the body 9 of the wagon to be lifted off of the chassis. During this upward movement of the body the links 7 are pulling on the lifting arms 6 which, as shown in Fig. 1, are normally below and out of contact with the body 9. While the arms 10 are elevating the body 9, the lifting arms 6 come into contact with the bottom of the body 9 and the continued movement of the winding mechanism will cause the lifting arms 6 to elevate the body still higher, this being due to the fact that the curved portions of the arms 6 act as cams

and rock upon the body, thus pushing the body upwardly as the rollers 4 continue to move toward each other. As the body is lifted by the arms 6, the extensions 12 pull slightly out of the tubular portions 11 of arms 10. When it is desired to lower the body, the connections 15 are paid out whereupon the rollers 4 will travel down the inclined rails 2, thus permitting the arms 6 to move gradually to their lower positions and also to permit the extensions 12 to slide back against the inner ends of the recesses in the tubular portions 11. The arms 10 and their extensions 12 then take up the weight of the load and as the rollers 4 continue to move back to their initial positions, the body 9 is gradually lowered onto the chassis.

It has been found that where two sets of lifting arms are provided at each end of the wagon, the arms operating as shown and described, the body can be more readily elevated than where the lifting of the body is dependent solely upon the cam arms. It will be seen that the arms 10 and their extensions 12 being nearer vertical lines, when the body is lowered, than the lifting arms 6, require less power from the winding means in order to actuate them and lift the body, than would be required by the cam-shaped arms. After the lifting arms 10 and their extensions 12 have been actuated so as to raise the body, the cam-shaped arms are brought into action and the elevation of the body is thus completed. By thus passing the weight of the load from one set of arms to the other during the elevation of the body, the strains upon the various parts are materially reduced, the wagon rendered more lasting, and the power required for elevating the body reduced to the minimum.

Instead of providing telescopic lifting arms as shown in Figs. 1, 2 and 3, the means employed for initially elevating the body can consist of one piece arms 16 mounted relative to the cam-shaped arms 17 in the same manner hereinbefore described. The lifting arms 16, however, are slidably connected to the body 18, there being brackets 19 secured to the body and formed with horizontally extending slots 20 in which pins 21 are adapted to slide, these pins being extended laterally from the arms 16. Notches 22 are formed in the upper edges of the slots 20 and those ends thereof remote from the body 18. During the actuation of the elevating mechanism by means of the winding apparatus hereinbefore described, arms 16 will push against the brackets 19 and thus elevate the body until the said arms are brought to vertical positions whereupon the cam-shaped lifting arms 17 will be brought into play and will complete the elevation of the body. As soon as these cam-shaped arms begin to act on the body, the lifting arms 16 are moved past their dead centers and swing toward the notched ends of the slots 20 so that the pins 21 become seated in the notches whereupon further elevation of the body by the cam-shaped arms 17 will result in the arms 16 thrusting upwardly against the notched portions of the brackets and assisting the arms 17 in the elevation of the body. When it is desired to lower the body by means of the mechanism shown in Fig. 5, the foregoing operation is reversed, the cam shaped arms 17 first lowering the body, arms 16 during this movement, dropping out of the notches 22 and sliding toward those ends of the slots 20 nearest the body 18 whereupon the said arms 16 receive the weight of the load and complete the lowering of the body.

What is claimed is:—

1. A wagon including a supporting element, a body element, oppositely disposed groups of lifting arms interposed between said elements, each group including a cam-shaped arm and a supplemental arm and a single actuating means for simultaneously shifting said groups toward each other to bring the cam-shaped arm and the supplemental arm of each group successively into action to elevate the body element.

2. A wagon including a supporting element, a body element, oppositely disposed similar groups of lifting arms interposed between said elements, each group including a cam-shaped arm and a supplemental arm, a single actuating means for shifting the groups toward each other upon one of said elements, movable connections between the arms of each group and the other element, said cam-shaped arm and supplemental arm of each group operating successively to elevate the body element relative to the supporting element during the movement of said groups toward each other.

3. A wagon including a supporting element, a body element, oppositely disposed similar groups of lifting arms interposed between said elements, each group including a cam-shaped arm and a supplemental arm pivotally connected movable connections between the arms of each group and one of the elements, and a single actuating means for shifting the opposed groups of arms toward each other upon the other element, the cam-shaped arm and supplemental arm of each group operating successively, during such movement, to elevate the body element relative to the supporting element.

4. A wagon including a chassis, a body normally resting thereon, cam-shaped lifting arms oppositely disposed on the chassis, supplemental lifting arms connected to the first named arms, link connections between the cam shaped arms and the body, movable connections between the supplemental arms and the body, and a single actuating means for shifting all of the oppositely disposed

arms toward each other simultaneously to bring the supplemental arms and the cam shaped arms successively into action to elevate the body relative to the chassis.

5. A wagon including a supporting structure, a body normally mounted thereon, inclined elements upon the supporting structure and converging upwardly toward the center of the said structure, cam shaped lifting arms oppositely disposed, link connections between said arms and the body, supplemental lifting arms movable with the first named arms, movable connections between said supplemental arms and the body, and a single actuating means for shifting all of the oppositely disposed arms simultaneously toward each other and along the inclined elements to bring the supplemental arms and the cam shaped arms successively into action to continuously elevate the body relative to the supporting structure.

6. In a wagon the combination with a supporting structure and a body normally resting thereon, of a group of arms interposed between one end of said structure and body, said group including a cam-shaped arm and a supplemental arm and a single actuating means for simultaneously shifting the cam-shaped arm and supplemental arm to successively act upon the body and elevate it relative to the supporting structure.

7. In a wagon, the combination with a supporting structure and a body normally resting thereon, of an arm pivotally connected at one end to the body and made up of telescopically connected members, a cam-shaped lifting arm, a link connection between said cam-shaped lifting arm and the body, and means for simultaneously shifting said arms thereby to successively thrust upward against and elevate the body through the telescopic arm and the cam-shaped arm respectively.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

THOMAS WRIGHT.

Witnesses:

T. EUGENE WRIGHT,

JEREMIAH CALICHIO.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."