

No. 691,330.

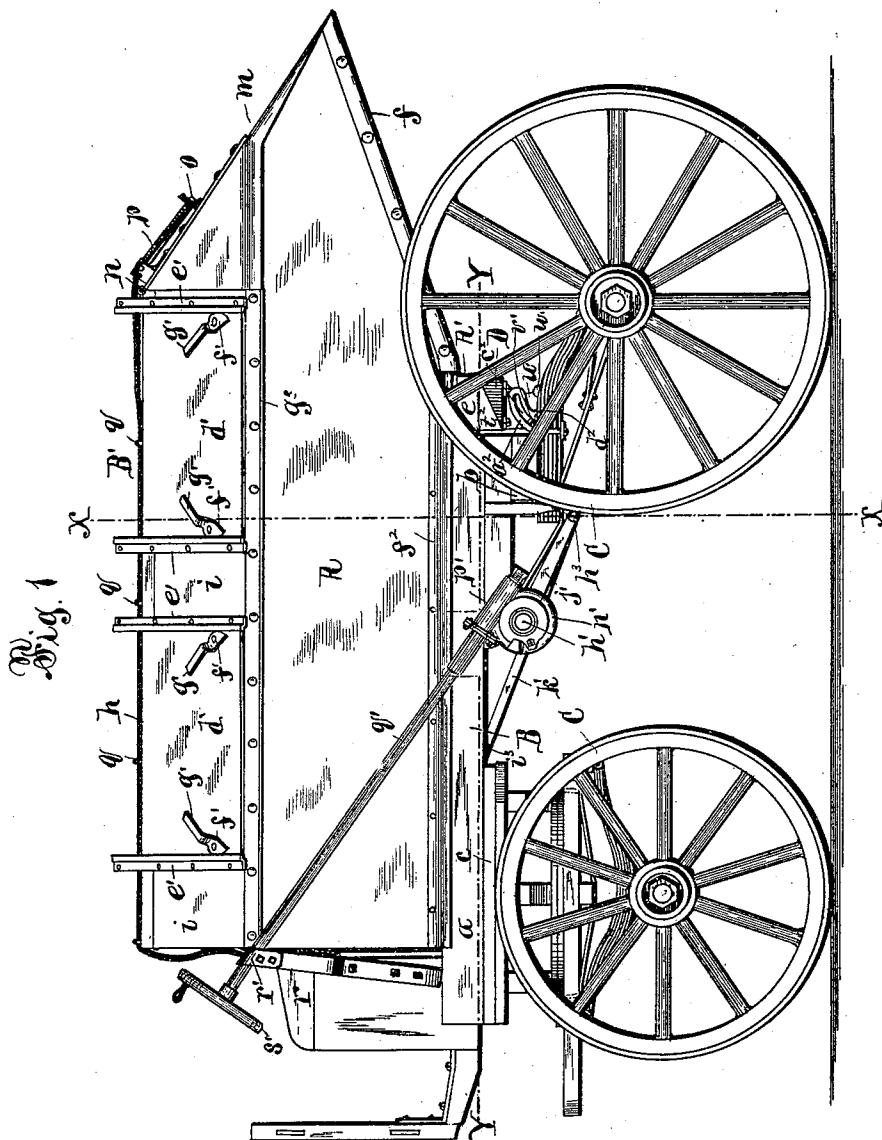
Patented Jan. 14 1902.

D. S. WATSON.
DUMPING WAGON.

(Application filed May 16, 1901.)

(No Model.)

8 Sheets—Sheet 1.



WITNESSES:

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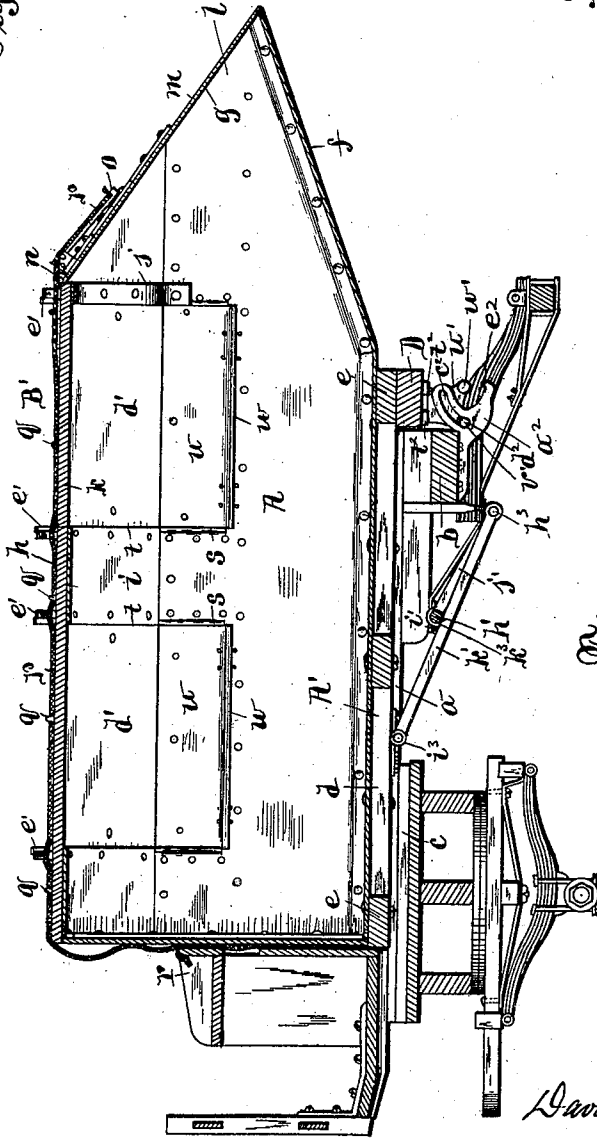
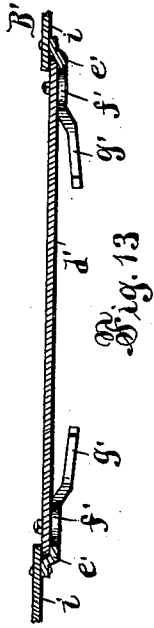


Fig. 14

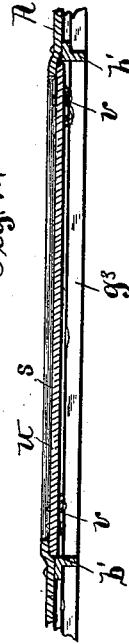


Fig. 2

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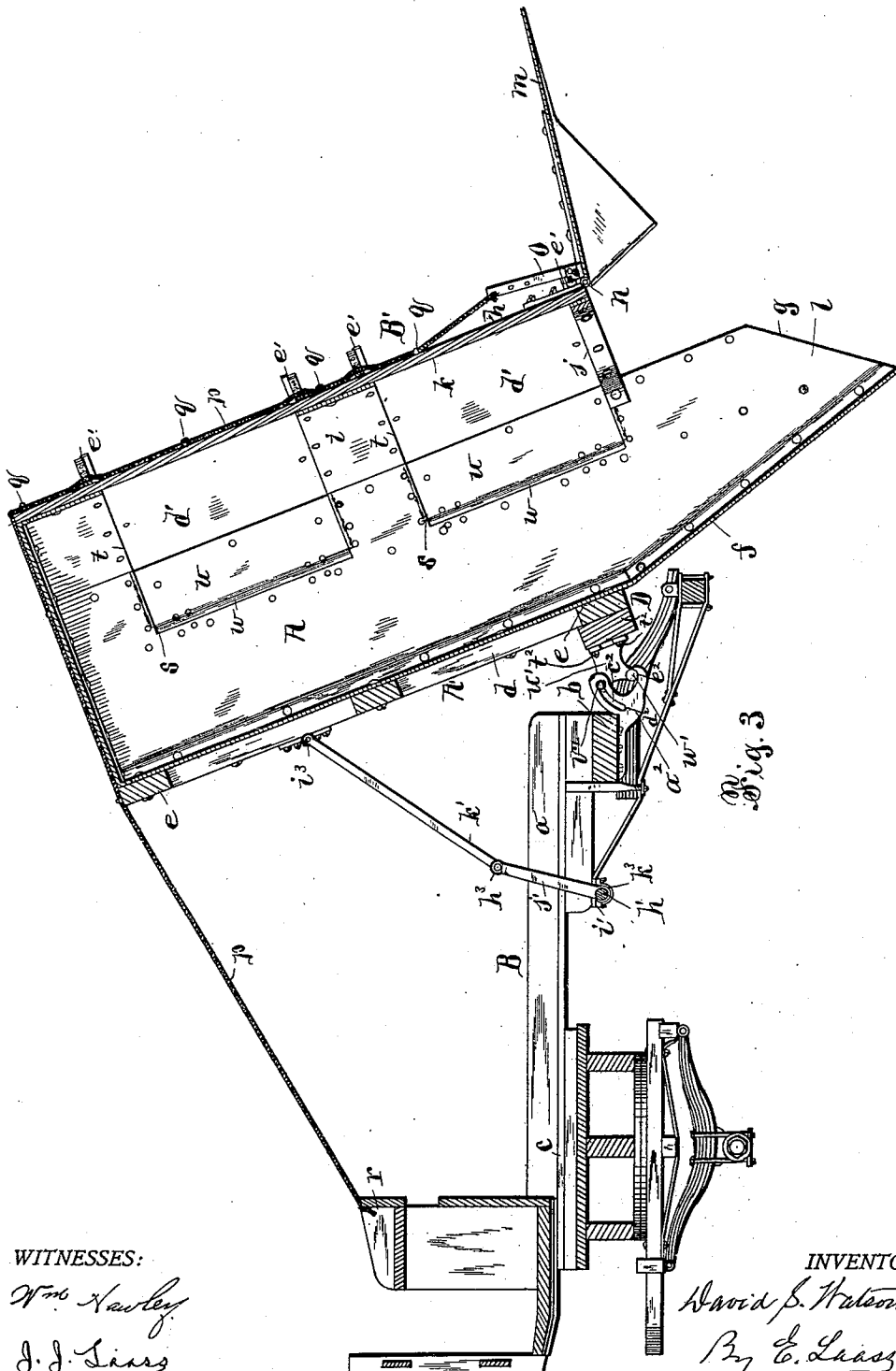
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8 Sheets—Sheet 3.



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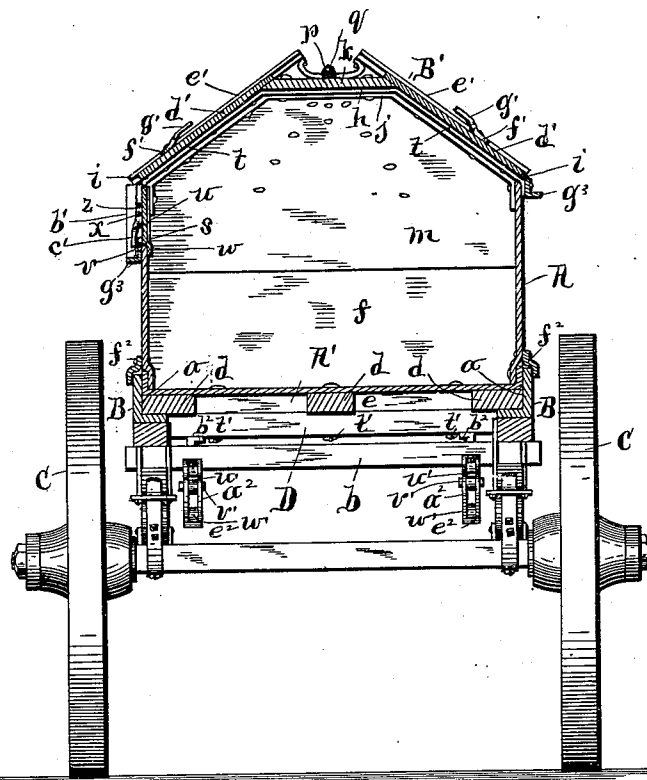
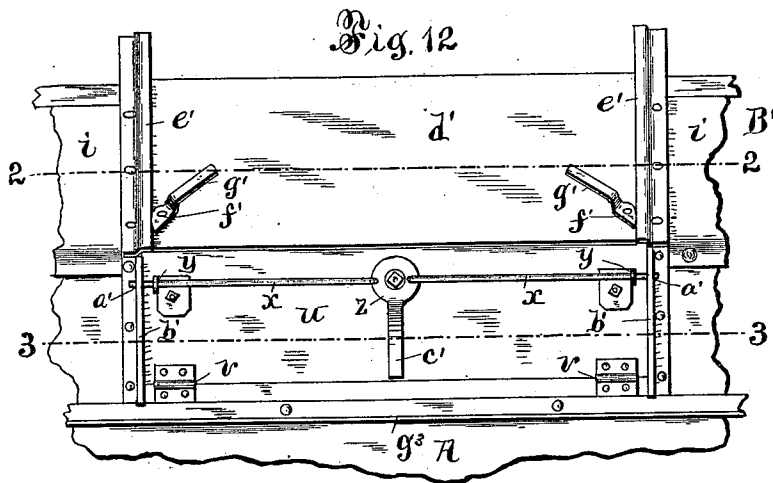
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8 Sheets—Sheet 4.



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Fig. 4

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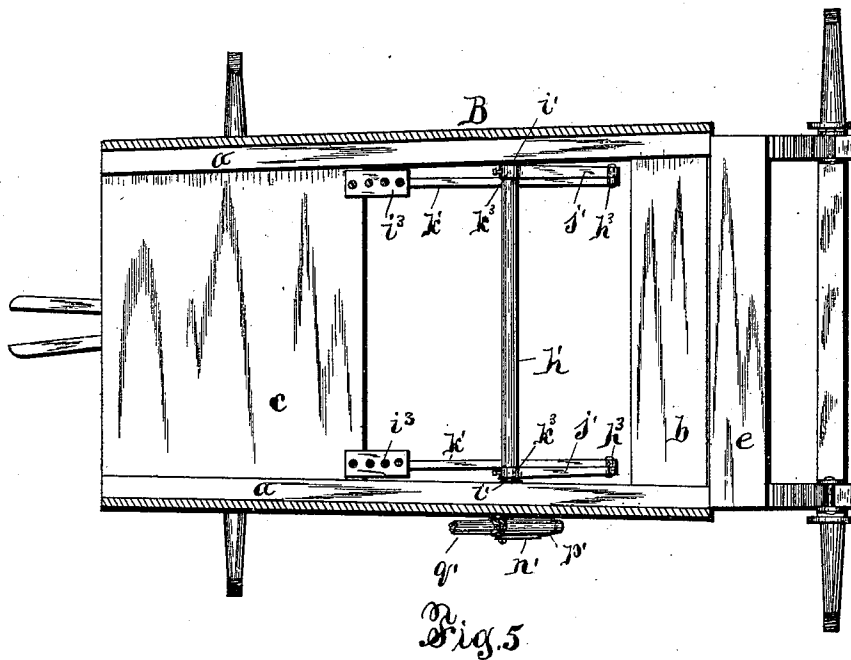
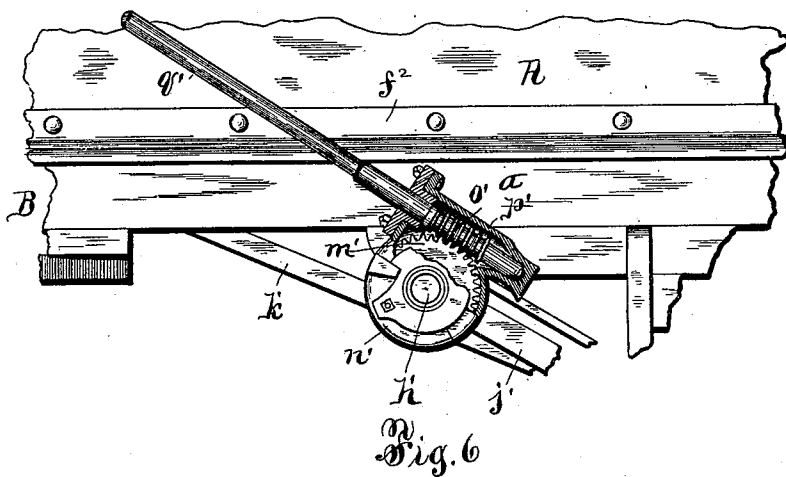
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D. S. WATSON.
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8 Sheets—Sheet 5.



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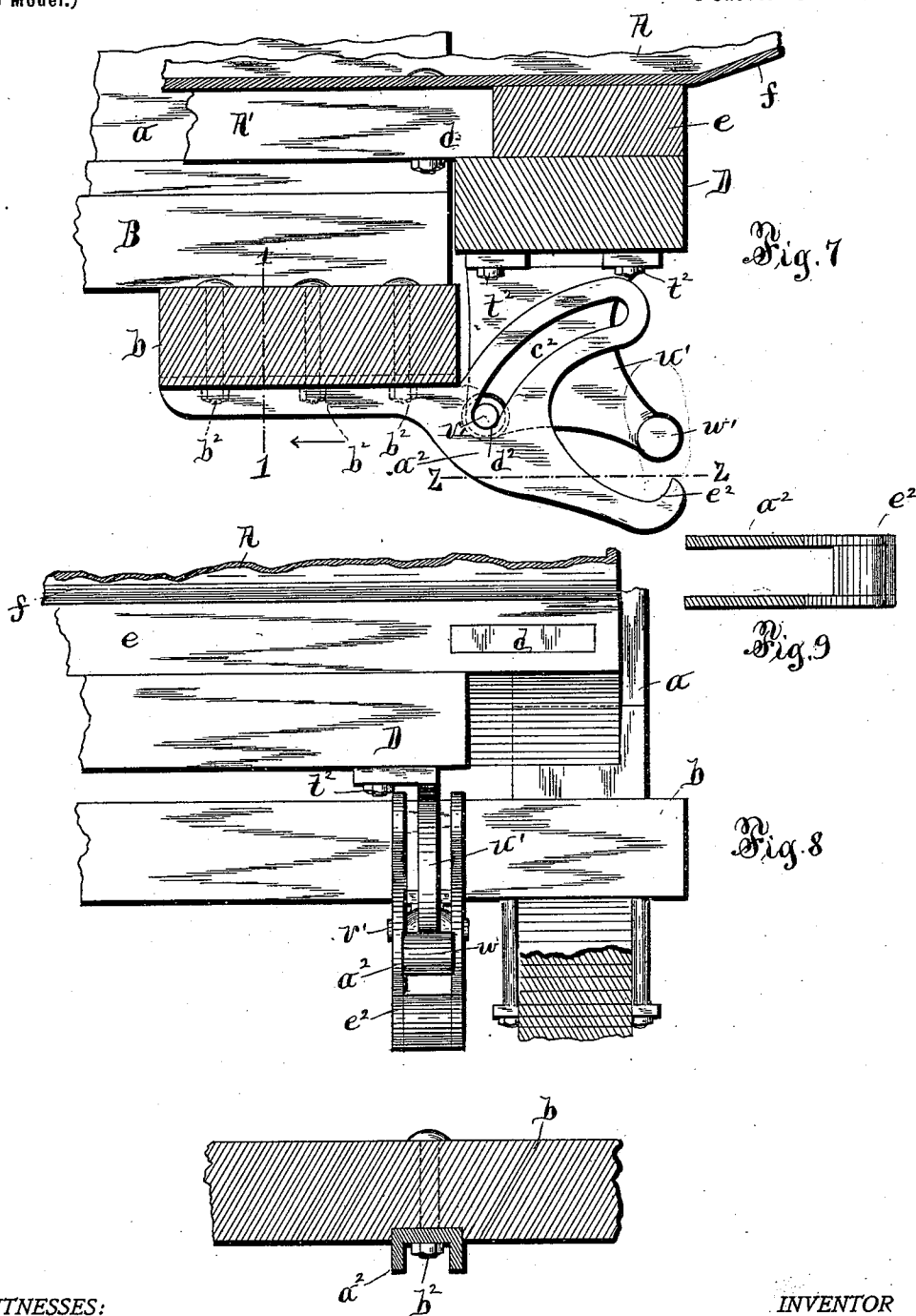
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D. S. WATSON.
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(Application filed May 16, 1901.)

(No Model.)

8 Sheets—Sheet 6.



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Fig. 10

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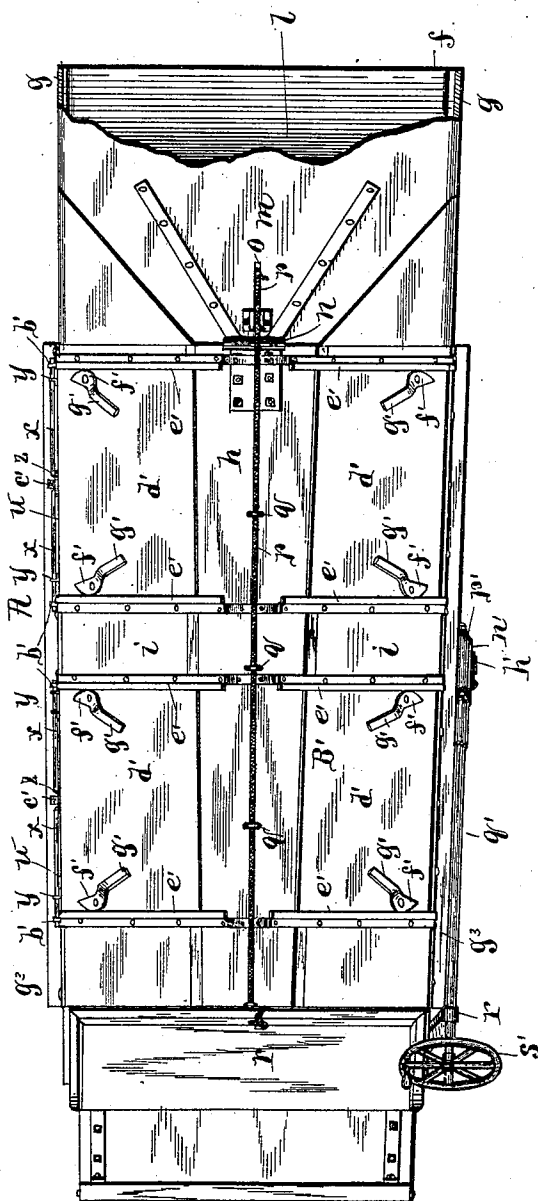
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D. S. WATSON.
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(Application filed May 16, 1901.)

(No Model.)

8 Sheets—Sheet 7.



WITNESSES:

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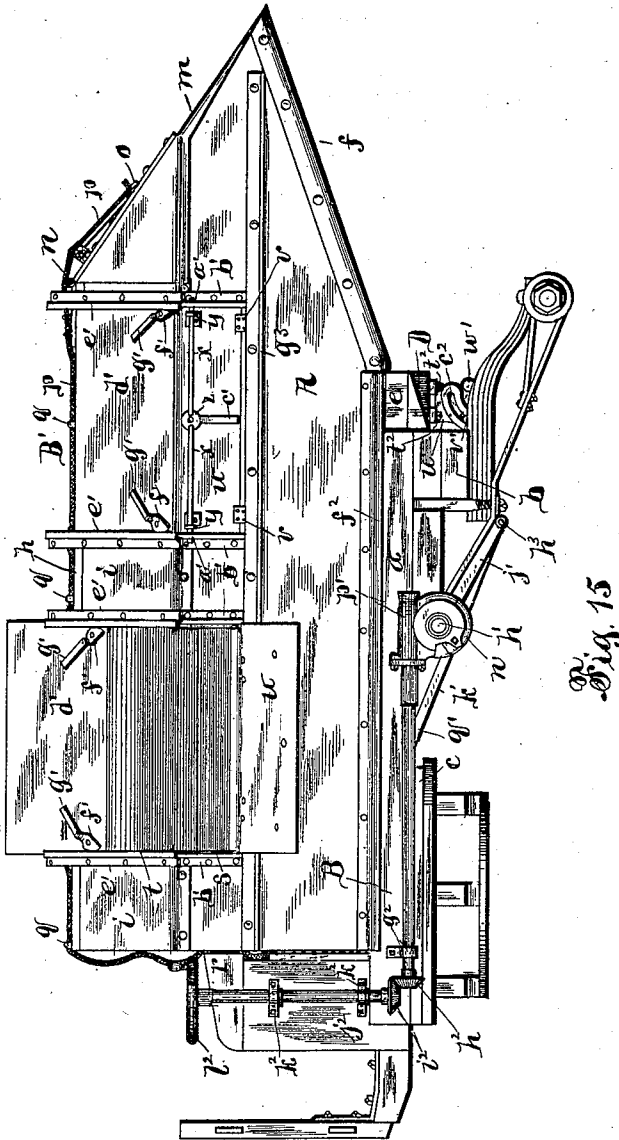
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(Application filed May 16, 1901.)

(No Model.)

8 Sheets—Sheet 8.



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UNITED STATES PATENT OFFICE.

DAVID S. WATSON, OF CANASTOTA, NEW YORK, ASSIGNOR TO WATSON WAGON COMPANY, OF CANASTOTA, NEW YORK, A CORPORATION OF NEW YORK.

DUMPING-WAGON.

SPECIFICATION forming part of Letters Patent No. 691,330, dated January 14, 1902.

Application filed May 16, 1901. Serial No. 60,473. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. WATSON, a citizen of the United States, and a resident of Canastota, in the county of Madison, in the State of New York, have invented new and useful Improvements in Dumping-Wagons, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a wagon which is designed more particularly to be used in cities for collecting garbage, &c., and it has reference to that class of dumping-wagons having a covered metallic body which is adapted to be tilted rearwardly to discharge its load.

One of the features of my improved dumping-wagon resides in the novel arrangement and construction of the mechanism employed for tilting the body, which mechanism comprises a suitably-journaled shaft provided with a gear, a system of levers connecting said shaft and body, a worm meshing with said gear, and means for rotating said worm, which means can be easily and conveniently operated by a person riding upon the wagon without dismounting.

One of the advantages derived from the tilting mechanism used is that the body is sustained at any angle of inclination, and another advantage is that the said body is securely locked in its normal position, owing to the peculiar disposition of the aforesaid levers when the body is in said position, whereby the liability of accidental tilting of the said body is prevented, which accidental tilting might otherwise occur during loading or by reason of a greater part of the load being shifted to the rear end of the body incident to the jar during transportation. In connection with said tilting mechanism I employ a set of primary pivotal bearings and a set of secondary pivotal bearings for supporting the rear end of the body, said bearings being so disposed as to sustain said body on the primary set during its initial tilting movement and to transfer the support of the same to the secondary set during the remainder of its tilting movement, which latter bearings serve to sustain the tilted body at a greater elevation above the hind running-gear and shift

the body rearwardly, whereby the material is deposited a greater distance to the rear of the wagon, which is especially desirable where the load is required to be deposited onto boats and over embankments in view of the fact that the wagon does not have to be backed up closely to such dangerous places.

Furthermore, the invention consists in the novel construction of the wagon-body, which permits of quick and easy loading and effectually prevents the escape of any odors arising from the material contained therein and also in the novel means for automatically opening the discharge-door during its tilting movement; and the invention consists in the details of construction and combination of parts of the wagon, as hereinafter fully described, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a dumping-wagon embodying my invention, the body being shown in its normal position. Fig. 2 is a vertical longitudinal section of the same with the carrying-wheels removed. Fig. 3 is also a vertical longitudinal section of the wagon, showing the body in its tilted position. Fig. 4 is a vertical transverse section on line X X in Fig. 1 viewed toward the rear. Fig. 5 is a horizontal longitudinal section on line Y Y in Fig. 1 with the carrying-wheels removed. Fig. 6 is an enlarged detail side view of the worm-gearing which is employed for tilting the body. Fig. 7 is an enlarged sectional view of a part of the supporting-frame and the body, illustrating more clearly the aforesaid pivotal bearings. Fig. 8 is a rear view of the parts shown in Fig. 7. Fig. 9 is a longitudinal section on line Z Z in Fig. 7. Fig. 10 is a vertical transverse section on line 1 1 in Fig. 7. Fig. 11 is a detail plan view of the wagon-body. Fig. 12 is an enlarged detail view of a portion of one side of the body, illustrating one of the hinged doors and one of the sliding doors which are disposed over the openings through which the body is loaded. Figs. 13 and 14 are longitudinal sections on lines 2 2 and 3 3, respectively, in Fig. 12. Fig. 15 is a side elevation of the wagon, illustrating a modification of the means for turning the worm-gearing.

Referring to the drawings, A represents the metallic body, which is secured to a frame A', by which it normally rests upon a supporting-frame B when in its normal position, as shown in Figs. 1 and 2. Said frame B forms part of the running-gear of the wagon, which running-gear may be of any suitable and well-known construction and is equipped with the usual carrying-wheels C C. The frame B may also be of any suitable form, but is preferably composed of two longitudinal side bars *a a* and a rear transverse bar *b*, rigidly secured together, which bars *a a* are L shape in cross-section, as clearly shown in Figs. 4 and 8, and may be connected in any suitable manner at their forward ends, as by a board *c*. (Shown in Fig. 5.)

The frame A', to which the body is secured, is composed, preferably, of longitudinal bars *d d* and transverse end bars *e e*, and it is normally seated upon the horizontal portions of the L-shaped bars *a a* of the frame B, as more clearly illustrated in Fig. 4.

The rear end portion of the bottom of the body is inclined forward, as indicated at *f*, thus forming a chute, which causes the material to be thrown a greater distance from the wagon, and the sides of the body are riveted to the bottom and have the rear end portions of their top edges inclined rearwardly, as shown at *g*. The cover B' is riveted to said sides and is formed with a central longitudinal portion *h* and outwardly inclined or sloping side portions *i i*, as clearly shown in Fig. 4. The said body and cover are stiffened by means of a brace *j*, riveted to the interior of the same at the rear end, and the cover is further stiffened by means of a board *k*, secured to the central longitudinal portion thereof.

At the rear end of the body is provided a discharge-opening *l*, and over said opening is a door *m*, which is hinged at its upper edge to the central longitudinal portion of the cover, as indicated at *n*, and normally lies upon the inclined edges of the sides. To said door *m*, adjacent to its hinge, is pivoted an arm *o*, to which is secured one end of a rope or chain *p*, which extends lengthwise over the cover B' and through eyes *q q*, secured thereto, and is fastened at its opposite end to the seat *r* of the wagon. It will be seen that when the body is tilted rearwardly the rope is made taut, whereby the said door is caused to be opened, as clearly shown in Fig. 3, and when the body is brought to its normal position the door will close automatically by gravity.

One or both of the sides of the body may be provided with openings *s s*, and the inclined portions of the cover are each provided with openings *t t*, which openings serve in loading the body. The openings *s s* are provided with doors *u u*, which are hinged to the outside of the body at the lower edges of the said openings, as indicated at *v v*, whereby said doors are adapted to be swung down against the side. The hinged edges of said

doors are formed, preferably, with inwardly-projecting flanges *w w*, as clearly shown in Fig. 4, to prevent lodging of material upon the bottom edges of the openings *s s* during the process of loading the wagon.

To retain the doors *u u* in their closed position, I provide a lock comprising a pair of longitudinal rods *x x*, extending through guides *y y* on the door and in opposite directions, which rods are pivotally connected at their inner ends to a disk *z*, pivoted to said door, and engage eyes *a' a'* with their outer ends, said eyes being formed in vertical bars *b' b'*, secured to the sides of the body at the ends of the door. The disk *z* is provided with a handle *c'*, by which to turn the same, whereby the rods are made to engage and disengage the aforesaid eyes, and in place of said disk a two-armed lever may be substituted.

The openings *t t* in the cover B' are provided with doors *d' d'*, which slide with their side edges in guide bars or tracks *e' e'*, secured to said cover. Said latter doors are held in their open positions by means of cams *f' f'*, pivoted to the outer face of the doors and adapted to engage the edges of said guide-bars, and said cams are provided with operating-handles *g' g'*.

In order to add greater stiffness to the wagon-body, I secure longitudinal bars *g³ g³*, L shape in cross-section, to the sides of same, as clearly shown in Figs. 1 and 4.

h' denotes a transverse shaft which is journaled in suitable bearings *i' i'*, secured to the under side of the supporting-frame B, and to said shaft, as indicated at *k³*, are rigidly secured one end of a pair of levers *j' j'*, which are pivotally connected at their other ends, respectively, to one end of another pair of levers *k' k'* at *h³*, which latter are pivotally connected at *i³* to the under side of the frame A', to which the body is secured. To said shaft *h'* at the outer side of one of the longitudinal bars of the supporting-frame is rigidly secured a gear *m'*, which is inclosed by a casing *n'*, which latter is suitably attached to said frame, and with said gear meshes a worm *o'*, journaled in a casing *p'*, formed integral with the casing *n'*. To said worm is rigidly secured an upwardly and forwardly extending shaft or rod *q'*, which is suitably journaled at its forward end, as shown at *r'*, and to said end is secured a hand-wheel *s'* for turning the shaft.

To the rear end of the frame A' is rigidly secured a transverse bar D by means of bolts *t' t'*, and to said bar is rigidly fastened, by bolts *u² u²*, a pair of depending arms *u' u'*, formed with pivots *v' v'* back of and below the supporting-frame B and with pivots *w' w'*, disposed back of the pivots *v' v'*.

To the under side of the cross-bar *b* of the supporting-frame B is rigidly secured a pair of brackets *a² a²* by means of bolts *b² b²*, each of which brackets is composed of a pair of like integral plates disposed side by side and formed with upwardly and rearwardly ex-

tending segmental slots $c^2 c^2$, the lower ends of which constitute primary bearings, (indicated at d^2), in which the pivots $v' v'$ are seated, whereby the rear end of the body is sustained during its initial rearwardly-tilting movement. Back of and below said primary bearings the brackets are formed with secondary bearings $e^2 e^2$, in which the pivots $w' w'$ are adapted to be seated, whereby the primary bearings are relieved and the rear end of the body thereby sustained on said secondary bearings during the remainder of its tilting movement. Said sets of bearings being disposed one back of the other cause the body to swing in two arcs described from separated centers, and thus the body is shifted rearwardly simultaneously with its tilting, and both sets being located in front of the rear axle maintain the weight of the body thereat. As hereinbefore stated, the shifting of the body is very important, as it causes the material to be thrown a greater distance to the rear of the wagon.

As clearly shown in Figs. 7, 8, and 9, it will be seen that the secondary bearings consist of hooks formed on the rear ends of the bracket-plates and a concaved block secured between said plates.

While I prefer to construct the pivotal bearings as herein described, and shown in the drawings, at the same time they are subject of many modifications. Therefore I do not wish to limit myself in this respect.

To the sides of the body A, adjacent to the bottom thereof, are secured guards $f^2 f^2$, which serve to prevent any material or substance from accidentally dropping between the body and side bars $a a$ of the supporting-frame while the body is being loaded, which might interfere with the tilting of said body. Said guards consist of angle-bars riveted to said sides and projecting over the side bars $a a$, as clearly shown in Figs. 1 and 4, and they also serve to further stiffen and strengthen the body.

In reference to the tilting mechanism it will be observed that the two pairs of levers $j' j'$ and $k' k'$ when in their folded condition, as shown in Figs. 1 and 2, securely lock the body against accidental tilting, and, furthermore, the worm-gearing effectually holds the body at any angle of inclination.

While I have shown only one side of the wagon-body provided with hinged doors, still at the same time both sides may be equipped, in which case I arrange the shaft or rod q' , as shown in Fig. 15, for turning the worm o' , in order not to interfere with the opening of said doors. In this instance said shaft q' extends horizontally along the supporting-frame, and journaled on the same, as indicated at g^2 , and to the forward end of said shaft is secured a bevel-gear h^2 , which meshes with a like gear i^2 , secured to the lower end of a vertical shaft j^2 , journaled in suitable bearings k^2 at the side of the seat, said latter shaft being provided with a hand-wheel l^2 for

turning the same. However, I prefer to simply drop the forward end of the shaft q' .

What I claim is—

1. In a dumping-wagon, the combination with the running-gear, comprising a supporting-frame, of a body normally lying upon said running-gear, means for tilting said body rearwardly, two sets of pivotal bearings sustaining the rear end of the body during its tilting movement and disposed one back of the other to cause the body to swing in two arcs described from two separate centers and thus shift the same rearwardly, both sets of bearings being arranged to maintain the weight of said body in front of the rear axle, substantially as described.

2. In a dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body normally lying upon said supporting-frame, a transverse shaft journaled on said supporting-frame, pivotally-connected levers transmitting rearwardly-tilting movement from said shaft to the body, a gear secured to said shaft, a worm meshing with said gear, means for rotating said worm, pivotal bearings sustaining the rear end of the body during its tilting movement and disposed to swing the body out of contact with the supporting-frame and shift the same rearwardly substantially as described.

3. In a dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body normally lying upon said supporting-frame, a transverse shaft journaled on said supporting-frame, pivotally-connected levers transmitting rearwardly-tilting movement from said shaft to the body, a gear secured to said shaft, a worm meshing with said gear, means for rotating said worm, two sets of pivotal bearings sustaining the rear end of the body during its tilting movement and disposed one back of the other to cause the body to swing in two arcs described from separate centers and thus shift the same rearwardly, both sets of bearings being arranged to maintain the weight of the body in front of the rear axle substantially as described.

4. In a dumping-wagon, the combination with the running-gear and body supported thereon, of a suitably-journaled transverse shaft, means for transmitting rearwardly-tilting movement from said shaft to the body, a gear secured to said shaft, a worm meshing with said gear, a shaft secured to said worm and extending forwardly therefrom, a hand-wheel for turning the latter shaft, and two sets of pivotal bearings sustaining the rear end of the body during its tilting movement and disposed to cause said body to swing rearwardly in two arcs described from two centers to shift the same rearwardly out of contact with the running-gear and also maintain the weight of the body in front of the rear axle substantially as described.

5. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body provided

with a frame on its bottom by which it normally rests upon said supporting-frame, a transverse shaft journaled on said supporting-frame, two sets of levers pivoted together
 5 end to end, one set pivotally connected to the body-frame, and the other set rigidly connected to said shaft, a gear secured to the shaft, a worm meshing with said gear, a shaft or rod secured to said worm and provided
 10 with means for turning the same, whereby a rearwardly-tilting movement is imparted to said body, a primary set of pivotal bearings sustaining the rear end of the body during its initial tilting movement, and a secondary set
 15 of pivotal bearings disposed back of the primary set to relieve the same to sustain said rear end during the remainder of the tilting movement and simultaneously shift the body rearwardly substantially as set forth.

20 6. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body normally resting upon said frame, means for tilting said body rearwardly, a pair of brackets
 25 rigidly secured to the rear end of said frame and each provided with two bearings disposed one back of the other, a pair of depending arms rigidly secured to the rear end of the body and primarily seated on the forward
 30 bearings to support said rear end during the initial tilting movement of the body, and secondarily seated on the rear bearings to support said rear end during the remainder of the tilting movement and simultaneously
 35 shift said body rearwardly substantially as set forth.

7. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame provided with a
 40 rear cross-bar, of a body normally resting upon said frame, a transverse shaft journaled on the under side of the frame, a gear secured to said shaft, a worm meshing with said gear, means for rotating the worm, levers connecting
 45 said shaft and body whereby said body is tilted rearwardly, a pair of brackets rigidly secured to the aforesaid cross-bar and each formed with a primary bearing and a secondary bearing disposed one back of the other,
 50 a pair of depending arms rigidly secured to the body and each formed with two pivots disposed to be seated successively on the respective bearings, whereby the rear end of the body is sustained during its tilting movement and simultaneously shifted rearwardly
 55 substantially as set forth.

8. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body normally
 60 resting upon said supporting-frame, means for tilting said body rearwardly, a pair of brackets rigidly secured to the rear end of said frame and each formed with an upwardly and rearwardly extending segmental slot, the
 65 lower ends of which slots constitute a primary bearing, and each bracket formed with a secondary bearing disposed back of and below

the primary bearing, and a pair of depending arms rigidly secured to the rear end of the body and each formed with two pivots arranged one back of the other, the forward
 70 pivots disposed in said slots and seated on the primary bearings to sustain said rear end during the initial tilting movement of the body, and the rear pivots adapted to be seated on
 75 the secondary bearings to relieve the primary bearings and sustain the rear end of the body during the remainder of the tilting movement and simultaneously shift the body rearwardly substantially as set forth. 80

9. In the herein-described dumping-wagon, the combination with the running-gear, of a body normally resting thereon, mechanism for tilting said body rearwardly, a pair of brackets suitably secured to the rear portion
 85 of the running-gear and each comprising two like integral plates disposed side by side, said plates provided with segmental slots forming primary bearings, and with secondary bearings disposed back of and below the primary
 90 bearings, a pair of depending arms rigidly secured to the rear end of the body and disposed between the plates of the respective brackets, said arms being formed with a pair of pivots disposed in said slots and seated on
 95 said primary bearings to sustain the rear end of the body during its initial tilting movement, and formed with a second pair of pivots disposed back of the first-mentioned pivots and adapted to be seated on the secondary
 100 bearings to relieve the primary bearings to sustain said rear end during the remainder of the tilting movement and simultaneously shift the body rearwardly substantially as set forth. 105

10. In the herein-described dumping-wagon, the combination with a suitably-mounted supporting-frame disposed flatwise and comprising longitudinal side bars, L shape in cross-section and a rear transverse bar secured to
 110 said side bars, of a body normally resting upon the horizontal portions of said side bars and provided on each side with a longitudinal guard projecting over the side bars for the purpose set forth, pivotal connections between the rear end of the body and supporting-frame, and means for tilting said body rearwardly. 115

11. In the herein-described dumping-wagon, the combination with the rearwardly-tilting
 120 body provided with a discharge-opening at its rear end, of a door over said opening and hinged above the same, means connecting the door to a stationary part of the wagon, whereby the tilting of the said body causes
 125 said means to draw the door to its open position substantially as set forth.

12. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a metallic body
 130 normally resting upon said supporting-frame and formed at its rear end with a chute having a discharge-opening, a hinged door over said opening and provided with a pivoted arm,

pivotal connections between said body and rear end of the supporting-frame, mechanism for tilting said body rearwardly, and a rope or chain extending lengthwise over the body and fastened at its forward end to a suitable stationary part on the running-gear and at its rear end to the pivoted arm on said door, whereby the tilting movement of said body causes the door to be swung automatically from the aforesaid opening substantially as set forth.

13. The herein-described metallic wagon-body comprising a bottom formed with a horizontal main portion and a forwardly-inclined rear end portion, the latter constituting a chute, vertical sides and front, said sides formed with openings and having the rear end portions of their top edges inclined rearwardly, doors pivoted to the lower edges of said openings the cover formed with a central longitudinal portion and outwardly-inclined side portions, openings in said inclined side portions, sliding doors over said openings, and a door pivoted to the rear end of the central longitudinal portion of the cover and lying upon the top edges of said sides and inclined from its pivot to the rear end of the chute substantially as set forth.

14. The combination with the metallic wagon-body provided with a stationary cover, said cover being formed with a central longitudinal portion and outwardly-inclined side portions, the latter provided with openings, of a pair of inclined parallel guides secured to said side portion at opposite sides of each opening, doors sliding in said guides, and

suitable cams pivoted to said doors and adapted to engage the said guides to sustain the doors in open position substantially as set forth.

15. The herein-described wagon-body formed with vertical sides having openings and provided with a stationary cover formed with outwardly-inclined side portions having openings in range with the first-mentioned openings, sliding doors over said cover-openings and provided with suitable locking devices, hinged doors over the side openings and adapted to swing downward, and means to lock the latter doors in their closed position substantially as set forth.

16. In the herein-described metallic wagon-body, the combination with the vertical side provided with an opening extending through its upper edge and a door hinged below the opening, of a lock comprising a pair of parallel vertical angle-bars secured to the side at opposite ends of the opening and each provided with an eye, a disk or lever pivoted to said door, guides secured to said door, and a pair of oppositely-moving longitudinal rods sliding in said guides and pivotally connected at one end to opposite sides of said disk and having their other ends adapted to enter said eyes, and a handle depending from said disk by which to turn the same, substantially as set forth.

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Witnesses:

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