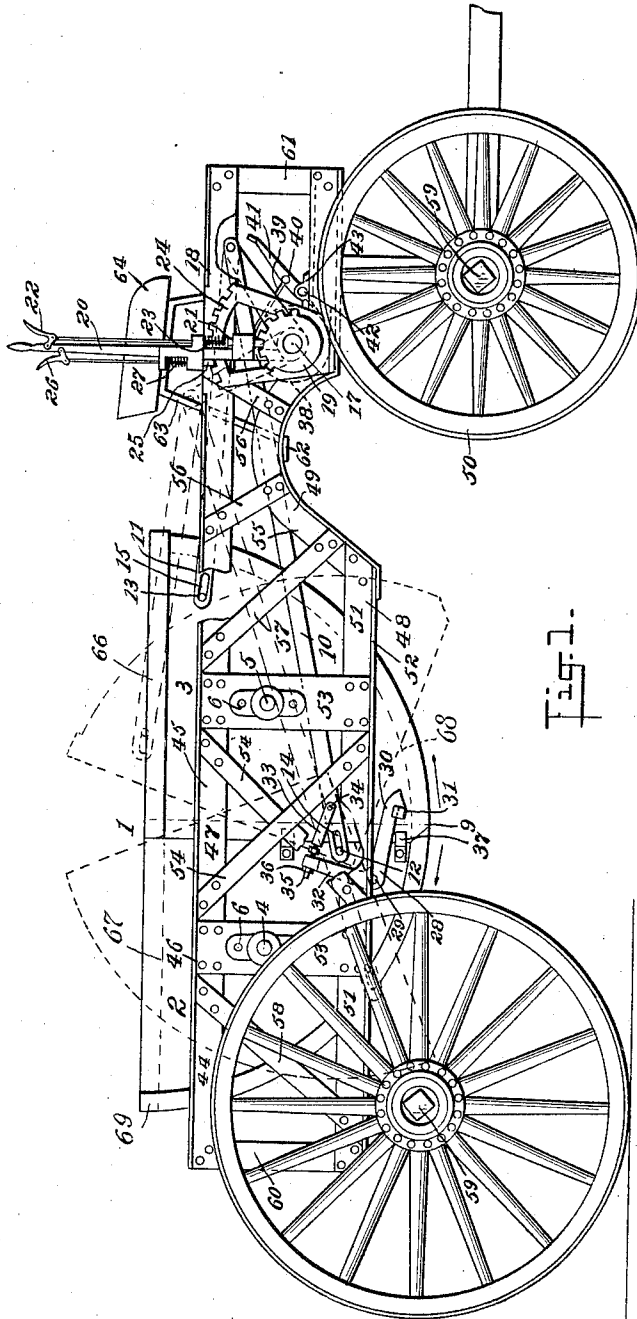


H. L. HAZEN.
DUMPING WAGON.
APPLICATION FILED JUNE 2, 1911.

1,038,491.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.



WITNESSES
A. W. Palmer
K. Russell.

INVENTOR
Henry L. Hazen
BY Francis D. Ammer
his ATTORNEY

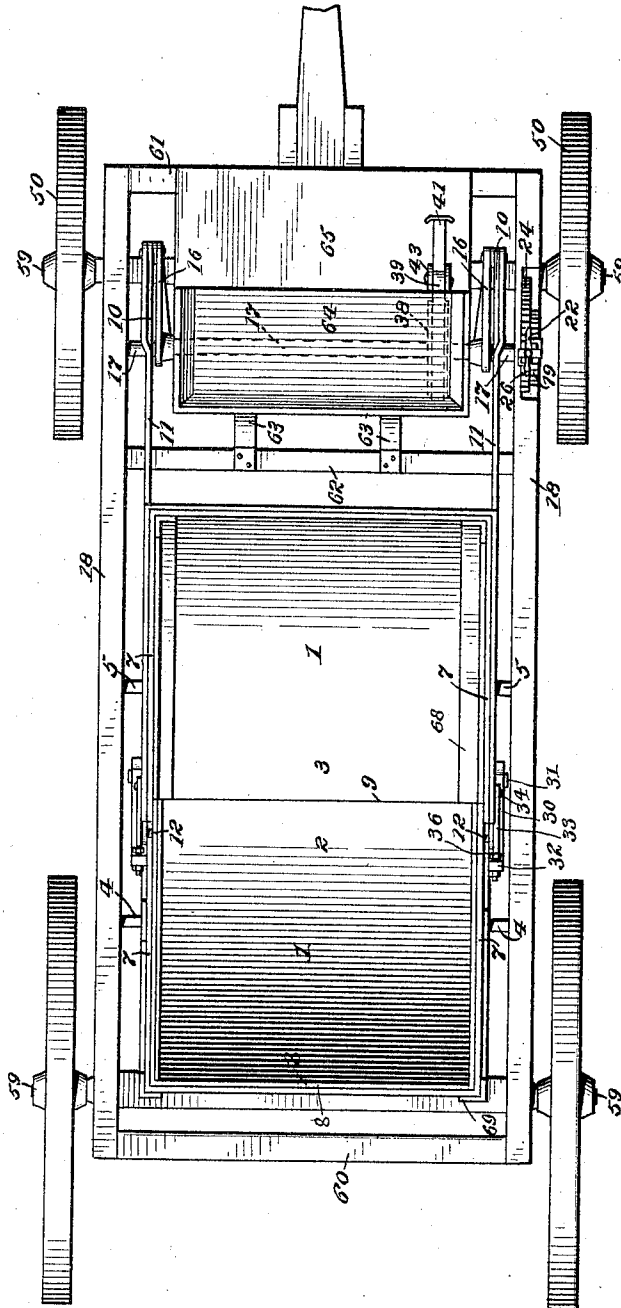
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Fig. 2.



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UNITED STATES PATENT OFFICE.

HENRY L. HAZEN, OF FORT LEE, NEW JERSEY.

DUMPING-WAGON.

1,038,491.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed June 2, 1911. Serial No. 630,847.

To all whom it may concern:

Be it known that I, HENRY L. HAZEN, a citizen of the United States, and resident of Fort Lee, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Dumping-Wagons, of which the following is a specification.

This invention relates to dumping wagons, such as used in carrying and dumping all kinds of materials, or for similar uses, and it constitutes an improvement on the invention described in my Patent No. 939,130, November 2, 1909. The dumping wagon covered by the said patent has a bucket or body divided into two sections or clam shells which are pivotally supported, and normally closed together. They are arranged so as to be operated by a lever or similar means connected respectively to the sections or shells.

A principal object of this invention is to improve the manner of hanging and supporting the shells or sections. In accomplishing this I pivot each shell near the center of gravity thereof while empty, each shell being supported on a separate pivot, and the shells are constructed to telescope or overlap at their adjacent edges. This arrangement permits a wide opening of the shells in dumping. With this overlapping arrangement of the shells it is essential that the trunnion supports should maintain a fixed relation to each other and for this reason I have improved the construction of the sides or side frames of the wagon to give rigidity, without greatly increasing the weight of the wagon frame.

A further object of the invention is to provide means in connection with the operating lever to enable the buckets or clam shells to be readily opened and locked open, any desired amount, so as to allow the load to be spread over a surface as the wagon advances; and means is provided for relieving the operating lever of all strain in adjusting it to any position to control the amount of opening of the shells.

Reference is to be had to the accompanying drawing forming a part of this specification in which similar numbers relate to the same parts in all the views.

Figure 1 is a side elevation of my improved dumping wagon, certain parts being broken away and the sections or shells be-

ing represented in dotted lines in their open position. Fig. 2 is a plan of the wagon.

Referring more particularly to the parts, 1 represents the wagon body which is preferably of semi-cylindrical form, divided into two sections or shells, 2 and 3. These shells have the form of quadrants, the shell 2 being provided with trunnions 4 and the shell 3 being provided with trunnions 5, said trunnions being in the same relative position with respect to each shell, and being disposed near the center of gravity of each section, when empty. The trunnions 4 and 5 are pivotally supported in suitable bearing brackets 6.

As indicated in Fig. 2, the side plates 7 of the sections 2 and 3 overlap each other, that is, they telescope, but the cylindrical plates 8 of the buckets or sections butt together at the middle point 9 at the bottom as shown in Fig. 1, when the bucket sections are closed. The bucket sections are operated by means of links 10 and 11, which are attached respectively thereto by means of pins 12 and 13 on the side plates 7. The pin 12 works in a slot 14 formed longitudinally in the end of the link 10 and the pin 13 works in a similar slot 15 near the end of the link 11. These links 10 and 11 are arranged in pairs, there being a pair on each side of the wagon, as shown in Fig. 2. The forward ends of both pairs of links are attached to arms 16, which are rigidly secured on a transverse rock shaft 17 mounted in the frame 18.

In order to operate the rock shaft, a rigid gear wheel or segment 19 is attached thereto, which may be operated by a lever through the medium of a latch bolt 21 controlled by a finger lever 22 and normally held in engagement with the teeth of the segment 19 by a suitable spring 23. A locking quadrant is provided with which the locking bolt 25 coöperates, said locking bolt being controlled by a finger lever 26 and normally held in engagement with the quadrant rearwardly so as to rotate the rock shaft 17 in a left hand direction, the links 10 and 11 will move rearwardly and will swing the bucket sections or shells apart.

The sections 2 and 3 are normally locked together by a latch mechanism, which is duplicated at each side of the wagon. Each of these latch mechanisms comprises a bell crank 28 mounted on a pivot 29 on the side of the rear shell 2. These bell cranks have

latch arms 30, which engage lugs 31 projecting outwardly from the sides of the forward section 3. These crank levers also have upwardly extending operating arms 32, and each of these operating arms is attached to an adjusting link 33, pivoted to link 10 at 34. The links 33 have threaded stems 35 on which adjusting nuts 36 are carried and between these adjusting nuts the bifurcated end of the arm 32 is received.

As illustrated, the side plates 7 of the forward shell are disposed outside of the plates of the rear shell, and adjacent the vertical edge of the forward shell I provide guide clips 37 which project over the edge and guide it as the bucket sections come into their closed position. In connection with the lever mechanism I also provide a brake wheel 38 which is rigid on the rock shaft 17. Around this brake wheel passes a brake band 39, one end of which is attached at 40 to a foot lever 41 and the other end of which is anchored at the pivot 42 of the foot lever.

The mode of operation of the bucket sections or shells will now be described.

Supposing that it is desired to dump the entire load at any given point, and suppose that the lever 20 is in the position shown in Fig. 1. In order to accomplish the dumping of the entire load, lever 20 should be seized so as to press both the finger levers 22 and 26, and release the lever from the quadrant 24 and from the gear segment 19. The lever 20 is then moved forwardly the maximum distance possible and the finger lever 22 is then released so as to permit the latch bolt 21 to engage the teeth of the segment 19. The lever should then be pulled toward the rear so as to rock the rock shaft 17 in the left hand direction. In this way the links 10 and 11 are made to slide rearwardly. The first part of their movement has no direct effect in effecting the opening of the bucket sections, but is for the purpose of releasing the latch arms 30. In this connection it will be seen that as the rear ends of the links 10 move rearwardly the links 33 force the arms 32 toward the left and this rocks each of the bell-cranks 28 so as to raise its latch arm 30 and disengage it from its corresponding lug. As soon as the latches 30 have been released in this way, the forward edges of the slots 14 engage the pins 12. At the same time the forward edges of the slots 15 strike the pins 13 so that a further movement of the lever will now rotate the buckets or bucket sections 2 and 3 in opposite directions. In this connection attention is called to the fact that the thrust of the link 11 is exerted in a line passing above the axis of the trunnions 5, while the thrust of the links 10 is below the axis of the trunnions 4. The bucket sections will therefore be moved into substantially

the position indicated in the dotted outlines in Fig. 1, and their contents will be dumped. Attention is called to the effective position of the shells in dumping; each section being rotated to such an extent that each shell will dump itself completely. This is rendered possible on account of the overlapping of the side plates of the shells.

If it is desired to distribute the load on a roadway or an area, this is accomplished by giving the lever 20 a partial forward movement. When it has been unlatched as described above, it may be moved any fraction of the maximum movement; that is, supposing that the lever is moved half the maximum movement, the shells will become half opened when the rearward or opening movement of the lever 20 has taken place. In this way the quadrant 24 constitutes a means of measuring the degree of opening the bucket will have, a complete forward movement of the lever giving a complete opening of the bucket when the lever is returned; and any fractional movement of the lever in this way will give a corresponding opening movement of the bucket.

In order to enable the shells to be held fixed in their wide-open or any fractional open position, I have provided the brake wheel 38 and the brake band 39 operated by the foot lever 41. It should be understood that by pressing on the foot lever the brake band 39 will exert a considerable friction on the rock shaft and will hold it fixed against rotation. This permits an independent movement of the lever 20 to adjust it to any desired position without affecting the bucket in any way. This brake attachment is particularly useful where the load is being dumped through a fractional opening and it is desired to increase the opening. In doing this the foot lever enables the shells to be held fixed while the lever 20 is adjusted to another position for opening the bucket wider.

By adjusting the nuts 36 the latches 30 can be very nicely regulated so that they will completely release the buckets and insure their opening when moved by the links.

On account of the telescoping movement of the sides of the bucket sections it is desirable that the trunnions 4 and 5 of the bucket sections on opposite sides of the same bucket section should not approach or recede from each other, that is, the bearing brackets 6 should maintain a fixed position. In order to accomplish this result I construct the frame 18 in girder form, each girder comprising an upper stringer 44 which is formed of angle iron or steel with a horizontal upper flange 46 and a vertical web 47; each girder comprises a lower stringer 48, the forward portion of which is formed by a yoke 49 which gives opportunity for the forward wheels 50 to turn

under the wagon frame. The main or rear portion of the girder 48 is formed of a lower stringer having a vertical web 51 and a horizontal flange 52 as shown.

5 The brackets 6 are supported on vertical plates or webs 53 which are riveted to the webs 45 and 51. Between these plates 53 I provide diagonal braces or straps 54 which are riveted to the webs 45 and 51. The vertical webs 55 and the yokes 49 are connected by two diagonal braces 56 with the webs 45 of the upper stringers, and the rear portion of each yoke is additionally braced by a diagonal strap 57 which is riveted to the upper stringers. Similar diagonal straps 58 are provided at the rear. The side girders of the wagon frame 18 are supported on the axles 59 of the wagon in any suitable manner and the rear and forward ends of the side girders are connected by cross frames 60 and 61. The yokes 49 are connected by a suitable seat bar 62 to which seat frames 63 are attached to support a suitable seat 64; and forward of the seat a suitable foot rest 65 is formed.

With a wagon frame constructed as described it should be understood that the sides of the frame will be very rigid and will not tend to "warp" or spring laterally. For this reason the brackets 6 on opposite sides of each bucket section remain in a fixed relation to each other. Furthermore, this condition also results in a perfect alignment of the different trunnions which makes for easy working of the bucket sections in opening and closing them. The pivots 4 and 5 of the bucket sections are disposed slightly off the center of gravity of the empty bucket sections so that the bucket when empty will close itself.

In constructing the body sections or shells 2 and 3 the forward section 3 is provided on its outside with a reinforcing strap 66 while the rear section 2 is provided on its inner side with a similar reinforcing strap 67. The forward section has an angle bar 68 riveted in the angle between the side plates and the cylindrical wall while the rear section 2 has a similar angle bar 69 riveted outside.

Special attention is called to the built up girder form of the side frame of this wagon. This construction gives the necessary rigidity to enable the side plates of the bucket sections to slide readily upon each other and retain their alinement without substantially increasing the weight of the wagon frame.

What I claim and desire to secure by Letters Patent is:

60 1. A dumping wagon having a body formed of sections adapted to close together, pivots supporting said sections near the

centers of gravity thereof, a link connected with one of said sections so as to exert a thrust above the pivots thereof, a link 65 connected to the other section below the pivotal axis thereof, means for actuating said links simultaneously to rotate said sections in opposite directions, a latch mechanism for locking said sections together, and 70 means actuated by a pair of said links for releasing said latch mechanism.

2. A dumping wagon having a body formed of sections adapted to close together, a rock shaft, means for actuating said sections from said rock shaft, a lever for actuating said rock shaft, means for positively locking said lever to said rock shaft in a plurality of different positions enabling said lever to rotate said shaft in either direction 80 and a quadrant for holding said lever fixed.

3. A dumping wagon having a body having sections adapted to close together and open apart, a rock shaft, means for actuating said sections from said rock shaft, 85 a lever for operating said rock shaft, means for positively locking said lever to said rock shaft in a plurality of different positions, enabling said lever to rotate the same in either direction, means for adjustably locking said lever to hold said rock shaft in different fixed positions and a brake device for holding said rock shaft against rotation when said lever is released therefrom.

4. A dumping wagon having side frames 95 of built up girder form, bearing brackets carried by the said side frames, and a wagon body formed of sections having trunnions supported on said bearing brackets, said sections having overlapping side 100 plates.

5. A dumping wagon having side frames comprising upper stringers and lower stringers, vertical plates connecting said stringers, means for connecting said stringers at other points, a body formed of sections mounted between said side frames, said sections having trunnions, and means for supporting said trunnions on said vertical plates. 110

6. A dumping wagon having side frames formed of upper stringers and lower stringers, vertical plates connecting said stringers, bearings carried by said vertical plates, a body formed of sections with overlapping 115 side plates, and trunnions on said sections supported by said bearings.

Signed at Fort Lee in the county of Bergen and State of New Jersey this twentieth day of May A. D. 1911.

HENRY L. HAZEN.

Witnesses:

JOHN H. MANNIX,
LIZZIE MANNIX.