

No. 891,413.

PATENTED JUNE 23, 1908.

M. J. ELY.

AUTOMATIC CLOSING MECHANISM FOR DUMPING WAGONS.

APPLICATION FILED DEC. 18, 1906.

3 SHEETS—SHEET 1

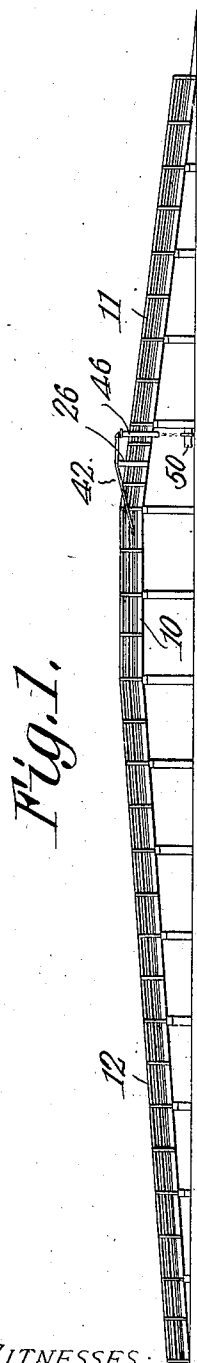


Fig. 1.

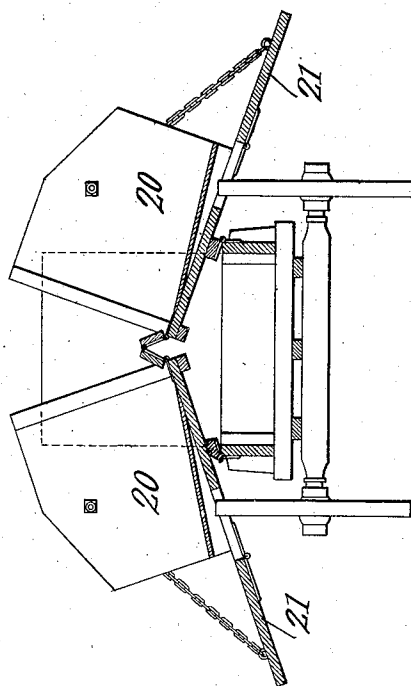


Fig. 7.

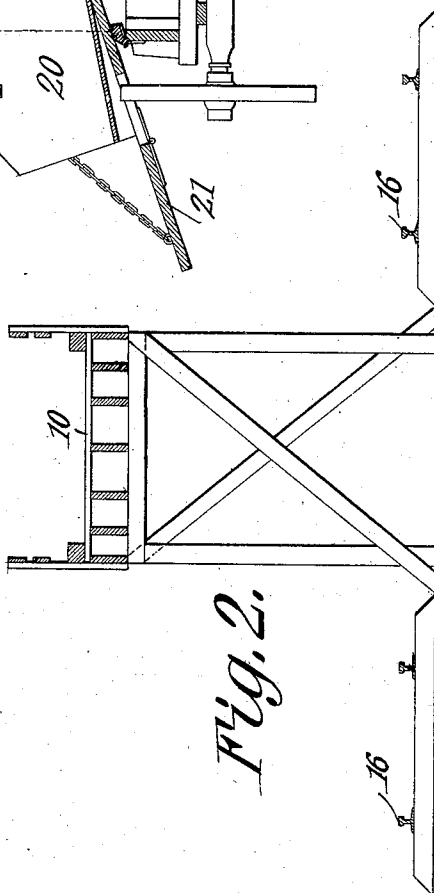


Fig. 2.

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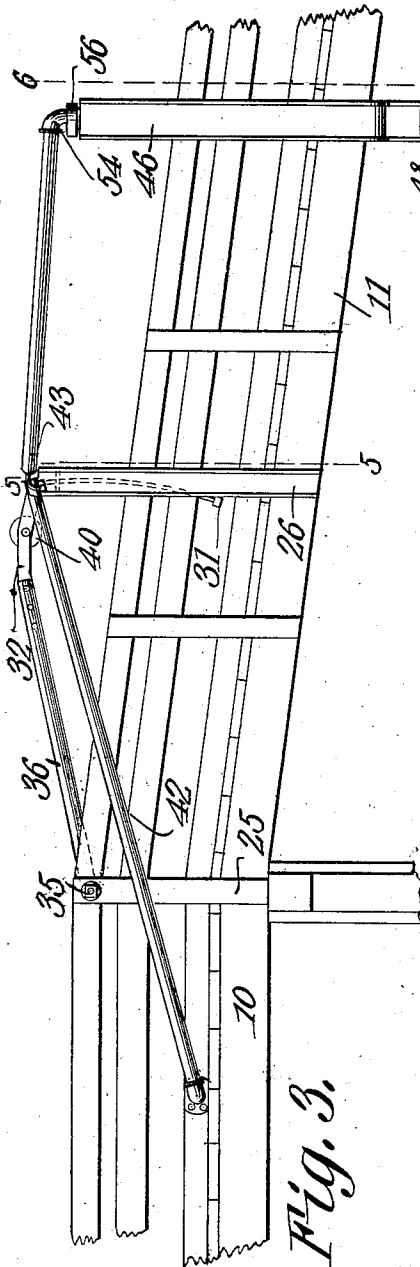


Fig. 3.

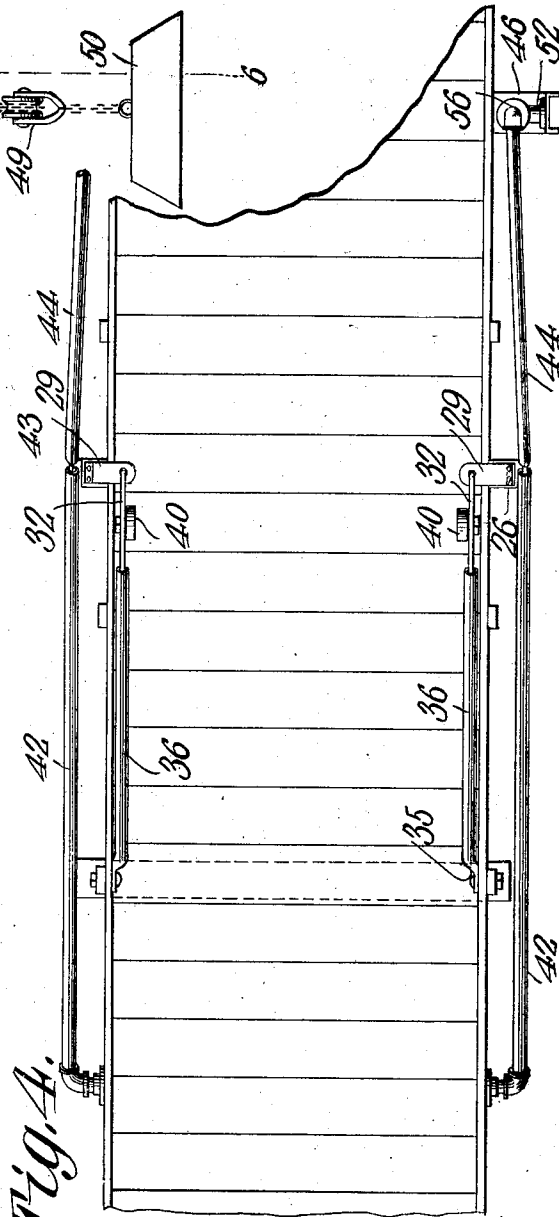


Fig. 4.

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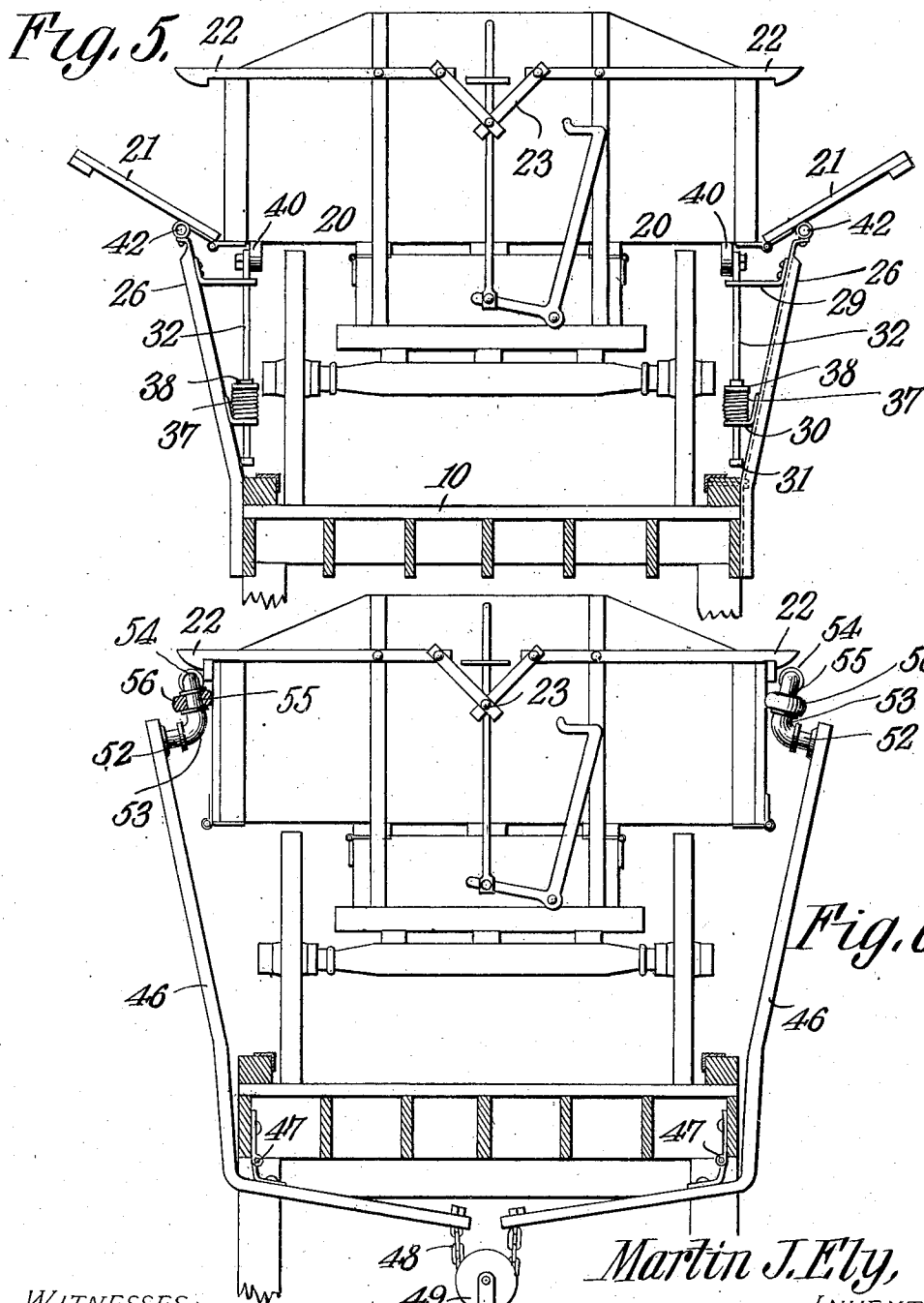
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC CLOSING MECHANISM FOR DUMPING-WAGONS.

No. 891,413.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed December 18, 1906. Serial No. 348,444.

To all whom it may concern:

Be it known that I, MARTIN JUDA ELY, a citizen of the United States, residing at Oxnard, in the county of Ventura and State of California, have invented a new and useful Automatic Closing Mechanism for Dumping-Wagons, of which the following is a specification.

The principal object of the present invention is to provide an automatic mechanism for restoring dumping wagons to closed or receiving position after the dumping of a load, thus saving considerable time and labor where material in bulk must be handled expeditiously.

A further object of the invention is to provide an automatic closing device arranged in the path of travel of a dumping wagon and designed to engage and close or restore the same to receiving position as the wagon travels.

A still further object of the invention is to provide a device of this class to be used in connection with elevated platforms over which the wagons or other wheeled receptacles travel, the mechanism being so arranged that the contents of the wagon or receptacle may be dumped from opposite sides of the platform at the same time, and the parts automatically restored to initial or closed position after the dumping operation, without stopping the travel of the wagon.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a side elevation of a dumping platform provided with automatic closing mechanism constructed in accordance with the invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a side elevation of a portion of the apparatus drawn to an enlarged scale. Fig. 4 is a plan view of the same. Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 3. Fig. 6 is a similar view on the line 6—6 of Fig. 3. Fig. 7 is a

vertical transverse section of a dumping wagon in open or extended position showing the style of wagon particularly applicable for use with this invention.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The apparatus forming the subject of the present invention is designed more especially for use in connection with self dumping wagons of that general type illustrated in Letters-Patent of the United States granted to me December 11, 1906, No. 838,176; although it may be applied to other types of wagons without departing from the invention, the structure shown in the patent referred to being simply typical of a wagon which may be employed.

In carrying out the invention, an elevated platform 10 is built, the platform being provided with an inclined approach up which the wagon may be drawn to the level portion, and there dumped, after which the wagon descends a run-way 11 to the ground, in readiness to receive another load. For convenience, the approach 12 is very gradual, so that the draft animals may haul a heavy load up to the level dumping portion of the platform, and said platform is arranged at a sufficient elevation to permit the dumping of the contents of the wagon into railway cars which may be run on to tracks 16 at opposite sides of the dump, so that two cars may be simultaneously loaded.

The wagon shown includes a pair of pivoted bottom members 20 and pivoted sides 21, the latter being locked in place by hook bars 22 which are pivotally mounted at the rear stationary portion of the wagon, and are connected to a suitable operating means 23, so that both hooks may be simultaneously moved from engagement with the sides 21, and the wagon will be allowed to move to the dumping position, and as will appear on reference to said Letters-Patent, there is one set of hooks at the front of the wagon, and another set of hooks at the rear of the wagon, these sets of hooks being connected to a common operating handle, so that all may be operated simultaneously.

When the driver reaches the dumping point, he releases the hooks, and the bottom and sides, to discharge by gravity from both sides of the wagon, after which the draft

animals draw the wagon along and down the run way 11, and during the travel of the wagon, the sides and bottom are engaged and moved to closed position by the automatic mechanism which forms the subject of the present invention.

At the juncture of the horizontal portion of the platform and the run-way 11 is arranged a pair of standards 25, there being one at each side of the platform, and at a point some distance down the run-way is a second pair of standards 26, the latter being preferably formed of structural iron, and having their lower ends rigidly secured to the sills of the runway, the upper portions of said standards being slightly inclined outward from the platform. Each of these standards 26 carries two inwardly extending brackets 29 and 30, which form guides for the vertical movement of an arcuate bar 32 that is arranged on a curved line struck from the axis of an elbow 35 that is rigidly secured to the standard 25, and is pivotally connected to an arm 36 which is extended in the direction of the bar 32 and forms a support therefor, this arm 36 being free to swing in a vertical plane, and being normally held in elevated position by a spring 37 bearing against the bracket 30 at one end, and against a collar 38 at the opposite end, said collar being rigidly secured to the bar 32. The arm 32 carries a roller 40 which is designed to engage with the bottom of the wagon, and as the arms 36 are arranged at a very slight angle to the horizontal, they will serve by engagement with the bottom members 20 to gradually force said bottom members to the horizontal or closed position, the rollers 40 finally engaging the bottom members 20 and being traversed by the whole length of said bottom members so that the bottom will be held closed during the closing movement of the side members 21 as will presently appear.

The standards 26 are braced by inclined side bars 42 which are rigidly secured at one end to the sills or other portion of the platform, and at their opposite ends are rigidly secured to the upper portions of the standards 26. These bracing members 42 may be, and preferably are, formed of strong iron or steel pipe, and that end of each which engages the standard 26 is provided with an opening for the reception of a hooked arm 43 that is carried by an arm 44 which may, also, be formed of a tube, the arm 44 being free to swing in a horizontal plane with the hook 43 as a center of movement.

At a point further down the run-way is arranged a pair of levers 46, each of which is pivoted to the platform sills or other supports by a hinge member 47, and the lower portions of these levers have inwardly bent arms extending under the platform and connected by a chain 48 passing beneath a guide

sheave 49, from which is suspended a weight or spring 50, the weight being preferably in the form of a box or other receptacle which may be loaded with stone or the like of sufficient avoirdupois to effect the side closing operation.

Secured to the upper end of each of the levers 46 is a bracket 52 on which is an elbow 53, and this elbow is connected to a second elbow 54 by a nipple coupling 55 on which is mounted an anti-friction roller 56. The elbow 54 is carried by the rear end of the arm 44, on the forward end of which is the hook 43, loosely pivoted to the bracing member 42, as heretofore stated, allowing the free swinging movement of the levers 46 and arms 44, while the weight 50 tends at all times to move said arms toward each other and press the rollers 56 into engagement with the sides 21 of the wagon.

The wagon is shown in full dumping position in Fig. 7, and as it is driven along the bottom braces will be engaged by the arms 36, while the sides are engaged by the inclined braces 42, and the sides and bottom members are thus gradually forced to assume closed position. By the time the front ends of the bottom members strike the rollers 40 they have been made to assume the horizontal position, as will be evident on reference to Fig. 5, and while the rollers 40 maintain these bottom members in the horizontal position the front ends of the sides are engaged by the rollers 56 and the latter are forced to full closed position, the upper edges of the sides swinging under the hooked ends of the bars 22, and being automatically locked in closed position, as shown in Fig. 6, so that after the wagon has passed but a short distance down the inclined descent, the wagon will be fully closed and may be driven off without any attention to the closing mechanism, this mechanism automatically assuming initial position in readiness to be engaged by a succeeding wagon.

The apparatus is admirably adapted for the rapid handling of heavy loads, and is found of especial value in the handling of sugar beets where the wagons may be loaded in the field and driven up the inclined approach to dumping position and the loads dumped into railway cars at both sides of the platform.

I claim:—

1. A dumping platform arranged for the travel of dumping vehicles, and separate means independently yieldable in vertical and lateral directions carried by said platform on each side for engaging said vehicles and automatically restoring the same to closed position after a dumping operation.

2. In apparatus of the class described, a dumping platform having an inclined approach, and inclined descent, the platform being arranged for the travel of dumping

wagons, and means at both sides of said platform for engaging the movable parts of the dumping wagon and restoring the same to closed position.

5 3. In apparatus of the class described, a dumping platform having an inclined approach and inclined descent, said platform being arranged for the travel of a dumping wagon, and vertically and laterally yielding
10 mechanism on each side of said platform for engaging and restoring the parts of the wagon to closed position.

4. In apparatus of the class described, a platform, a pair of pivotally mounted arms
15 supported thereby, means for moving the free ends of the arms inward to wagon engaging position, a pair of vertically swinging arms, and means for moving the free ends of the vertically swinging arms upward into en-
20 gagement with the bottom of a wagon.

5. In apparatus of the class described, a platform having a pair of inclined braces for preliminary engagement with the parts of a wagon to be restored to closed position, a
25 pair of horizontally swinging arms pivoted to the braces at one end, and provided with anti-friction rollers for engagement with the sides of a wagon, pivotally mounted counter-weighted levers engaging the free ends of
30 said arms and tending to move the same inward, a pair of vertically swinging arms for engagement with the bottom of the wagon,

and anti-friction rollers carried by said vertically swinging arms.

6. In apparatus of the class described, a platform having at each side a brace for preliminary engagement with a dumping wagon, a horizontally swinging arm pivoted at one end to the brace, a pivotally mounted lever connected to the opposite end of said arm, a weight acting on said lever and tending to
40 force the arm and lever inward, a vertically swinging arm pivoted at one end to the platform, an arcuate bar carried by the opposite end of said vertically swinging arm, guides
45 for said arcuate bar, and a spring engaging the bar and tending to elevate the same.

7. In apparatus of the class described, the combination with a platform, of mechanisms adapted to yield in a vertical and horizontal
50 direction arranged on each side of said platform and in the path of movement of a dumping wagon and adapted to engage successively and independently the bottom and sides of said wagon and move the same to
55 closed position.

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

MARTIN JUDA ELY.

Witnesses:

I. W. STEWART,
F. M. KIRK.