

(No Model.)

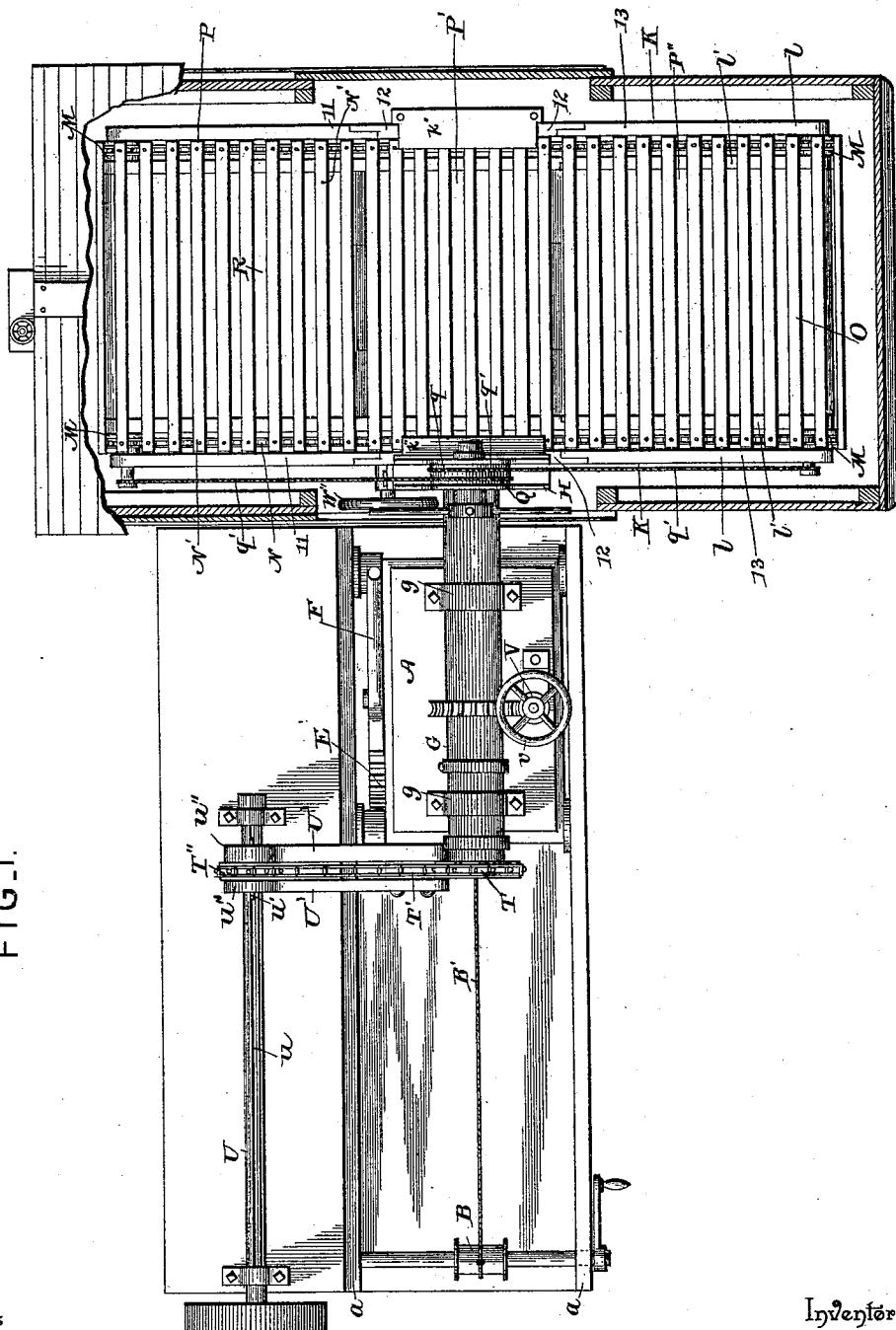
4 Sheets—Sheet 1

J. A. INGALLS.

COAL LOADER AND DISTRIBUTER FOR BOX CARS.

No. 488,564.

Patented Dec. 27, 1892.



Witnesses

Inventor

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By his Attorneys,

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(No Model.)

4 Sheets—Sheet 2.

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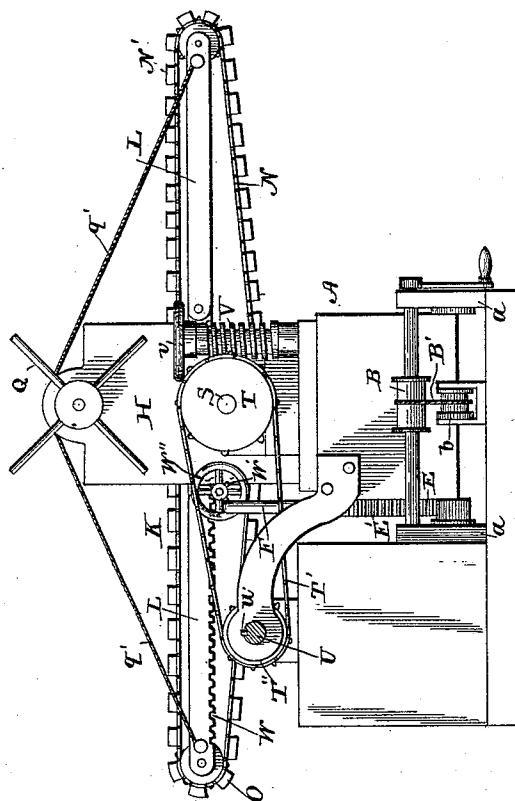


FIG. 16-2 -

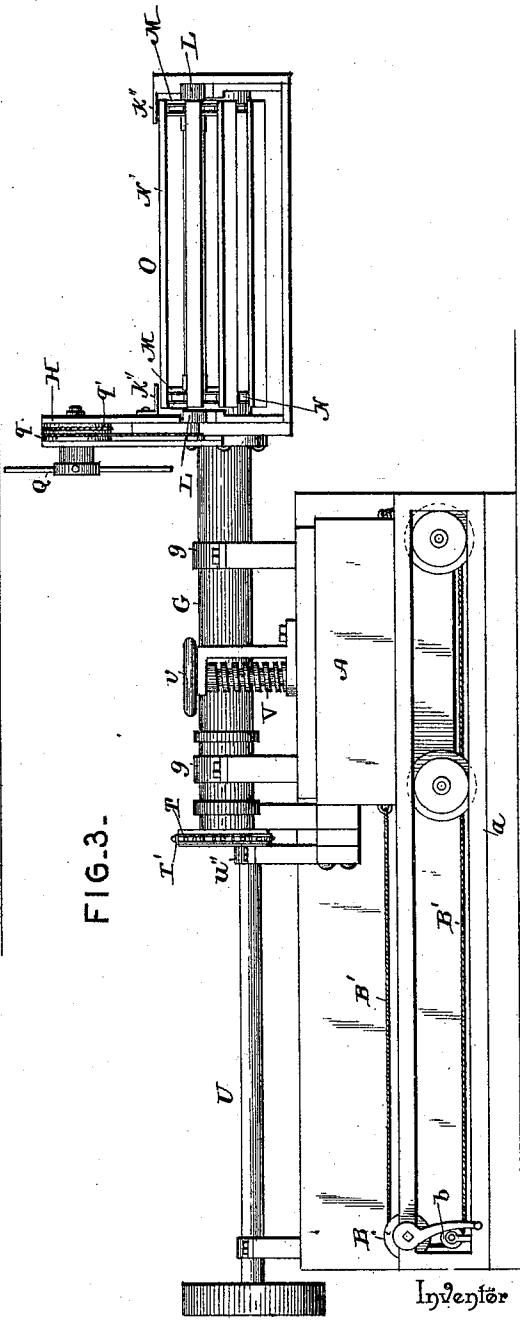


FIG. 16.3 -

Witnesses

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(No Model.)

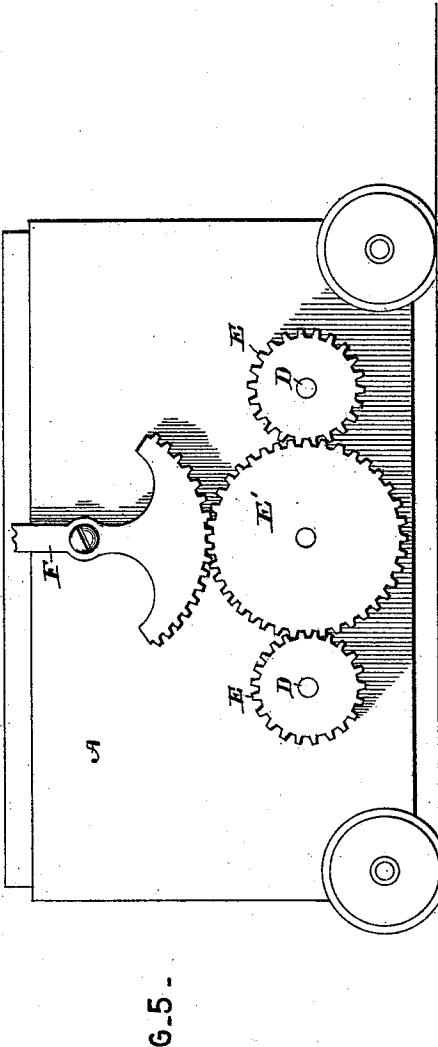
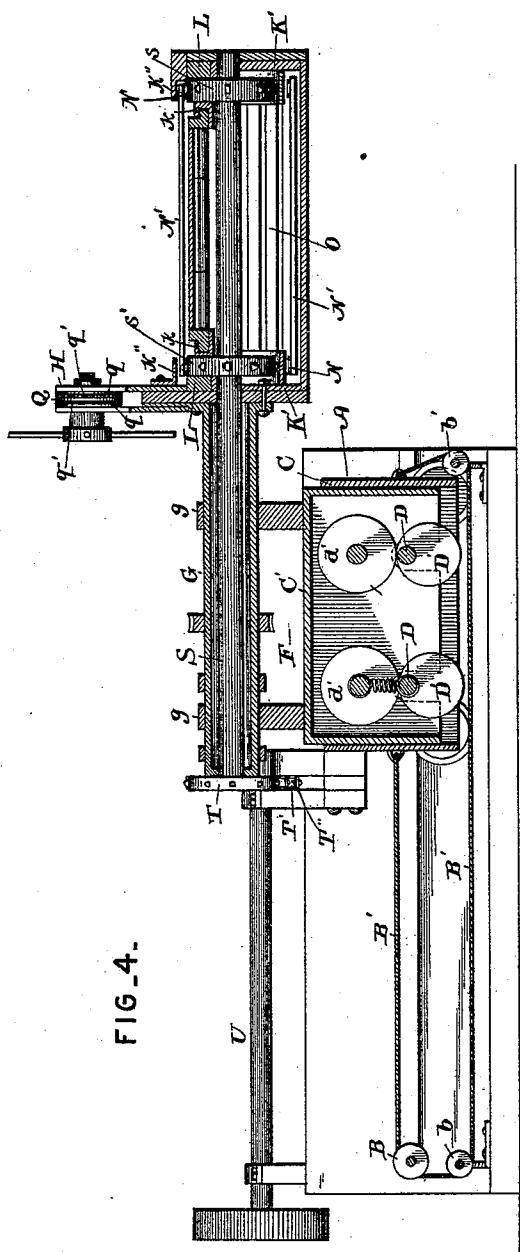
4 Sheets—Sheet 3.

J. A. INGALLS.

COAL LOADER AND DISTRIBUTER FOR BOX CARS.

No. 488,564.

Patented Dec. 27, 1892.



Witnesses

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(No Model.)

4 Sheets—Sheet 4.

J. A. INGALLS.

COAL LOADER AND DISTRIBUTER FOR BOX CARS.

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FIG. 6.

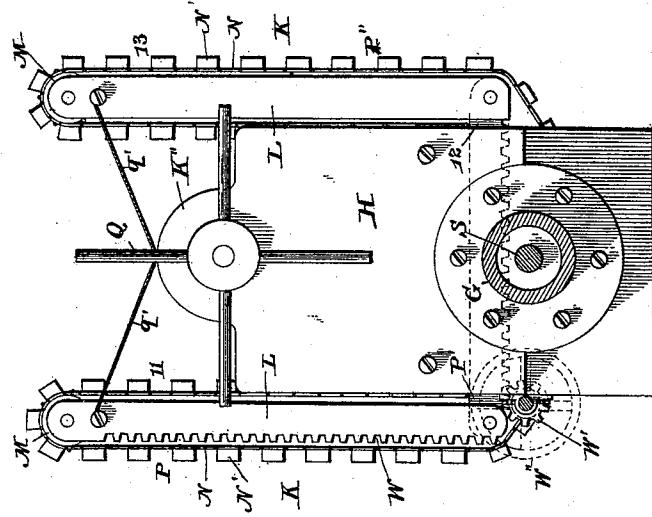
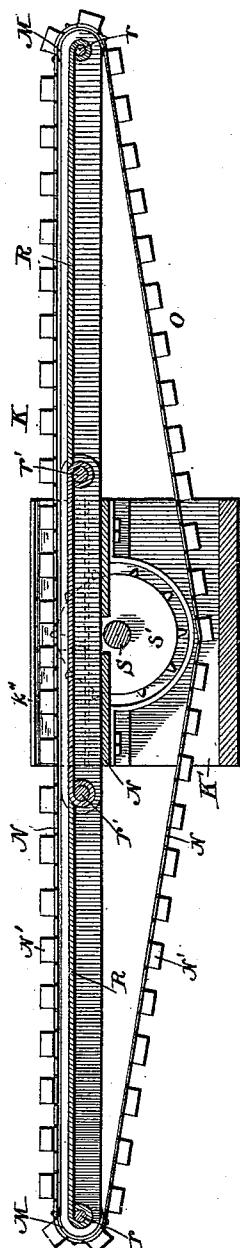


FIG. 7.

Witnesses

Jas. K. McCutchan


By his Attorneys,

Joseph A. Ingalls

Inventor



UNITED STATES PATENT OFFICE.

JOSEPH A. INGALLS, OF EVANSTON, WYOMING.

COAL LOADER AND DISTRIBUTER FOR BOX-CARS.

SPECIFICATION forming part of Letters Patent No. 488,564, dated December 27, 1892.

Application filed July 6, 1892. Serial No. 439,149. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. INGALLS, a citizen of the United States, residing at Evans-
ton, in the county of Uinta and State of Wy-
oming, have invented a new and useful Coal
Loader and Distributer for Box-Cars, of which
the following is a specification.

My invention relates to a coal loader and
distributer designed for use in connection
with box-cars.

The object of my invention is to provide a
loader which will receive and convey the coal
to opposite ends of the car, and deposit it com-
pactly, without breakage.

15 A further object of my invention is to pro-
vide a loader which is easily operated and
may be readily introduced into a car.

20 A further object of my invention is to pro-
vide means whereby when the loading of a car
is commenced the conveyer may be held close
to the floor thereof, and gradually elevated as
the operation of loading proceeds.

25 Further objects of my invention will ap-
pear in the following description of my im-
proved loader, given in connection with the
drawings, wherein:

Figure 1 is a plan view of the loader, in its
operative position, with the endless platform
or apron in the operative position within a
30 box-car, the latter being partly broken away
to show the loader: Fig. 2 is an end view:
Fig. 3 is a side view: Fig. 4 is a sectional view
taken parallel with and through the main
tilting shaft: Fig. 5 is a view of the lifting
35 mechanism, showing the lever and gearing
thereof: Fig. 6 is a longitudinal sectional view
of the platform: Fig. 7 is a sectional view
showing the platform folded, as seen while in-
troducing the loader into and withdrawing it
40 from the car.

The main tilting shaft of my improved
loader is carried by a truck, A, running upon
track-rails, a a, and operated, to carry the
platform into and withdraw it from a car, by
45 means of a windlass, B, and cable, B', run-
ning around guide pulleys, b b', and con-
nected to the truck. The truck carries an
elevator, comprising the outer shell, C, the in-
ner shell, C', fitting snugly in the outer shell
50 and lifting mechanism to raise said inner
shell. This lifting mechanism comprises the

horizontal rock-shafts, D D, carrying cams,
D' D', which are adapted, when the shafts are
turned, to engage rounded shoulders, d' d',
upon the inner shell (said rock-shafts and 55
cams being mounted in the outer shell). The
rock-shafts are provided, furthermore, upon
corresponding extremities, with pinions, E E,
both of which are engaged, simultaneously,
by a common gear, E', which is, in turn, en- 60
gaged by an arc-gear upon the extremity of
an operating lever, F.

The tilting-shaft, G, is hollow and is mount-
ed in bearings, g g, upon the elevator, above
described, said shaft carrying at one end a 65
guide-frame, H, supporting the distributing
platform, K. This platform is provided with
parallel side-bars, L L, which fit and slide
in guide-grooves, k k, in the inner surfaces
of the vertical guide-plates, K' K', at op- 70
posite ends of the guide-frame. The guide-
plates are connected, flush with the lower
sides of said guide-grooves, with horizon-
tal guide-bars, k'' k''. The side-bars, above
described are double, as shown in the plan 75
view, Fig. 1, the outer members, l l, and inner
members, l' l', thereof, being parallel through-
out. Between the extremities of the par-
allel members of the side-bars are mounted
guide-rolls, M M, around which run the end- 80
less carrier-chains, N N, to which are attached
the cross-bars, N' N', of the platform, the
endless chains and cross-bars comprising an
endless apron or conveyer, O. The platform
is adapted to fold to enable it to be intro- 85
duced through the door of a car, and for this
purpose is formed in three sections, desig-
nated by the reference letters, P, P', and P'',
respectively. The sectional construction of
the platform is attained by forming the side- 90
bars thereof in sections, designated by the
numerals 11, 12, and 13, respectively. When
the intermediate section of the platform is
arranged in the guide-frame, the terminal sec-
tions may be folded up, vertically, as indi- 95
cated in Fig. 7, so that the entire platform
occupies a space smaller than the opening in
the side of the car.

It will be noted that in the above descrip-
tion of the construction of the platform I 100
have set forth that the platform is provided
with parallel side bars, each comprising two

parallel members, which I have designated collectively as well as individually by reference letters, and furthermore, it will be seen that each side-bar (and as a matter of course each "member" of each side bar) is formed of a series of three pivotally connected sections or parts, whereby the platform as an entirety is composed of an intermediate and two terminal sections, designated by reference letters P, P' and P'', the sections or parts of the side bars being indicated by the numerals 11, 12 and 13, respectively.

To accomplish the folding of the platform, as described, I provide a winch, Q, mounted 15 in a vertical guard-plate, K'', and carrying a drum, Q', having parallel peripheral grooves, q q, in which are received and reeled the inner ends of the cables, q' q', the outer ends of said cables being attached to the extremities of the adjacent side-bar of the platform.

When the loader is in its operative position, with the platform within the car, the vertical guard-plate fills the opening in the side of the car, approximately, and prevents 25 the coal from being thrown out at that point. The parallel side-bars of the platform are held at their proper distance and in their proper relative positions by cross-bars, r r, between the extremities of the side bars and 30 similar cross-bars, r' r'', between intermediate points of the side bars, the terminal cross-bars, r r, forming the pivots for the guide-rolls, M M, and the intermediate cross-bars, r' r'', forming the pivots by which the inner 35 ends of the terminal sections of the side-bars are connected to the adjoining ends of the intermediate sections thereof. These cross-bars have an additional function, also, in that they form the stays for the sheet metal flooring, R, which is formed in sections to correspond with those of the platform-proper, the terminal sections thereof being hinged to the intermediate cross-bars, r' r''.

The tilting-shaft G is tubular, and within 45 it is mounted the conveyer-shaft, S, which carries, at one end, a sprocket-wheel, or pinion, s, to engage the conveyer-chain at the remote side of the platform and at an intermediate point a similar sprocket-wheel, or pinion, s', 50 to engage the conveyer-chain at the near side of the platform, whereby as said shaft is rotated the conveyer, or apron, is carried around the platform. The conveyer-shaft is also provided, at the opposite end, with a spur-wheel, 55 T, which is connected, by means of a chain, T', with a similar spur-wheel, T'', carried by the driving shaft, U. This driving shaft may be operated by any suitable power, as steam, and is provided with a spline, u, in which fits 60 and operates a corresponding feather u' upon the spur-wheel, the latter being held in alignment with the spur-wheel, T, and moved simultaneously with the truck by means of parallel arms, U' U', projecting from the shell of 65 the truck and provided with eyes, u'' u'', to embrace the driving-shaft.

V indicates a vertical worm-shaft, arranged

upon the platform, adjacent to the hollow tilting-shaft, and provided with a hand-wheel, v, the tilting-shaft being provided with a worm-gear to be engaged by the worm to enable the platform to be tilted in either direction at the will of the operator.

One of the side-bars of the platform is provided with a rack, W, engaged by a pinion, 75 W', which is carried by a short shaft mounted upon the guide-frame. This gear, although preferably operated from the driving shaft, in any ordinary or well known manner, is shown in the drawings provided with a hand-wheel, 80 W'', for convenience.

Having now described, in detail, the construction of my coal loader and distributor, the operation thereof is as follows: The platform being in the folded position shown in Fig. 85 7, it is advanced and introduced through the door of the car by operating the traction cable by means of the windlass, the elevator being meanwhile depressed so that the bottom of the guide-frame is close to the floor of the car. 90 After being properly introduced the platform is extended by operating the winch, thereby dropping the extremities or terminal sections of the platform to the plane of the intermediate section. The platform is now moved by 95 means of the rack and pinion, above described, until one end is close to the end of the car, when the loader is in position for operation. The conveyer or apron is now operated continuously as the coal, or other mineral, is deposited thereon thus carrying the latter to the extreme end of the car and placing it quietly, without breaking. When one end of the car is sufficiently filled the platform is moved, by means of the rack and pinion to the other end, 100 the engine by which the driving shaft is operated being reversed to cause the conveyer, or apron, to travel in the opposite direction. When the bottom of the car has been sufficiently filled the platform is elevated by means 105 of the lifting mechanism above described.

If, during the operation of the loader, it is desirable to bring one end of the platform closer to the floor or closer to the roof of the car, this may be accomplished by tilting the 110 platform by means of the tilting-mechanism consisting of the worm and gear, above described.

After both ends of the car have been sufficiently filled the platform may be folded by 115 the operation of the winch and withdrawn by means of the cable, the fact that the terminal sections of the platform fold upwardly enabling this to be accomplished readily and expeditiously.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States, is:

1. In a machine of the class described, the combination with a tilting shaft carried by a truck, of a platform supported upon said shaft, substantially as specified.
2. In a machine of the class described, the combination with a tilting shaft carried by a

truck, of a platform supported upon said shaft, and comprising pivotally connected foldable sections, substantially as specified.

3. In a machine of the class described, the combination with a tilting shaft carried by a truck, of a platform mounted to slide in a frame upon said shaft, and means whereby the same may be moved longitudinally, substantially as specified.

10 4. In a machine of the class described, the combination with a tilting shaft carried by a truck, of a platform supported upon said shaft and composed of pivotally-connected, foldable sections, a continuous conveyer or 15 apron carried by rolls at the extremities of the terminal sections and means to operate said conveyer or apron, substantially as specified.

20 5. In a machine of the class described, the combination with a tilting or rock-shaft supported by a truck, and carrying a guide frame, of a sectional platform mounted to slide in said guide frame, and means to move the 25 platform, substantially as specified.

6. The combination with a tilting shaft carried by a truck, of a platform supported upon 25 said shaft, a stationary plate attached to the platform, an endless conveyer or apron, carried by the platform to traverse said plate, and means to operate the conveyer or apron, substantially as specified.

30 7. The combination with a supporting shaft, of a platform comprising foldable sections and provided with twin side-bars formed in jointed sections, rolls carried by the terminal sections 35 of the platform, the endless conveyer carried by said rolls, and means to operate the conveyer, substantially as specified.

8. The combination with a truck carrying an elevating mechanism, of a tilting shaft 40 mounted upon said truck, and a folding platform supported by the tilting-shaft and provided with a conveyer or apron, substantially as specified.

9. The combination with a hollow tilting-

45 shaft carrying a guide-frame, and the platform mounted in said guide-frame, of the endless conveyer or apron carried by the platform, and the conveyer shaft mounted in or extending through the tilting-shaft and provided with a gear to operate said conveyer or 50 apron, substantially as specified.

10. The combination with a tilting - shaft carrying a guide-frame, and a worm gear to operate said shaft, of a platform mounted in said guide-frame and provided with an endless 55 conveyer, and means for operating said conveyer and platform, substantially as specified.

11. In combination with a driving-shaft carrying a sprocket or chain gear, the hollow shaft carrying a guide-frame, the platform mounted 60 in the guide-frame, the endless conveyer carried by the platform, and the conveyer shaft mounted in the hollow-shaft and provided at one end with a gear to engage the conveyer and at the other end with a gear which is connected to the said sprocket or chain gear, the hollow shaft being mounted upon a truck, all 65 substantially as specified.

12. The combination with a tilting shaft, carrying a guide-frame, of a platform mounted 70 to slide in the guide-frame, an endless conveyer mounted upon the platform, and a gear mounted upon the frame to engage a rack upon the platform, substantially as specified.

13. In combination with a supporting shaft, 75 a tilting-platform, having an intermediate and terminal sections pivotally connected, and means to fold the terminal sections perpendicular to the intermediate section, substantially as specified.

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

JOSEPH A. INGALLS.

Witnesses:

J. H. RYCHMAN,
JOSEPH RIVERS.