

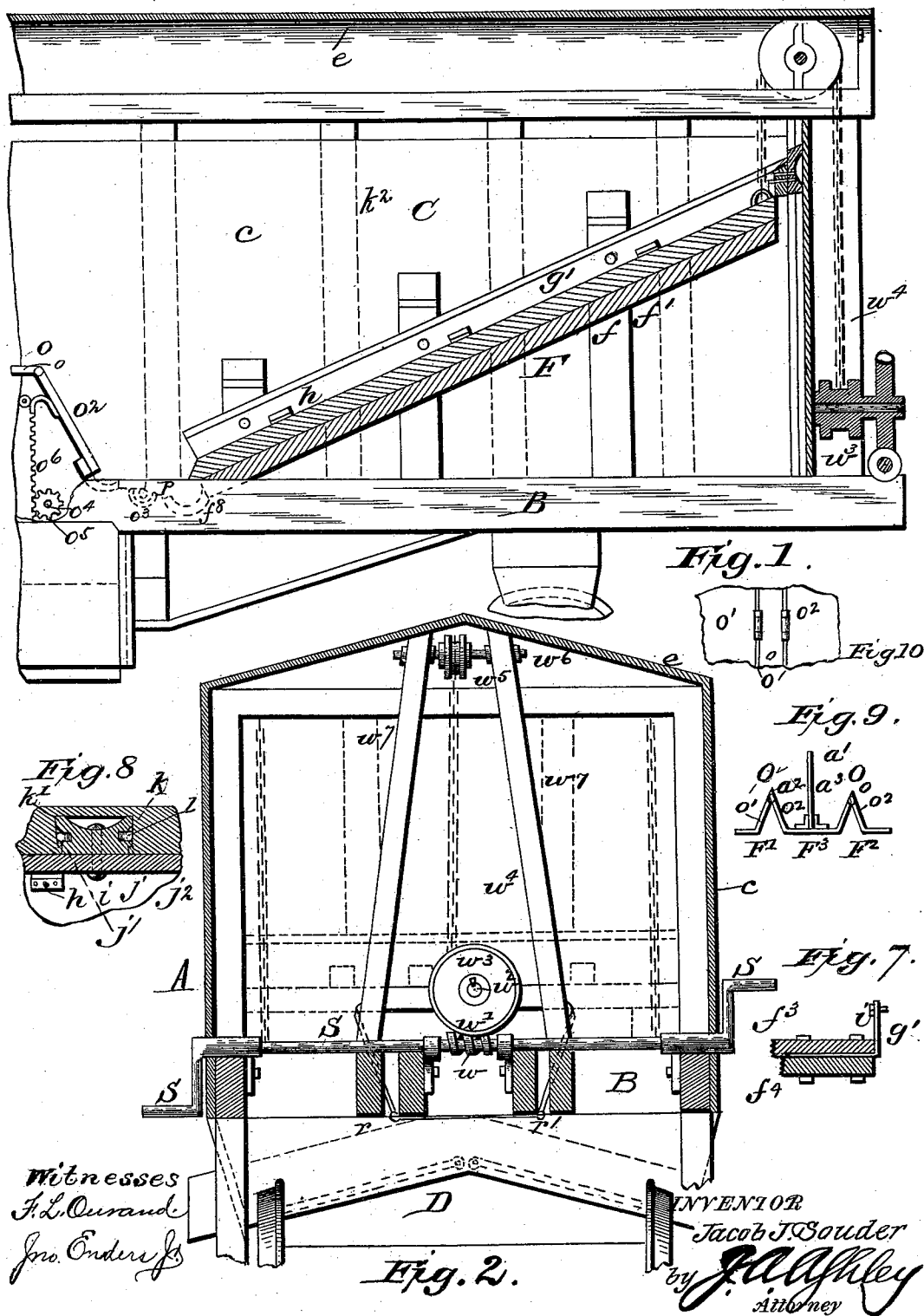
(No Model.)

2 Sheets—Sheet 1.

J. J. SOUDER.
DUMPING CAR.

No. 466,470.

Patented Jan. 5, 1892.



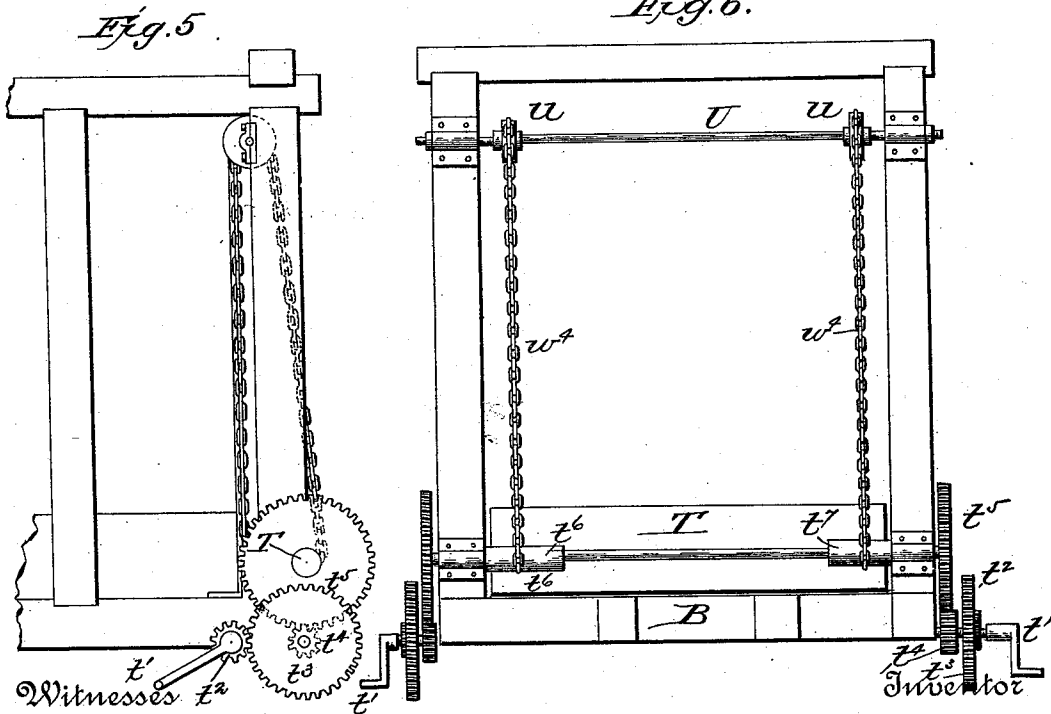
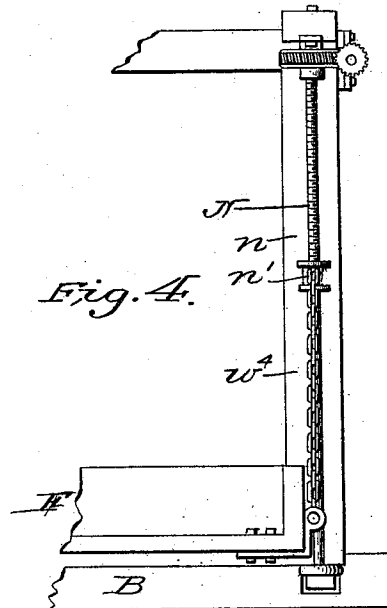
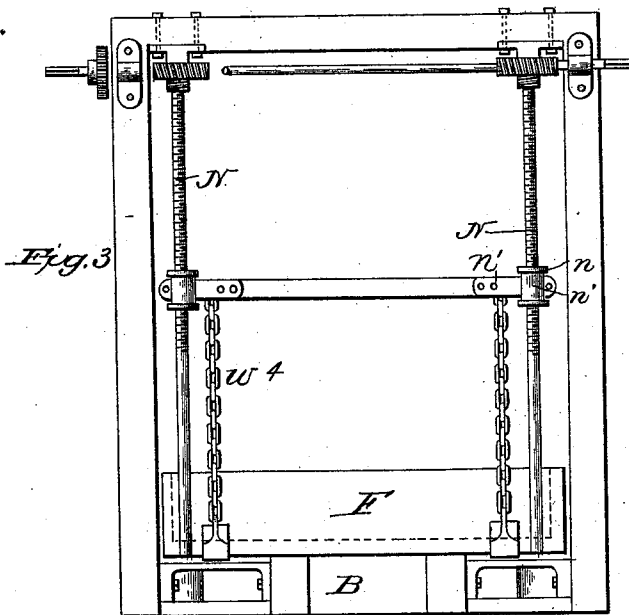
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JACOB J. SOUDER, OF WASHINGTON, DISTRICT OF COLUMBIA.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 466,470, dated January 5, 1892.

Application filed June 2, 1891. Serial No. 394,882. (No model.)

To all whom it may concern:

Be it known that I, JACOB J. SOUDER, a citizen of the United States, residing in Washington, in the District of Columbia, have invented new and useful Improvements in Dumping Merchandise-Cars, of which the following is a description.

In United States Patent No. 343,205, issued to me on the 8th day of June, 1886, I described a merchandise or freight car which was provided with oppositely-placed retractible tilting receptacles or dumping-sections, a rack and pinion for elevating such discharging sections or receptacles, an intermediate transverse opening for the discharge of grain or analogous substances through the floor of the car, a key, slide, or cut-off which is adapted to the transverse discharge-opening, a two-way discharging-chute beneath the transverse opening, and a plate within the two-way discharging-chute, by means of which the matter passing from the tilting receptacles or dumping-sections may be directed wholly to either side of the car.

In my present invention the general construction is substantially identical with that presented in the patent above referred to; but I have made various modifications in the details of construction of the parts above indicated, having in view the more perfect operation of the apparatus as a whole, and it is in the various novel combinations of elements resulting from such changes, modifications, and substitutions that my present invention mainly consists.

In the drawings, comprising two sheets, Figure 1 is a longitudinal vertical central section of a portion of a railway-car in which my improvements are embodied. Fig. 2 is an end view of a similar car, the exterior casing of the car being removed to show the construction and arrangement of the preferred form of mechanism employed for elevating the tilting floor-section. Fig. 3 is an end view, and Fig. 4 is a detail side view, of a modified construction of mechanism for elevating the tilting floor-section or receptacle. Fig. 5 is a partial side view, and Fig. 6 is an end view, of another form of mechanism for elevating the tilting floor-section or grain-support. Fig. 7 is a detail in vertical section representing a

modification of the means employed for connecting the scrapers or clearing-plates to the floor of the floor-sections. Fig. 8 represents in horizontal section a detail, drawn to an enlarged scale, of the holding-plates and their immediately-connected parts. Fig. 9 is a vertical section representing the car as when provided with a fixed central floor-section and with two transverse two-part closing-sections. Fig. 10 is a fragment in plan of the adjustable transverse two-part centrally-hinged closing-section.

As in my former construction, the bed-frame B of the car A, including longitudinal sills and stringers and transverse sills, is or may be essentially of the ordinary well-known construction. The exterior side casings *c*, the end casings *c'*, the exterior slidable doors *d*, (not shown,) the interior unattached rabbeted doors *d'*, the roof *e*, and its vertical supports are also the same as in most ordinary freight or burden cars. The lining or interior casing C, secured to the posts and studs in any approved manner, terminates downwardly at the top of the bed-frame B. The floor-sections F or F' embrace a frame *f*, which rests unattached upon the bed-frame B of the car, a floor proper *f'*, which is secured to the frame *f*, and scrapers or clearing-plates *g* and *g'*, which are secured, preferably by hinges *h*, respectively to one end and to the sides of such floor-section. The flange-like scrapers or clearing-plates *g* project upwardly at a right angle to the upper surface of the floor, and are reduced in thickness toward their upper extremity until a knife-edge is produced, as shown. Bolts *i* extend through corresponding orifices in the clearing-plates and receive upon their outer projecting extremity a holding plate or lug *j*, which engages with projections *j'* or with recesses *j''*, formed in ways *k* in the studs *k'* or in other portions of the frame-work of the car, rollers *l*, if desired, being applied upon the holding-lugs to diminish friction and facilitate the movement of the same within its guideways. The scrapers or clearing-plates, instead of the separate construction and hinge attachment above described, may be composed of a single longitudinal sheet of thin metal bent at a right angle, as in Fig. 7, the

inwardly-bent portion being secured between two parts f^3 and f^4 of the floor, the upper extremity or scraping portion being held in close contact with the face of the lining by means of bolts and engaging plates, as under the construction already described.

As a preferred means for elevating the floor-sections when it is desired to discharge their contents, I employ a transverse worm-shaft S, which has suitable bearings upon the bed-frame B of the car and may be operated by means of a winch s. The worm w near the mid-length of the worm-shaft engages the worm-wheel w' upon the short longitudinal shaft w^2 , imparting motion to the drum or sheave w^3 upon the inner portion of such short shaft, and a chain w^4 , connected to the sheave w^3 , passes over an upper sheave w^5 , the journals w^6 of which rest in bearings upon supporting-standards w^7 w^7 , and is connected to the frame f of the floor-section F or F', preferably in the manner indicated in Fig. 6, wherein the chain is shown as attached to the frame at points near the side of the car, thus insuring an even bearing and consequent steadiness of movement. Under the construction shown in Figs. 3 and 4 the worm shaft and wheel are attached at the top of the car and the worm-wheel operates a vertical screw-shaft N, which engages with a screw-nut n , which is secured between the sections of a bracket n' , to which the lifting-chain is attached. Another means for elevating, retracting, and tilting the floor-sections or receptacles is represented in Figs. 5 and 6, in which a winch t' imparts motion to a series of cog-wheels t^2 t^3 t^4 t^5 , the latter of which is secured to the transverse shaft T, which is provided with drums t^6 t^7 , to which lifting-chains w^4 w^4 are attached, their opposite ends being connected to the floor-section or receptacle and the intermediate portion running in the sheaves $u u$ of the elevated transverse shaft U.

To permit the retractive movement of the floor-sections as they are elevated in the process of tilting to discharge the contents of the receptacles, the ways k^2 at the sides of the car, in which the holding-plates engage, are slightly inclined from the bottom toward the end of the car.

In practice the side linings of the car will at its ends project a short distance beyond the vertical plane of the end linings to cover the vertical opening which would otherwise be gradually produced as the floor-section is elevated. This construction insures a close joint and free movement of the parts one upon the other, and at the same time prevents any loss of the contents of the car.

Rods r and r' , extending through the supports w' and through portions of the bed-frame B, may be employed to strengthen the supports of the worm-shaft S and the connecting portions of the elevating mechanism.

A transverse closing-section O, constituting a portion of the floor of the car, is composed of a narrow central portion or body o

and two wings o' o^2 , which are hinged to the body o at the sides thereof. The outer edge of each of the wings is of such configuration as to adapt it to fit the corresponding edge of the floor F^3 at the middle of the car or of the floor-section F or F' at the end thereof. A downwardly and upwardly curved holding plate or hook o^3 , secured to the under surface of the wings at each end of the same, engages beneath a holding-pin p , which is fixed in the bed-frame B of the car and projects inwardly therefrom at either side thereof. The floor-sections are provided with a similar holding-plate f^8 , which in like manner projects downwardly from the bottom surface of the section and is of such dimensions as to permit it to pass under and embrace the hook o^3 of the wings o^2 ; thus doubly securing the transverse two-part closing-section O against accidental displacement.

In discharging the contents of the car a winch is applied to the axle o^4 of the pinion o^5 , imparting motion to the rack o^6 , elevating the section O, and drawing the wings o' o^2 inwardly toward the center of the section and its opening.

Within the two-way chute D, which is secured to the car below the two-part transverse closing-section O, two directing-plates d d' meet at the center of the chute. These plates, whether secured to the floor of the chute by hinges d^2 , as shown, or placed unattached within the same, serve, when the outer end of either is elevated to the top of the side walls of the chute, to direct the discharge wholly to the opposite side of the car.

Under the construction represented in Fig. 9 the central fixed section F^3 of the floor may receive a preferably removable partition a' , having supporting-flanges a^2 a^2 to separate two distinct shipments or two diverse kinds or qualities of grain and to direct each to its own discharging-opening.

It will be understood that the engagement of the holding-plates j of the scrapers or clearing-plates g and g' with the guideways in which they move has the effect to retract the floor-section in the process of its elevation, and thus enlarge the discharge-opening produced at the incipency of such movement, and it will also be obvious from the foregoing description that the elevation of the transverse two-part closing-section O may be effected as soon as the elevation and retraction of the floor-sections have been begun.

Having thus described my invention, I claim—

1. The combination, with a railway-car having a transverse discharging-opening in the floor thereof, of a closing-section composed of two parts, which are hinged together at their meeting edges, such closing-section resting normally in a horizontal position upon the bed-frame of the car.

2. The combination, with a railway-car which has a transverse discharging-opening in the floor thereof, of a section which is com-

posed of two coincident parts, which are hinged together at their meeting edges, and which is adapted to close the discharging-opening, and a means for elevating the two-part section at the center thereof, whereby the two parts are each drawn inwardly and the discharge of the contained material directly downward is permitted.

3. The combination, with a railway-car which has a transverse discharging-opening in the floor thereof, of a centrally-hinged two-part section which is adapted to rest horizontally and close the discharging-opening, and a rack and pinion by means of which the two-part section is elevated and its wings are drawn inwardly from the sides toward the center of the discharging-opening.

4. The combination, with a railway-car which has a transverse discharging-opening in the floor thereof, of a hinged two-part section which is adapted to rest in a horizontal position and close the discharging-opening, and a rack and pinion secured to the frame of the floor of the car and engaging the bottom surface of the central portion of the two-part closing-section to open the same.

5. The combination, in a railway-car, of a tilting discharging floor-section, a transverse discharging-opening in the floor of the car, and a two-part normally-horizontal closing-section adapted to the transverse opening.

6. The combination, in a railway-car, of a tilting retractible floor-section, a transverse discharging-opening in the floor of the car, and a hinged two-part normally-horizontal closing-section which is adjustable upwardly from below.

7. The combination, with a railway-car, of a tilting floor-section which is provided upon its side edges with scrapers or clearing-plates.

8. The combination, with a railway-car, of a tilting floor-section which is provided upon its side edges with scrapers or clearing-plates, a transverse discharging-opening, and a centrally-hinged elevatable two-part closing section.

9. The combination, in a railway-car, of a tilting floor-section which is provided upon its side edges with hinged scrapers or clear-

ing-plates, a transverse discharging-opening, and a two-part centrally-hinged closing-section, which in discharging the contents of the car is elevated above its closed position and operates simultaneously with the tilting section to uncloze the discharge-opening.

10. In a railway-car, the combination of a tilting floor-section and scrapers or clearing-plates hinged to the floor-section and provided with holding-plates or projecting lugs which engage with the frame of the car and thereby hold the edges of the scrapers or clearing-plates closely against the inner surface of the lining of the car.

11. In a railway-car, the combination of an interior floor-section which is provided with scrapers or clearing-plates with mechanism which is secured upon the bed-frame of the car and connected to the frame of the floor-section, whereby such section may be elevated to discharge the contents of the car.

12. In a railway-car which is provided with a transverse discharging-opening, the combination, with a fixed two-way discharging-chute, of two oppositely-placed directing-plates, which meet at the center of the chute, whereby the contents of the car may be directed wholly toward either side of the same.

13. In a railway-car which is provided with a discharging-opening in the floor thereof, the combination, with a fixed two-way discharging-chute, of two oppositely-placed directing-plates, each pivoted at or near the center of such chute, whereby the contents of the car may be discharged wholly at either side thereof.

14. A railway-car which is provided with two adjustable transverse two-part closing-sections and an intermediate fixed floor-section.

15. A railway-car which is provided with two adjustable transverse two-part closing-sections, an intermediate fixed floor-section, and a removable flanged partition.

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Witnesses:

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