R. B. HOWARD.

CATTLE CAR LOADING DEVICE.

APPLICATION FILED SEPT. 12, 1913. RENEWED OCT. 17, 1917.

1,247,114. Patented Nov. 20, 1917.

2 SHEETS—SHEET 1.

Fig. 6

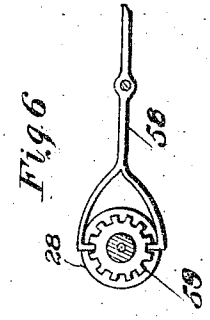


Fig. 1

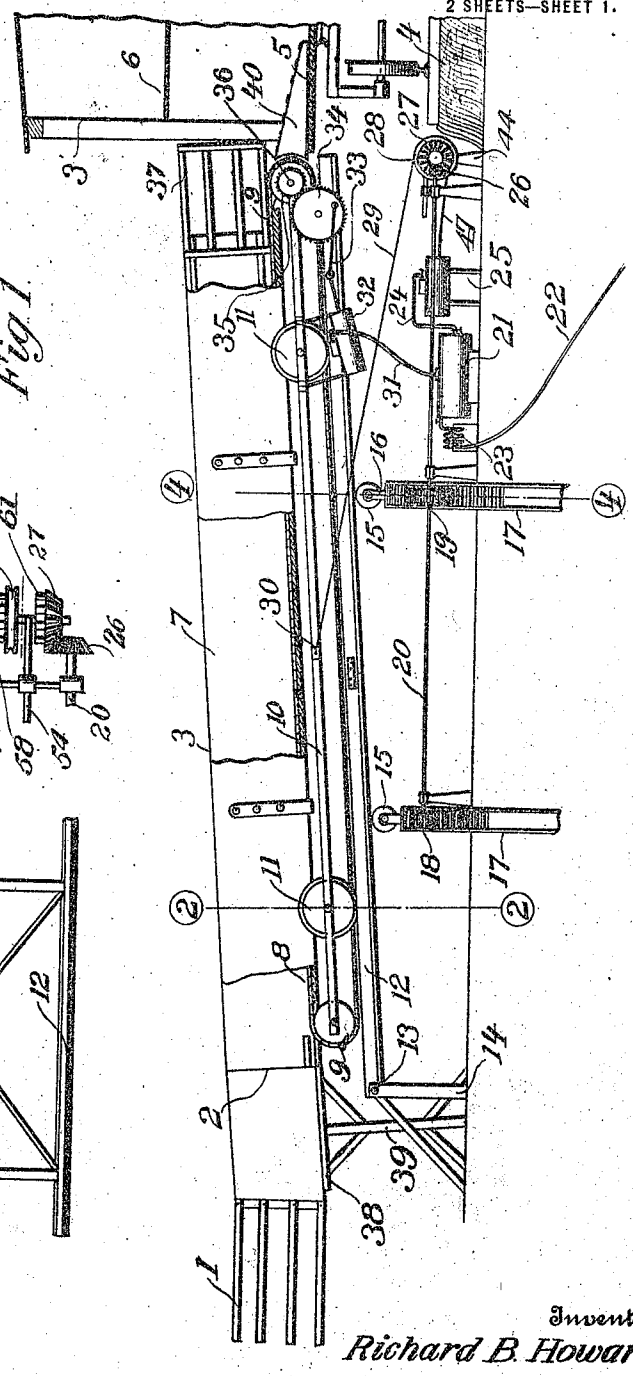


Fig. 5

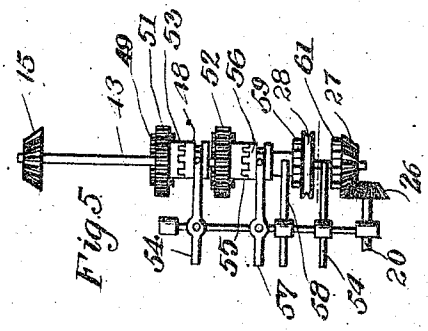
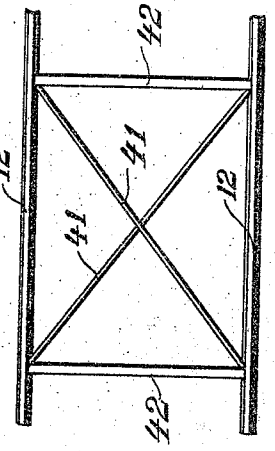


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 2.

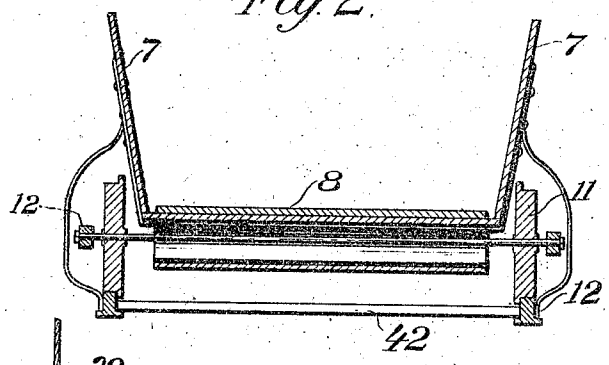
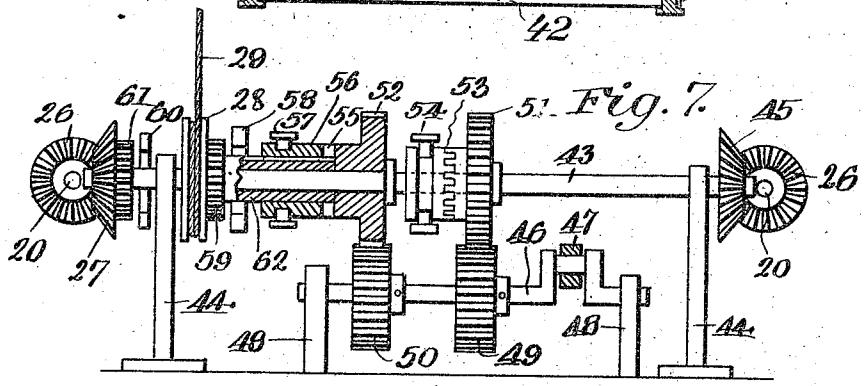


Fig. 7.



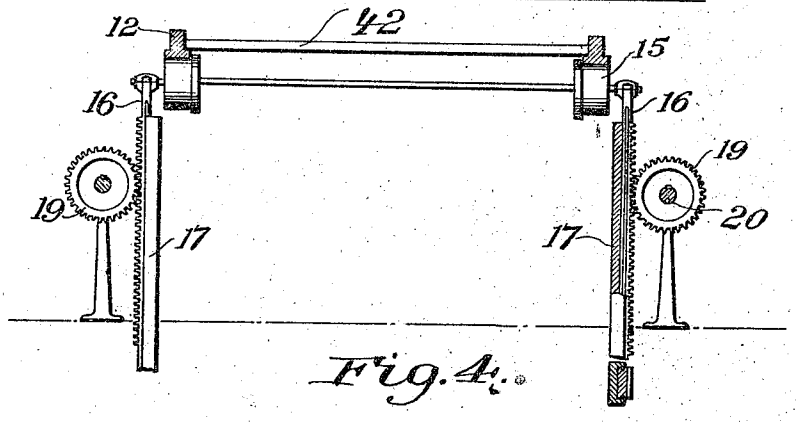


Fig. 4.

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UNITED STATES PATENT OFFICE.

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CATTLE-CAR-LOADING DEVICE.

1,247,114. Specification of Letters Patent. Patented Nov. 20, 1917.

Application filed September 12, 1913, Serial No. 789,527. Renewed October 17, 1917. Serial No. 197,110.

To all whom it may concern:

Be it known that I, RICHARD B. HOWARD, a citizen of the United States, residing at Golconda, in the county of Humboldt and State of Nevada, have invented new and useful Improvements in Cattle-Car-Loading Devices, of which the following is a specification.

This invention relates to loading devices for stock or cattle cars the object of the invention being to provide a device of the character referred to which will greatly facilitate and expedite the loading of sheep and other stock upon single or double deck cars, proportionately reducing the expense of transportation of stock and the time necessary to load the cars of a train, also reducing the amount of labor and number of hands required.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will hereinafter be more fully described, illustrated and claimed.

In the accompanying drawings:—

Figure 1 is a side elevation partly in section of the loading device of this invention shown in relation to a double deck car.

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

Fig. 3 is a plan view of a portion of the track.

Fig. 4 is a detail vertical cross section on the line 4—4 of Fig. 1 showing the track elevating mechanism.

Fig. 5 is a detail plan view showing the clutch and lock mechanism.

Fig. 6 is a detail section showing the locking mechanism.

Fig. 7 is a vertical cross section on an enlarged scale taken adjacent to the engine crank shaft and the cross shaft.

Referring to the drawings 1 designates a pen in which the stock are confined and from which they are released through a suitable end gate 2 into a chute 3 which is of sufficient length to extend from the gate 2 to a cattle car designated at 3′ mounted upon the road bed 4, the car 3 being shown as embodying a lower deck 5 and an upper deck 6.

The sides 7 of the chute are inclined as shown in Fig. 2, diverging upwardly so as to give additional body room for the stock in moving from the pen to the car. The bottom of the chute consists of an endless slatted floor 8 which travels around end rollers 9 journaled in suitable bearings in the opposite ends of a carriage 10 which is supported by wheels 11 which are movable lengthwise of parallel track rails 12, said rails being connected together by suitable cross braces and the track as a whole being pivotally mounted at 13 on a support 14 resting on the ground and preferably anchored permanently therein. Intermediate its ends the top run of the endless floor 8 may be supported by rollers as indicated in the drawings.

At two or more points intermediate its ends, the track 12 is supported by means of rollers 15 journaled in the upper ends of vertically movable rack bars 16, the latter being movable up and down in guides 17 and being actuated by pinions 18 and 19 fast on a common horizontal shaft 20 extending longitudinally of the chute as shown in Fig. 1. On account of the inclination of the track 12, and in view of the fact that when the free end of the track is raised and lowered it has a greater movement than the opposite end thereof which as previously stated is pivotally mounted at 13 on the support 14, the pinions 18 and 19 are of different sizes, the pinion 19 nearest the car being of greater diameter than the pinion 18 in order that the rack bar 16 nearest the car may be elevated at a greater rate of speed than the rack bar 16 farthest from the car. This provides for thoroughly supporting the track between its ends at any angle to which the track may be adjusted for the purpose of discharging the stock upon the lower or upper deck of the car.

21 designates a compressed air reservoir which is supplied by an air hose 22 adapted to be connected to the air compressor in the locomotive of the train, said air hose being coiled around a drum 23 preferably arranged at or near one end of the reservoir 21. From the reservoir 21 an air hose 24 extends to a motor 25 which drives the cross shaft 43 which is geared to and drives the shaft 20 for the purpose of raising and lowering the track 12 by means of the rack and pinion mechanism hereinabove described. The shaft 43 drives the shaft 20 by means of the bevel gears 26 and 27, the shaft 43 carrying a drum 28 around which is wrapped a cable 29 which is connected

at its extremity at the point 30 to the carriage 10 for the purpose of moving the carriage toward the car 3 so that the endless floor of the chute will project slightly into the car and avoid any gap or space where the stock pass from the chute into the car.

Another air hose 31 extends from the reservoir 21 to a floor operating motor 32 which by means of a connecting rod 33 revolves a driving gear wheel 34 meshing with another gear wheel 35 on the shaft 36 of the roller 9 at the delivery end of the chute 3. In this way the endless floor or moving platform 8 is actuated by the compressed air furnished by the locomotive of the train receiving the stock and on account of the flexibility of the hose 31 and the slack left therein, the said endless floor or moving platform may be moved to the necessary extent toward and away from the side of the car to provide for closing the gap referred to and to enable the loading device as a whole to be moved clear of the cars when not in use.

At its discharge end the chute 3 is provided with sliding gates 37 forming extensions of the sides 7 and adapted to be slid toward the car before the loading operation and to be retracted when the loading device is not in use.

38 designates a platform embodying suitable supporting legs 39 resting on the ground the same being interposed between the pen 1 and the chute 3. 40 designates an incline adapted to be positioned at the discharge end of the chute and movable platform to facilitate the passage of the stock from the movable platform to the deck of the car and to compensate for any variation between the level of the movable platform and the deck of the car. The track rails 12 are braced relatively to each other by the diagonal stays 41 as shown in Fig. 3 supplemented by the cross bars 42 extending transversely between and rigidly connecting the rails 12.

From the foregoing description it will be seen that the device comprises a movable platform in the form of an endless walkway or floor which is driven by compressed air furnished by the locomotive. It will also be observed that the track on which the endless floor moves may be raised and lowered in order to accommodate the same to the level of the decks of the cars. Furthermore, it will be seen that the carriage of the movable platform may be advanced and retracted toward and away from the car. Each of the movements referred to is accomplished with the aid of the compressed air furnished by the compressor of the locomotive, but it will, of course, be understood that other motive power may be utilized for obtaining the movements above referred to.

The shafts 20 at the opposite sides of the machine are both simultaneously driven by the cross shaft 43 illustrated in the detail view, Fig. 7, said shaft being mounted in suitable bearing posts 44 and being provided at the opposite ends thereof with the bevel pinions 27 and 45 which mesh with the other bevel pinions 26 on the shafts 20. 46 designates the engine crank shaft parallel to and shown as arranged below the shaft 43 and driven from the motor 25 by means of a pitman 47, the shaft 46 being mounted in suitable bearing posts 48. Fast on the shaft 46 are two spur gear wheels 49 and 50, the wheel 49 meshing with a spur gear wheel 51 normally loose on the shaft 43 while the wheel 50 meshes with another spur gear wheel 52 also normally loose on the shaft 43. Arranged adjacent to the wheel 51 is a shiftable clutch 53 movable into and out of engagement with the wheel 51 for locking the wheel 51 to the shaft 43, the clutch 53 being shifted by means of a lever 54. The wheel 52 is provided with a clutch face 55 adapted to be engaged by a clutch 56 feathered to the shaft 43 as shown and shiftable by means of a lever 57. 58 designates a locking lever or detent movable into engagement with a toothed wheel 59 at one side of the drum 28 and bearing a fixed relation thereto. The clutch 53 is also splined to the shaft 43 as shown.

The shaft 46 being constantly driven by the motor 25, by throwing the clutch 53 toward the wheel 51, the shaft 43 is driven thus driving the shafts 20 for raising and lowering the platform by the means hereinabove described. When the desired adjustment of said platform is obtained, the shaft 43 is locked by means of a detent or locking lever 60 movable into and out of engagement with a toothed wheel 61 bearing a fixed relation to the bevel gear 27. By throwing the clutch 56 into engagement with the wheel 52, the latter is revolved, thereby imparting rotary motion to the drum 28 which is connected to the wheel 52 by a tubular shaft 62. When the cable 29 has been pulled or slacked to the desired extent, the drum 28 is locked by the detent lever 58 after disengaging the clutch 56 from the clutch face 55 of said wheel 52.

The device as a whole provides for the uninterrupted movement of the stock from the pen into the car, saving a great deal of time, requiring fewer attendants and greatly economizing in train service, eliminating delays and the additional expense due to such delays. In loading sheep, there is a strong tendency for the sheep to follow each other closely and therefore when the leaders start along the movable platform, the others will readily follow.

What I claim is:—

Stock loading apparatus for cars comprising a chute, a movable platform forming

the bottom of said chute and consisting of an endless floor, end rollers around which said floor moves, means for actuating said floor, a carriage on which said movable platform is mounted, a track along which said carriage is movable, means for raising and lowering said track embodying rack and pinion mechanism including a plurality of racks, pinions of different diameters, a shaft on which said pinions are mounted, and a motor for actuating said shaft.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD BROWN HOWARD.

Witnesses:
WILLIAM POLKINGHORNE,
EDWARD J. LYNG.