

April 8, 1924.

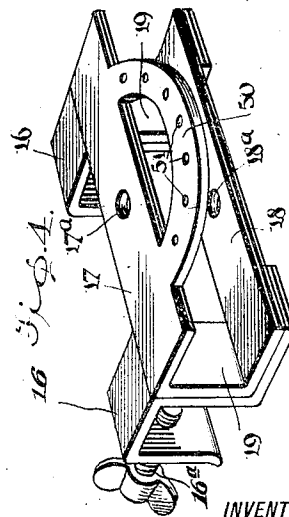
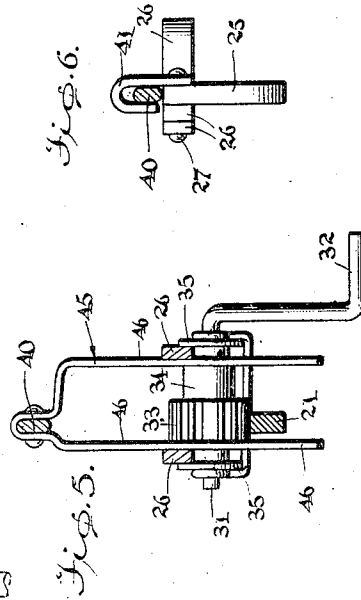
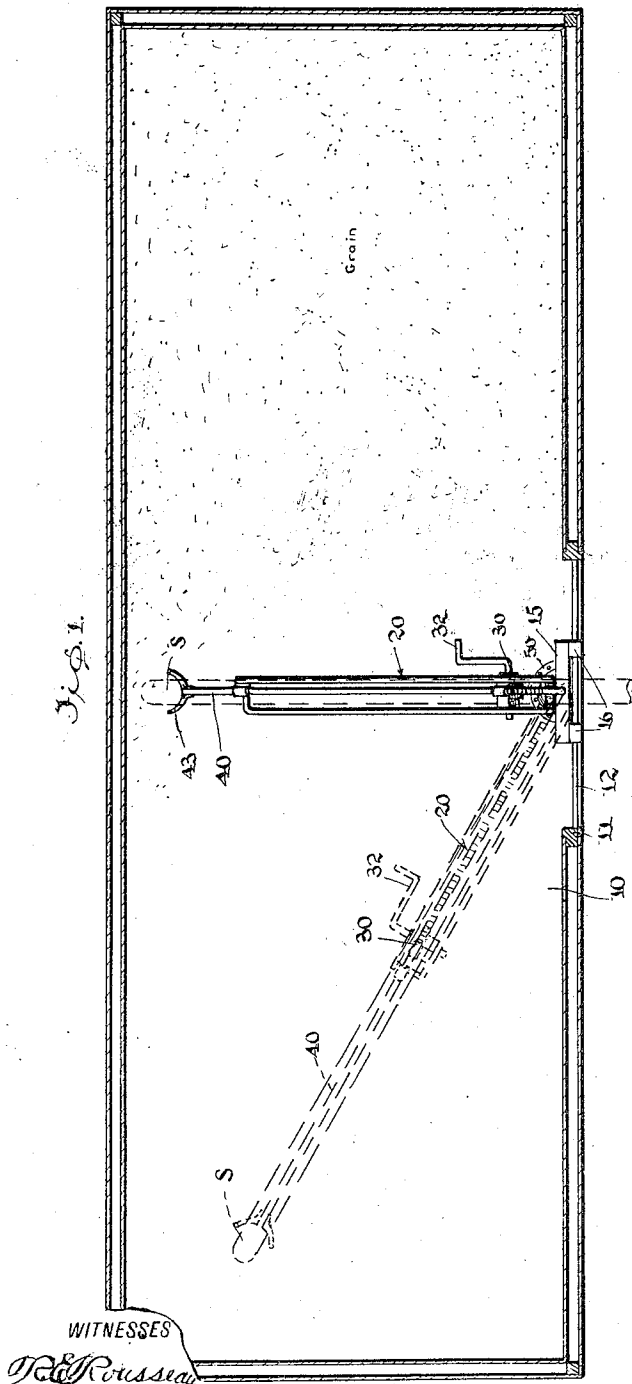
B. ROGERS

1,489,850

GRAIN HANDLING APPARATUS

Filed Feb. 18, 1922

2 Sheets-Sheet 1



INVENTOR
Byrd Rogers.

BY *Munn & Co.*
ATTORNEYS

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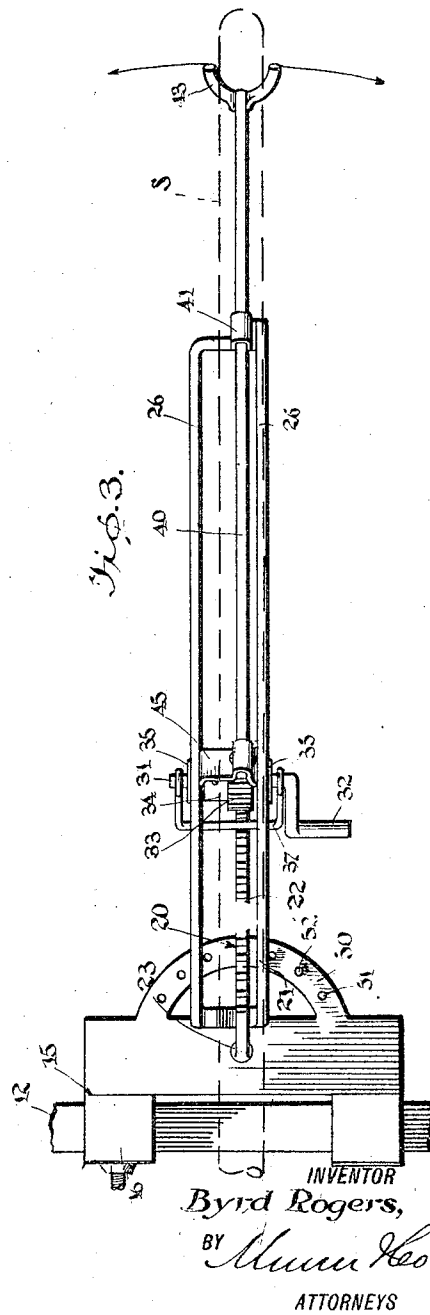
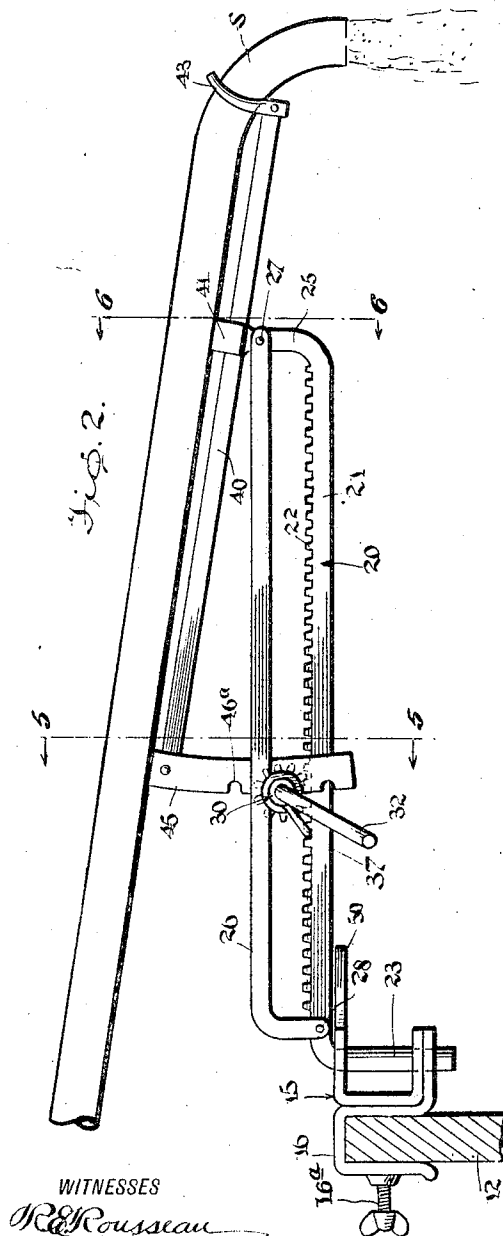
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE.

BYRD ROGERS, OF GUYMON, OKLAHOMA.

GRAIN-HANDLING APPARATUS.

Application filed February 18, 1922. Serial No. 537,565.

To all whom it may concern:

Be it known that I, BYRD ROGERS, a citizen of the United States, and a resident of Guymon, in the county of Texas and State of Oklahoma, have invented certain new and useful Improvements in Grain-Handling Apparatus, of which the following is a specification.

The present invention relates in general to grain handling apparatus and more particularly to an apparatus for loading grain cars or the like.

The object of the invention is to provide an apparatus of this character which is readily associated with a grain car to effect an even, uniform and well distributed load thereof without the necessity of shovelling or otherwise handling the grain and without the necessity of employing a number of operatives within the car whereby the car may be quickly and properly loaded without injuring the grain.

Another object is to provide a device of this character which is of simple and durable construction, reliable in operation, and easy and inexpensive to manufacture.

Other objects and advantages of the invention reside in certain novel features of construction, combination and arrangement of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming part of this specification, and in which:

Figure 1 is a view illustrating the invention in plan and illustrating the grain car with which it is associated in transverse horizontal section;

Figure 2 is a view in side elevation of the apparatus embodying the invention;

Figure 3 is a top plan view thereof;

Figure 4 is a detail perspective view of the supporting bracket;

Figure 5 is a sectional view, on line 5—5 of Figure 2;

Figure 6 is a similar view on line 6—6 of Figure 2.

Referring to the drawings wherein for the sake of illustration is shown the preferred embodiment of the invention, the numeral 10 designates the grain car which may be of any standard or conventional construction and includes a grain car door opening 11 in the lower part of which a temporary wall 12 or the like is arranged.

The apparatus which embodies the present

invention includes a supporting bracket, designated generally at 15, and which comprises hangers 16 embracing the temporary wall 12 and secured thereto by set screws 16^a and supporting bearing plates 17 and 18 which are connected with each other by connecting portions 19. The bearing plates and connecting portions are suitably secured to the hangers 16 and centrally of the bearing plates aligned pivot openings 17^a and 18^a are provided.

A boom or swinging track, is designated generally at 20, and includes a horizontally extending bar 21 having its upper surface toothed or formed to constitute a rack, as at 22. A bearing arm 23 is integrally formed with or otherwise secured to one end of the bar 21 and is offset therefrom and rotatably received in the pivot openings 17^a and 18^a of the supporting bracket 15 whereby the swinging track or boom 20 may be readily adjusted to any angular position within the car. At the end of the bar 20 opposite the arm 23 a pedestal 25 is provided and upstands from the bar at approximately right angles. Combined guide rails and braces 26 are arranged above the track 20 and in spaced parallel relation with respect to each other, the rails 26 being secured at their outer ends, as at 27, to the pedestal 25 and being offset at their inner ends and secured as at 28 to the inner end of the track 20.

A carriage, designated generally at 30 is mounted on the track 20 and includes a shaft 31 extending transversely of the track and provided at one end with a hand crank 32. Between its ends the shaft 31 has a pinion 33 fixed thereto, the pinion being meshed with the rack 22 of the track 20. The pinion 33 includes a hub 34 which projects from one side thereof and the lateral face of the pinion 33 and of the hub 34 terminate short of the adjacent lateral faces of the rails 26 for a purpose which will hereinafter more fully appear. Cheek plates 35 are mounted on the shaft 31 and rotatably bear against the outer lateral faces of the rails 26 and constrain the carriage to partake of its proper movement along the tracks. A bail 37 is pivotally mounted on the shaft and engages with the teeth of the rack 22 to prevent retrograde movement of the carriage when the bail is not lifted.

A sliding supporting or carrier arm 40 is journaled in a slide bearing 41 provided therefor at the upper end of the pedestal 25

and at its outer end this carrier arm has secured thereto a bifurcated bracket 43 which embraces the outer end of the spout of the elevator or grain conduit, the spout being designated at S. At its inner end, the carrier arm 40 has fastened thereto a yoke 45, the legs 46 of which are provided with a series of notches, designated at 46^a. The legs 46 are received in the spaces between the face of the pinion 33 and the hub 34 and the adjacent rails and the notches 46^a are selectively engageable with the shaft 31 of the carrier. It is obvious that the series of notches 46^a afford a means whereby the inclination of the supporting arm or carrier arm may be varied. By virtue of the disposition of the legs or yoke 45 between the pinion 33 and the rails 26 it is prevented from lateral displacement and also serves to more positively maintain the pinion in its proper position on the track 20.

In operation, the grain is distributed over the entire area of the interior of the car by swinging the track 20 on its pivot bearing on the supporting bracket 15 and manipulating the crank 32 to extend the carrier arm 40 outwardly, as indicated by dotted lines in Figure 1 when the swinging track has been positioned. The loading of the car is preferably carried out by starting with the apparatus positioned as shown in full lines in Figure 1, then gradually moving the swinging track about its pivot on the supporting bracket 15 in gradual increasing arc, the radius of the arc being increased by turning the hand crank 32 to project the carrier arm 40. This operation is carried out at each end of the car and brings about the delivery of the grain to the end of the car and properly distributes it so as to take advantage of the full capacity of the car and evenly distribute the load.

The bearing plate 17 has integrally formed therewith an arcuate stop plate 50 having a series of openings 51 therein. A stop pin 52 is adapted to be adjustably mounted on the stop plate by selectively positioning it in any one of the openings of the series 51. As shown in Figure 3 wherein this stop pin is so positioned it is adapted to engage the horizontally extending bar 21 and thus limits the movement of the boom or swinging track in one direction. Obviously the openings of the series 51 may be so spaced that a pair of stop pins may be employed to prevent movement of the swinging boom or track in either direction.

I claim:

1. In a grain handling apparatus, the combination with an inflexible delivery spout, a swinging track and a rectilinearly movable carrier mounted on the swinging track and engaged with the spout to impart bodily swinging and rectilinear movement thereto.

2. In an apparatus of the character described, a swinging track, a reciprocable carriage mounted on the swinging track and a carrier arm carried by the carriage.

3. In an apparatus of the character described, a supporting bracket, a swinging track mounted on the supporting bracket, a carriage mounted for reciprocatory motion on the swinging track, and a carrier arm carried by the carriage.

4. In an apparatus of the character described, a supporting bracket, a swinging track mounted on said supporting bracket, a carriage arranged for reciprocatory movement on the swinging track, combined guide rails and braces associated with the swinging track and constraining the carriage to proper movement, and a carrier arm controlled by the carriage.

5. In an apparatus of the character described, a supporting bracket, a swinging track comprising a bar having a rack, a supporting arm at one end of the bar pivotally mounted on the supporting bracket, and a pedestal at the other end of the bar, combined rails and braces associated with the track and spaced therefrom, a carriage mounted on the track including a shaft having a hand crank, a pinion cooperable with the track, cheek plates arranged on the shaft and engageable with the guide rails, a reciprocable carrier arm, a slide bearing mounted on the upper end of the pedestal and slidably receiving the carrier arm, and a yoke fastened to the inner end of the carrier arm and having legs provided with series of notches selectively engageable with the shaft of the carriage.

6. In an apparatus of the character described, a supporting bracket, a swinging track comprising a bar having a rack, a supporting arm at one end of the bar pivotally mounted on the supporting bracket, and a pedestal at the other end of the bar, combined rails and braces associated with the track and spaced therefrom, a carriage mounted on the track including a shaft having a hand crank, a pinion cooperable with the track, cheek plates arranged on the shaft and engageable with the guide rails, a reciprocable carrier arm, a slide bearing mounted on the upper end of the pedestal and slidably receiving the carrier arm, a yoke fastened to the inner end of the carrier arm and having legs provided with series of notches selectively engageable with the shaft of the carriage, and means carried by the carriage and cooperable with the track for preventing retrograde movement of the carriage.

7. In an apparatus for loading grain cars, in combination with a delivery spout, a supporting bracket mounted on the grain car, a swinging track pivotally supported on the bracket, a manually reciprocable carriage

arranged on the track, a carrier arm, a slide bearing for said carrier arm arranged on the track, means for adjustably connecting the carrier arm to the carriage, and means
5 located at the outer end of the carrier arm and engaging the delivery spout.

8. In an apparatus for loading grain cars, a supporting bracket including hangers associated with the grain car and bearing
10 plates carried by the hangers and provided with pivot openings, a swinging track including a bar provided with a rack, a supporting arm carried by the bar and rotatably mounted in the pivot openings
15 of the bearing plates, a pedestal at the outer end of the bar, combined guide rails and braces connected at one end to the bar and at their outer ends to the pedestal, a carriage mounted on the swinging track
20 and including a shaft, a pinion fixed to the shaft and cooperable with the rack, cheek plates carried by the shaft and engageable with the guide rails, and means for turning the shaft, a slide bearing arranged upon
25 the pedestal, a carrier arm slidably mounted in the slide bearing, a yoke fastened to the carrier arm and having legs provided with a series of notches selectively engageable with the shaft, the legs being arranged be-
30 tween the pinion and the guide rails, and

a bifurcated bracket arranged at the outer end of the carrier arm.

9. In an apparatus for loading grain cars, a supporting bracket including hangers associated with the grain car and bearing
35 plates carried by the hangers and provided with pivot openings, a swinging track including a bar provided with a rack, a supporting arm carried by the bar and rotatably mounted in the pivot openings of
40 the bearing plates, a pedestal at the outer end of the bar, combined guide rails and braces connected at one end to the bar and at the outer end to the pedestal, a carriage mounted on the swinging track and includ-
45 ing a shaft, a pinion fixed to the shaft and cooperable with the rack, cheek plates carried by the shaft and engageable with the guide rails, and means for turning the shaft, a bail pivotally mounted on the shaft and
50 cooperable with the rack for preventing retrograde movement of the carriage, a slide bearing arranged upon the pedestal, a carrier arm slidably mounted in the slide bearing, and a yoke fastened to the carrier arm
55 and having legs provided with a series of notches selectively engageable with the shaft, the legs being arranged between the pinion and the guide rails.

BYRD ROGERS.