Aug. 10, 1926. 1,595,565

N. A. NEWDICK

LOADING MACHINE

Filed Dec. 11, 1922 6 Sheets-Sheet 1

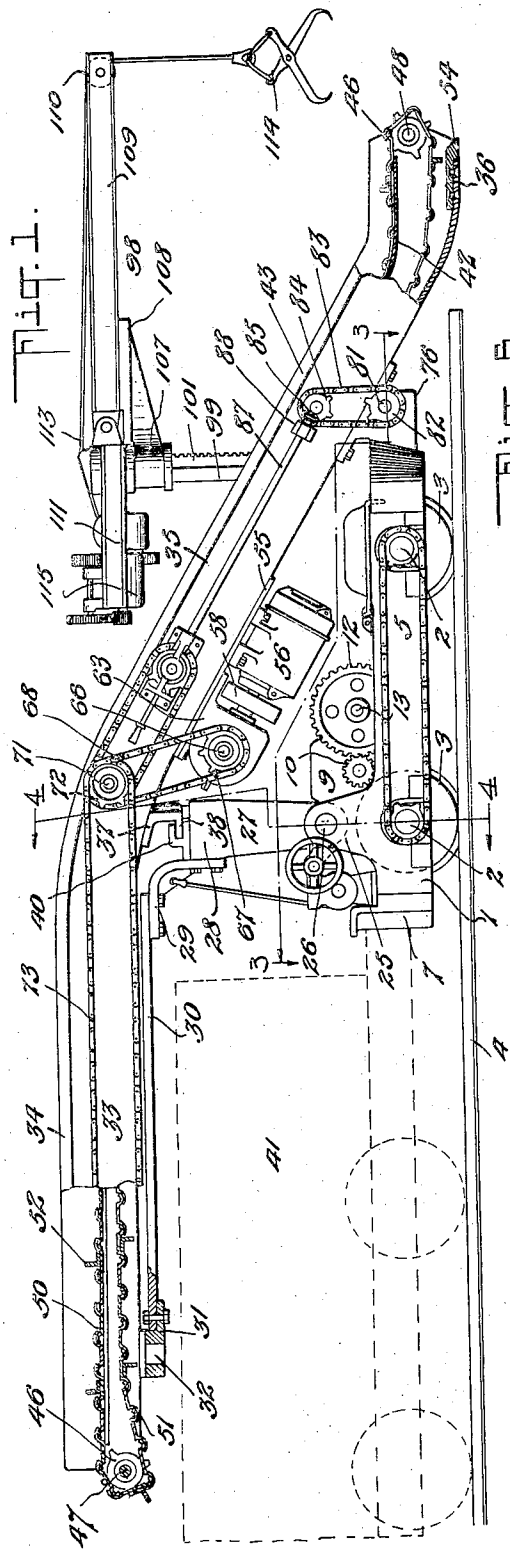


Fig. 1.

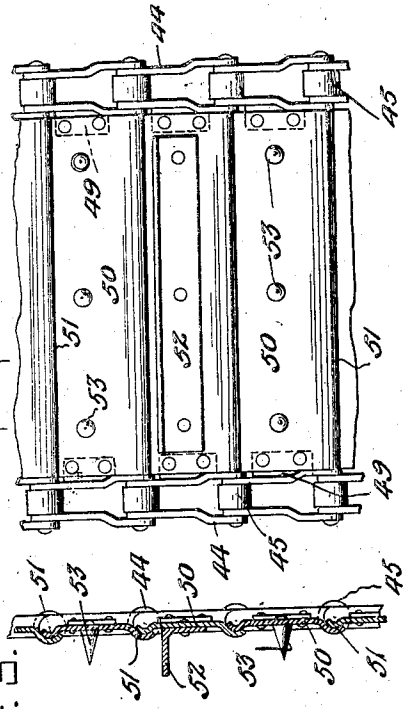


Fig. 5.

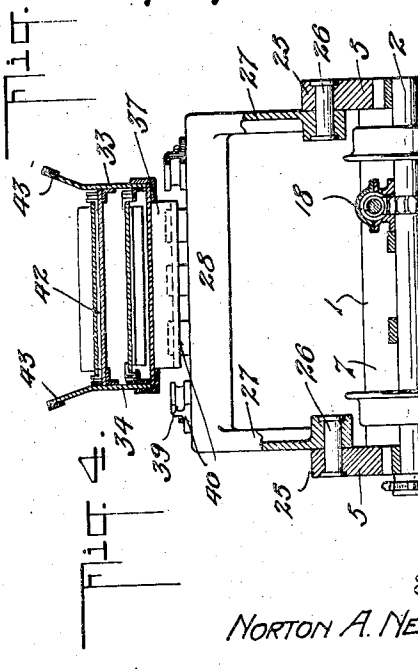


Fig. 4.

Inventor

NORTON A. NEWDICK

By W. S. McAlwell

Attorney

Aug. 10, 1926. 1,595,565

N. A. NEWDICK

LOADING MACHINE

Filed Dec. 11, 1922 6 Sheets-Sheet 2

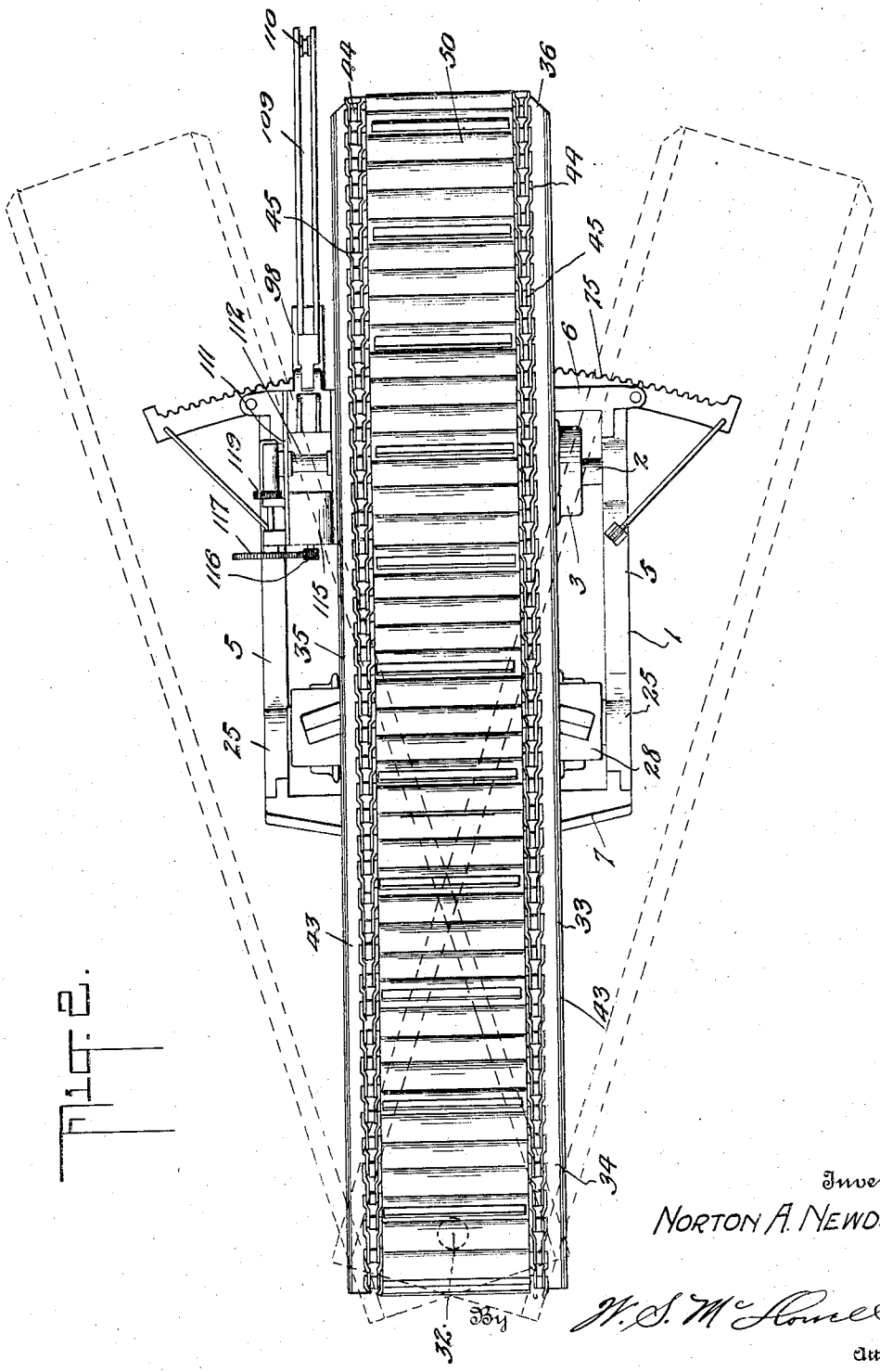


Fig. 2.

Inventor
NORTON A. NEWDICK

W. S. McAnnell
Attorney

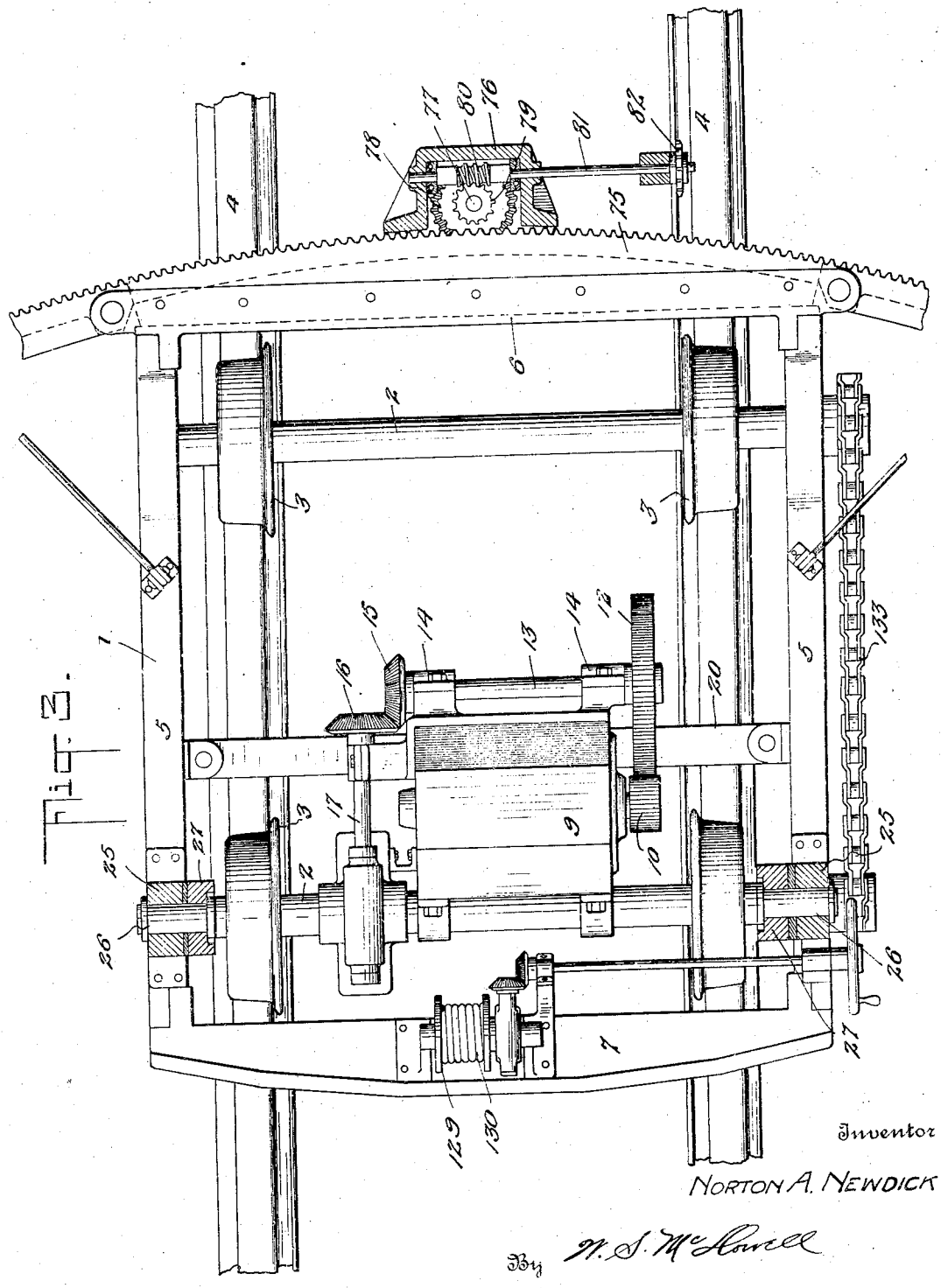
Aug. 10, 1926.

1,595,565

N. A. NEWDICK

LOADING MACHINE

Filed Dec. 11, 1922 6 Sheets-Sheet 3



Aug. 10, 1926.

1,595,565

N. A. NEWDICK

LOADING MACHINE

Filed Dec. 11, 1922 6 Sheets-Sheet 4

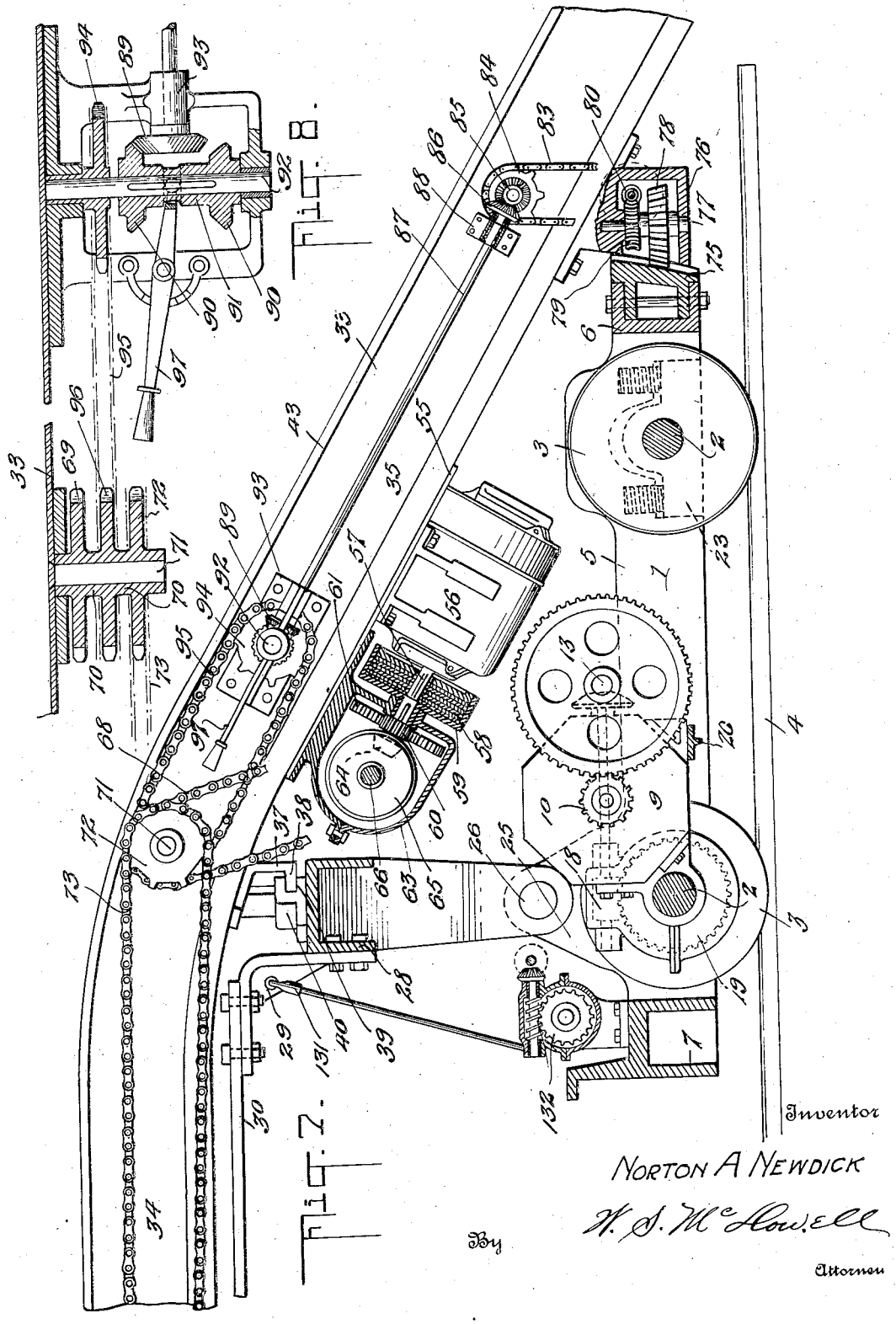


Fig. 8.

Fig. 7.

Inventor

NORTON A NEWDICK

By W. S. McDowell

Attorney

Aug. 10, 1926.

1,595,565

N. A. NEWDICK

LOADING MACHINE

Filed Dec. 11, 1922 6 Sheets-Sheet 5

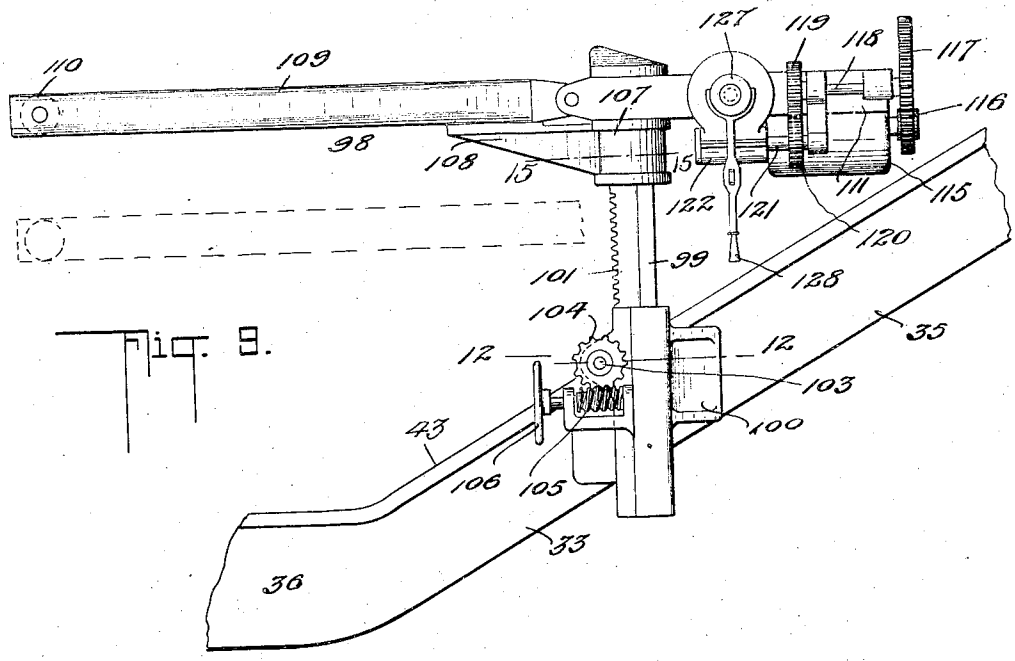


Fig. 9.

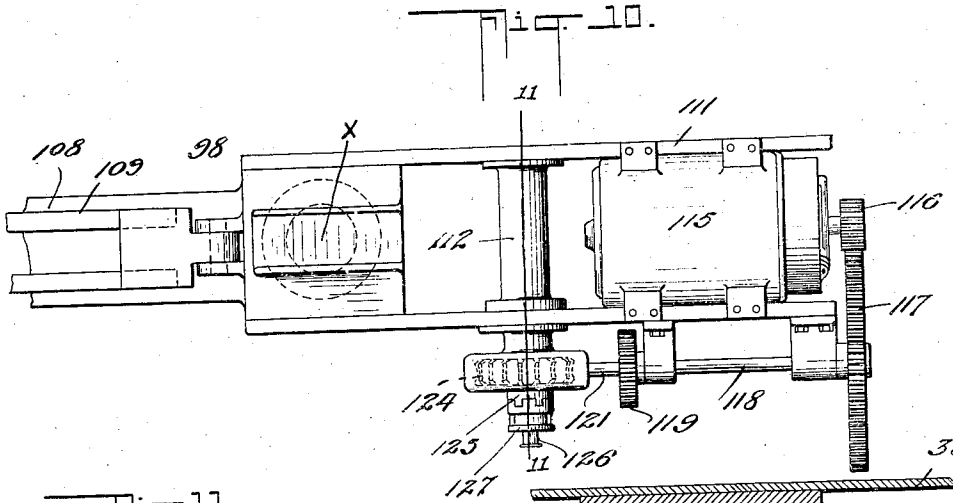


Fig. 10.

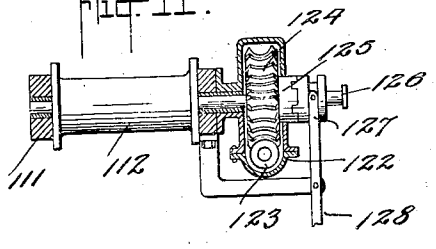


Fig. 11.

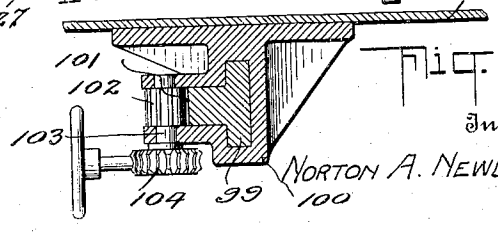


Fig. 12.

Inventor

NORTON A. NEWDICK

By W. S. McSwell

Attorney

Aug. 10, 1926.

1,595,565

N. A. NEWDICK

LOADING MACHINE

Filed Dec. 11, 1922 6 Sheets-Sheet 6

Fig. 13.

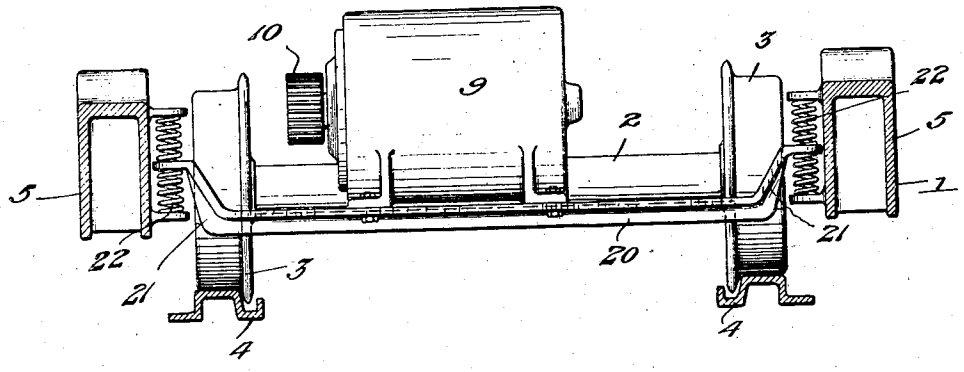


Fig. 14.

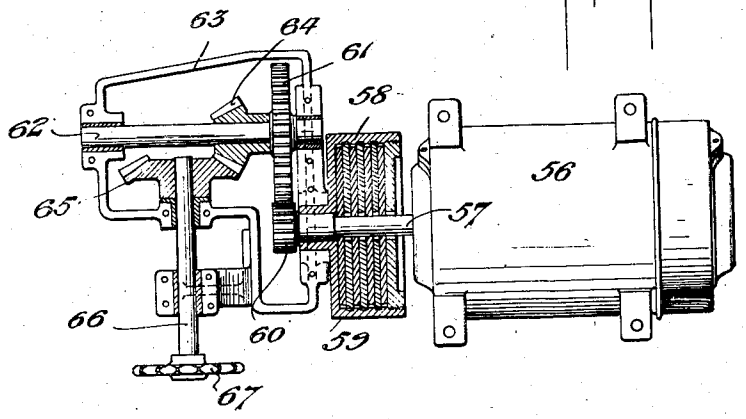
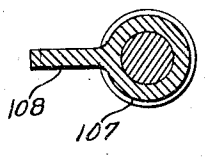


Fig. 15.



Inventor

NORTON A. NEWDICK

By W. S. McCaskell

Attorney

Patented Aug. 10, 1926. 1,595,565

UNITED STATES PATENT OFFICE.

NORTON A. NEWDICK, OF COLUMBUS, OHIO, ASSIGNOR TO THE COLODER COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF DELAWARE.

LOADING MACHINE.

Application filed December 11, 1922. Serial No. 606,234.

This invention relates to improvements in loading machines, and is especially directed to loading machines of the type constructed for use in underground mines for the purpose of transferring loose, shattered bodies of mineral matter from the floor of the mine into suitable vehicles for transportation from the mine or to other appropriate points of discharge.

The invention is especially directed to the provision of an improved loading machine primarily adapted for the purpose of handling slate in coal mines. It is well known in the art of coal mining that an ordinary coal vein extends between slate strata and that upon the removal of the coal a certain amount of the slate of the upper stratum or roof falls to the floor of the mine, from which position it must be removed in order to facilitate the further mining of coal. The extent of the fall of this roof slate or the quantity which accumulates upon the floor of a mine varies considerably. The initial slate fall, or that fall which takes place immediately following the shooting of the coal, or what is known as draw slate can be readily handled because of the relatively small amount thereof, however, this slate fall increases as time goes on, and unless removed, it frequently happens that even in the thickest of coal seams, a mine room or entry will be substantially filled up with fallen slate. This is due to the fact that the air circulated through a mine tends to cause the roof slate to become friable or soft which in time results in the crumbling or falling of the roof slate. Therefore, due to this condition, the recovery of coal between rooms filled with fallen slate is an expensive and difficult operation, and for this reason, among others, mine operators have deliberately chosen to recover coal from fresh or unworked beds, even at the expense of hauling the same greater distances through a mine, than to remove coal from between rooms filled with fallen slate. This results in a considerable waste from the standpoint of lost or unrecovered coal and produces a great amount of waste in the mining of coal which will be more and more severely felt as time goes on and new workings are not available.

The present invention has for its primary object the provision of a loading machine especially constructed for the purpose of mechanically loading the fallen slate from the floor of a mine and to transfer the same into appropriate carriers for removal to convenient points of deposit; to accomplish this operation through the agency of machinery at a comparatively low cost and with but a minimum of labor, in order that slate filled rooms may be rapidly and economically cleaned out and to thereby permit of the unhindered and complete recovery of adjacent coal.

A further object of the invention resides in a loading machine of the character specified which is constructed to successfully handle slate slabs or lumps of any proportions or condition of relative hardness and to this end the machine includes a truck supported inclined loading conveyer, having the upper end thereof pivotally mounted in connection with the truck and its lower or forward end arranged in advance of the truck for lateral sweep movement across the width of mine room, whereby upon the advance of the machine into engagement with the slate, the latter will be forced upon the moving conveyer and transferred to the rear of the machine, the said conveyer having the front end thereof provided with a swinging crane structure, suitably formed to handle the larger lumps of slate and to draw or drag such slate upon the receiving end of the conveyer, the said conveyer and its cooperating crane structure being so correlated as to enable the machine to handle slate lumps of varying proportions and conditions of disintegration.

For a further understanding of the invention, reference is to be had to the following description and to the accompanying drawings, in which drawings:

Figure 1 is a side elevaton of the improved loading machine comprising the present invention.

Figure 2 is a top plan view thereof.

Figure 3 is a horizontal sectional view taken on the planes indicated by the line 3—3 of Figure 1.

Figure 4 is a vertical transverse sectional view taken on the plane indicated by the line 4—4 of Figure 1.

Figure 5 is a vertical sectional view taken through the conveyer of the machine.

Figure 6 is a fragmentary plan view of said conveyer.

Figure 7 is an enlarged vertical sectional

view taken through the truck and the pivotal mounting for the conveyer frame.

Figure 8 is a detailed sectional view of the drive mechanism for swinging the conveyer laterally.

Figure 9 is a side elevation of the crane structure of the loading machine.

Figure 10 is a top plan view of said crane structure.

Figure 11 is a sectional view taken on the line 11—11 of Figure 10.

Figure 12 is a similar view on the line 12—12 of Figure 9.

Figure 13 is a transverse vertical sectional view taken through the truck and disclosing the resilient supporting bed for the propelling motor.

Figure 14 is a horizontal sectional view disclosing the transmission means for the loading conveyer.

Fig. 15 is a sectional view taken on line 15—15 of Fig. 9.

Referring more particularly to the specific structure of the loading machine disclosed in the accompanying drawings, there is embodied a truck 1, which in this instance is equipped with suitably journaled axles 2 carrying wheels 3 for operation over a trackway 4. Other forms of trucks may be employed, but I have selected the wheel type for present purposes because of its ability to be rapidly moved from one working place in a mine to another. This truck consists of longitudinally extending sides 5 which are united at their ends by means of transversely extending front and rear members 6 and 7 respectively.

Pivotally mounted upon the rear axle 2 of the truck is a propelling motor 9, which has its armature shaft provided with a small toothed pinion 10, arranged to engage with a relatively enlarged speed reduction gear 12, fixed upon one end of a back gear shaft 13. This shaft, as shown in Figure 3, is supported for rotation within bearings 14 provided upon the field frame of the motor 9. The other end of the shaft 13 is provided with a miter gear 15, arranged to engage with a similar gear 16 fixed upon the forward end of a longitudinally extending shaft 17, which is also journaled in connection with the bearings 14.

The rear end of the shaft 17 is provided with a worm 18, arranged to engage with a worm gear 19, fixed upon the rearward of the axles 2. By this construction, it will be observed that power may be imparted directly from the motor 9 through positive gearing to the propelling axle of the truck, without involving the use of sprocket or chain constructions, the fact that the motor and its transmission gearing are mounted as a unit for pivotal movement about the rearward axle 2 makes this construction practicable. The front end of the motor 9 is supported by means of a transversely extending bar 20, which is shown in Figure 13 as provided with up-turned ends 21, confined between opposed coil springs 22 carried by the sides 5 of the truck 1. By this construction, relative movement between the side frames of the truck and the axles 2 does not effect the operation or positions of the motor 9 and its power transmitting gearing. The axles 2 have their ends positioned within suitable journals 23, which are received within the side frames 5 of the truck.

Arising from the truck sides 5 at positions above the rearward axle 2 is a plurality of bearing enlargements 25, which, as shown in Figure 4, are provided with inwardly extending studs 26, upon which are trunnioned the lower spaced arms 27 of a pivoted saddle member 28, which acts as a swinging support for the conveying mechanism of the machine. The said member 28 is of substantially inverted U shaped formation and has secured thereto a pair of brackets 29, which are provided with flat rearwardly extending arms 30, which arms have their extreme rearward ends attached to a bearing casting 31, which casting is vertically bored for the reception of a vertical pivot pin 32 rigidly carried by and depending from the extreme rearward end of an elongated inclined conveyer frame 33.

The conveyer frame is preferably constructed from suitably reinforced and braced structural sheet metal and is constructed to include an elevated rear end 34, which terminates forwardly in a downwardly inclined elevator portion 35, which latter, in turn, terminates in a flat forwardly extending receiving or floor engaging end 36. The under part of the frame at the junction of the portions 34 and 35 thereof is provided with a fixed depending bracket 37, formed with an out-turned lip 38 arranged to be received within arcuately disposed recesses 39 provided in a plurality of anchor blocks 40, mounted upon the upper part of the saddle member 28. These blocks are arranged in the circumference of an arc struck from the pin 32, and serve to prevent undue vertical movement on the part of the frame 33 independently of the saddle member 28. It will be understood that the frame 33 is permitted by the manner of mounting the pin 32 to swing bodily and horizontally over the truck 1 so that the forward receiving end of the frame may sweep across substantially the full width of a mine room from its relatively fixed position upon the trackway 4. However, by reason of the location of the pin 32, or in other words, the vertical swinging axis of the frame 33, the rear or discharge end of said frame will be maintained at a relatively given or fixed position irrespective of the positions which the frame assumes dur-

ing active operation. This enables materials passed through the frame by conveyer mechanism, to be hereinafter described, to be accurately deposited into underlying mine or pit cars 41 placed upon the trackway 4 to the rear of the truck. It will of course be appreciated that the overhanging of the frame 33 provided by the end 34 thereof and the height of the end 34 is regulated by the proportions of the pit car to be used in connection therewith and also by the thickness of the coal seam.

The frame 33 is formed with a bottom 42, and with sides 43 which define between them a trough or runway through which material may be advanced in the line of draft of the machine. To effect this advance of material, I have provided in this instance an apron type conveyer strongly constructed to withstand the severe service to which it is placed. This conveyer preferably consists of a pair of longitudinally extending endless chains 44 movable in vertical planes and provided with rollers 45 to facilitate their movements, the said chains being passed around sprockets 46 provided upon head and foot shafts 47 and 48 respectively. The inside links of the chain 44 are formed with integral offset lips 49 to which are riveted or otherwise secured transversely extending plates 50, which as shown in Figure 5, are flexibly united by being provided along their longitudinal edges with curved interfitting lips 51. If desired, the plates 50 may be provided at intervals with transversely extending flights or cleats 52, and with pointed spurs or the like 53. By constructing the machine with a conveyer of this nature, it is possible to advance or thrust the forward end of the machine directly into contact with the pile of slate, or other materials, to be loaded, in order that the forward end of the conveyer will directly contact with such materials and draw the same onto the conveying trough of the frame for advancement toward the rear or discharge end 34 thereof. It will be noted that the front end of the conveyer projects beyond the end 36 of the frame 33, thus the conveyer is enabled to act directly upon the materials to be gathered to better advantage and with less resistance than if the front end of the machine were provided with a long forwardly projecting wedge shaped nose. The frame may, however, to the rear of the shaft 48, be provided with a beveled reinforced portion 54 to strengthen the construction of the machine at this point. It will be seen that upon the forward movement of the truck, effected through the propelling mechanism described, the front end of the conveyer is forced into and under the slate to be loaded, causing such slate to be drawn upon the machine and transferred to the rear end 34 thereof, from which point the materials are discharged into the pit or mine cars 41 for transportation to remote points of discharge. By reason of the manner of pivotally mounting the rear end of the frame 33, the forward or floor engaging end 36 thereof may be swung to assume any operating position across the width of an ordinary mine room, furthermore, the frame is permitted to follow the unevenness or irregularities in the mine floor by virtue of the horizontal pivot provided by the studs 26.

To drive the conveyer, I provide the under side of the frame 33 with a rigidly mounted bed plate 55, which carries an electric motor 56. As shown in Figure 14, the armature shaft of this motor forms the driving member 57 of a friction disk clutch 58, which may be set to slip at any predetermined load condition, for the purpose of preventing injury to the conveyer generally. The driven member 59 of said clutch is provided with a spur tooth pinion 60, which engages with a gear 61 mounted upon a shaft 62 suitably journaled for rotation within a casing 63. Rotatable with the gear 61 is a beveled gear 64, arranged to mesh with a similar gear 65 carried upon a transversely and outwardly extending shaft 66, which is also mounted for rotation in bearings provided in connection with the casing 63. The outer end of the shaft 66 is equipped with a sprocket 67 over which passes an endless chain 68, which leads to a sprocket 69 fixed upon a quill or hub 70 which rotates about a stud shaft 71 projecting from one side of the frame 33. Also rotatable with the quill 70 and fixed to rotate in unison with the sprocket 69 is a second sprocket 72 which has trained thereover an endless chain 73, which leads to a sprocket mounted upon the head shaft 47 of the conveyer. By virtue of this construction, power is transmitted from the motor 56 through suitable speed reducing gearing directly to the loading conveyer, enabling the latter to operate at a relatively slow predetermined speed and with all necessary power. By its location beneath the inclined portion 35 of the frame 33, the motor 56 is out of the way, permits of the use of the apron type of conveyer, does not interfere with the swinging of the frame 33 nor does it interfere with the positions of a pit car beneath the elevated rear end 34 of the conveyer frame.

In order to swing the frame 33 laterally, I provide the front member 6 of the truck 1 with a removable rack 75, with which cooperates a thrust shoe 76 rigidly mounted upon the under part of the frame 33, the said shoe and rack being provided with adjoining arcuate faces, conforming to a radius struck from the studs 26, said faces per-

mitting of vertical vibratory movement on the part of the frame 33 when responding to floor unevenness. It will be noted that by the provision of this construction, the strains upon the frame 33 are reduced to a minimum during the thrusting or forcing of the forward end of said frame into engagement with the materials to be loaded. By the construction described, this infeeding effort of the frame is transmitted directly from the frame of the truck 1 to the forward or lower end of the frame 33, and therefore the strains on the supported and elevated end of the frame 33 are substantially negligible. In this instance the shoe 76 is of hollow construction and includes a vertical shaft 77 around which rotates a gear element 78, the latter having its teeth arranged for meshing engagement with the rack teeth provided upon the rack 75, whereby upon the rotation of the gear element, lateral shifting movement of the frame 33 with respect to the truck will take place, and it will be apparent that since the side swinging of the frame 33 is not in any way interfered with or obstructed by the materials to be loaded, the gear construction described for swinging the frame 33 laterally meets all requirements as to strength and durability.

To effect the rotation of the gear element 78, I preferably provide the latter with a worm gear 79, arranged to mesh with a worm 80 provided upon a short transversely extending shaft 81. In this connection, it will be observed that the worm gearing 79 and 80 tends to lock the frame 33 in any given position of lateral adjustment. To rotate the shaft 81, the outer end of the latter, as shown in Figure 3, is equipped with a sprocket 82 over which passes a chain 83, which is also trained over a sprocket 84 carried on one side of the frame 33. Mounted to rotate with the sprocket 84 is a beveled gear 85, which meshes with the corresponding gear 86 fixed upon one end of a longitudinally extending shaft 87, which is mounted in bearings 88 provided upon one side of the frame 33. The upper end of the shaft 87 is provided with a plain faced friction gear 89, arranged for cooperation with one of a pair of similar gears 90 carried by a sleeve 91, which is keyed to rotate with a shaft 92, the latter being fixed for rotation within bearings provided in the bracket 93. The shaft 92 is equipped with a sprocket 94 over which is passed a chain 95 leading to a sprocket 96, which is fixed to rotate in unison with a quill 70. The bracket 93 carries a pivoted lever 97 which may be manually actuated to selectively throw the gears 90 into or out of engagement with the friction gear 89. By this construction, it will be apparent that by shifting the lever 97, the frame 33, may be laterally swung from one side of the truck to the other independently of the constant direction of rotation of the motor 56, the friction gearing permitting of the meshing of the gears 89 and 90 without difficulty during the operation of the motor 56.

As stated in the introductory part of this specification, the machine is called upon to load slate slabs or lumps of relatively large size, which were protected from disintegration by reason of the falling of other slate thereabout, and which larger slabs are frequently in just the same size and condition as when they originally fell from the roof of the mine. The conveyer by forcing its way into a slate pile will load the ordinary small lump or soft disintegrated slate, but the larger and harder slabs cannot be handled by the conveyer unaided, and therefore to provide a complete machine, I mount upon the forward end of the frame 33, as shown in Figures 9 to 12 inclusive, a cooperative crane structure designated generally by the numeral 98 which mechanically handles slabs of slate too large and heavy to be manually handled, and deposit such slabs upon the conveyer for transportation to the pit cars.

The crane structure disclosed consists of a vertical standard 99 arranged to be received within a bracket 100 carried by the forward part of the frame 33, the said standard being formed with rack teeth 101, which are engaged by a spur pinion 102, carried upon a shaft 103 journaled in the bracket 100. The outer end of the shaft 103 carries a worm gear 104, which meshes with a worm 105 rotatably carried in connection with the bracket 100, and which worm is rotated by means of a hand wheel 106. Thus, it will be apparent that the standard may be vertically adjusted, as indicated in Figure 9, so that the swinging movement of the crane may be vertically adjusted to occupy different horizontal operating positions, and that the standard 99 will be locked in any of its set positions, by reason of the worm gearing used. Swiveled upon the upper end of the standard 99 is a rotatable pedestal 107, which carries a laterally and horizontally projecting shelf 108. Pivotally mounted about the vertical axis x upon the pedestal 107 is a boom 109, which projects forwardly of the frame 33 and carries a guide sheave 110 at its outer end. Extending rearwardly from the pedestal 107 is a motor supporting frame 111, which carries a windlass 112, around which is reeled one end of a hoisting cable 113. This cable is trained over the sheave 110 and has its lower or outer end provided with slate grappling tongs 114, shaped to engage with irregular fragments of slate and upon the hoisting of said cable to effect their elevation and deposit upon the loading conveyer, or to one side thereof.

The windlass is operated by means of a motor 115 carried by the frame 111, which motor has its armature shaft equipped with a pinion 116 arranged to engage with an enlarged reduction gear 117 mounted upon a shaft 118. This shaft is provided at its opposite end with a spur gear 119 arranged to mesh with a similar gear 120 arranged on the shaft 121 located in the plane below the shaft 118. The shaft 121 enters a case 122 and carries a worm 123 situated for rotation in said case in the lower part of the latter. Meshing with the worm 123 is a worm gear 124 which carries a clutch hub 125. The windlass 112 has its operating shaft 126 extended loosely through the gear 124 and provided with a splined clutch 127, which may be manually shifted by the lever 128 for engagement or disengagement with the clutch hub 125, the said lever thereby controlling the reeling of the cable 113 about the windlass 112. Through the instrumentality of this crane structure, positive and effective means are provided for enabling the machine to operate in the loading of slate of all sizes, and by its correlation with the apron conveyer, a complete and unitary machine is provided and without which the machine would be largely inoperative.

To remove the lower end 36 of the frame 33 from the ground during transportation of the machine from one working location to another, I provide the truck 1 with a drum 129 around which is trained a cable 130, the latter having its free end connected to the saddle member 28 as indicated by the numeral 131. The drum is rotated by means of manually operated worm gearing 132 which upon being operated will serve to rotate the drum and to thereby effect the rocking of the frame 33 bodily about its horizontal pivotal axis 26, the said worm gearing 132 serving to retain the frame in any of its adjusted positions. If desired, the axles 2 may be united by a driving chain 133 so that the power imparted to the rear axle may be also transferred to the forward axle enabling all four wheels of the truck to act as drivers.

In view of the foregoing description taken in connection with the accompanying sheets of drawing, it will be seen that the present invention provides a machine for performing a class of work hitherto largely done by manual operations. While the machine is primarily designed for the handling of slate, nevertheless it may be employed for the loading of other materials, for example coal, and I contemplate such use of the machine when it is not actively used in the loading of slate.

What is claimed is:

1. In a loading machine, in combination, a truck including a frame, a conveyer arranged over said truck and extending from points in front to points in rear of the truck, a pivotal connection between said conveyer and truck permitting of the swinging of said conveyer relative to said truck in both horizontal and vertical planes, a rack member carried by the forward part of said truck, a shoe carried by said conveyer and cooperative with said rack to receive the thrust of said truck, and means carried by said shoe and arranged for cooperation with said rack to impart lateral swinging movement to said conveyer.

2. In a loading machine, in combination, a truck, an elongated inclined conveyer arranged over said truck, a compound pivotal connection between said truck and conveyer permitting of the swinging of said conveyer relative to said truck in horizontal and vertical planes, an arcuate rack fixed to the front part of said truck, the arc of said rack in one plane being determined by the vertical axis of swinging movement of the conveyer and in another plane by the horizontal axis of swinging movement of said conveyer, and power driven means carried by the under part of said conveyer and cooperative with said rack for effecting lateral swinging movement of said conveyer independently of the vertical swinging movement of said conveyer.

3. In a loading machine, in combination, a truck, an elongated conveyer mounted over said truck, a compound pivotal connection including vertical and horizontal axes between said truck and conveyer and about which the latter is permitted to oscillate in both vertical and horizontal planes, a rack carried by the forward part of said truck, said rack being of arcuate formation and having for its principal axis the vertical axis of swinging movement of said conveyer, and its minor axis, the horizontal axis of said conveyer about which the latter oscillates in a vertical plane, and a power driven wheel element carried by said conveyer and cooperative with said rack to shift the conveyer laterally throughout the operative vertical positions of adjustment of the conveyer.

4. In a loading machine, in combination, a truck, a conveyer arranged over said truck, a compound pivotal support between said truck and conveyer including vertical and horizontal axes about which said conveyer turns in horizontal and vertical planes, an arcuate rack carried by said truck and having for its center the vertical axis about which said conveyer turns in a horizontal plane, the arcuate outer face of said rack being struck from a center defined by the horizontal axis of turning movement of said conveyer, a shoe carried by said conveyer and conforming to the configuration of said rack, and a power driven wheel element carried by said shoe and cooperative with said rack to shift the conveyer laterally while the lat-

ter is in any operative position of vertical adjustment.

5. In a loading machine, in combination, a truck, a conveyer arranged over said truck, a support between said conveyer and truck including horizontal and vertical axes about which said conveyer turns in vertical and horizontal planes, an arcuate rack having a toothed surface conforming to the arcs of horizontal and vertical swinging movement of said conveyer, a toothed wheel element rotatably carried in connection with the under part of said frame and arranged to mesh with the teeth of said rack, and power devices carried by said conveyer for effecting the rotation of said wheel element.

6. In a loading machine, in combination, a truck, a conveyer arranged over said truck, a vertical pivotal connection between said conveyer and truck for admitting of horizontal swinging movement of said conveyer relative to said truck, a rack formed with the forward part of said truck including an arcuate toothed surface conforming to the arc of horizontal travel of said conveyer at a point adjacent the rack, a thrust receiving shoe carried by the under part of said conveyer and arranged adjacent to said rack, a toothed wheel element carried by said shoe and disposed in mesh with said rack, and power driven worm gearing carried in connection with said conveyer for effecting the rotation of said wheel element.

7. In a loading machine, an elongated inclined conveyer, a bracket mounted upon said conveyer contiguous to the forward end thereof, a standard vertically arising from said conveyer and adjustably received within said bracket, worm gearing between said bracket and standard for adjusting the latter vertically, and a crane structure carried by and rotatable about the upper end of said standard.

8. In a loading machine, a truck, an elongated inclined conveyer mounted over said truck, a compound pivotal support between said truck and conveyer including horizontal and vertical axes about which said conveyer may oscillate in vertical and horizontal planes, a rack bar provided upon the forward end of said truck, the toothed surface of said bar being arched horizontally and vertically from the centers defined by the axes of vertical and horizontal swinging movement of said conveyer, foldable extensions connectible with the ends of said bar, and a power driven toothed wheel element mounted in connection with said conveyer and in mesh with said rack bar.

9. In a loading machine, in combination, a truck, an elongated inclined conveyer mounted upon said truck, a support between said conveyer and truck including horizontal and vertical axes about which said conveyer oscillates in vertical and horizontal planes, an operating motor for said conveyer, a rack provided upon the front end of said truck, a toothed wheel element carried by said conveyer and cooperative with said rack throughout all operative positions of horizontal and vertical adjustment of said conveyer with respect to said truck, and power devices between said wheel element and said motor.

In testimony whereof I have signed my name to this specification.

NORTON A. NEWDICK.