Dec. 17, 1935. R. H. KRAFT 2,024,458

MATERIAL GATHERING AND LOADING MACHINE

Original Filed July 31, 1933 4 Sheets-Sheet 1

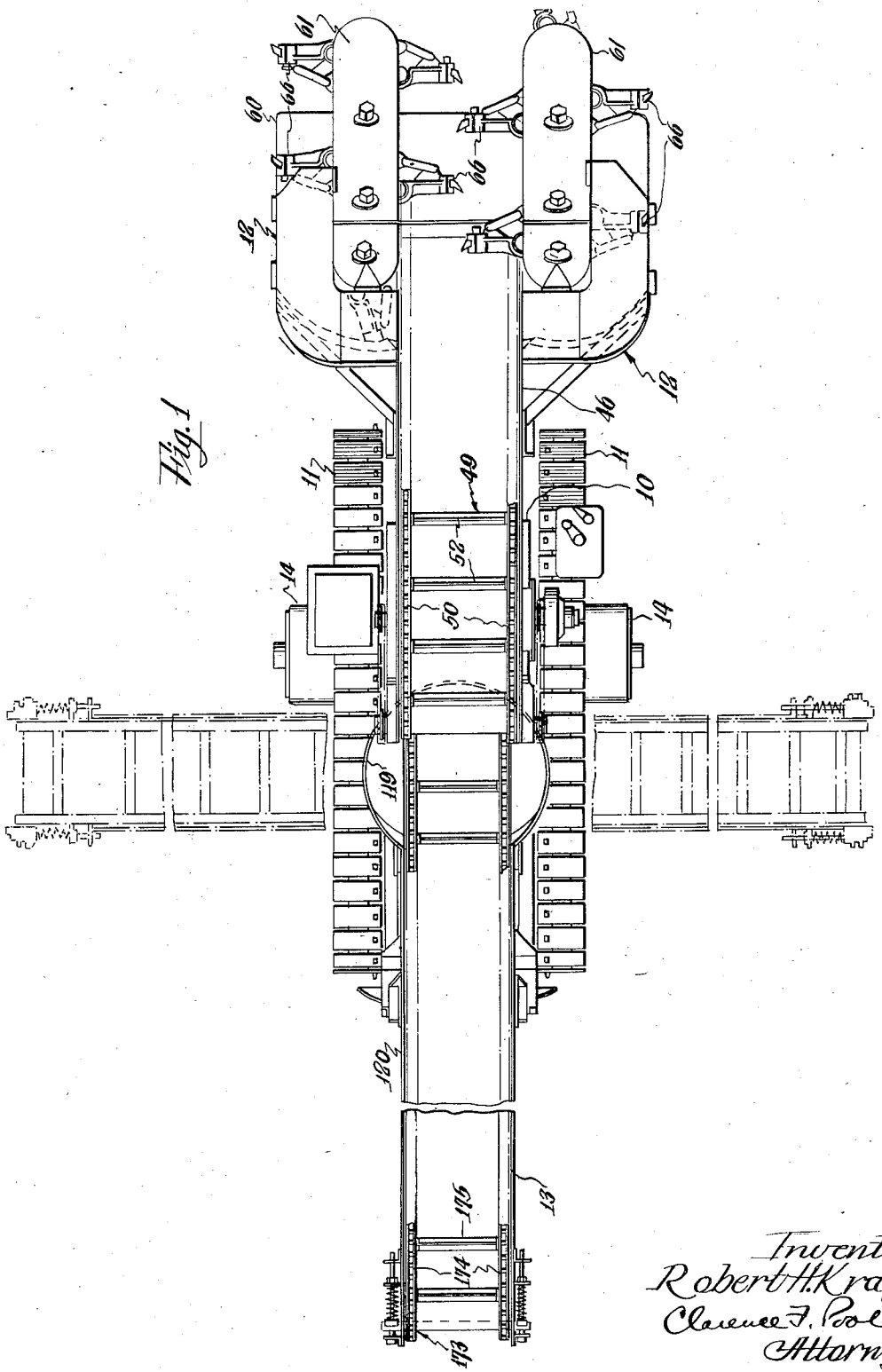


Fig. 1

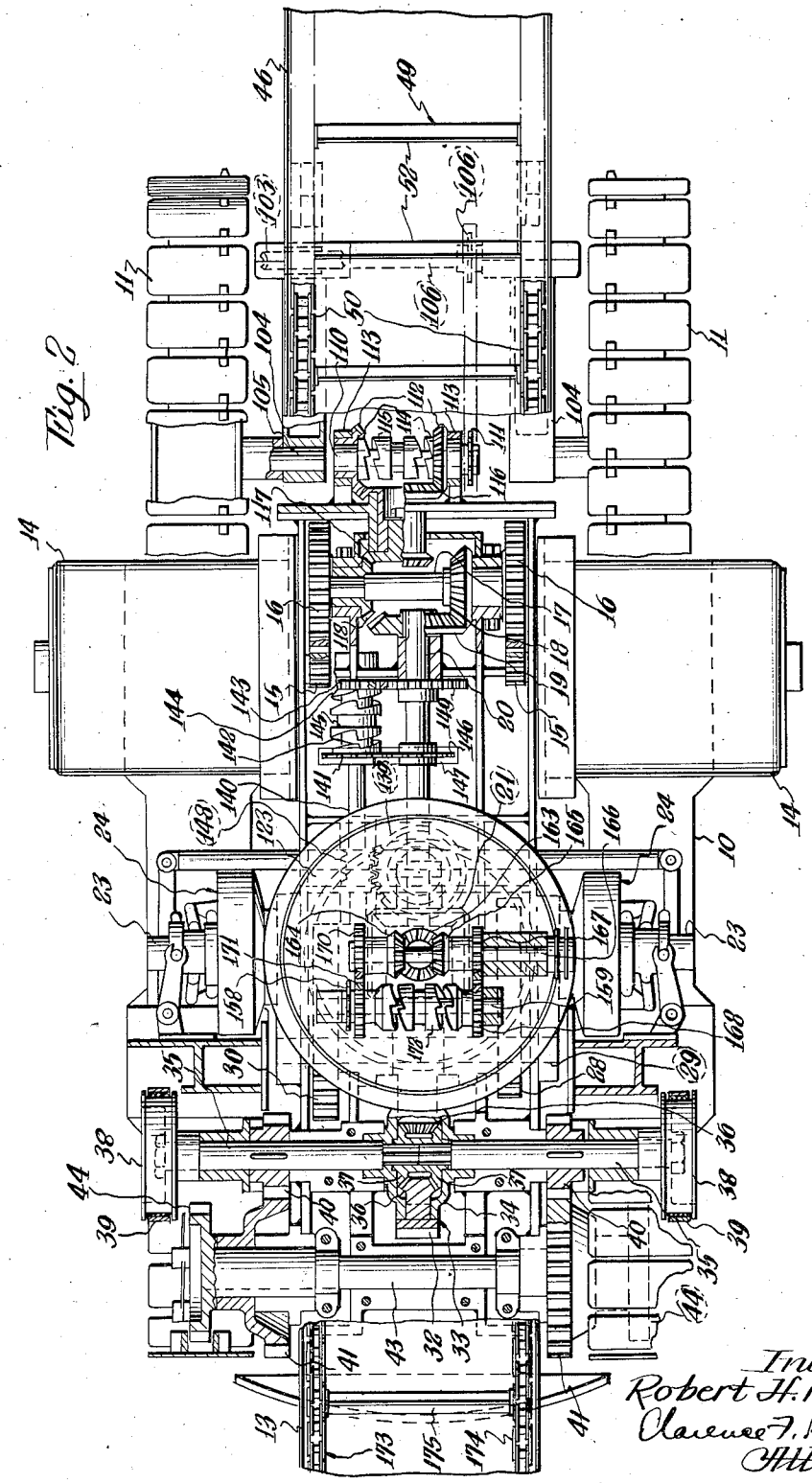
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MATERIAL GATHERING AND LOADING MACHINE

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Fig. 2



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MATERIAL GATHERING AND LOADING MACHINE

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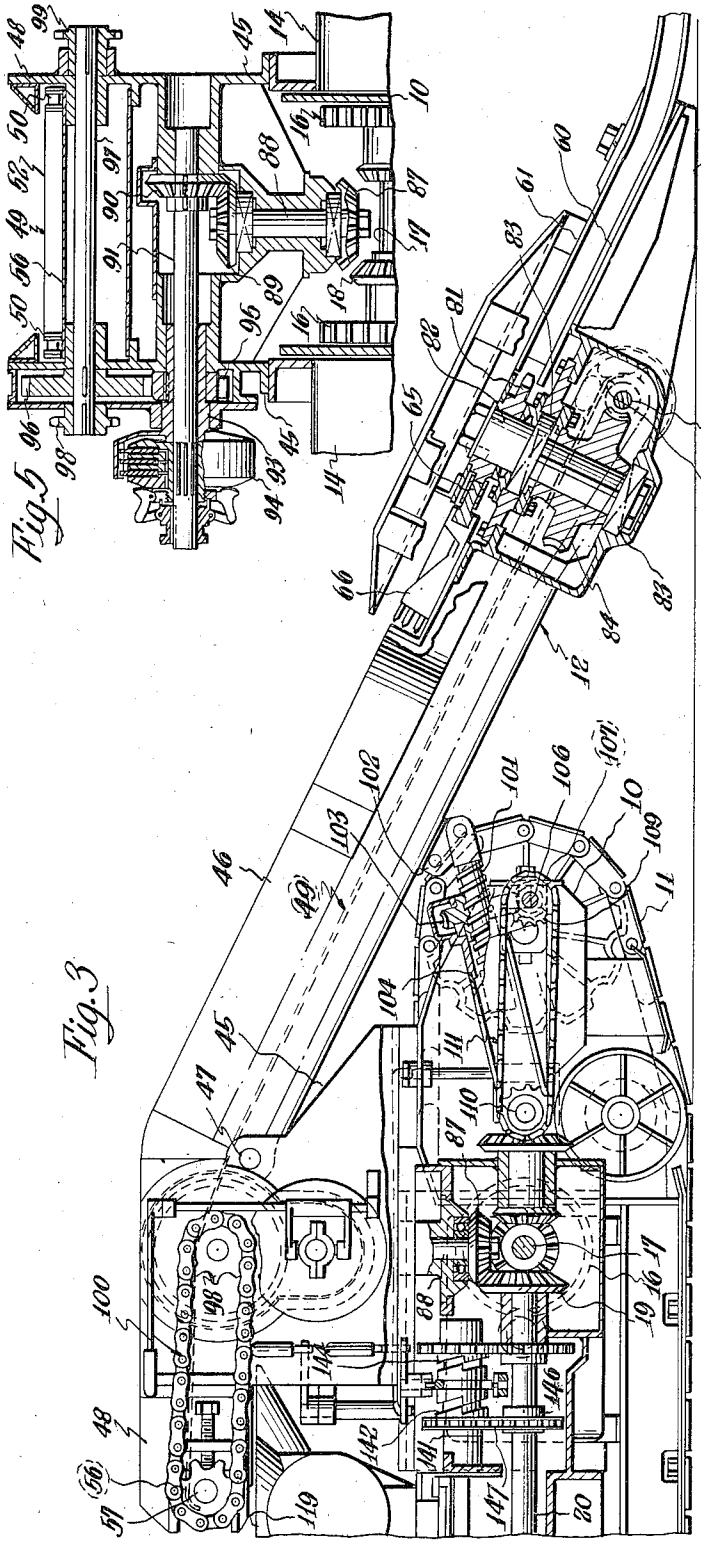


Fig. 3

Fig. 5

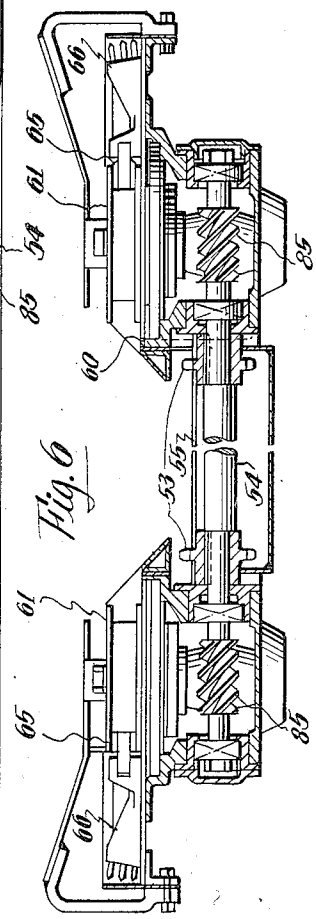


Fig. 6

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MATERIAL GATHERING AND LOADING MACHINE

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Fig. 4

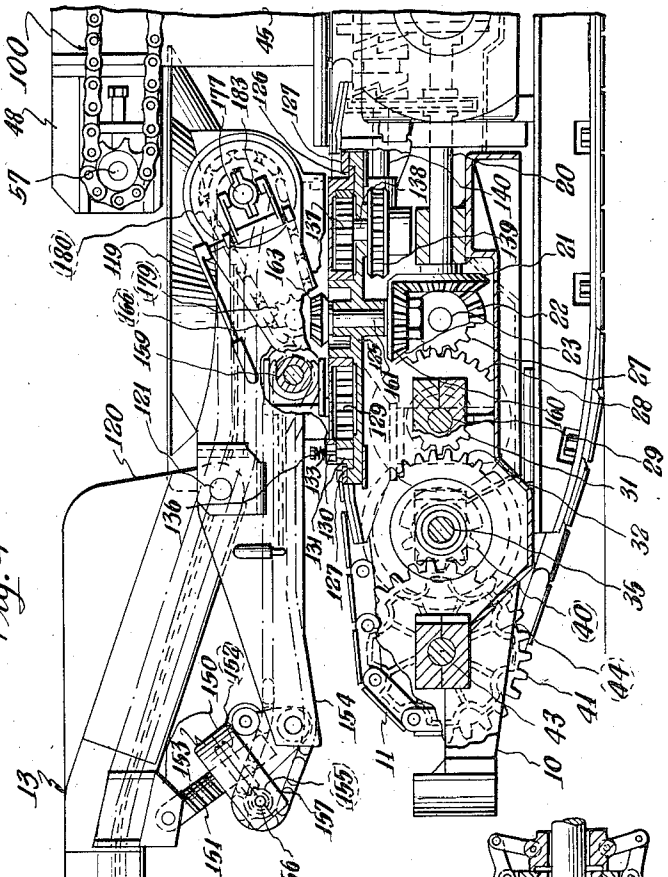
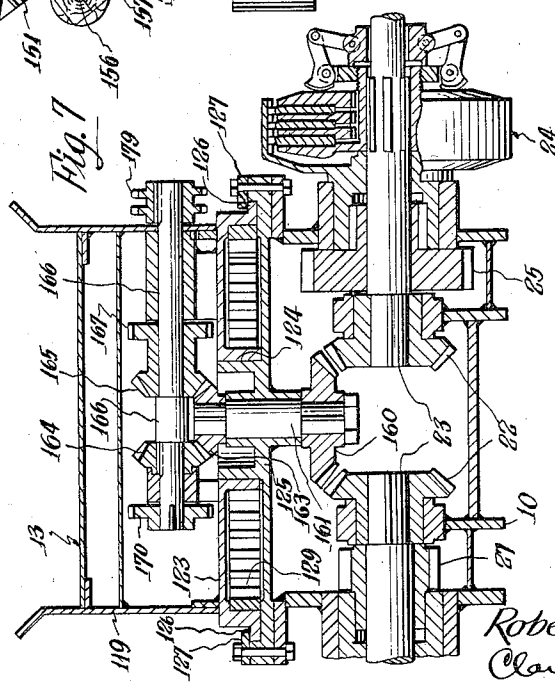


Fig. 7



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2,024,458

MATERIAL GATHERING AND LOADING MACHINE

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Original application July 31, 1933, Serial No. 682,982. Divided and this application February 5, 1934, Serial No. 709,687. Renewed March 28, 1935

16 Claims. (Cl. 198—8)

This invention relates to improvements in material gathering and loading machines particularly adapted for loading coal at the working face of a mine. The principal objects of the invention are to provide a simple and efficient mechanism of the character described including a caterpillar-mounted truck, a gathering and loading element carried in advance of said truck of a novel arrangement so as to effectively load coal in a simple and efficient manner and capable of being elevated and lowered with respect to the ground, and a discharge conveyer rearwardly of the gathering and loading element capable of being swiveled to various angles with respect to the truck, together with a novel arrangement of the drive mechanism and gearing for driving all of the parts of the device from one drive member in such a manner that the motors may be located for ready accessibility and yet not add to the height of the machine.

This invention is a division of an application, Serial No. 682,982, filed July 31, 1933, and entitled Improvements in material gathering and loading machines.

Other objects of my invention will appear from time to time as the following specification proceeds.

My invention may best be understood with reference to the accompanying drawings wherein:

Figure 1 is a top plan view of a loading machine illustrating one embodiment of my invention.

Figure 2 is an enlarged plan view of the central portion of the device shown in Figure 1 with the rear conveyer removed and other parts broken away and shown in horizontal section to more clearly show certain details of my invention;

Figure 3 is an enlarged side elevation of the forward portion of the embodiment of my invention shown in Figure 1 with parts broken away and shown in vertical section;

Figure 4 is an enlarged side elevation of the rearward portion of the embodiment of my invention shown in Figure 1, with parts broken away and shown in vertical section;

Figure 5 is an enlarged fragmentary transverse sectional view looking towards the rear end of the machine showing certain details of the drive to the gathering and loading element;

Figure 6 is an enlarged fragmentary transverse sectional view looking towards the rearward end of the machine showing certain details of the drive for the gathering elements; and

Figure 7 is an enlarged fragmentary vertical transverse sectional view looking towards the forward end of the machine showing certain details of the drive and support for the rear conveyer.

Like numerals refer to like parts throughout the various figures.

Referring now in particular to the drawings illustrating one embodiment of my invention, a truck or main frame 10 is provided which is carried on laterally spaced continuous tread devices 11, 11. A gathering and loading element, generally indicated by reference character 12, extends from a point disposed above the main frame 10 forwardly and downwardly toward the ground and is adjustable with respect to the ground about a horizontal axis disposed above and extending transversely of said main frame. A discharge conveyer 13 is carried on the main frame 10 for pivotal movement with respect thereto about a vertical axis and for vertical adjustment with respect thereto about a horizontal axis. Said discharge conveyer extends from a point disposed beneath the discharge end of said gathering and loading element beyond said main frame for discharging material into suitable receptacles, such as cars.

A suitable means is provided for affording a source of power for driving the gathering and loading element 12; for vertically adjusting said gathering and loading element with respect to the mine bottom; for driving the laterally spaced continuous tread devices 11; and for driving the discharge conveyor 13 and adjusting said discharge conveyer with respect to the main frame 10 about both vertical and horizontal axes which is herein shown as comprising a pair of motors 14, 14. The motors 14, 14 may be of any type but are herein shown as being electric motors and each motor is secured to one side of the main frame 10 in a suitable manner and extends laterally therefrom and is disposed between the top and bottom runs of each laterally spaced continuous tread device 11. The axes of rotation of the motors 14, 14 extend transversely of the main frame 10, and are herein shown as being coaxial. Each motor 14 is provided with a motor pinion 15 which meshes with and drives a spur gear 16. The spur gears 16, 16 are keyed on opposite ends of a transversely extending shaft 17, which shaft forms a common drive member for effecting operation of the device of my invention through a novel arrangement of drive gearing.

With the arrangement herein shown, the motors 14, 14 may be located so as to be readily

accessible for inspection or repair and are connected together through the common drive member 17 to operate as one. Thus two motors are provided which results in a more even distribution of the motor weight; keeps down the height of the machine to a minimum; permits the motors to be located in such a manner that the machine will have a low center of gravity with ample weight over the continuous tread devices 11, 11 to permit efficient loading and propulsion of the machine; permits a simplified arrangement of gearing for driving the parts; and provides accessibility to the motors without tearing down other parts of the machine.

The drive from the motors 14, 14 to the laterally spaced continuous tread devices 11, 11 is as follows:

A bevel gear 18 is journaled on its hub in the main frame 10 in a suitable manner and is keyed on the transversely extending shaft 17. The bevel gear 18 meshes with and drives a bevel gear 19 on the forward end of a shaft 20 extending longitudinally of the main frame 10, and herein shown as being substantially in alignment with the longitudinal center line thereof. A bevel gear 21 is keyed on the rearward end of the shaft 20 and meshes with and drives bevel gears 22, 22 journaled in suitable bearing supports in the main frame 10 and keyed on the inner ends of shafts 23, 23 extending transversely of said main frame.

A friction clutch, generally indicated by reference character 24 and herein shown as being a friction disk clutch of an ordinary construction, is arranged coaxially with each shaft 23 (see Figs. 2 and 7). The friction clutch 24 on the right hand side of the machine is provided for selectively connecting the shaft 23 with a spur gear 25 keyed to the inner periphery of the hub of said friction clutch, which hub of said friction clutch is journaled in the main frame 10 in a suitable manner. The friction clutch 24 on the left hand shaft 23 is provided for selectively connecting said shaft with a spur pinion 27 keyed to the inner periphery of the hub of said friction clutch, which hub is journaled in the main frame 10 in a suitable manner. The spur gear 25 meshes with and drives a spur gear 28 keyed on a transversely extending shaft 29. The spur pinion 27 meshes with and drives a spur gear 30 keyed on the transversely extending shaft 29 adjacent an end opposite the spur gear 28. A spur pinion 31 is keyed on the transversely extending shaft 29 and meshes with and drives a spur ring gear 32 which forms a driving member for a differential, generally indicated by reference character 33. The spur ring gear 32 is mounted on a casing 34 journaled on its hubs in the main frame 10 in a suitable manner coaxial with drive shafts 35, 35. Bevel pinions 36, 36 are carried within the casing 34 and mesh with and drive bevel gears 37, 37 splined on the inner ends of the shafts 35.

The shafts 35 are journaled in the main frame 10 in a suitable manner and are provided with brake drums 38, 38 adjacent their opposite ends adapted to be engaged by suitable friction bands 39 in a usual mannr for holding either of said shafts from rotation when desired. A spur pinion 40 is keyed to each shaft 35 inwardly of the brake drum 38. Each spur pinion 40 meshes with and drives a spur gear 41 journaled on a a shaft 43 for free rotation with respect thereto. The shaft 43 is secured to the main frame 10 and extends transversely thereof and forms a bearing support for the spur gears 41, 41 and for sprockets 44, 44 secured to said spur gears and driven therefrom. The sprockets 44, 44 mesh with the laterally spaced continuous tread devices 11, 11 for driving said tread devices and propelling the apparatus about the mine.

The clutches 24, 24 are interlocked so that one clutch is in a disengaged position while the other clutch is in an engaged position for driving the device from the motors 14, 14 in one direction at a relatively high speed, which direction is herein shown as being a reverse direction and in an opposite direction at a slower speed without reversal of said motors. It may be seen that a differential and suitable braking mechanism are provided for controlling the operation of either continuous tread device 11 at will and permitting the machine to be readily manipulated about the mine in a usual manner.

With reference now in particular to the details of the gathering and loading element 12, brackets 45, 45 extend upwardly from opposite sides of the main frame 10 adjacent the forward end thereof and are secured thereto. An inclined conveyor frame 46 is carried between the brackets 45, 45 on a transverse shaft 47 for pivotal movement with respect to the main frame 10. A conveyer frame 48 is secured between the brackets 45, 45 and extends rearwardly from the inclined conveyer frame 46.

The conveyer frames 46 and 48 together form a guide frame for a suitable conveying means for elevating material and discharging said material into the discharge conveyer 13, which conveying means may be of any type well known to those skilled in the art but is herein preferably shown as being a flight conveyer 49. The flight conveyer 49 comprises a pair of endless chains 50, 50 having flights 52, 52 carried therebetween. The endless chains 50, 50 extend from sprockets 53, 53 disposed adjacent the forward end of the inclined conveyor frame 46 and are keyed on a transversely extending shaft 54 journaled in said conveyer frame, upwardly along the top surface of a plate 55 secured to said inclined conveyer frame and a plate 56 secured to the conveyer frame 48 and around suitable drive sprockets keyed to a shaft 57 adjustably journaled in the conveyer frame 48 for taking up slack on said endless chains in the usual manner, and along the underside of said plates and conveyer frames to and around the sprockets 53, 53.

A shoe 59 extends downwardly from the forward portion of the conveyer frame 46 and is adapted to engage and slide along the ground during the loading operation (see Fig. 3).

An inclined apron 60 is carried by the forward portion of the conveyer frame 46 and extends rearwardly therealong over the flight conveyer 49 to a point adjacent the point where said conveyer starts to move upwardly along said conveyer frame and has sides extending rearwardly along and laterally beyond the sides of said conveyer frame. The inclined apron 60 forms a supporting means for a pair of elongated chain guides 61, 61. The elongated chain guides 61, 61 are secured to the inclined apron 60 in a suitable manner adjacent opposite sides of the flight conveyer 49 and extend forwardly along said apron from a position disposed rearwardly of the point where said apron overlaps said flight conveyer and forwardly beyond the forward extremities of said apron a substantial distance.

The angle of inclination of the apron 60 is the

same as that of the conveyer 49 and the chain guides 61, 61 are of a curvilinear form beyond said apron so that their forward ends may extend in a plane substantially parallel with the mine bottom when the shoe 59 is in engagement with the mine bottom.

The chain guides 61, 61 are of an ordinary construction and are no portion of my present invention so will not herein be described in detail. Said chain guides are secured to the apron 60 in the usual manner adjacent opposite sides of the conveyer 49 so that slack in endless gathering chains 65, 65 movable thereabout may be taken up as said chains wear. The endless chains 65, 65 are provided with a plurality of gathering arms 66, 66 extending therefrom for gathering and moving material onto the conveyer 49. The details of said gathering arms are clearly described in my aforementioned application of which this is a division so will not herein be described in detail.

The endless chains 65, 65 are driven from sprockets 81, 81 secured to the upper end of shafts 82, 82 extending substantially perpendicular to the inclined apron 60 at a slower rate of speed than the speed of the flight conveyer 49 to permit said flight conveyer to carry material away from the gathering arms 66, 66. The shafts 82, 82 are journaled within suitable housings 83, 83 secured to the underside of the inclined apron 60, in a suitable manner, and have worm gears 84, 84 keyed thereto, which worm gears are meshed with and driven from worms 85, 85 on opposite ends of the transversely extending shaft 54. The transversely extending shaft 54 in turn is driven from the sprockets 53, 53 and endless chains 50, 50 in an obvious manner.

The drive from the motors 14, 14 to the flight conveyer 49 is as follows:

The bevel gear 19 on the forward end of the longitudinal shaft 20 meshes with and drives a bevel gear 87 on the lower end of a vertical shaft 88. The vertical shaft 88 is journaled in the main frame 10 on suitable bearing support members in a suitable manner, and has a bevel gear 89 secured to its upper end for driving a bevel gear 90 on a transversely extending shaft 91. The transversely extending shaft 91 is journaled adjacent one of its ends in one of the brackets 45 in a suitable manner and extends through a hub 93 of a friction clutch 94. The hub 93 is journaled in the other bracket 45 in a suitable manner and has a spur pinion 95 keyed thereto. The friction clutch 94 may be of any type well known to those skilled in the art, but is herein preferably shown as being a friction disk clutch so arranged that the spur pinion 95 may be selectively driven from the transversely extending shaft 91 under the control of friction.

The spur pinion 95 meshes with and drives a spur gear 96 keyed to a shaft 97 journaled in the brackets 45, 45 in a suitable manner. A sprocket 98 is keyed to the end of the shaft 97 adjacent the friction clutch 94 while a sprocket 99 is keyed to the opposite end of said shaft. The sprocket 98 is connected with the shaft 57 by means of a chain and sprocket drive, generally indicated by reference character 100, while the opposite end of said shaft is connected with the sprocket 99 by a similar chain and sprocket drive (not shown). Thus the flight conveyer 49 and gathering chains 65, 65 may be selectively driven from the motors 14, 14 at a frictionally controlled speed in such a manner that said conveyer and gathering chains may be automatically disconnected from said motors upon overload thereof.

A suitable means is provided for pivoting the inclined conveyer frame 46 about the axis of the transversely extending shaft 47, which means as herein shown comprise threaded shafts 101, 101 pivotally connected to brackets 102, 102 depending from the underside of said conveyer frame adjacent opposite sides thereof. The threaded shafts 101, 101 are threaded within hubs of suitable worm gears 103, 103, which worm gears are supported in housings 104, 104 pivotally secured to the main frame 10 on the outer ends of shafts 105, 105.

A shaft 106 is journaled in the housings 104, 104 adjacent its opposite ends and has worms 107, 107 herein shown as being formed integral therewith which mesh with and drive the worm gears 103, 103. A sprocket 109 is keyed to the shaft 106 adjacent the inner side of the right hand housing 104 and is driven from a transversely extending shaft 110 by means of a chain and sprocket drive, generally indicated by reference character 111. The transversely extending shaft 110 is coaxial with bevel gears 112, 112 and the axis of pivotal movement of the housings 104, 104.

The bevel gears 112, 112 are journaled on their hubs in suitable bearing supports 113, 113 secured to the main frame 10 and are keyed on clutch members 114, 114 freely mounted on the transversely extending shaft 110. A clutch member 115 is feathered on the transversely extending shaft 110 and is adapted to engage either of the clutch members 114, 114 for driving said transversely extending shaft in one direction or another in the usual manner. The bevel gears 112, 112 are meshed with and driven from a bevel gear 116, which bevel gear is in turn journaled on its hub in the main frame 10 in a suitable manner. A bevel gear 117 is secured within the hub of the bevel gear 116 and is meshed with and driven by a bevel pinion 118 journaled on its hub within the main frame 10 and keyed to the transversely extending shaft 47. Thus the forward end of the inclined conveyer frame 46 and the gathering mechanism may be elevated or lowered by driving mechanism driven from the common shaft 47 and motors 14, 14 without reversal of said motors.

Referring now in particular to the details of the discharge conveyer 13 and several other novel features of my invention, said discharge conveyer includes a hopper 119 disposed beneath the discharge end of the flight conveyer 49 and pivotally mounted on the main frame 10 for pivotal movement with respect thereto about a vertical axis and a conveyer frame 120 pivotally secured to said hopper on a shaft 121 for pivotal movement with respect thereto about the axis of said shaft.

The hopper 119 is secured to a turning member 123, which turning member is journaled on a boss 124 extending upwardly from a plate 125 secured to the main frame 10 adjacent opposite sides thereof and rests on and has bearing engagement with said plate. A shoulder 126 extends outwardly from the lower portion of the turning member 123 and abuts a circular guide formed by the plate 125 and an annular ring 127 secured to said plate overlaps and forms a gib for engaging the top side of said shoulder.

An internal ring gear 129 is carried within

the inner periphery of the turning member 123 and abuts the upper surface of the plate 125. The internal ring gear 129 is adapted to be operatively connected with the turning member 123 for turning said turning member upon rotation of said gear by means of a wedge 130. The wedge 130 is carried in a suitable guide formed in the turning member 123 and is adapted to engage the outer periphery of the internal ring gear 129. A spindle 131 is formed integral with and extends upwardly from the wedge 130. A compression spring 133 encircles the spindle 131 and abuts an upper surface of the turning member 123 adjacent one of its ends and is held in compression by means of a suitable washer and nut 136 threaded on the upper end of said spindle and abutting the opposite end of said spring.

The side of the wedge 130 opposite the outer periphery of the internal ring gear 129 is beveled and engages a beveled edge of the guide formed in the turning member 123 so that the spring 133 will hold the wedge 130 in engagement with the outer periphery of said internal ring gear for turning said turning member upon rotation of said gear. When loads on the internal ring gear 129 are excessive, friction of said gear against the wedge 130 will tend to move said wedge downwardly against the compression spring 133 and permit said gear to rotate freely with respect to the turning member 123 (see Fig. 4).

A spur pinion 137 is keyed on the upper end of a vertical shaft 138 and meshes with and drives the internal ring gear 129. A worm gear 139 is keyed to the vertical shaft 138 on the opposite side of the plate 125 from the spur pinion 137 and is meshed with a worm 148 on a longitudinally extending shaft 140. A sprocket 141, having clutch jaws 142 formed integral therewith, is freely mounted on the longitudinally extending shaft 140. A spur gear 143, having clutch jaws 144 formed integral therewith, is spaced forwardly of the sprocket 141 and is freely mounted on the longitudinally extending shaft 140. A clutch member 145 is feathered on the longitudinally extending shaft 140 between the sprocket 141 and spur gear 143 and is adapted to mesh with the clutch jaws 142 or 144 for selectively driving said shaft from either said sprocket or spur gear.

The sprocket 141 is driven from the longitudinally extending shaft 20 by means of a sprocket 146 keyed thereto and a chain 147 meshing with said sprockets. The spur gear 143 is driven from the longitudinally extending shaft 20 by a spur gear 149 keyed to the shaft 20 and meshing with said spur gear. It is thus obvious that the longitudinally extending shaft 140 will be driven in one direction when driven from the sprocket 141 and in an opposite direction when driven from the spur gear 143.

The conveyer frame 120 is pivotally moved with respect to the hopper 119 for vertically adjusting the rearward end of said conveyer frame to accommodate the discharge conveyer 13 to varying mining conditions or heights of cars by means of a pair of screw devices 151, 151 pivotally secured to brackets 150, 150 depending from opposite sides of said conveyer frame. The screw devices 151, 151 are threaded within the hubs of worm gears 152, 152, which worm gears are in turn journaled in housings 153, 153 pivoted to arms 154, 154 extending outwardly from the hopper 119. Worms 155, 155 disposed adjacent opposite ends of a transversely extending shaft 156 mesh with and drive the worm gears 152, 152.

The transversely extending shaft 156 is journaled adjacent its ends in the housings 153, 153 and is driven from the motors 14, 14 by means of a chain and sprocket drive, generally indicated by reference character 157, driven from a sprocket 158 keyed on a transversely extending shaft 159.

The transversely extending shaft 159 is journaled in suitable bearing brackets extending upwardly from the turning member 123 and may be driven from the motors 14, 14 in opposite directions without reversal of said motors by means of a bevel gear 160 keyed to the lower end of a vertical shaft 161. The bevel gear 160 meshes with and is driven from the bevel gear 21 on the rearward end of the longitudinal shaft 20. A bevel gear 163 is keyed on the upper end of the shaft 161 and meshes with and drives bevel gears 164 and 165 on a transversely extending shaft 166. The bevel gears 164 and 165 face each other, are similar in size, and the bevel gear 164 is keyed on the transversely extending shaft 166 while the bevel gear 165 is mounted on said transversely extending shaft for free rotation with respect thereto. A spur gear 167 is shown as being formed integral with the hub of the bevel gear 165 and meshes with and drives a spur gear 168 carried on the transversely extending shaft 159 for free rotation with respect thereto. A spur gear 170 is keyed on an inner end of the shaft 166 and meshes with and drives a spur gear 171 freely mounted on the shaft 159. Either of the spur gears 168 or 171 may be operatively connected with the shaft 159 by means of suitable jaw clutches including a clutch member 172 having jaws formed integral therewith adapted to engage suitable jaws formed integral with said spur gears and operated in a usual manner. Thus the transversely extending shaft 159 may be driven in opposite directions without reversal of the motors 14, 14 for elevating or lowering the rearward end of the discharge conveyer 13.

The discharge conveyer 13 may be of any type well known to those skilled in the art, but is herein preferably shown as being a flight conveyer 173 similar to the flight conveyer 49. The flight conveyer 173 includes endless chains 174, 174 carrying flights 175, 175 therebetween and trained around suitable sprockets (not shown) keyed on a shaft 177. The shaft 177 is journaled in the hopper 119 adjacent the forward end thereof. From the shaft 177, the endless chains 174, 174 extend rearwardly along suitable plates and around suitable sprockets on a shaft 178 disposed adjacent the rearward end of the conveyer frame 120, thus forming a continuous conveying means from the hopper 119 to the rearward end of the discharge conveyer 13.

The flight conveyer 173 is driven from the transversely extending shaft 177 by means of a pair of sprockets 179 keyed on the outer end of the shaft 166, and a pair of chain and sprocket drives, generaly indicated by reference character 180, connected between the shafts 166 and 177 and freely rotatable with respect to the shaft 177. The chain and sprocket drive 180 may be operatively connected with the shaft 177 for driving said shaft by means of a friction clutch, generally indicated by reference character 183, in a usual manner.

It may thus be seen that a simplified drive has been provided wherein two motors, accessibly located between the top and bottom runs of the

continuous tread devices 11, 11 may be connected together for driving the gathering and loading element 12, for elevating or lowering said gathering and loading element with respect to the mine bottom, for driving the continuous tread devices; for pivotally moving the discharge conveyer 13 about both vertical and horizontal axes with respect to the main frame 10, and for driving said discharge conveyer; that said drive has been arranged with a view towards utmost compactness and simplicity in such a manner that the various operations may be reversed without reversal of the motor; that said drive includes frictionally controlled means for driving the continuous tread devices and the gathering and loading element, and for driving the discharge conveyer 13 and turning said discharge conveyer about a vertical axis; and that the entire machine is arranged with a view toward a minimum overall height and adaptability for efficiently loading in confined spaces.

While I have herein shown and described one form in which my invention may be embodied, it will be understood that the construction and arrangement of the various parts may be changed or altered without departing from the spirit or scope thereof. Furthermore, I do not wish to be construed as limiting myself to the precise construction illustrated, excepting as it may be limited in the appended claims.

I claim as my invention:

1. In a loading machine of the class described, a main frame supported on traction devices, a gathering and loading element therefor, and means for driving said traction devices and independently driving said gathering and loading element comprising a pair of motors disposed adjacent opposite sides of said main frame, a common drive member connecting said motors together, and independent drive connections from said common drive member to said traction devices and gathering and loading element.

2. A loading machine in accordance with claim 1, wherein the drive connections include a shaft perpendicular to said common drive member and extending longitudinally of the machine, a drive connection from the forward end of said shaft to said gathering and loading element and a drive connection from the rearward end of said shaft to said traction devices.

3. A loading machine in accordance with claim 1, wherein the axes of rotation of the motors are coaxial.

4. In a loading machine of the class described, a main frame supported on laterally spaced continuous tread devices, a gathering and loading element therefor, a discharge conveyer on said main frame, and means for driving said laterally spaced continuous tread devices and independently driving said forward and rearward conveyers comprising a motor disposed between the upper and lower runs of each of said continuous tread devices, means for connecting said motors together to operate as a unit, and independent drive connections from said connecting means for driving said continuous tread devices, gathering and loading element and discharge conveyer.

5. In a loading machine of the class described, a main frame supported on laterally spaced continuous tread devices, a gathering and loading element therefor, a discharge conveyer on said main frame, and means for driving said laterally spaced continuous tread devices and independently driving said forward and rearward conveyers comprising a motor disposed between the upper and lower runs of each of said continuous tread devices, a shaft extending longitudinally of said main frame and driven by said motors, drive connections from the forward end of said shaft for driving said gathering and loading element, and drive connections from the rearward end of said shaft for driving said continuous tread devices and discharge conveyer.

6. A loading machine in accordance with claim 4, wherein the motors are coaxial.

7. A loading machine in accordance with claim 4, wherein the motors are coaxial and wherein the means for connecting the motors together includes a common shaft extending transversely of said main frame.

8. A loading machine in accordance with claim 5, wherein the motors are coaxial.

9. A loading machine in accordance with claim 5, wherein the motors are coaxial and wherein the longitudinal shaft is driven by a shaft common to and driven by each of said motors.

10. In a loading machine of the class described, a main frame supported on laterally spaced continuous tread devices, a gathering and loading element therefor including an inclined conveyer extending forwardly therefrom having gathering mechanism on each side thereof and extending forwardly therefrom, a discharge conveyer carried by said main frame for pivotal movement with respect thereto about a vertical axis and extending from a point disposed beneath the discharge end of said inclined conveyer beyond said main frame, and means for driving said laterally spaced continuous tread devices and independently driving said forward and rearward conveyers comprising a pair of motors disposed adjacent opposite sides of said main frame between the upper and lower runs of said continuous tread devices and having their axes of rotation extending transversely of said main frame, a common drive member connecting said motors together, and independent drive connections from said common drive member to said continuous tread devices, gathering and loading element and discharge conveyer.

11. A loading machine in accordance with claim 10 wherein the drive connections include a shaft perpendicular to said common drive member and extending longitudinally of the machine, drive connections from the forward end of said shaft for driving said gathering and loading element and drive connections from the rearward end of said shaft for driving said continuous tread devices and discharge conveyer.

12. A loading machine in accordance with claim 10 wherein the axes of rotation of the motors are coaxial.

13. In a loading machine, a main frame, laterally spaced continuous tread devices supporting said main frame, a gathering and loading element therefor including a conveyer extending from a point disposed forwardly of the forward end of said main frame upwardly and over said main frame having gathering mechanism on each side thereof and extending forwardly therefrom and carried by said main frame for pivotal movement with respect thereto about an axis extending transversely thereof, a discharge conveyer including a hopper mounted on said main frame beneath the discharge end of said first-mentioned conveyer for pivotal movement with respect thereto about a vertical axis and a

conveyer frame pivotally mounted on said hopper for pivotal movement with respect thereto about a horizontal axis, and means for driving said laterally spaced continuous tread devices, independently elevating and driving said gathering and loading element and independently driving and pivoting said discharge conveyer about horizontal or transverse axes comprising a shaft extending transversely of said main frame, a drive shaft extending longitudinally of said main frame, drive connections from said transverse shaft for elevating or lowering said gathering and loading element, drive connections from the forward end of said longitudinal drive shaft for driving said gathering and loading element, and drive connections from the rearward end of said common drive shaft for driving said continuous tread devices, pivoting said discharge conveyer about horizontal and vertical axes and driving said discharge conveyer.

14. A loading machine in accordance with claim 13 wherein the transverse shaft is driven by motors disposed adjacent opposite ends thereof.

15. A loading machine in accordance with claim 13 wherein the transverse shaft is driven from motors disposed adjacent opposite ends thereof, which motors are disposed between the upper and lower runs of said continuous tread devices.

16. A loading machine in accordance with claim 13 wherein the transverse shaft is driven from coaxially arranged motors disposed adjacent opposite ends thereof, which motors are disposed between the top and bottom runs of said continuous tread devices.

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