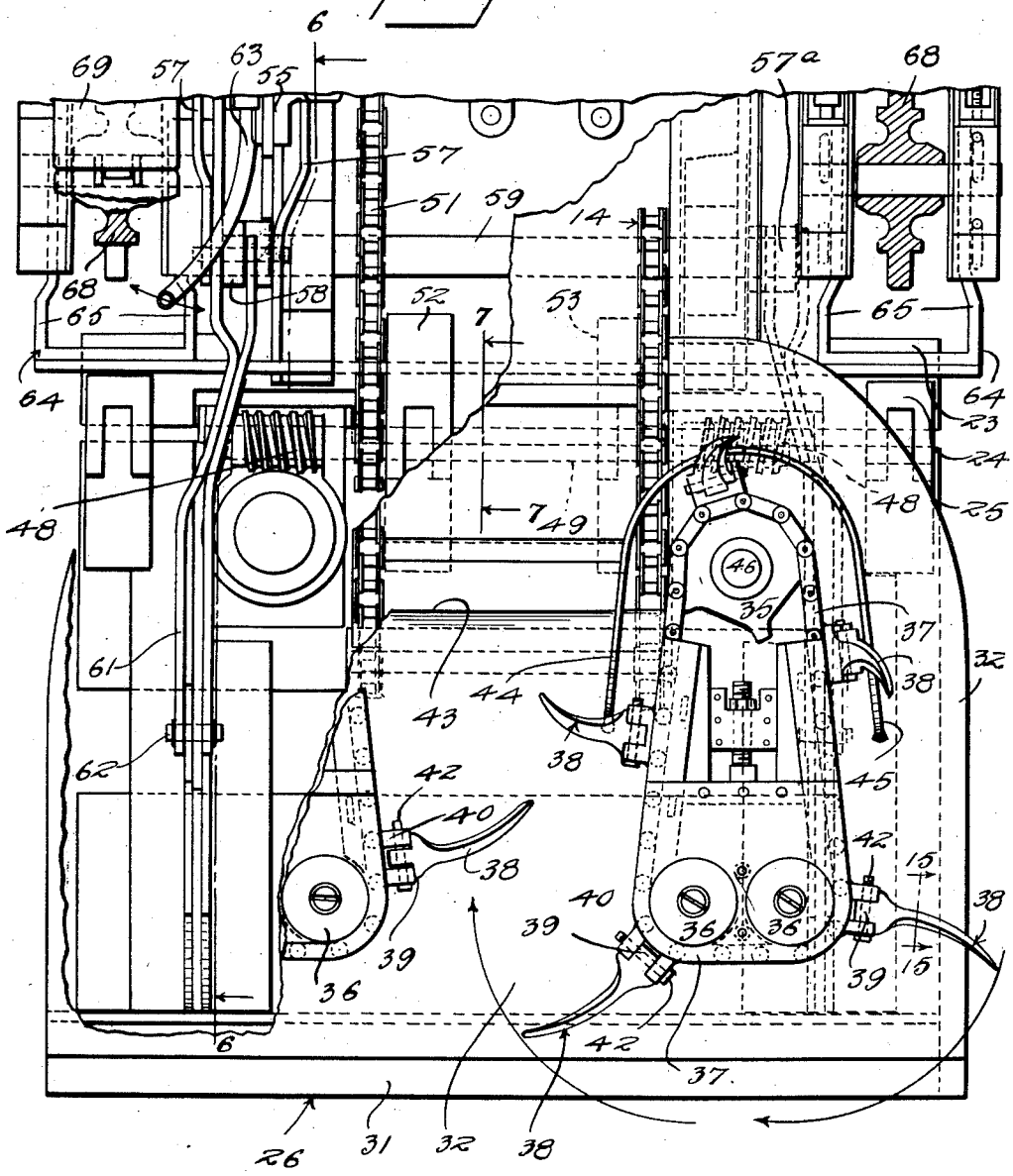
Aug. 14, 1928. 1,680,695

C. W. SHANABERGER

CONVEYER

Filed Feb. 20, 1926 10 Sheets-Sheet 1

Fig. 1.



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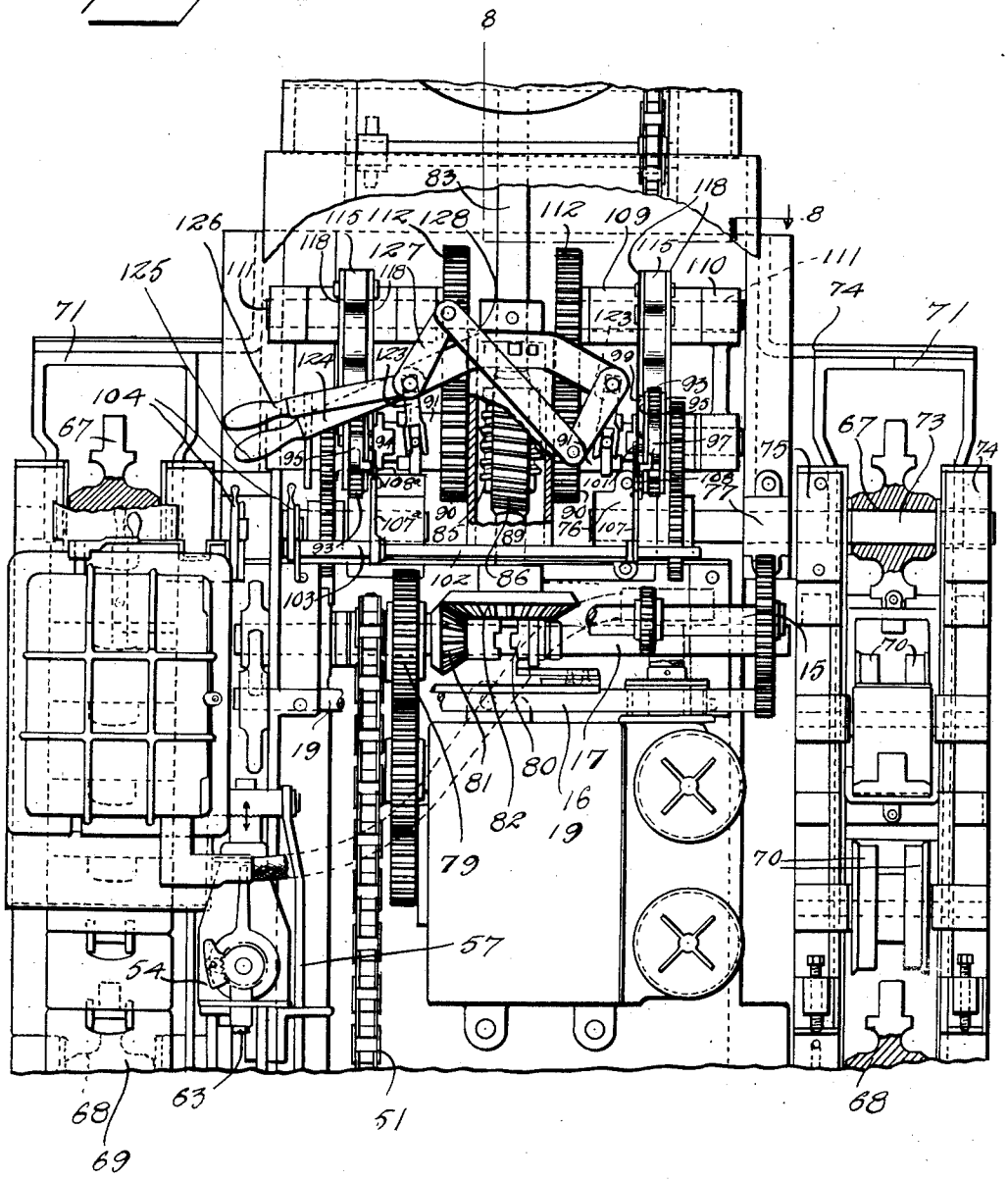
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CONVEYER

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Fig. 2.



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CONVEYER

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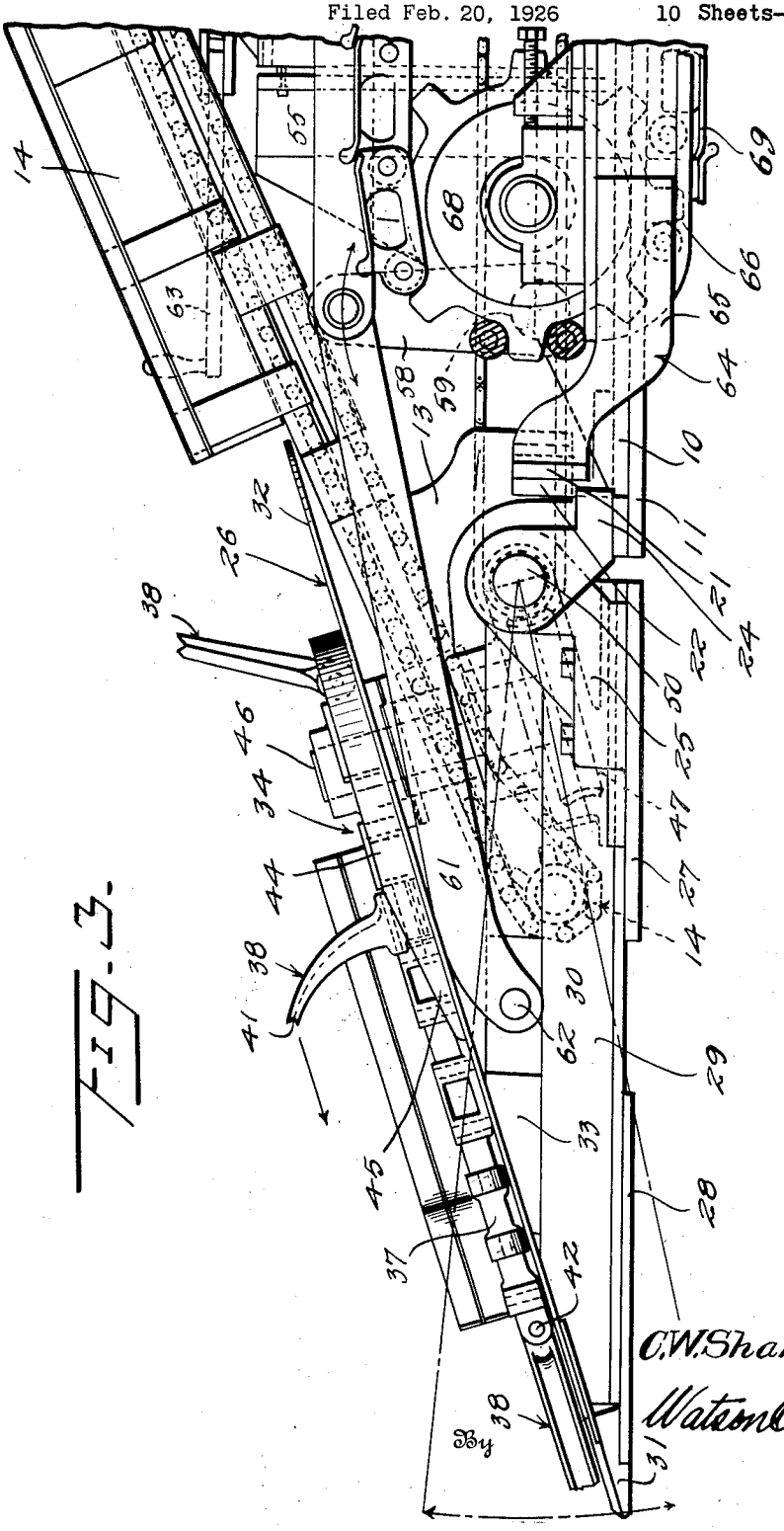


Fig. 3.

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CONVEYER

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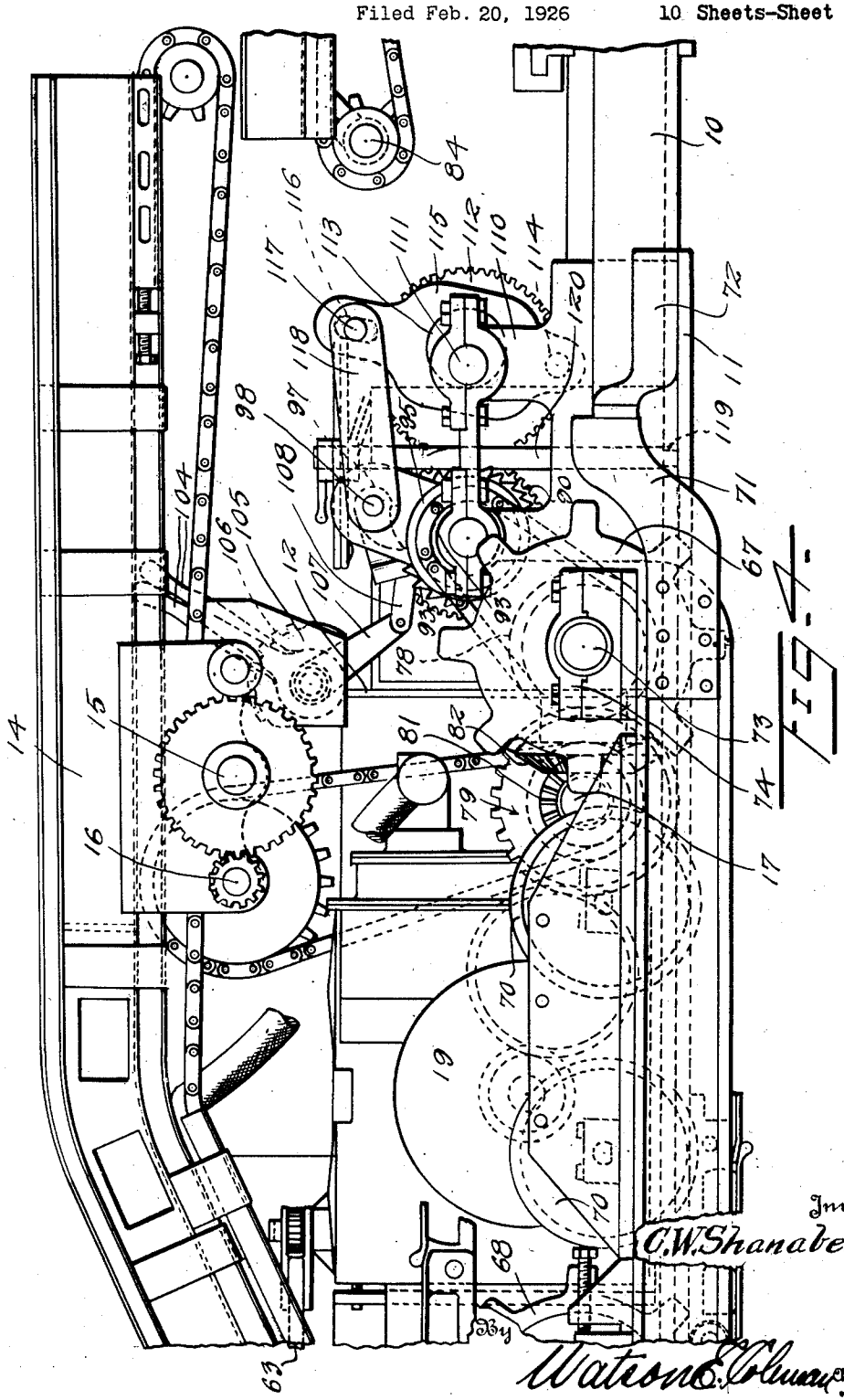


Fig. 4.

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CONVEYER

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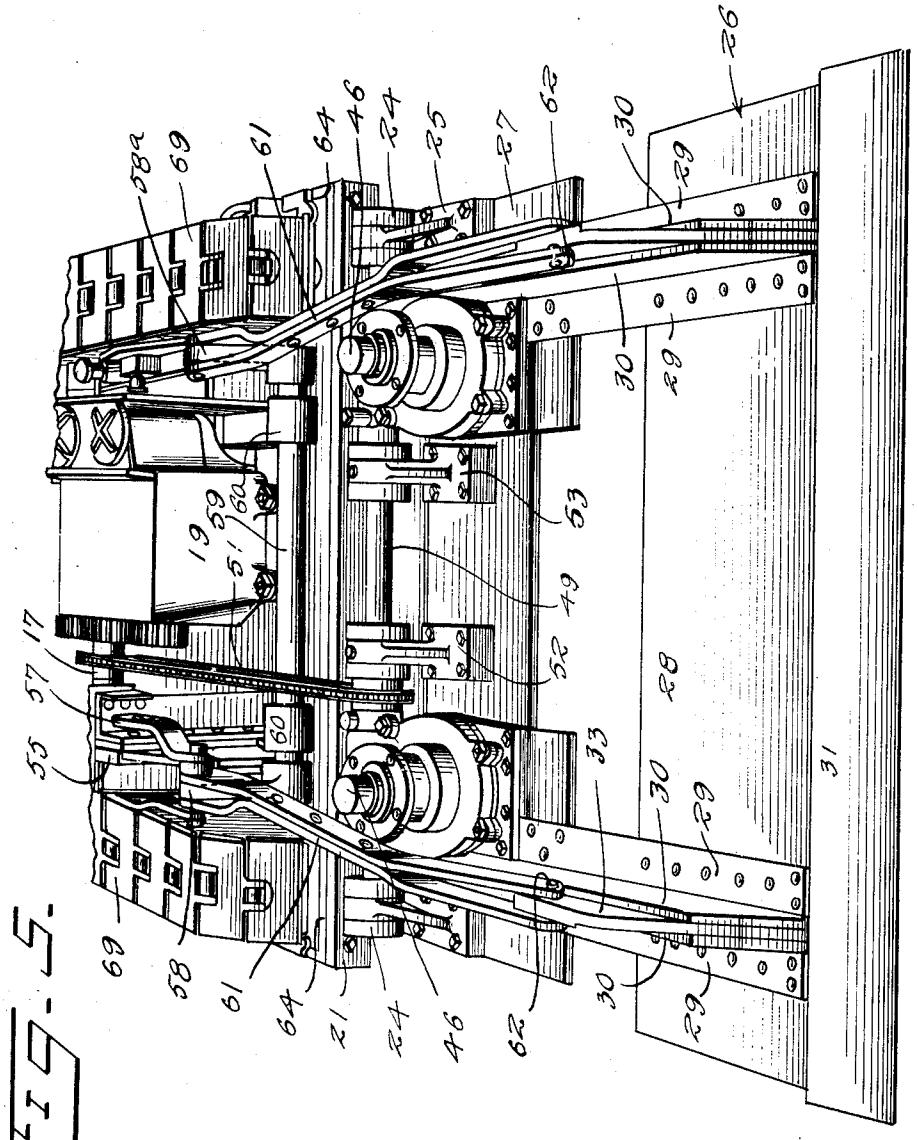


FIG. 5.

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1,680,695

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CONVEYER

Filed Feb. 20, 1926

10 Sheets-Sheet 6

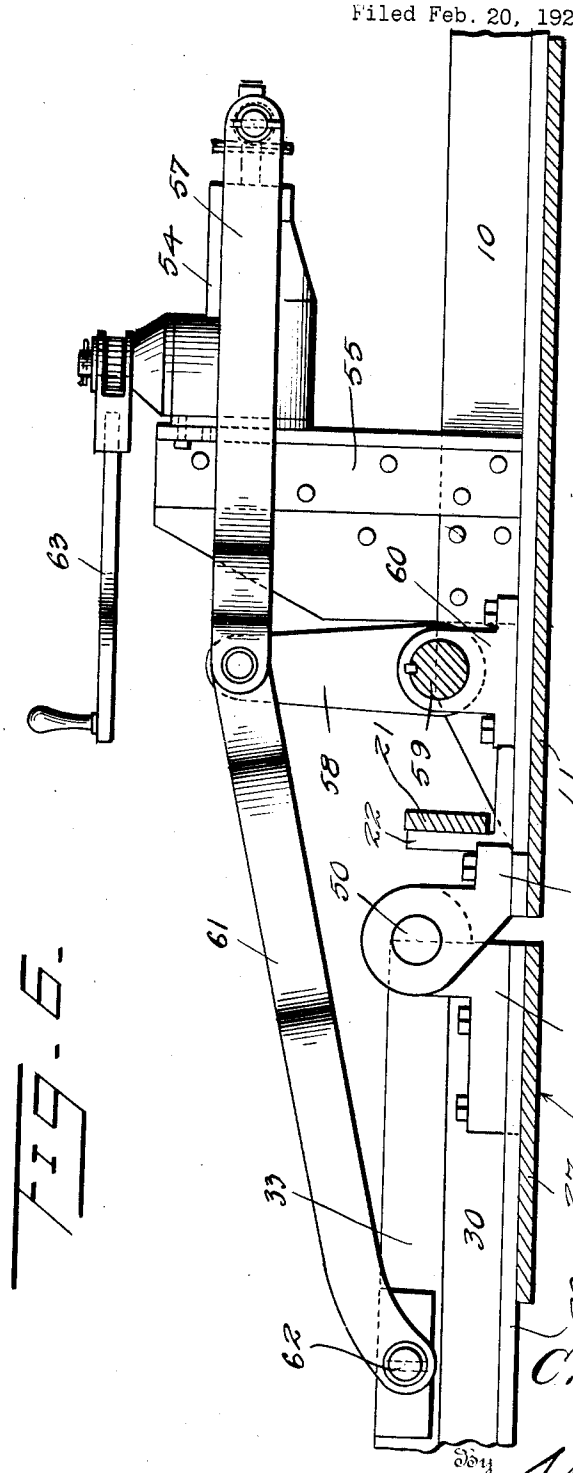


Fig. 6.

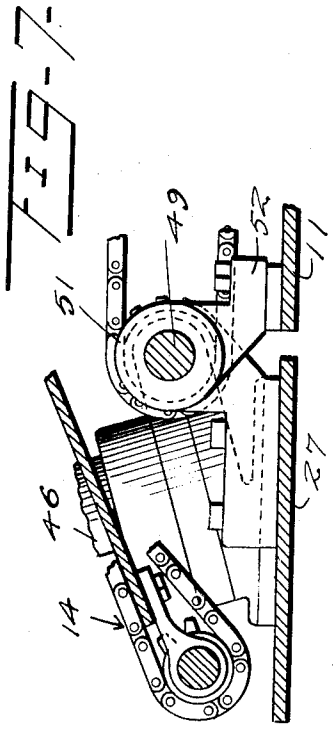


Fig. 7.

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1,680,695

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CONVEYER

Filed Feb. 20, 1926

10 Sheets-Sheet 7

Fig. 8.

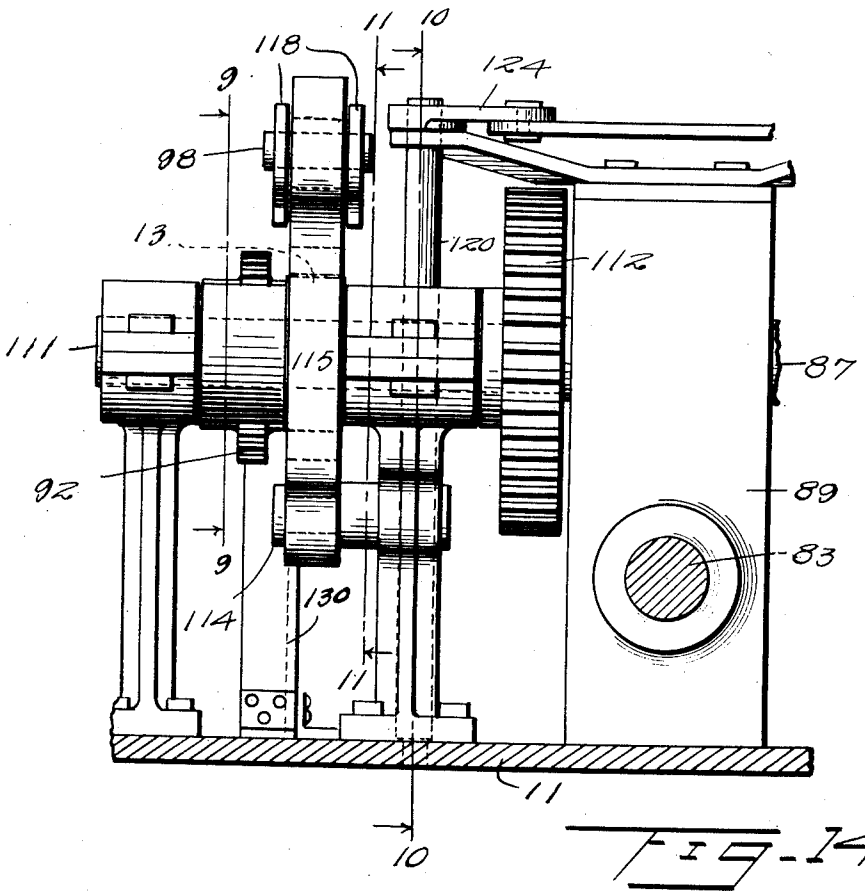


Fig. 14.

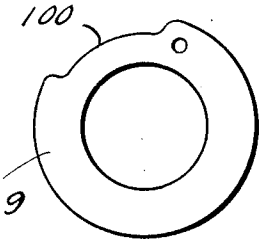
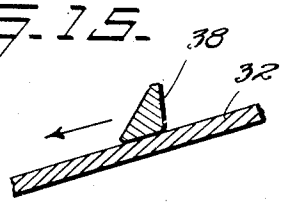


Fig. 15.



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CONVEYER

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Fig. 9.

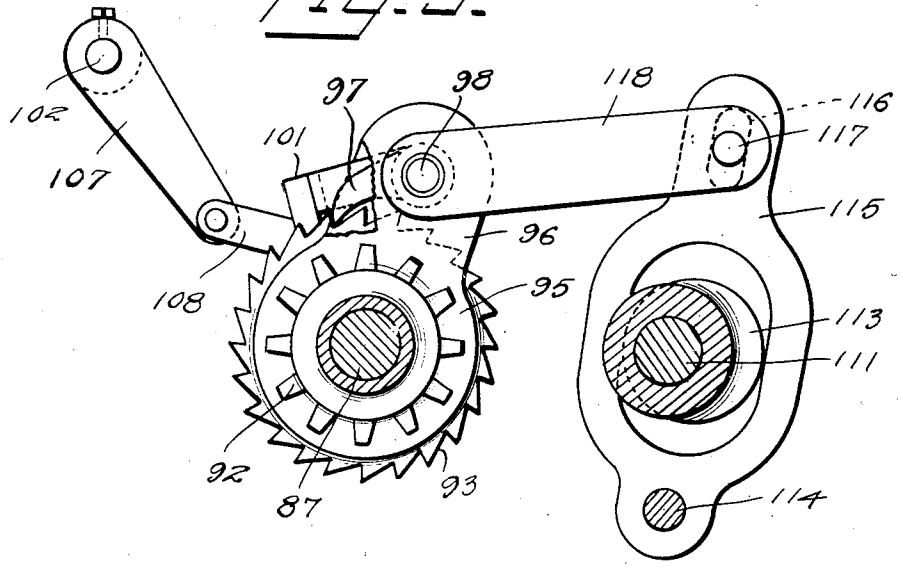
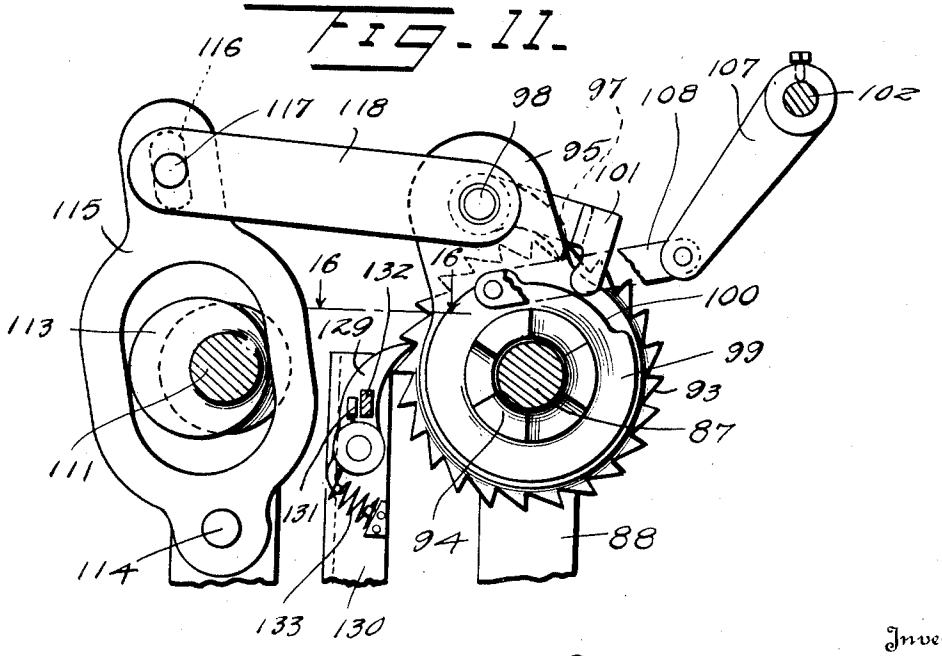


Fig. 11.



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Aug. 14, 1928. 1,680,695

C. W. SHANABERGER

CONVEYER

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Fig. 10.

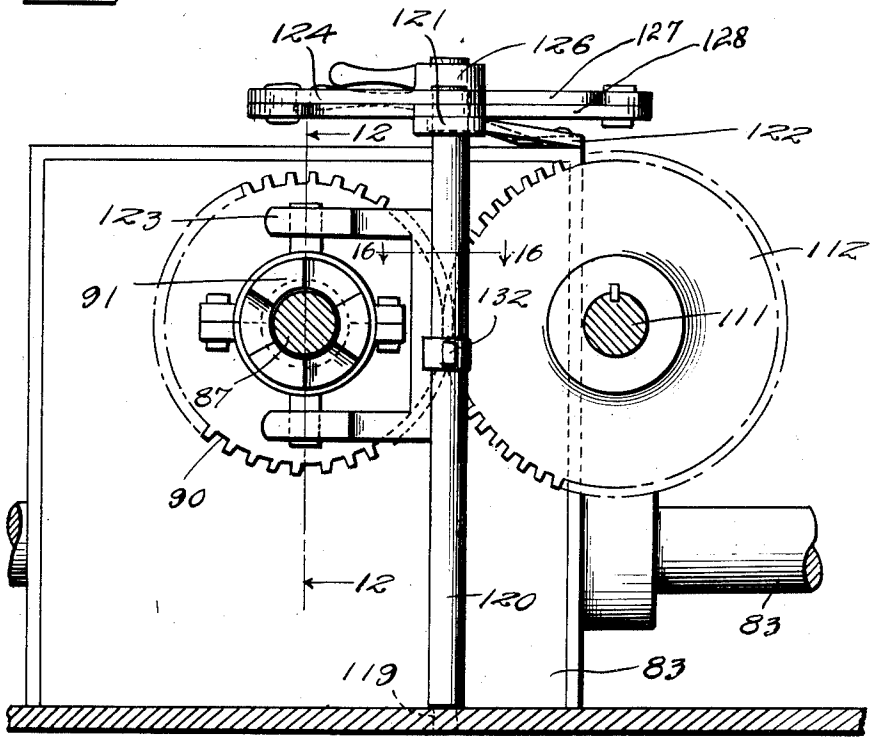
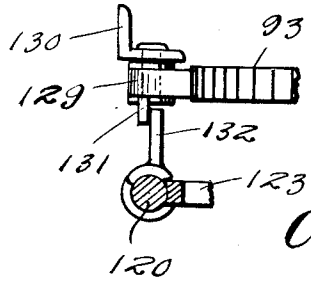


Fig. 16.



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CONVEYER

Filed Feb. 20, 1926 10 Sheets-Sheet 10

Fig. 12.

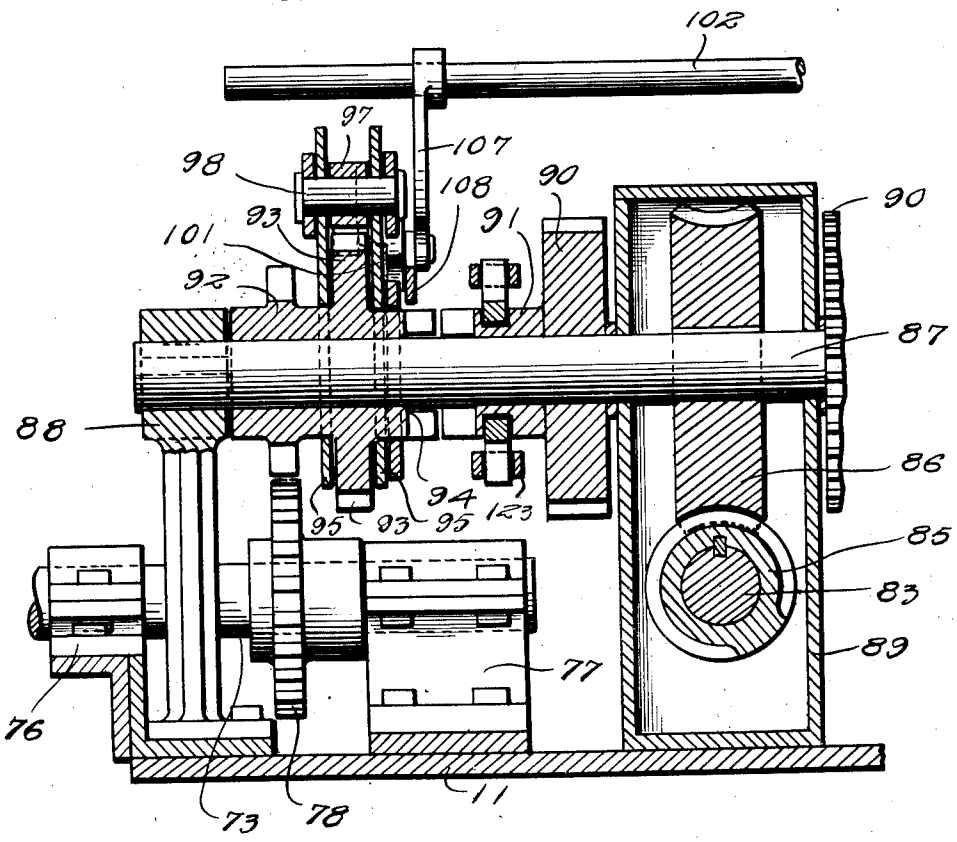
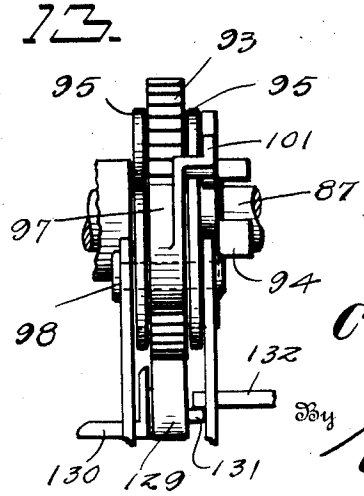


Fig. 13.



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Patented Aug. 14, 1928. 1,680,695

UNITED STATES PATENT OFFICE.

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CONVEYER.

Application filed February 20, 1926. Serial No. 89,743.

This invention relates to conveyers and more particularly to an improvement in that type of loading conveyer shown in my prior Patent, No. 1,569,209, on conveyers, issued January 12, 1926.

An important object of the present invention is to increase the flexibility of the conveyer illustrated in this prior patent and more particularly the flexibility of the shoe or gathering and loading section of the conveyer so that the same may be maintained at all times in proper engagement with the floor.

A further object of the invention is to improve the structure of the shoe with respect to the gathering and loading elements thereof to enable these gathering and loading elements to work in advance of the shoe and remove from the floor of the cut such particles of coal or other material as adhere thereto so that the shoe may be advanced without serious obstruction.

A still further object of the invention is to provide means whereby the gathering and loading elements cleanly disengage from the material which is being loaded as it is positioned for engagement by the conveyer, thereby preventing dragging of a portion of this material from the conveyer as occurred in the structure illustrated in such prior patent and as occurs in similar structures.

A further object of the invention is to provide means for actually forcing the shoe into engagement with the ground or for elevating the shoe so that it is held out of engagement with the ground, which is readily operable and requires no great effort on the part of the operator.

A still further object of the invention is to improve the means controlling the advance of the elevating and lowering structures as a whole so that this structure may be advanced very slowly but at the same time surely into the material which is to be loaded. It is here pointed out that the elevating and loading structure is primarily intended for use in loading coal and that coal as removed from the face of a cut is often deposited in great quantities so that the advance of the machine must necessarily be very slow. At times, the removed material is not completely separated from the face of the cut with the result that as the machine is operating, large portions thereof will fall upon the shoe, necessitating stopping of the forward travel of the machine until this deposit has been removed by the conveyers. It is, of course, at all times necessary that such a machine be made readily movable from one cut to another and the present drive contemplates a structure whereby all of these conditions may be taken care of.

More specifically, it is an object to provide a tractor shifting mechanism for an elevating and loading conveyer of this type and means whereby the tractor mechanism may be advanced through ratchet mechanism which is in itself controllable so that the degree of advance by such ratchet mechanism may be very finely controlled.

A still further object of the invention is to provide a structure of this character wherein the arrangement of the mechanism is such that the entire overall height of the mechanism may be accommodated to the extremely low roofs of soft coal seams. Many of these seams afford only forty inches clearance in which a machine may operate and it will accordingly be obvious that a loading device for use therein must be very compactly arranged.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a plan view partially broken away of the front end of a conveyer constructed in accordance with my invention;

Figure 2 is a similar view of the rear end of the conveyer, the conveying mechanism being broken away to illustrate the drives employed;

Figure 3 is a side elevation of the forward end of a conveyer constructed in accordance with my invention;

Figure 4 is a similar view of the rear end of the conveyer;

Figure 5 is a perspective of the front end

of the conveyer, the conveying mechanism and top plate of the shoe being removed to show the underlying mechanism;

Figure 6 is a section on the line 6—6 of Figure 1;

Figure 7 is a section on the line 7—7 of Figure 1;

Figure 8 is a section on the line 8—8 of Figure 2;

Figure 9 is a section on the line 9—9 of Figure 8;

Figure 10 is a section on the line 10—10 of Figure 8;

Figure 11 is a section on the line 11—11 of Figure 8;

Figure 12 is a section on the line 12—12 of Figure 10;

Figure 13 is an enlarged plan view of the ratchet disk and the associated elements;

Figure 14 is a side elevation of the control cam;

Figure 15 is a section on the line 15—15 of Figure 1;

Figure 16 is a horizontal sectional view on the line 16—16 of Figure 10.

Referring now more particularly to the drawings, the numeral 10 generally designates the angle iron side members of a frame structure, each having the included angle thereof inwardly arranged and having the horizontally disposed angle thereof connected by a series of plates 11 forming a bed for the mechanism. Arising from this structure are supports 12 and 13 for an elevating or central conveyer 14, the forward end of which projects beyond the forward end of the bed structure. The support 12 is of the same type as that employed in my prior patent hereinbefore referred to and includes a mounting for shafts 15 and 16 which, in combination with a shaft 17 mounted in bearings carried by the bed, provides a drive for the conveyer flights 18 of the conveyer 14. The shaft 17 is driven from a motor 19 in a manner hereinafter to be more fully described.

The support 13 is in the form of a bracket mounted at its lower ends upon a transverse bar 21 bolted or otherwise secured to angle brackets 22 secured to the horizontal flanges of the angle iron side members 10 at the forward ends thereof. The upper end of this bracket is rigidly secured to the conveyer structure 14 adjacent the forward end thereof and provides a cantilever support for such front end. The plate 11 at the forward end of the bed projects outwardly beyond the sides of the bed, as indicated at 23, and at its outer ends forms a support for pivot eyes 24. These eyes, together with coacting eyes 25 carried by a shoe, generally designated at 26, provide a means for connecting the shoe to the bed and to the conveyer structure 14.

The shoe 26 includes bed plates 27 and 28 connected adjacent opposite ends thereof by longitudinally extending pairs of angle irons 29 having the vertical flanges 30 thereof opposing one another in slightly spaced relation. The bed plate 28 is rigidly secured at its forward end to a toe plate 31 at the under surface thereof and to the upper surface of this toe plate is secured a cover sheet 32 which extends rearwardly from the toe plate at an upward incline and diverges from the plates 28 and 27. Between the angle bars 29 and more particularly between the vertical flanges thereof a plate 33 is arranged, the upper surface of which projects above the upper surface of the vertical angles 30 and provides a support for the forward end of the cover plate 32.

Arranged upon the upper surface of the cover plate are gathering and loading conveyers, generally designated at 34. These conveyers each include a drive sprocket 35 and idler rollers 36 about which are passed a conveyer chain 37, certain of the links of which have secured thereto gathering arms 38. Each gathering arm 38 includes a shank 39 pivoted to a rigid bracket 40 carried by a link of the chain. These gathering arms have their outer ends formed as cutters, as indicated at 41. The positions of the conveyers upon the shoe and the length of the gathering arms is made such that the ends of these arms project slightly beyond the forward end of the shoe and slightly to one side of the shoe in their travel. The pivots 42 upon which the arms are mounted parallel the cover plate 32. The upper surface of the cover plate is formed centrally with a notch 43 beneath which the forward lower end of the conveyer structure 14 extends to receive coal or other material as it is moved over the surface of the cover plate 32 by the arms 38. These arms 38 are disengaged from the coal when properly placed in alignment with the notch by a cam track 44 corresponding in shaping to the rear end of the conveyer and secured to the cover plate 32. This cam track, the ends of which are beveled, as at 45, elevates the free ends of the arms 38 and finally moves these arms to a substantially vertical position, as more clearly shown in Figure 1. In this position, the arms are maintained until they have moved not only clear of the notch 43 but likewise have completed substantially one-half of their forward or return travel when they are again permitted to come into engagement with the upper surface of the bed plate.

Particular attention is directed to the fact that the arms, during the effective portion of their travel, have nothing to prevent their upward movement under stress as, for example, when the arms come into engagement with an excessively hard surface. Under

normal conditions, however, the arms are held closely in engagement with the upper surface of the shoe by reason of the fact that their forward surfaces are beveled from the bottom to the top (Fig. 15) and accordingly material against which the arm is forcing will not only be moved by the arm but will tend to force the arm downwardly toward the shoe so that these arms serve to remove from the floor all coal which may remain thereon, but will elevate to prevent damage thereto by engagement with unbroken slate or other underlying substances.

The drive for the conveyers 34 is identical with that shown in my prior patent including suitably housed forwardly and upwardly angling shafts 46, the lower ends of which have secured thereto worm gears 47 driven from worms 48 at opposite ends of a transversely extending shaft 49 axially aligned with the pivots 50 connecting the eyes 24 and 25. A sprocket and chain drive 51 is provided for the shaft 49 from the shaft 17 hereinbefore referred to. Between the worms 48, the shaft 49 is pivotally connected to the bed plate 27 of the shoe and the forward plate 11 of the bed by pivot journals 52, 53. It will be seen that the shoe may be pivoted with relation to the bed structure and accordingly with relation to the conveyer 14 with the axis of the shaft 49 as a center and the eyes 25, 24, and the journal pivots 52, 53, as hinges. Adjacent faces of the forward plate 11 and the plate 27 are spaced from one another so that the forward edge or toe plate 31 of the shoe may be dropped as well as elevated, for a purpose presently to appear.

Means are provided for positively shifting the shoe about this axis including a horizontally disposed jack 54 extending longitudinally of the elevating conveyer structure 14 and supported from supports 55 arising from one of the side members 10 of the frame. The head 56 of this jack is connected by links 57 to the upper end of the arm 58 secured at its lower end to a transversely extending shaft 59 mounted in suitable bearings 60 upon the side members 10. The jack 56 and arm 58 referred to are arranged at one side of the machine and adjacent the opposite side thereof the shaft 59 has a second arm 58ª similar to the arm 58. Each of the arms 58 and 58ª are connected by links 61 with the supporting plate 33 hereinbefore mentioned, as at 62. The jack is provided with a suitable operating arm 63 by means of which it may be actuated to either elevate the front end of the shoe 26 or to positively depress the same, as is found desirable. The connections between the jack and shoe preferably provide sufficient play to allow free movement of the toe plate 31 of the shoe through approximately two inches so that this toe plate may adjust itself to slight inequalities without the necessity of resorting to manipulation of the jack.

The ends of the transverse bar 21, hereinbefore referred to, project beyond the side angles 10 and have each secured thereto a bracket 64, each bracket including rearwardly directed spaced arms 65. These arms form supports for the forward ends of channeled side members 66 of a caterpillar unit including drive and idler sprockets 67 and 68, a tread chain 69 and idler rollers 70. The rear ends of these side members are supported from similar brackets 71 which are supported from angular brackets 72, each having one arm secured to the bracket 71 and the second arm thereof secured to the vertical flange of the side angle 10. The drive sprockets 67 are each secured to a shaft 73 journaled in bearings 74, 75 mounted upon the side members and in bearings 76, 77 mounted upon the bed structure. The shafts 73 have each secured thereto a sprocket wheel 78.

The motor 19 has a reduction gearing connection with the shaft 17 including a compound gear 79 rotatable upon the shaft and clutchable by a clutch 80. This compound gear includes a bevel gear 81 which engages with a bevel gear 82 secured to the forward end of a shaft 83 extending longitudinally of the bed structure. This shaft at its rear end preferably provides a drive for a discharge conveyer 84 in the manner described in the prior patent, hereinbefore referred to. This shaft has secured thereto a worm 85 which meshes with a vertically arranged worm gear 86 mounted upon a horizontally disposed shaft 87 extending transversely of the conveyer structure 14. This shaft has its outer ends mounted in out-bearings 88 suitably supported from the bed. A housing 89 is provided for the gear 86 and between the bearings 88 and the housing, each end of the shaft has secured thereto a gear 90 and splined thereto one element 91 of a clutch. Each end of the shaft has further mounted thereon a rotatable combined sprocket and ratchet disk of which the character 92 designates a sprocket and 93 a ratchet disk. The sprockets 92 and 78 are chain-connected, as indicated and each of the combined elements includes a clutch element 94 for coaction with the clutch element 91 splined to the shaft. Rotatably mounted upon the hub portion of this combined unit at opposite sides of the ratchet disk 93 is a pair of disks 95, each having an upwardly projecting arm 96 between the upper ends of which is pivoted a dog 97 upon a pivot 98, the ends of which project outwardly beyond the outer faces of the arms, for a purpose presently to appear.

Likewise rotatably mounted upon this hub portion against the outer face of one of

the disks 95 is a cam plate 99. These cam plates are each in the form of a disk having a peripheral notch 100 of a desired length. The dog 97 has an arm 101, the lower end of which is adapted for engagement with the periphery of the cam disk or within said notch, as the case may be. When the end of the arm 101 is engaged in the notch, the dog is permitted to come into engagement with the teeth of the ratchet and accordingly by shifting the cam plate 99 to alter the positions of the notch 100 with relation to traveling of the dog, effected in a manner hereinafter to be described, the number of teeth through which the dog will advance the ratchet may be controlled. Extending transversely of the machine is a horizontal shaft 102 which, for a portion of its length, is surrounded by a tube 103. The shaft 102 and the tube 103 at one side of the machine are each provided with an operating handle 104 whereby they may be operated, these handles coacting with segments 105 having notches 106 exceeding by one in number the number of teeth of the ratchet disk which may be engaged by the dog when the notch 100 is positioned to permit maximum engagement of the ratchet disk by the dog. When the handle is positioned in one of these notches, the notch 100 of the cam plate is so positioned that the dog has no effective engagement with the ratchet and engagement in the remaining notches determines the number of teeth which are so engaged. The shaft 102 is provided with an arm 107, the lower end of which is link-connected, as at 108, with the cam disk of one of the combined elements while the tube 103 has a similar arm 107^a link-connected to the cam disk of the other combined element, as at 108^a.

Mounted in suitable bearings 109, 110, at opposite sides of the medial line of the machine are shafts 111 paralleling the ends of the shaft 87 and each having mounted thereon a gear 112 meshing with the gear 90 of the corresponding end of the shaft 87 and an eccentric 113 aligning with the corresponding ratchet disk 93. The bearing 110 of each shaft 111 forms a mounting for the horizontal pivot 114 to which is connected the lower end of an eccentric strap 115 for the eccentric 113. The upper end of this strap is in the form of an arm having a vertically elongated slot 116 in which is vertically adjustable a pivot 117 to the ends of which are connected the rear ends of links 118, the forward ends of which engage the pivot 98 of the dog 97. Rotatably mounted at their lower ends in one of the plates 11, as at 119, are vertically extending bars 120 projecting upwardly between each end of the shaft 87 and its coacting shaft 111. The upper ends of these bars are engaged by supporting bearings 121 formed in the ends of a bracket 122 secured to the housing 89 at its center. Each bar 120 has secured thereto a shifting fork 123 for coaction with the clutch element 91 and the upper ends of these bars have each secured thereto an arm 124 whereby they may be rotated. The arm 124 of the bar 120 at that side of the machine at which are arranged the operating handles 104 is formed at its end with a hand grip 125. Upon the bar at this side of the machine is rotatably mounted a bent lever, one arm 126 of which is likewise formed as a handle and the arm 127 of which is similar to the arm 124 of the other of the bars but oppositely directed thereto. The arms 127 and 124 of the last named bar 120 are connected by a link 128 and these connections permit the operating handle 126 to be moved in the same direction as the handle 125 to engage or disengage the clutches. This permits both clutches to be simultaneously engaged or disengaged, as is found desirable.

In the operation of the conveyer, when the same has arrived at the point where the loading is to be effected, the jack handle 63 is operated to move the forward end of the shoe 26 downwardly until the toe comes firmly into engagement with the floor, that is to say, all slack must be taken from the connections 54, 56 and 61, so that the shoe resists elevation from the floor with the weight of the forward end of the conveyer structure. With the shoe in this position, a dip or shallow depression in the floor will be compensated for by dropping of the front of the shoe due to its own weight, thus permitting the machine to pick up cleanly all material on the surface of the floor and because of the construction of the cutting and loading arms 38 to remove from the surface of the floor any coal which may have adhered thereto.

The machine is primarily intended for use in loading coal which has been previously loosened from the face of the wall and which is lying in piles against the face of the wall. Into these piles, the machine is advanced with the conveyers in operation by means of the ratchet control for the tractor mechanism. This control permits a very fine regulation of the operation of the machine. In a machine under test, it was found that the speed of advance by the tractor mechanism, as controlled from the ratchets, could be made as low as four and one-half inches per minute. Where the face of the cut curves, one side of the machine may be very readily advanced more rapidly than the other. If desired, one side may be held stationary and the other side advanced in four and one-half inch steps for each minute of operation. This speed is obtained by setting the mechanism so that but a single notch of the ratchet is engaged by the dog

for each operation thereof and the speed of operation by the ratchet mechanism with the structure at present illustrated may be increased to thirty inches per minute. It has been found absolutely necessary to provide a lower speed of operation for the tractor elements during loading than is practically possible with the gear transmission, as the machine, when advanced too rapidly, chokes from the excessive amount of material collecting upon the shoe. At the same time, it has been found necessary to include a gear transmission for operation of the tractor elements in moving the machine from place to place. The transmission employed in the present structure provides both of these structures and at the same time permits actual construction of the conveyer with an overall height of thirty-four inches, thus permitting its use in low seam mining. While the actual advance per minute will be slow, it is pointed out that this advance will take place in a very short portion of the minute of operation. In other words, the body will move fowardly rapidly, at each operation of a ratchet tooth, through a distance of four and one-half inches. This causes the shoe to act after the manner of a shovel, slipping rapidly beneath the loosened coal so that it has not so much tendency to ride up upon the surface of adhering coal as it would have if it were very slowly but steadily advanced. The motion provided for the machine very effectually simulates the action of a shovel in the hands of a laborer.

It has been found in actual operation, particularly where the machine is ascending a slope, while loading, there is a tendency of the tractor elements to cause a reverse drag upon the sprocket and ratchet mechanism with the result that the machine has a tendency to lag and for this reason, each unit has associated therewith a retaining pawl 129 mounted upon a suitable support 130 arising from the bed of the machine. Each pawl 129 has projecting from the side face thereof a lug 131 which is arranged in the path of an arm 132 carried by the associated bar 120. This arm, as the bar 120 is rotated to engage the sections of the clutch, disengages the hold-back pawl so as to permit the disk to be reversely operated, as when the direction of the motor drive is reversed. When the pawl is released by the arm 132, it is returned to its disk-engaging position by a spring 133.

Attention is directed to the fact that the construction of the drive from the motor permits the conveyers to be completely disconnected therefrom while maintaining the tractor elements in operation and the tractor drive to be employed for one or the other of the caterpillars or for both thereof, as is found desirable. Attention is further directed to the fact that the construction of the elements 38 and of the cam track 44, absolutely prevents circulation of the coal which is deposited in the path of a moving conveyer and not carried on or about the front conveyers 34. Furthermore, since these cutters are constantly urged downwardly by the weight of coal which they are forcing forwardly and since at the forward end of their travel, they operate in the plane of the lower face of the shoe, these elements will always provide in advance of the shoe a clean space into which the shoe may move. It is pointed out that a device of this character will often work its way beneath coal which is partially supported from the wall with the result that this coal drops upon the shoe in considerable quantities. Under such circumstances, it is sometimes desirable that the conveyer mechanism be momentarily reversed to assist in clearing away surplus coal. The structure of the track 44 permits this reversal which is not possible in those conveyers of this general type with which I am familiar. In transporting the device from place to place, the shoe is moved to an elevated position so that there will be no tendency of the same to engage the ground during oscillations of the machine while passing over rough surfaces.

The construction hereinbefore set forth being obviously capable of a certain range of change and modification without materially departing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a portable loading conveyer, a bed, a shoe pivoted to the forward end of the bed and including forwardly converging plates, a conveyer mounted upon the bed and having a forwardly declining end projecting between the plates of the shoe, loading mechanism for the conveyer carried by the shoe, and a drive for the loading mechanism including a shaft forming the pivotal axis for the shoe.

2. In a portable loading conveyer, a bed, a shoe pivoted to the forward end of the bed and including forwardly converging plates, a conveyer mounted upon the bed and having a forwardly declining end projecting between the plates of the shoe, loading mechanism for the conveyer carried by the shoe, a drive for the loading mechanism including a shaft forming the pivotal axis for the shoe, and means supported from the bed and operatively connected with the shoe for shifting the shoe about the pivots thereof.

3. In a portable loading conveyer, a bed, a shoe pivoted to the forward end of the bed and including forwardly converging plates, a conveyer mounted upon the bed and having a forwardly declining end projecting between the plates of the shoe, load-

ing mechanism for the conveyer carried by the shoe, a drive for the loading mechanism including a shaft forming the pivotal axis for the shoe, and means supported from the bed and operatively connected with the shoe for shifting the shoe about the pivots thereof, said means permitting limited independent movement of the shoe with relation to the bed.

4. In a portable loading conveyer, a bed, a shoe pivoted to the forward end of the bed and including forwardly converging plates, a conveyer mounted upon the bed and having a forwardly declining end projecting between the plates of the shoe, loading mechanism for the conveyer carried by the shoe, a drive for the loading mechanism including a shaft forming the pivotal axis for the shoe, a common drive for said shaft and the conveyer arranged upon the bed, means supported from the bed and opertively connected with the shoe for shifting the shoe about the pivots thereof including a rock shaft extending transversely of the bed and having a pair of upwardly extending arms adjacent opposite ends thereof, link connections between each of said arms and the shoe in advance of the pivot shaft adjacent the center thereof and means for rocking the shaft of the bed.

5. In a portable loading conveyer, a bed, a shoe pivoted to the forward end of the bed and including forwardly converging plates, a conveyer mounted upon the bed and having a forwardly declining end projecting between the plates of the shoe, loading mechanism for the conveyer carried by the shoe, a drive for the loading mechanism including a shaft forming the pivotal axis for the shoe, a common drive for said shaft and the conveyer arranged upon the bed, means supported from the bed and operatively connected with the shoe for shifting the shoe about the pivots thereof including a rock shaft extending transversely of the bed and having a pair of upwardly extending arms adjacent opposite ends thereof, link connections between each of said arms, a shoe in advance of the pivot shaft adjacent the center thereof, means for rocking the shaft of the bed including a support arising from the bed rearwardly of the shaft, a horizontally disposed jack extending longitudinally of the bed and secured to said support and a link connection between the head of the jack and the upper end of one of said arms.

6. A drive for the tractor elements of loading machines including a conveyer and loading shoe for the conveyer, said drive including a ratchet disk having driving connection with the tractor mechanism, a slowly reciprocating arm having a pawl for coaction with the ratchet disk during operation of the arm in one direction and means coacting with said pawl for determining the period of engagement of the pawl with the disk during its movement in such direction.

7. In a loading machine, a bed, a conveyer and shoe carried by the bed, the shoe having means for loading the conveyer, tractor elements at opposite sides of the bed, a drive for operating the conveyer and the loading means of the shoe, means for connecting said conveyer elements to said drive including a shaft operated from the drive, a ratchet disk on said shaft for each of said tractor elements and each having a driving connection with its associated tractor element, a pawl bearing arm associated with each disk, means operated from said shaft for slowly reciprocating the arm and means for determining the period of engagement of the pawl with the disk during the effective travel of the pawl bearing arm.

8. In a loading machine, a bed, a conveyer and shoe carried by the bed, the shoe having means for loading the conveyer, tractor elements at opposite sides of the bed, a drive for operating the conveyer and the loading means of the shoe, means for connecting said conveyer elements to said drive including a shaft operated from the drive, a ratchet disk on said shaft for each of said tractor elements and each having a driving connection with its associated tractor element, a pawl bearing arm associated with each disk, means operated from said shaft for slowly reciprocating the arm, means for determining the period of engagement of the pawl with the disk during the effective travel of the pawl bearing arm and means for directly connecting said disks to said shaft.

9. In a loading machine, a bed, a conveyer and shoe carried by the bed, the shoe having means for loading the conveyer, tractor elements at opposite sides of the bed, a drive for operating the conveyer and the loading means of the shoe, means for connecting said conveyer elements to said drive including a shaft operated from the drive, a ratchet disk on said shaft for each of said tractor elements and each having a driving connection with its associated tractor element, a pawl bearing arm associated with each disk, means operated from said shaft for slowly reciprocating the arm, a pawl carried by the arm, a disk rotatably associated with each ratchet disk, the pawl having an extension engaging the periphery of said disk, the periphery of the disk having a notch and means for rotatably shifting said disk with relation to the ratchet disk.

10. In a loading machine, a bed, a conveyer and shoe carried by the bed, the shoe having means for loading the conveyer, tractor elements at opposite sides of the bed, a drive for operating the conveyer and the loading means of the shoe, means for connecting said conveyer elements to said drive including a shaft operated from the drive,

a ratchet disk on said shaft for each of said tractor elements and each having a driving connection with its associated tractor element, a pawl bearing arm associated with each disk, means operated from said shaft for slowly reciprocating the arm, a pawl carried by the arm, a disk rotatably associated with each ratchet disk, the pawl having an extension engaging the periphery of said disk, the periphery of the disk having a notch, means for rotatably shifting said disk with relation to the ratchet disk and means for directly connecting said ratchet disks to the shaft.

11. In a loading machine, a bed, a conveyer and shoe carried by the bed, the shoe having means for loading the conveyer, tractor elements at opposite sides of the bed, a drive for operating the conveyer and the loading means of the shoe, means for connecting said conveyer elements to said drive including a shaft operated from the drive, a ratchet disk on said shaft for each of said tractor elements and each having a driving connection with its associated tractor element, a pawl bearing arm associated with each disk, means operated from said shaft for slowly reciprocating the arm including a short shaft for each ratchet disk and paralleling the first named shaft, a driving connection between the first named shaft and the short shaft, an eccentric carried by each short shaft and straps for the eccentric pivotally supported from said bed, said pawl bearing arm being connected with said strap.

12. In a loading machine, a bed, a conveyer and shoe carried by the bed, the shoe having means for loading the conveyer, tractor elements at opposite sides of the bed, a drive for operating the conveyer and the loading means of the shoe, means for connecting said conveyer elements to said drive including a shaft operated from the drive, a ratchet disk on said shaft for each of said tractor elements and each having a driving connection with its associated tractor element, a pawl bearing arm associated with each disk, means operated from said shaft for slowly reciprocating the arm, including a short shaft for each ratchet disk and paralleling the first named shaft, a driving connection between the first named shaft and the short arm, an eccentric carried by each short shaft, straps for the eccentric pivotally supported from said bed, said pawl bearing arm being connected with said strap and disks rotatably engaged with the hubs of said ratchet disks between which the pawl bearing arm is pivoted.

13. In a loading machine, a bed, a conveyer and shoe carried by the bed, the shoe having means for loading the conveyer, tractor elements at opposite sides of the bed, a drive for operating the conveyer and the loading means of the shoe, means for connecting said conveyer elements to said drive including a shaft operated from the drive, a ratchet disk on said shaft for each of said tractor elements and each having a driving connection with its associated tractor element a pawl, bearing arm associated with each disk, means operated from said shaft for slowly reciprocating the arm, means for directly connecting said disks to said shaft, means for preventing reverse rotation of said disks rendered inoperative by operation of said means for directly connecting the disks to the shaft.

In testimony whereof I hereunto affix my signature.

CHARLES W. SHANABERGER.