

[54] RAIL ANCHOR APPLICATOR WITH AUTOMATIC CYCLE AND LOADING MECHANISM

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[52] U.S. Cl. 104/17 A

[51] Int. Cl. E01b 29/32

[58] Field of Search 104/17 A, 17 R; 173/90

[56] References Cited

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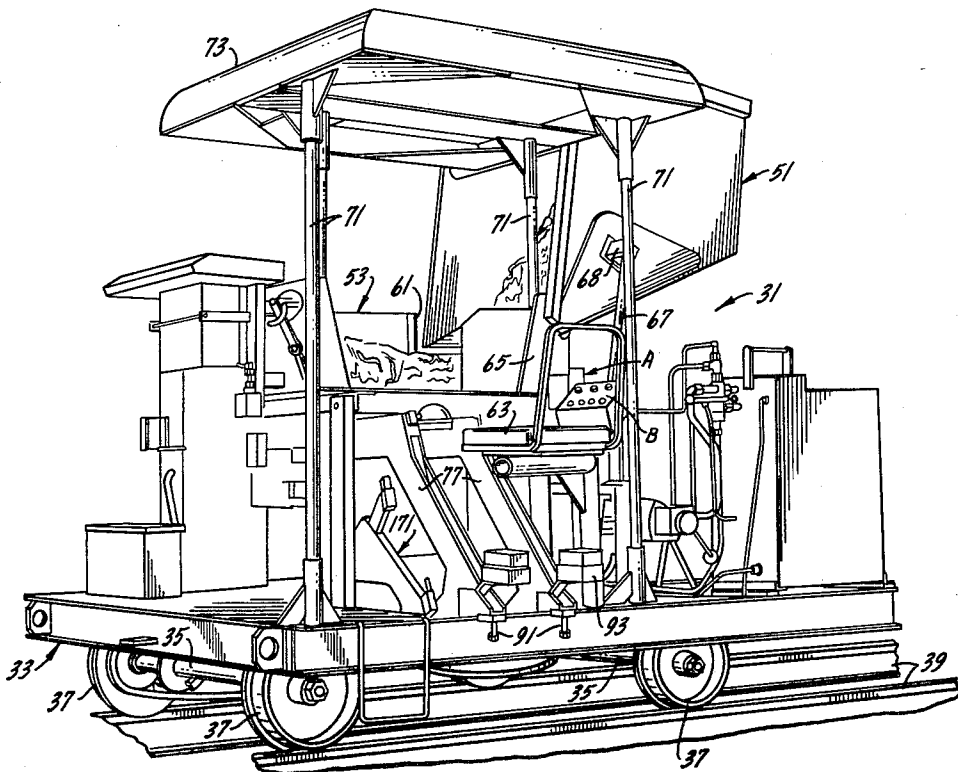
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[57] ABSTRACT

A machine for applying rail anchors to a rail selectively on either one or two sides of a tie. The machine has an automatic operating cycle which requires the operator only to move the machine to a selected tie, drop the required number of rail anchors into chutes and start the automatic cycle. As part of the automatic cycle, the machine applies the anchors to the rail and then pick up another set of anchors from the chutes. A supply of anchors are stored in a bin which can be easily loaded from the outside of the machine. The bin can be tilted to dump rail anchors into a working bin which is accessible to the operator and from which he selects anchors to be placed in the chutes.

12 Claims, 15 Drawing Figures



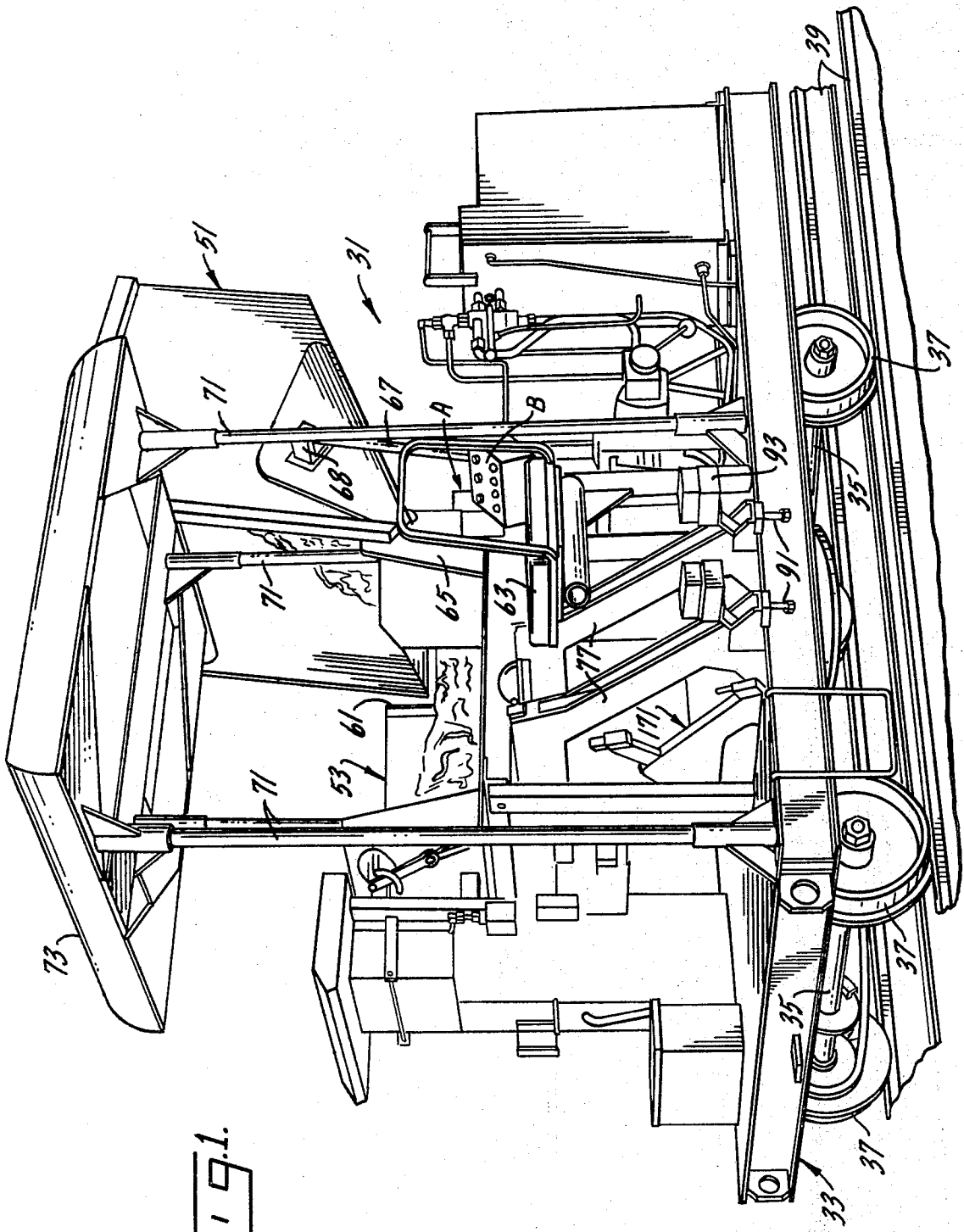


FIG. 1.

FIG. 2.

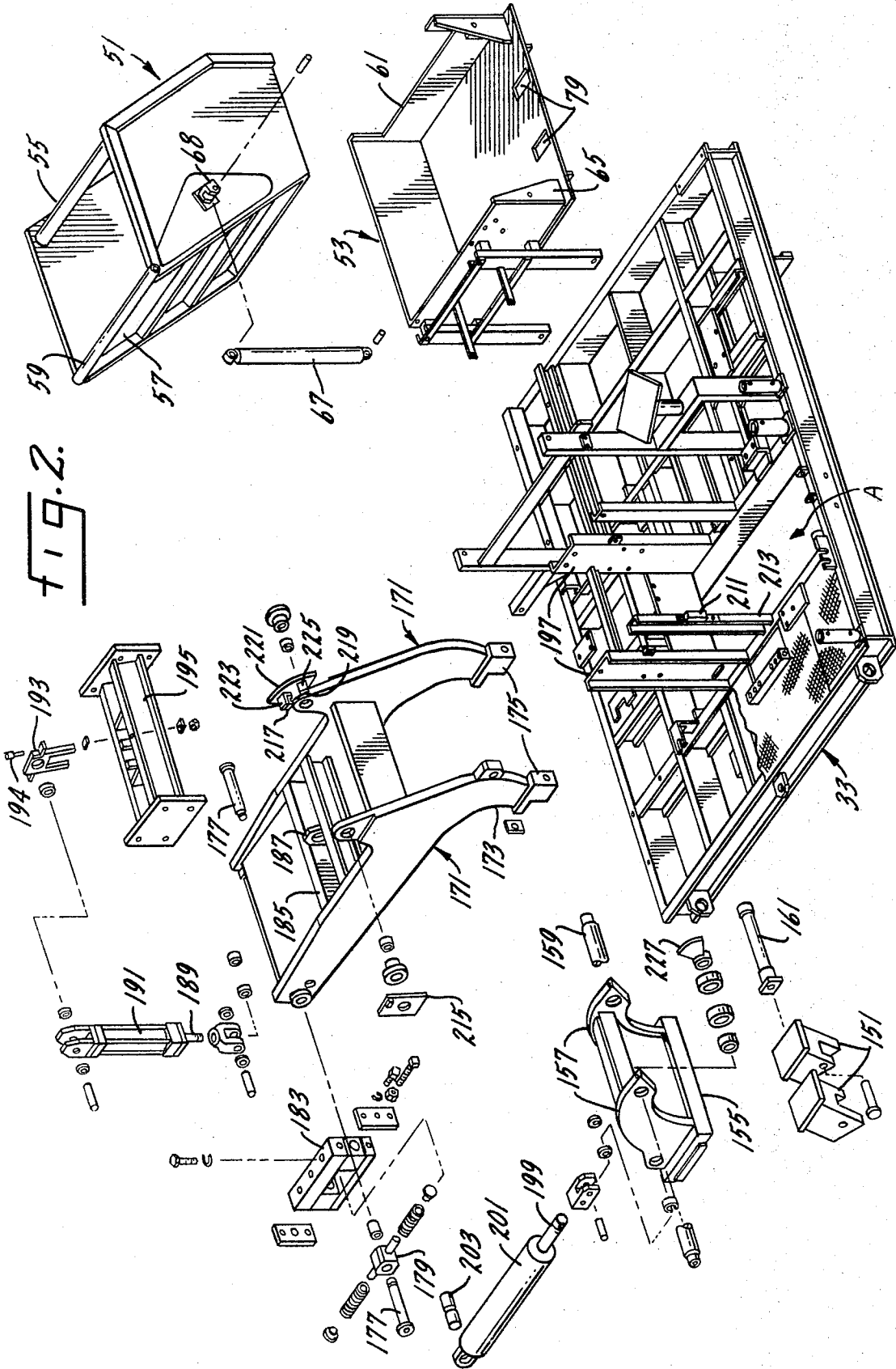
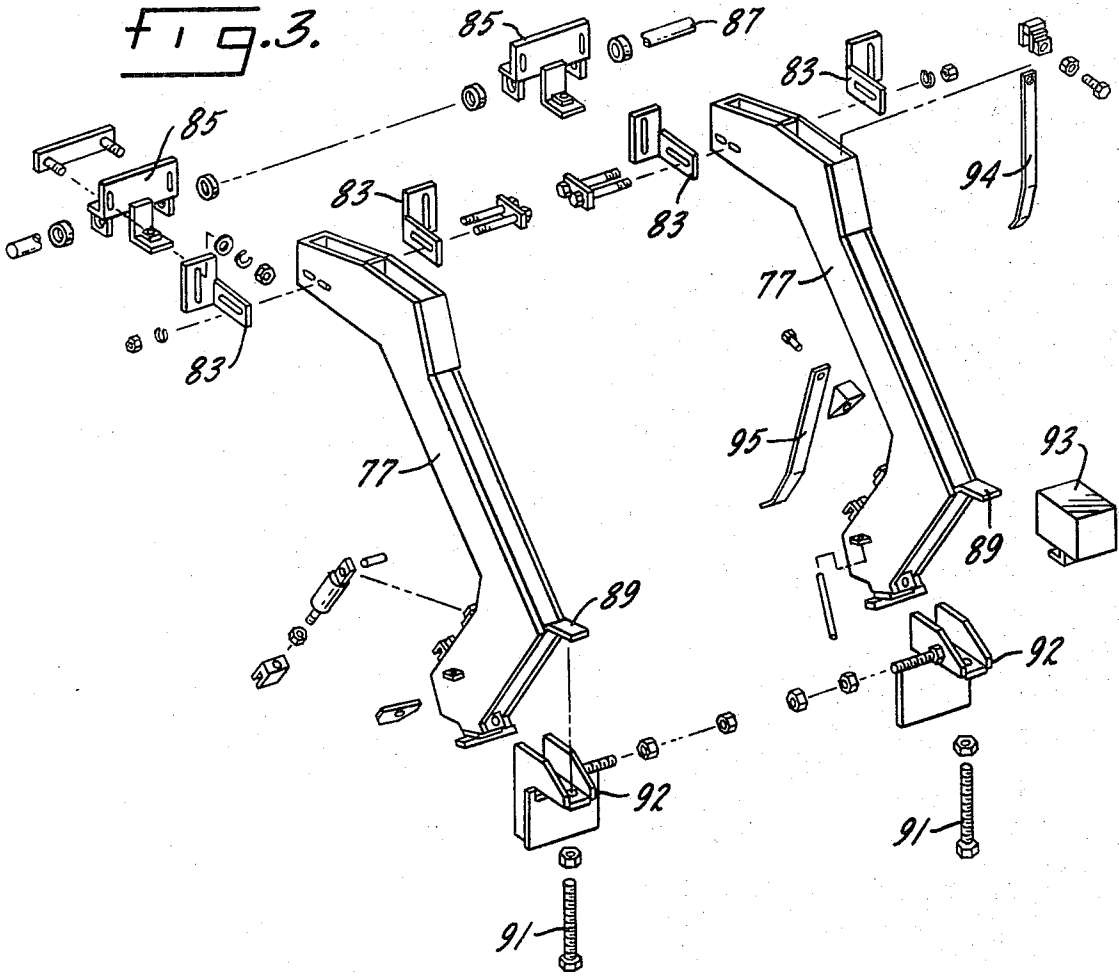
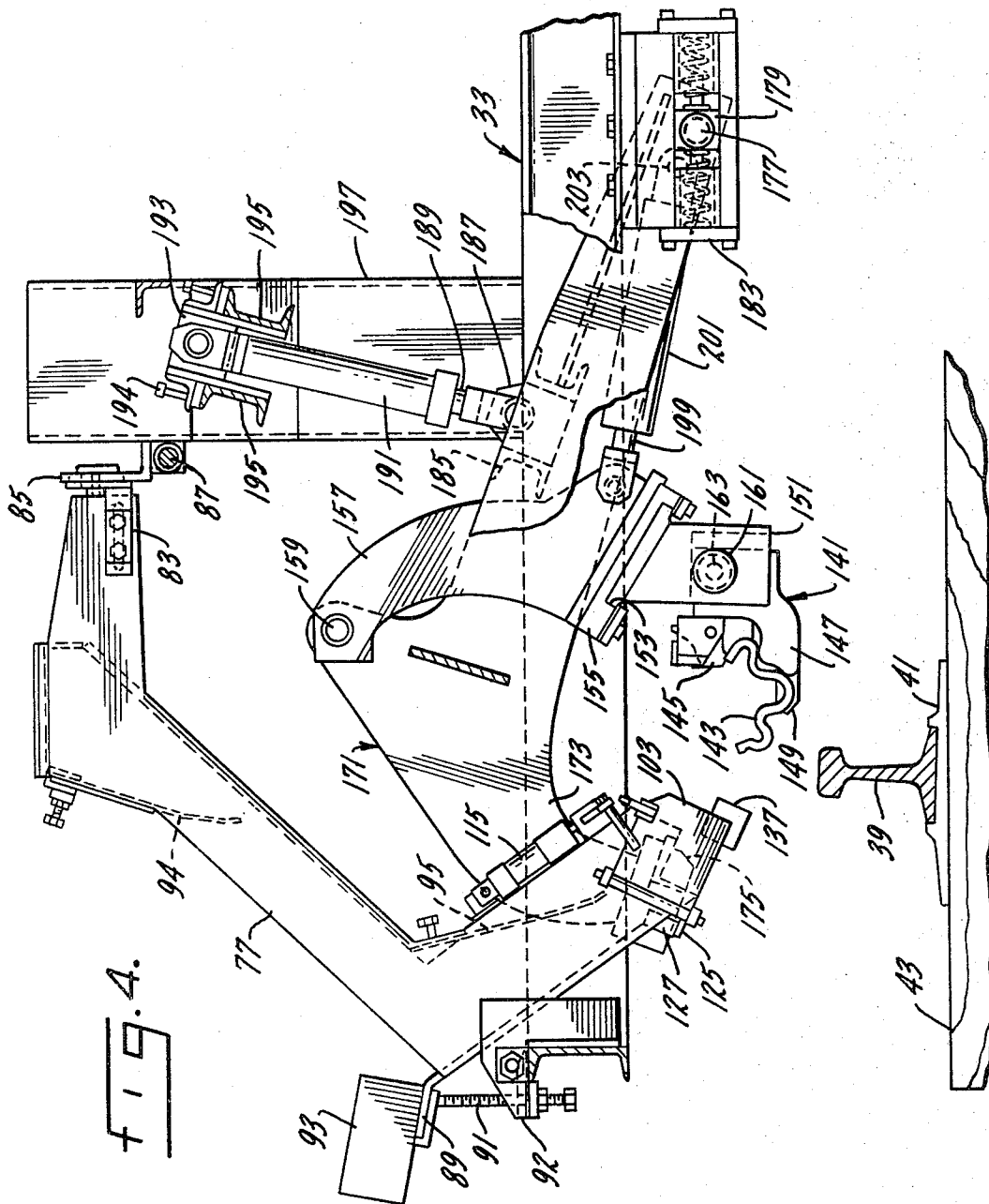


FIG. 3.





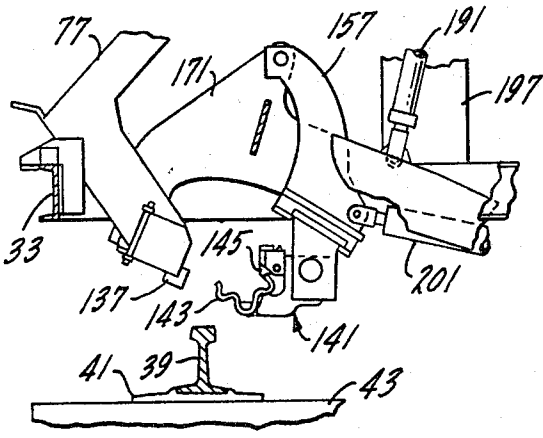


fig. 5.

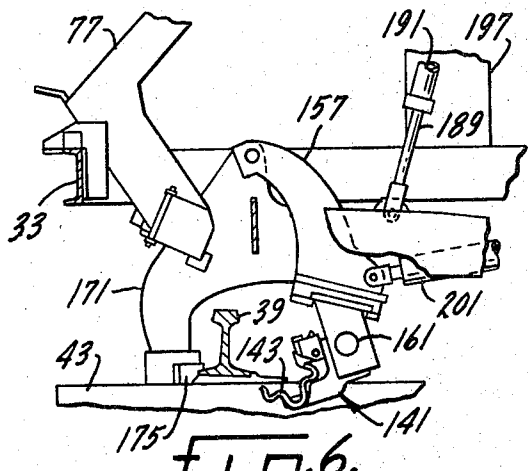


fig. 6.

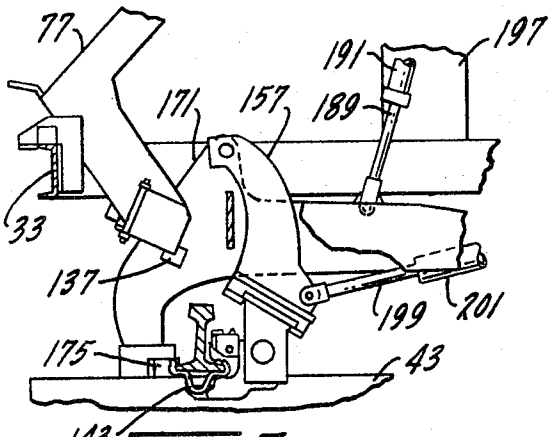


fig. 7.

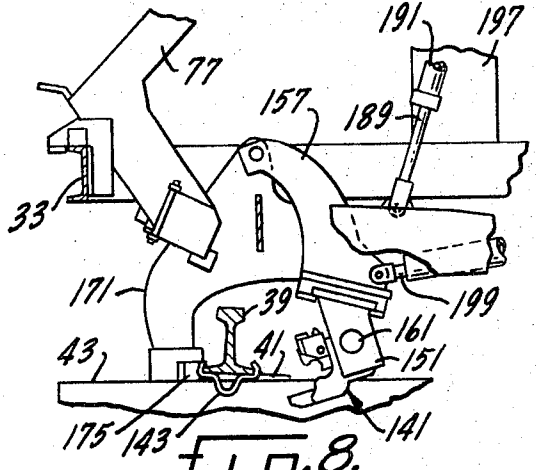


fig. 8.

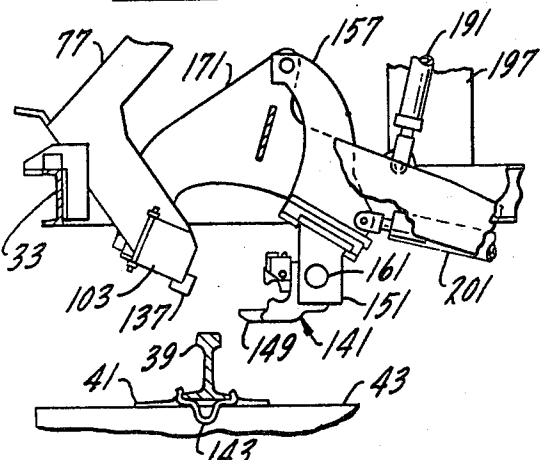


fig. 9.

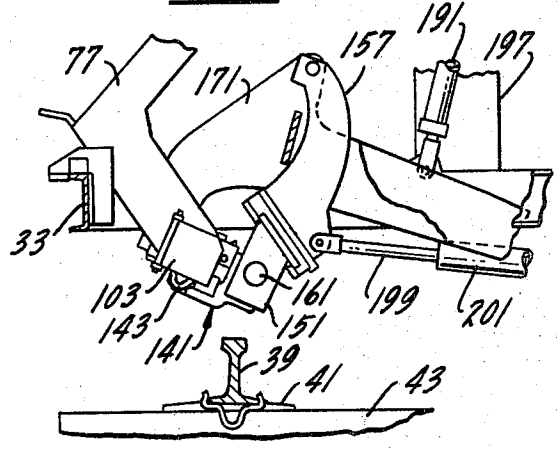


fig. 10.

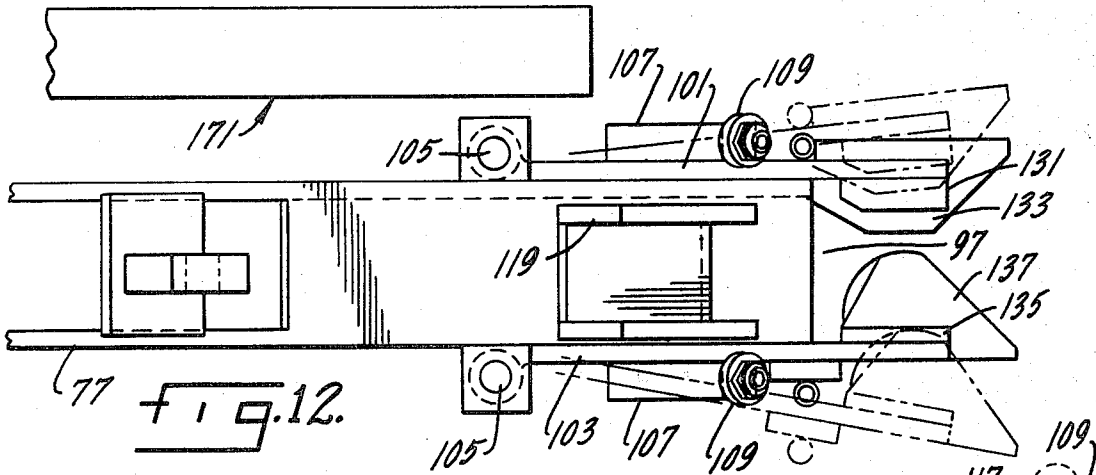


fig. 12.

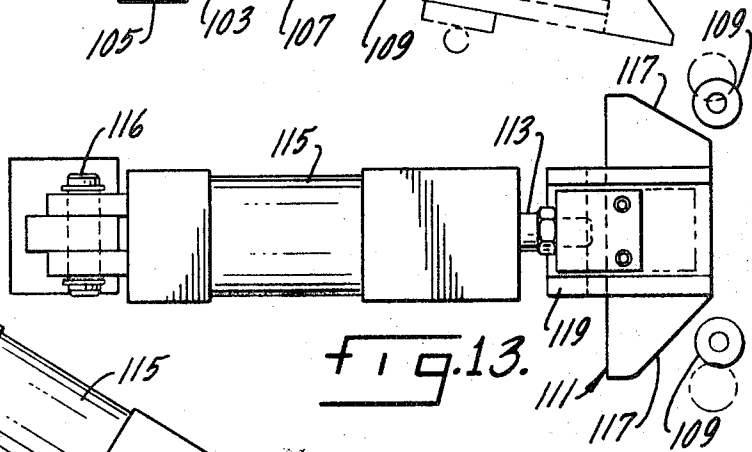


fig. 13.

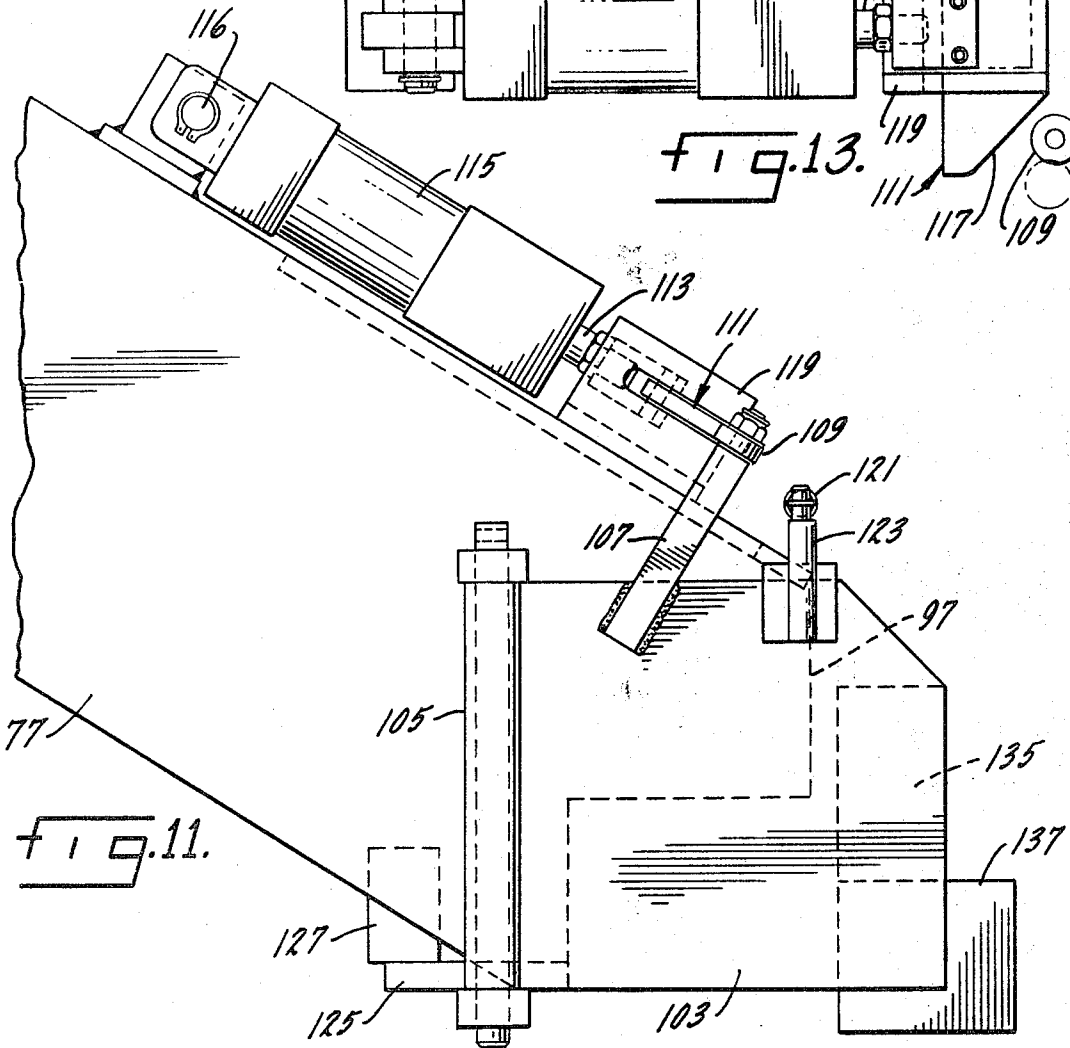
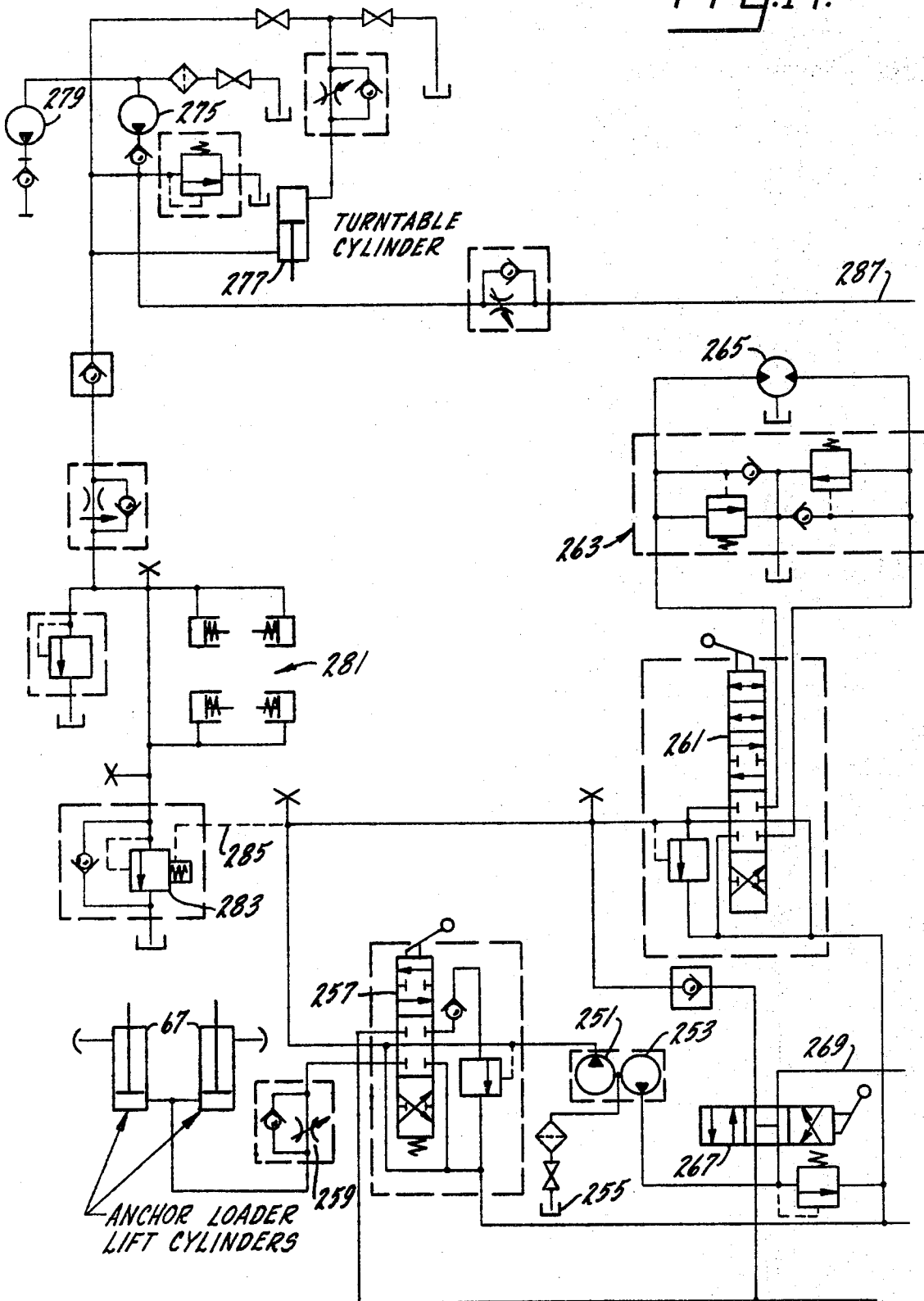
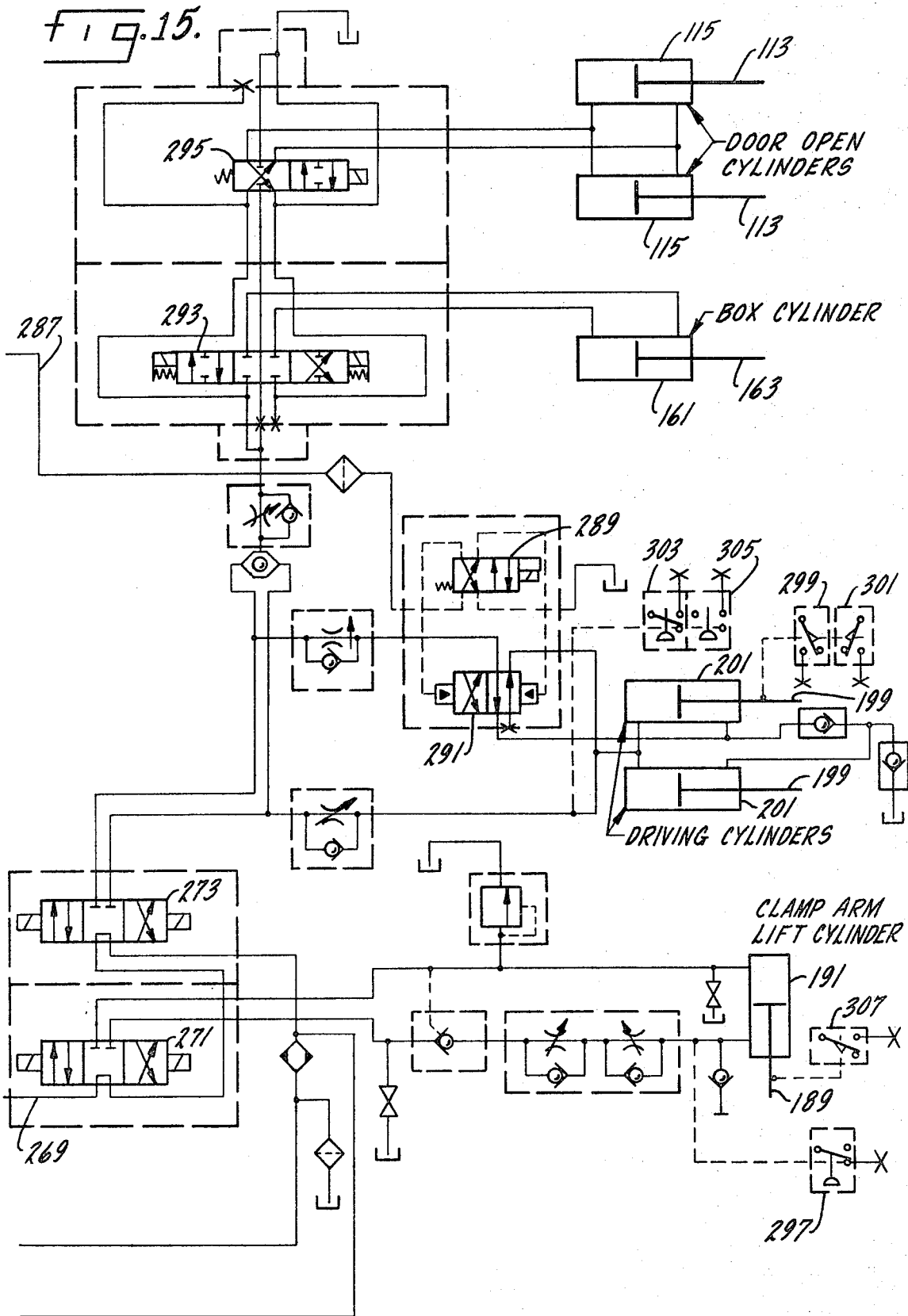


fig. 11.

FIG. 14.





RAIL ANCHOR APPLICATOR WITH AUTOMATIC CYCLE AND LOADING MECHANISM

SUMMARY OF THE INVENTION

This invention is directed to a rail anchor applying machine and more particularly to such a machine having an automatic cycle of operation.

An object of this invention is a rail anchor applying machine which requires the operator only to place either one or two anchors in chutes, move the machine to the desired tie and actuate a switch to apply the anchors and pick up another set of anchors from the chutes.

Another object is a machine of the above type which can be operated by one man.

Another object is a rail anchor applying machine having a large storage bin for rail anchors which can be easily loaded from the outside of the machine.

Another object is a rail anchor applying machine in which the operator can easily transfer rail anchors from a large storage bin to a working bin.

Another object is a rail anchor applying machine in which the operator is seated directly above the portion of the rail to which the anchors are being applied.

Another object is a rail anchor feeding chute in which the anchors are maintained in proper orientation.

Another object is a rail anchor applying machine which can be easily modified to handle different types of rail anchors.

Another object is a rail anchor applying machine which can apply either one or two rail anchors at a time.

Other objects may be found in the following specification, claims and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is illustrated more or less diagrammatically in the following drawings wherein:

FIG. 1 is a perspective view of a rail anchor applying machine embodying the novel features of this invention;

FIG. 2 is an exploded perspective view of a portion of the machine of FIG. 1;

FIG. 3 is an exploded perspective view of the rail anchor chutes of the machine;

FIG. 4 is an enlarged partial end elevational view of the rail anchor applying mechanism with certain parts in section;

FIGS. 5 through 10 are reduced side elevational views similar to FIG. 4 showing the sequence of operations of the mechanism;

FIG. 11 is an enlarged partial end elevational view of a rail anchor chute and holding mechanism;

FIG. 12 is a partial top plan view of part of FIG. 11;

FIG. 13 is an enlarged top plan view of the hydraulic cylinder of FIG. 11;

FIG. 14 is a schematic view of one portion of the hydraulic circuitry of the machine;

FIG. 15 is a schematic view of the remaining portion of the hydraulic circuitry;

DESCRIPTION OF THE PREFERRED EMBODIMENT

A rail anchor applying mechanism embodying the

novel features of this invention and mounted on a car 31, which may be self-propelled, is shown in perspective in FIG. 1. The car includes a frame 33 mounted in a suitable manner on axles 35 and wheels 37 which ride on rails 39. As shown in FIG. 4, the rails 39 rest on tie plates 41 attached to the ties 43 in the conventional manner.

Mounted on the frame 33 are a rail anchor storage bin 51 and a rail anchor working bin 53. The rail anchor storage bin is positioned near one end of the frame 33 so it is accessible from the exterior of the car. The side 55 of storage bin 51 facing the end of the car is partially cut away to permit filling of the bin with rail anchors from the exterior of the car closer to ground level. The side 57 opposite to the cut away side slopes in the direction of the working bin. The bin is pivoted about a tubular axle or pivot 59 located at the top of the sloping side thereof.

The rail anchor working bin 53 has a side 61 adjacent to the storage bin which is partially cut away to permit the rail anchors from the storage bin to be dumped into the working bin. An operator's seat 63 may be positioned in an operator's station A on one side of the rail anchor working bin 53, as shown in FIG. 1, and the wall 65 of the bin on this side is cut away to permit operator access to the rail anchors held in this bin. Hydraulic cylinders 67 are pivotally connected at one end to brackets 68 on opposite sides of the storage bin and to the frame on their other end for tilting the storage bin about the pivot 59. Posts 71 mounted on the frame 33 support a roof or canopy 73 which covers the rail anchor working bin 53 and the operator's seat 63.

Rail anchor chutes 77 are mounted on the frame 33 and are fed from the rail anchor working bin 53. Opening 79 located in the floor 81 of the working bin 53 (FIG. 2) lead into and are aligned with the upper end of the chutes. As shown in FIGS. 3 and 4, the chutes are adjustably connected adjacent their upper ends to an angle or bracket 83 which is adjustably connected to another angle or bracket 85 which is journaled to a pivot 87 extending longitudinally of the machine. The chutes are each supported adjacent their lower ends on a seat 89 which rests on a threaded rod 91 extending through a bracket 92 mounted on the frame 33. Each chute is held against its seat by a weight 93 and its own weight. Therefore, each chute is free to pivot somewhat about its upper pivot 87 independently of the other chute. Thus, in use, if either chute is contacted or struck by a moving object, for example, the rail anchor applying tools to be described in detail later, it may flex or yield independently of the other chute. Leaf springs 94 and 95 are provided respectively in the upper and lower ends of each chute to maintain orientation of the rail anchors as they slide down to the chutes and to slow down or dampen their fall.

Attached to the lower end of each rail anchor chute 77 on each side of the discharge opening 97 in FIGS. 11 - 13 are doors 101 and 103. Each door is connected to the side of the chute by a pivotal connection 105. An arm 107 extends above each door and carries a roller 109 which engages double sided cam 111 carried by a piston rod 113 of a hydraulic cylinder 115 pivotally mounted at 116 on the chute 77. The opposite edges or faces 117 of the cam engage the rollers 109 of doors and are guided in movement by a guide block 119 mounted on the chute 77. The doors are biased closed by a spring 121 attached to uprights 123 on the doors.

A bottom plate 125 extends across the discharge opening 97 of each chute. An anchor back stop 127 is attached to each chute and rests on the bottom plate 125. Door 101 has an end member 131 and an anchor support member 133 on the inside thereof. Likewise, door 103 has an end member 135 with an anchor support portion 137 on the inside thereof.

A pair of rail anchor applicators or so-called tooling 141, shown in FIG. 4, are provided to install rail anchors 143, one on each side of a tie 43. The applicators or tooling are right and left hand or mirror images of each other. Similar structure is shown in copending application Ser. No. 874,498, filed Nov. 6, 1969, now U.S. Pat. No. 3,722,422, issued Mar. 27, 1973 applicator or tooling is provided with an upper pivotally mounted detent 145, a lower support member 147 and a lower support finger 149. Each applicator 141 removably connected to a jaw 151 which is slidably mounted in a groove 153 of a support guide member 155. The support guide member includes a pair of spaced arms 157 connected at their upper ends to a shaft 159. A hydraulic cylinder 161 is connected to the outside of one of the sliding jaws 151 and a piston rod 163 extends through this jaw to connect to the other jaw 151.

Shaft 159 is mounted on back up arms 171 which include hook-like, curved, lower end portions 173 having flange engaging members 175. The arms are connected at their inner ends to a shaft 177 which is journaled at its opposite ends in sliding, bearing blocks 179. The bearing blocks are spring biased from opposite sides in housings 183 as explained in U.S. Pat. No. 3,722,422.

Mounted on channels 185 extending between the arms 171 is an eye 187. Pivotaly connected to the eye is a piston rod 189 of a hydraulic cylinder 191. The opposite end of the hydraulic cylinder is pivotaly connected to a vertically slidable support 193. The slidable support is mounted by guide bolts 194 between channel members 195 which are connected to uprights 197 attached to the frame 33. Piston rods 199 are pivotaly connected to the lower portions of the guide support arms 157. These piston rods extend from hydraulic cylinders 201 which are pivotaly connected at 203 to the back-up clamping arms 171.

As shown most clearly in FIG. 2, a proximity limit switch 211 is mounted on an upright 213 attached to the frame 33. A switch actuating plate 215 is attached to the shaft 159 adjacent a back-up clamping arm 171. This switch is actuated by the plate 215 when the back-up clamping arms move to their fully elevated position which is shown in FIG. 4.

Other position indicating switches 217 and 219 in the form of light emitting diodes and photo transistor receivers are mounted on a fan-shaped support 221 by means of brackets 223 and 225. The support 221 is attached to the back-up clamping arm 171 opposite the arm carrying plate 215. A fan-shaped shield 227 is affixed to the shaft 159 for rotation therewith to indicate the position of the guide support arms 157. The shield is sized and positioned so as to block the light emitting diode of one of the switches 217 and 219 when the guide support arms 157 are in their fully retracted positions relative to the back-up clamping arms 171 and to interrupt the light emitting diode of the other switch when the guide support arms have moved through an arc of, say, 5° towards the back-up clamping arms.

The use, operation and function of this invention are as follows:

The machine is shown, for purposes of illustration, for use with rail anchors of the type known as the "Woodings" rail anchor. A rail anchor 143 of this type (FIG. 4) consists of three U-shaped portions connected together with the center U-shaped portion being larger than the other two. The machine may also be adapted for use with other types of rail anchors. So the invention is not limited to the specific embodiment of the apparatus shown herein.

Rail anchors are usually applied on each side of a tie, commonly referred to as boxing, and this machine is designed for simultaneous installation of two such anchors in this manner, although it may be used to apply only one at a time. If an anchor is to be installed on only one side of a tie, this is accomplished by not supplying a rail anchor to one of the applicators or tooling 141.

The operation and function of the apparatus can probably best be understood by reference to the circuit and hydraulic diagrams shown in FIGS. 14 and 15 in which two pumps 251 and 253 are suitably driven by a prime mover, not shown, such as a gasoline or diesel engine to provide propulsion and operating fluid for various cylinders, etc. One pump 251 may be smaller than the other and for example may have a capacity of, say, 9 gallons per minute while the other 253 may have a capacity of, say, 20 gallons per minute and supplied with hydraulic oil from a source or sump 255. The smaller pump 251 supplies oil through a selector valve 257 which may be manually operated at the operator's station A to supply oil through a variable restriction 259 to the lift cylinders 67 so that the operator, by manually operating valve 257, may raise the loader 51 to dump more anchors into the main supply bin or storage 53. Selector valve 257 may also be positioned to supply fluid to another selector valve 261 which may be manually operated or otherwise at the operator's station A, to supply oil from the small pump to a conventional drive 263 which may include a hydraulic motor 265 connected to turn the wheels. While the machine is applying anchors and moving in step-by-step fashion from one tie to the next, the smaller pump may be used for propulsion since no great speed is required. Another selector valve 267 at the operator's station A may be used to connect both the large and the small pump to the drive 263 so that when rapid travel is desired, such as at the end of the day on the way home, the drive motor may receive maximum output.

Selector valve 267 may also be positioned to supply oil to the lines, valves, cylinders, etc., shown in FIG. 15 through a connection 269 which is initially controlled by solenoid valve 271 which is also connected to a second solenoid operated valve 273. Valve 271 supplies the fluid to the clamp arm lift cylinder 191 while valve 273 supplies oil to the driving cylinders 201, the boxing cylinder 161, and the door open cylinders 115.

Returning to FIG. 14 a small pump 275, say 2 gallons per minute, and driven by the prime mover, may also supply oil to a turntable cylinder 277, not shown in the previous drawings, with a suitable connection to an emergency hand pump 279 so that the entire mechanism can be raised for run off in the event of a power failure. Pump 275 also supplies fluid to conventional brakes 281 on a so-called dead man or failsafe basis with the output therefrom controlled by a pilot oper-

ated valve 283, the pilot connection being shown at 285, so that as pump 251 is propelling the unit, pilot oil through 285 will open valve 283 to drain the oil from auxiliary pump 275 away from the brakes 281. But as soon as propulsion stops valve 283 will close which will cause the full pressure of pump 275 to operate the brakes.

Oil from the auxiliary pump 275 is also fed through a cross connection 287 to a solenoid auxiliary valve 289 which directs the pilot oil to either side of a main control valve 291 which in turn directs the main oil supply from valve 273 to either one side or the other of the driving cylinders 201.

A solenoid valve 293 controls the oil supplied to the boxing cylinder 161 as does a solenoid valve 295 to the door open cylinders 115.

The so-called ready position of the machine is shown in FIG. 5 in which the tools are holding anchors with the driver arms 157 withdrawn and the entire mechanism is up. When the operator starts the automatic cycle the first movement is for the clamp arm cylinder 191 to lower the clamp arms to the FIG. 6 position. When the ends 175 of the clamp arms hit the far side of this rail base, as shown in FIG. 6, pressure will be relieved from the rod side of the clamp arm cylinder 191 which will be detected by pressure switch 297 in FIG. 15 which operates solenoid valve 273 causing driving cylinders 201 to move the tooling in to apply the anchors to the rail base — from the FIG. 6 to the FIG. 7 position. By the connections to the driving cylinders 201 in FIG. 15 it will be noted that a regenerative cycle is used so that oil will be supplied to both sides of the pistons from the supply during the initial movement in applying the anchor. At a certain point a limit switch 299 changes the position of valve 291 so that oil thereafter will only be supplied to the non-rod side of cylinders 201 which will result in quite slow movement but with a high thrust for total force at the end of travel or when the anchors are actually being applied to the rail base. Another limit switch 301, also tripped by the movement of the piston rods 199, may energize valve 293 to cause the boxing cylinder 161 to start boxing.

During the rail anchor applying movement of cylinder 201 to apply the rail anchors, it may well be that the rail anchors and tooling will hit the stones or a skewed tie or the rail anchors may be improperly held in the tooling so that the forward edge will hit the rail base on the way in. Any of them will stop the in movement of the mechanism causing pressure to build up prematurely in the supply line to the driving cylinder. A separate pressure sensitive switch 303 is set at a certain pressure level and is coordinated to the boxing limit switch 301 so that if switch 303 senses a pressure buildup before piston travel has reached the point of boxing, solenoid valve 273 will be reversed which will cause the driving cylinders 201 to reverse thereby aborting the cycle and causing the tooling and mechanism to return to the "ready" position of FIG. 5.

Assuming that the rail anchors have been applied, as shown in FIG. 7 and the pressure buildup in the supply line to the driving cylinders 201 has reached a certain level at the end of the anchor applying "squeeze", a second pressure switch 305 will cause solenoid valve 273 to reverse causing the driving cylinders to reverse and withdraw to the FIG. 8 position. The clamp arms are then automatically lifted by the optical limit switches 217 and 219 which control solenoid valve

271. In the raised position limit switch 307 will operate solenoid valve 273 to supply fluid to the driving cylinders 201 causing them to extend from the FIG. 9 to the FIG. 10 position. This causes the tooling to go in the doors at the bottom of the chute and pick up new anchors. When the pistons in cylinders 201 bottom or hit the end of their stroke, the pressure buildup in the cylinders and supply line will be detected by pressure switch 305 which will reverse solenoid 273 causing the driving cylinders to retract, from the FIG. 10 to FIG. 5 position. During the initial retraction movement cylinders 115 will extend camming the doors apart to eliminate any possible drag on the anchors coming out of the doors. This is caused by a solenoid valve 295 which is energized by pressure switch 305.

The cycle is then complete with the tools being in the "ready" position shown in FIG. 5 and the operator is ready to start a new cycle.

The operator will propel the machine and stop it over a tie and from his position A on the seat he will have a clear view of the tie, the rail and the anchors in the tool at the "ready" position. So properly positioning the machine so that the anchors can be applied will be quite easy. He then starts the automatic cycle by stepping on a foot button, treadle, hand switch or what have you at the operator's station A. The mechanism will automatically go through the steps shown in FIGS. 5 through 10, in that order, returning to FIG. 5 position and stopping. As soon as he starts the automatic cycle, the operator can reach in the working bin 53 and drop two new anchors down through the chutes so that they will be ready to be picked up when the machine gets to the FIG. 10 position. As soon as the mechanism gets to the FIG. 9 position, the operator can start propulsion to move the entire machine to the next tie and the cycling mechanism will complete the automatic loading of the tools with the next pair of anchors and return to the ready position which are the steps of FIGS. 9 and 10 and back to the ready position of FIG. 5. Thus there is an absolute minimum amount of time spent in lost movement and the operator does not have to wait for the machine to complete any unnecessary movements or cycling before he can propel to the next tie and start the next cycle.

At the start of the day's work, a supply of rail anchors from bags or sacks may be loaded or dumped into the storage bin 51. The operator may then actuate a control button on box B at the operator's station to tilt the storage bin up and dump the first load of anchors into the working bin 53. The storage bin may be lowered again and a second supply of anchors may be loaded into the storage bin. Thus the operator has two full loads of anchors as he starts, the first load in the working bin and the second in the storage bin. The operator may then propel the unit out to where work is to start and the storage bin 51 may stay down or in its lowered position until all of the anchors in the first supply have been used up from the working bin. At a suitable time the operator can raise the storage bin to the position of FIG. 1 which causes the second supply of anchors to slide down into the working bin. While doing this he does not have to interrupt the normal cycling of the machine in applying anchors to the rails. The storage bin can be designed for whatever capacity is desired with weight limitations in mind, of course. The capacity of the storage bin substantially exceeds the capacity of the working bin, so only part of the anchors from the

storage bin need to be dumped into the working bin at any particular time.

We claim:

1. A rail anchor applicator including:

a wheeled frame adapted to be moved along a railroad track,

a first rail anchor storage bin mounted on said frame and accessible from the exterior of the frame,

a second rail anchor storage bin located adjacent said first storage bin and within the reach of an operator riding on said frame,

means to transfer at least a portion of said rail anchors in bulk from said first storage bin to said second storage bin, and

rail anchor applicators adapted to apply said anchors to a rail,

said means for transferring at least a portion of said rail anchors from said first storage bin to said second storage bin including means pivotally mounting said first storage bin along a side thereof adjacent said second bin, and means for raising said first storage bin to pivot it about said pivotal mounting to thereby discharge rail anchors into said second storage bin.

2. The rail anchor applicator of claim 1 further characterized in that said pivotal mounted side of said first storage bin slopes upwardly and outwardly and the side of said first storage bin accessible from the outside of said frame is at least partially cut away.

3. The rail anchor applicator of claim 1 further characterized in that said means for raising said first storage bin include operating controls within the reach of said operator.

4. In a machine for applying rail anchors to the base of railroad rails, a frame adapted to be moved along the track with an operator's station thereon, a source of supply on the frame for holding a supply of rail anchors in storage, a supply position on the frame where rail anchors are fed manually by the operator one at a time from the source of supply, a ready position adjacent the supply position and above the rail, anchor handling mechanism on the frame for receiving and handling rail anchors, one at a time, from the supply position, power means for operating the anchor handling mechanism, automatic means for controlling and operating the power means on a cyclical basis so that the anchors will be obtained, one at a time, by the handling mechanism from the supply station, moved to the ready position and held there until the operator starts a new cycle at which time the anchor handling mechanism will move the rail anchors down and apply them to the rail base, will withdraw upwardly and obtain new rail anchors from the supply position and will then move to the ready position and stop, in preparation for the next cycle, all on an automatic basis, and a circuit with a control at the operator's station to energize the power means so that the operator may control the power means and may also manually supply anchors to the supply position from the source of supply thereby enabling the machine to be operated by one man.

5. A rail anchor applicator including a wheeled frame adapted to be moved along a railroad track, a storage bin on the frame for rail anchors and accessible to an operator on the frame, rail anchor chutes on the frame having entrances toward their upper ends located adjacent the storage bin and reachable by the operator so that the anchors can be picked up by the operator and

dropped by gravity down the chutes, holding means at the bottom of the chutes to stop and releasably hold rail anchors coming down the chutes, and applicators adapted to automatically remove anchors from the holding means on a cyclical basis and to apply them to the rail, including a circuit with a control accessible to the operator adjacent the storage bin with power means for operating the applicators so that the operator may manually pick up anchors from the storage bin and drop them down the chutes as well as control and coordinate movement and operation of the applicators thereby making the machine a one man unit.

6. In a machine for applying rail anchors to the base of railroad rails, a frame adapted to be moved along the track, a first anchor storage bin mounted on the frame and accessible from the exterior of the machine, a second anchor storage bin on the frame located adjacent the first bin, an operator's station opposite and in proximity to the second bin, rail anchor applicators on the frame adapted to apply rail anchors to the base of the rail, first power means for operating the rail anchor applicators, second power means for transferring at least a portion of the rail anchors in bulk from the first bin to the second bin, and a circuit with a control at the operator station controlling both power means so that the operator may initiate and control the operation of the rail anchor applicators and may also cause the transfer of anchors from the first bin to the second bin when the supply of anchors in the second bin has diminished.

7. In a machine for applying rail anchors to the rails of railroad track, a frame adapted to be moved along the track, a chute on the frame for guiding rail anchors by gravity to a supply station at the lower end of the chute, a gate on the chute at the supply station constructed to releasably hold a rail anchor in a predetermined position, an anchor attaching mechanism on the frame constructed to enter the gate and pick up rail anchors at the supply station and to apply them to the base of the rail, means causing the gate to automatically release an anchor positioned in the supply station in response to entrance of the anchor attaching means, and means causing the gate to stay open for a short time after the anchor attaching mechanism withdraws from the gates so that the gate will not interfere with the anchor and anchor attaching mechanism as they withdraw from the gate.

8. In a machine for applying rail anchors to the base flange of railroad track on an automatic cyclical basis, a device for grasping rail anchors and applying them in a lateral motion to the rail base under a predetermined amount of pressure, and means responsive to a buildup of pressure above the predetermined amount for aborting the cyclical operation of the device in the event of interference in the normal rail anchor applying function of the machine.

9. In a machine for applying rail anchors to the rails of a railroad track, a frame adapted to be moved along the track, an operator station on the frame, a supply bin in an elevated position on the frame opposite and reachable from the operator station, at least one chute on the frame with its upper end adjacent the supply bin so that it is accessible to the operator and its lower end defining a supply station, an anchor attaching mechanism on the frame constructed to pick up rail anchors at the supply station and to apply them to the base of the rail, power means for operating the anchor attaching mechanism on an automatic cyclical basis so that,

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when it is energized, the anchor attaching mechanism will automatically pick up rail anchors from the supply station, one at a time, and will apply them to the base of the rail and return for another cycle without operator supervision, and a circuit with a control at the operator station to energize and control the power means so that the operator may initiate the automatic cycle of the anchor attaching means and, during such cycle, may manually load the next anchor from the supply bin into the upper end of the chute thereby enabling the machine to be operated by one man.

10. The structure of claim 9 further characterized by and including a reserve bin on the frame for holding a second supply of anchors, means for discharging at least a substantial part of the second supply in the reserve bin to the supply bin, and a control at the operator station for controlling and operating such discharge means so that when the operator needs more anchorage in the supply bin, he may obtain them by operating the discharge means to transfer at least a substantial portion of the anchors, in bulk, from the reserve bin to the supply bin.

11. The structure of claim 10 further characterized in that the reserve bin is pivotally mounted on the frame so that when it is pivoted up, the anchors in the reserve bin will slide by gravity into the supply bin and

is constructed and arranged so that in its lower position, it is readily accessible and capable of being loaded with a new supply of anchors by workmen on the track.

12. A method of operating a rail anchor applying machine which applies anchors to the base flange of railroad track where the machine has a device for grasping rail anchors and applying them to the base of the rail, including the steps of defining a supply position on the machine where rail anchors are supplied to be grasped by the device, supplying rail anchors manually to the supply position, defining a ready position on the machine where the anchors are held by the device, obtaining the anchors by the device from the supply position, one at a time, and moving them to the ready position and holding them there, starting an automatic cycle for applying the rail anchors from the ready position, moving the device and rail anchors down and applying them to the base of the rail and then withdrawing the device upwardly and obtaining a new rail anchor from the supply position and then moving it to the ready position and stopping, all in one cycle preparatory to the machine being moved to the next tie where the cycle is started over again.

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