H. T. DEVITT.

TRACK SHIFTING MACHINE.

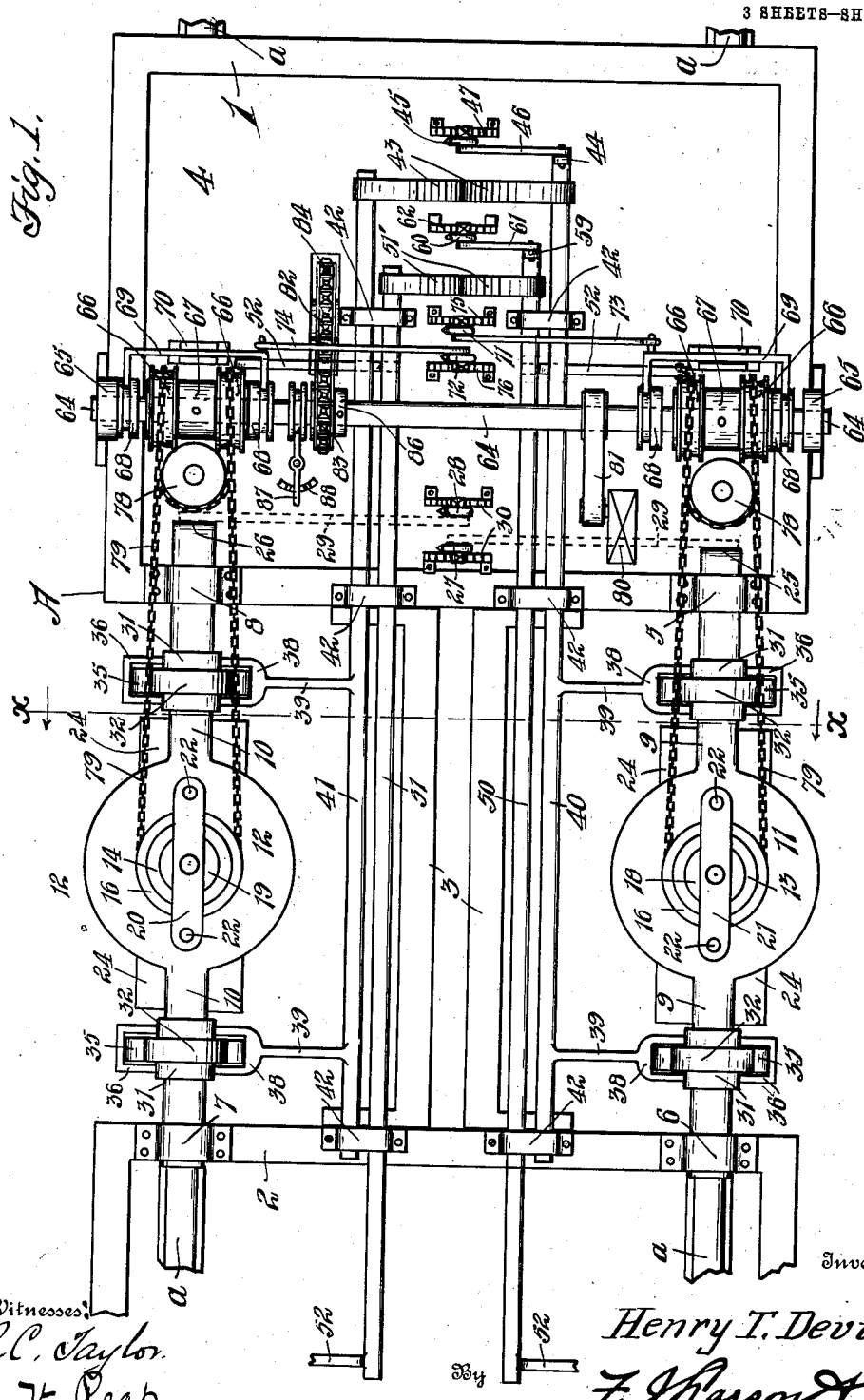
APPLICATION FILED MAY 7, 1908.

978,858.

Patented Dec. 20, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 1.

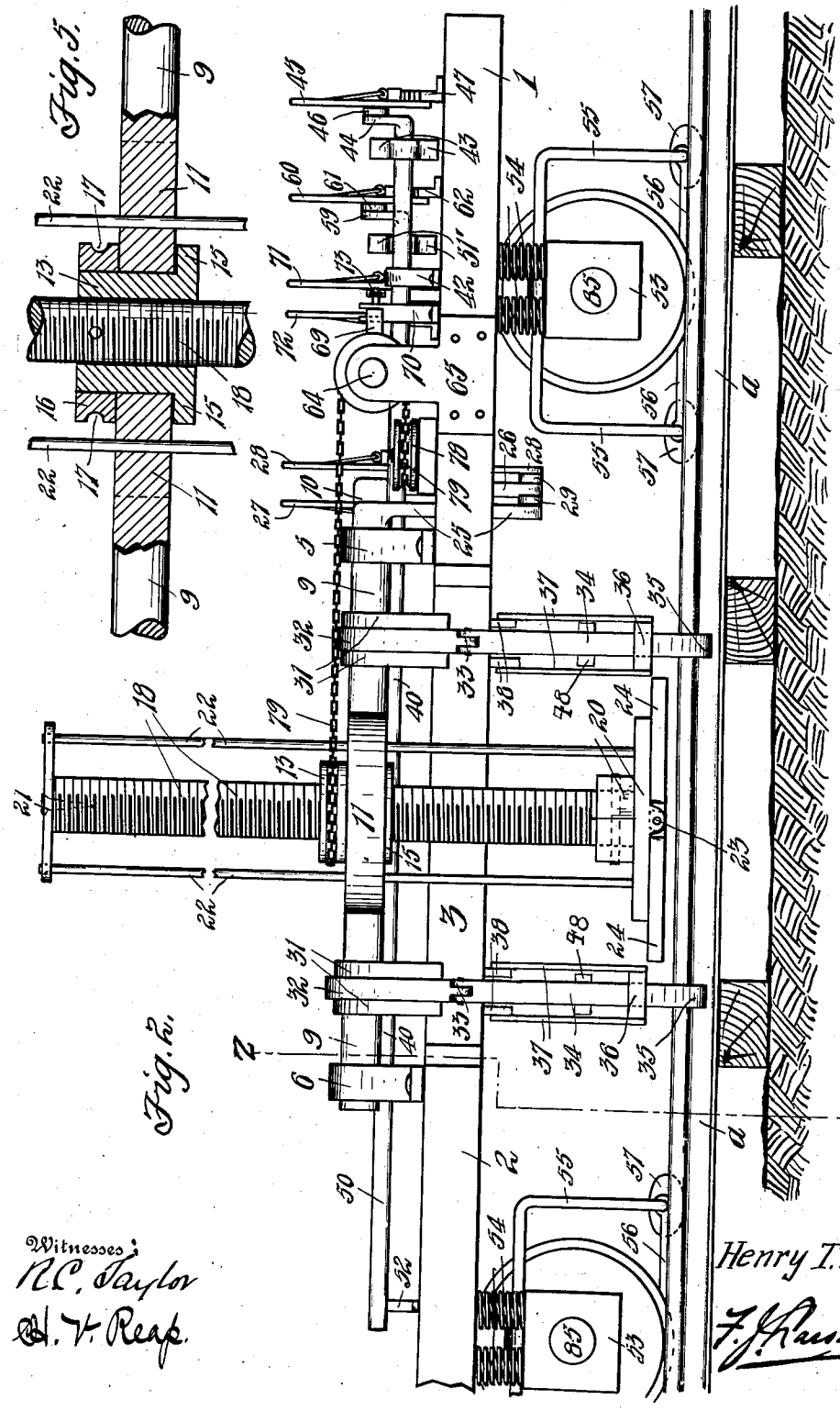

Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

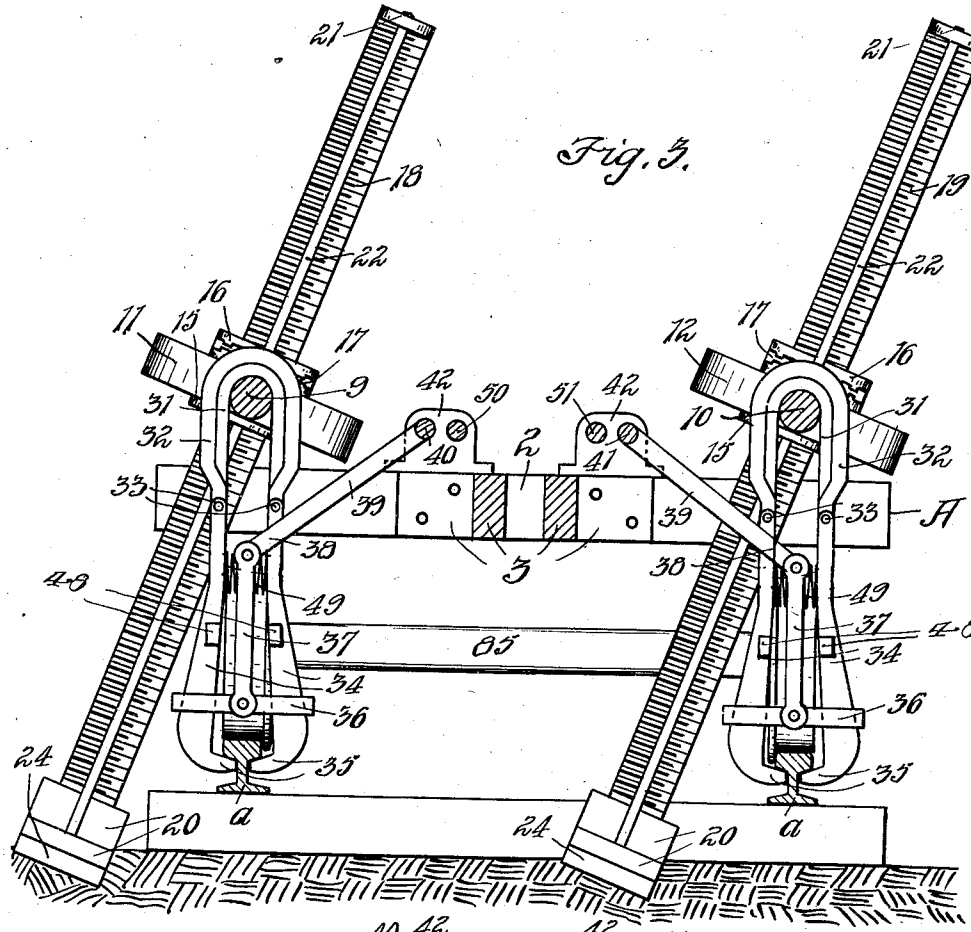
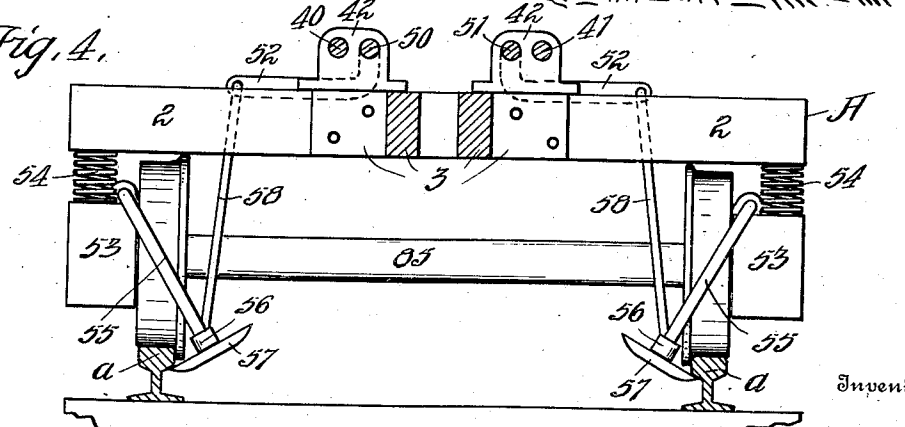


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY T. DEVITT, OF ST. REGIS, MONTANA.

TRACK-SHIFTING MACHINE.

978,858. Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed May 7, 1908. Serial No. 431,532.

To all whom it may concern:

Be it known that I, HENRY T. DEVITT, a citizen of the United States, residing at St. Regis, in the county of Missoula and State of Montana, have invented a new and useful Track-Shifting Machine, of which the following is a specification.

My invention relates to track shifting machinery, particularly designed for railway construction work, although not necessarily limited thereto.

The primary object of the invention is to provide a relatively simple, portable, easily operating machine, moving under its own power upon the track, which it is designed to shift, and so constructed that it will raise the track, shift it and lower it to a new position, the machine still remaining in place upon the shifted track so that it may be immediately moved to a new place of operation.

Another object is to provide means as above described which will shift the track without having to disconnect the rails at the joints at spaced intervals, as is usual with constructions ordinarily used for this purpose.

A further object is to provide a machine in which the power shall be most effectively applied and in which the track may be held suspended above the road-bed without strain upon the operating mechanism.

What I regard as the best embodiment of my mechanism is shown in the accompanying drawings, wherein:—

Figure 1 is a plan view thereof. Fig. 2 is a side elevation. Fig. 3 is a section on the line X—X of Fig. 1. Fig. 4 is a transverse section on the line Z—Z of Fig. 2, and Fig. 5 is a detail cross-section of the means engaging the jack-screw.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these figures it will be seen that my track shifting apparatus is mounted upon a truck or car A, consisting of two rectangular frames 1 and 2 spaced from each other, but rigidly connected by the connecting members E, located near to, but on either side of the longitudinal axis of the truck A. Each of the frames is supported on wheels which are adapted to move along the track *a*. It will be seen that the frames 1 and 2, above described, constitute a truck adapted to be propelled along the track by any suitable motive power. Supported on one of the frames, as for instance, the frame 1, is the floor 4, upon which the operator stands, and upon which the operating mechanism for shifting the track is mounted.

Supported upon the frames 1 and 2, and rotatably mounted in bearings 5, 6, 7 and 8 are the oppositely disposed parallel rock-shafts 9 and 10. The middle of each rock-shaft is enlarged as at 11 and 12 to form a head for the support of the internally threaded sleeves 13 and 14. These sleeves constitute in effect nuts which engage the screw-threaded jack-screws, as will be later described. Each sleeve has a flange 15 on its lower end, and a collar 16 pinned or otherwise attached to its upper end, each collar 16 being formed with depressions on its outer surface for engagement with a chain 79 as will be later described, whereby the sleeves 13 and 14 are rotated.

In order to bodily lift the truck and the track, I have provided two vertical legs or standards, and machinery on the truck for raising the truck so that it shall be supported entirely upon the legs, these legs having rocking engagement with the roadbed, so that they may be tilted to one side or the other, means being also provided on the truck engaging with the legs for controlling said tilting movement.

Though I do not wish to be limited to the construction illustrated in the drawings, and now to be described, the legs have preferably the form of jack-screws designated 18 in the drawings, with which the screw-threaded sleeves 13 and 14 engage so that as the sleeves are rotated in one direction they will move upward on the screw-threaded legs and in the other direction they will move down thereon to raise and lower the truck relative to the legs.

The lower end of each leg or jack-screw is formed or provided with a base-plate 20, while on its upper end is attached a cross-bar 21. Parallel rods 22 connect the cross-bar 21 and the base-plate and pass through the heads 11 and 12 on the rock-shafts 9 and 10, thus the jack-screws are held from any rotative movement, while the heads, including the sleeves, 13 may move up or down

upon the jack-screws. Attached to the under side of each plate 20 are the oppositely disposed foot-plates 24 which are hinged to the base-plate 23. By this means the legs are given a relatively large supporting area at their base. By reason of the foot-plates being hinged they may be readily withdrawn from muddy ground in which they would otherwise be liable to stick.

As a means for tilting or canting the legs 18 so as to shift the truck and track laterally, I provide means for rocking the shafts 9 and 10 as follows:—The ends of the shafts 9 and 10 are each turned downward to form arms 25 and 26. These arms are connected to operating levers 27 and 28 by connecting rods 29. These levers 27 and 28 are pivoted upon sectors 30 having the usual arcuate racks thereon, the levers 27 and 28 being each provided with spring-latches engaging with the sector racks as is common and well-known in constructions of this character. By this means the levers 27 and 28 may be turned to any desired angle and held in this position, it being obvious that the turning of the levers will cause the turning movement of the shafts 9 and 10, which in turn will cant the legs or jack-screws to such position as that shown in Fig 3 for instance. It will be obvious that there may be some unevenness, or some other reason, which will render it necessary that the legs shall not have the same angle and hence I have provided the independent means for canting the legs.

As a means for engaging the rails of the track so that the track may be raised when the truck is elevated I have provided track gripping members which are loosely connected to the shafts 9 and 10 and which at their lower ends are provided with jaws adapted to be closed upon the track. In detail and in its preferable form the construction consists of the U-shaped saddles 31 which embrace the shafts 9 and 10 on each side of the heads 11 and 12 of these shafts, these U-shaped members depending from the shafts and being open at their lower ends. Passing over and supported upon each saddle is a strap 32, the ends of which are pivotally connected as at 33 to the oppositely disposed rail grips 34 which extend downward, and are inwardly turned at their lower ends as at 35 to form gripping jaws adapted to engage beneath the head of the rail *a*. It is to be noted that each of the rail grips 34 increases laterally in size toward the jaws 35 so that the outer faces of the rail grips are upwardly and inwardly inclined. Embracing each pair of rail grips, and movable vertically thereon is the collar 36, each collar being provided with the upwardly extending link 37 pivoted thereto, which link at its upper end is pivoted to the outwardly turned arms 39 of rock-shafts 40 and 41 which are carried in bearings 42 upon the frames 2 and 3. The ends of these shafts 40 and 41 are formed with sector gears 43 which engage with each other as shown clearly in Fig. 1. One of the shafts, as for instance, the shaft 40, is provided with an upwardly projecting arm 44 which is connected to an operating lever 45 by a link 46, the operating lever being pivoted to a toothed or notched sector 47, and the operating lever 45 being provided with a catch which engages with the teeth of the sector so as to hold the operating lever set in any desired position. By operating lever 45 it will be obvious that the rock-shaft 40 will be rocked, which in turn, through the gears 43, will rock the shaft 41 so that the arms 39 will all be raised, or all be lowered simultaneously. There are of course, four arms 39, one for each of the four rail gripping devices. When the shafts 40 and 41 are operated the collars 36 will be raised or lowered, each of the rail grips 34 being provided with projecting lugs 48, as best seen in Fig. 3, which will limit the upward movement of these collars. When the collars are moved upward upon the rail grips the spring 49 will force the rail grips apart and thus the jaws will be disengaged from the rails *a*. When the collars 36 are forced downward they will contract the grips 34 and force the jaws positively into engagement with the rail and while in this position will positively prevent the jaws from opening and becoming disengaged from the rail,—a very important point when the weight of the track structure and of the truck is remembered. In addition to this function of the lugs or stops 48, they have another function. The lugs are placed upon the rail grips so that when the collar 36 is raised into contact with the lugs, the collar will raise the rail grips above the top of the rails so that when the car is moving the grips will not touch any obstruction which may happen to be on the road-bed at the side of the rail.

In addition to the rail gripping devices just described, which are carried on either side of the middle of the truck, I provide additional rail-gripping devices located at each end of the truck, whereby the wheels 63 of the truck may be prevented from leaving the track when the rails are shifted, and thus will be maintained in engagement with the track throughout the shifting and lowering of the same, thus obviating the necessity of replacing the truck upon the track after the shifting operation has been concluded.

While I might use various means for this purpose I prefer the construction now to be described, which includes the oppositely disposed parallel rock-shafts 50 and 51 mounted in the bearings 42. These rock-shafts extend over the frames 1 and 2, and each rock

shaft is provided with the outwardly projecting arms 52.

Mounted on the upper faces of the journal boxes 53 of each truck (which, through the springs 54 support the frames 1 and 2) are the U-shaped members 55, these members being pivotally mounted upon each of the journal boxes and extend downward and inward, and are provided at their lower ends with a connecting rod or cross-bar 56, which retains the two arms of the U-shaped members in rigid relation. The lower ends of these arms 55, below the connecting member 56 are each provided with rotatable disks 57 which are so shaped as to engage beneath the head of the adjacent rail, these disks being rotatable for the purpose of preventing too great wear upon any one portion of the disk. The U-shaped members 55 are connected by connecting rods 58 to the arms 52. The ends of the rock-shafts 50 and 51 above the platform 4 are engaged with each other by means of sector gears so that they will be simultaneously rotated in the same manner as are the shafts 40 and 41 previously described. The extremity of either one of the shafts 50 or 51, as for example the shaft 50, is provided with an upwardly extending arm 59 which is connected by a rod 61 to a lever 60 pivoted to a notched sector 62 and provided with a spring latch engaging the notches of the sector, as usual in this class of devices, whereby the lever may be held in any desired adjusted position. It will be obvious that by moving the lever 60 in one direction, the disks 57 will be forced beneath the head of the rail, and by moving the lever in the other direction, the disks 57 will be withdrawn from the head of the rail. After the rail has been gripped by means of the grips 34, previously described, the ends of the truck are connected to the rails by means of the rail engaging devices 55 and 57, and thus the truck along practically its whole extent is engaged with the rails. The disks 57 which form the rail gripping means at the ends of the truck are at all times in engagement with the track when the car is in service, shifting track, the disks having a rotating engagement with the track. In addition to forming the rail engaging means for the purpose previously described, these end rail engaging devices keep the wheels in contact with the rails when moving over the track that is being shifted. Very often on uneven ground, one rail of the track will have an elevation of from ten to thirty-five degrees and the disks are provided to keep the wheels on the track. These disks 35 are spaced apart sufficiently so that in passing the fish plates at the joints of the rails, one disk will be under the ball or head of the rail, while the other is passing the connecting fish plate. It will be seen that the use of these disks is very important as by that means the car may proceed over track which has been partly shifted and which is tilted at such an angle to the horizontal that the car would otherwise be liable to be derailed.

While I may use any desired means for raising the truck relative to the legs, I preferably use for the purpose of rotating the sleeves 13 and 14 the following instrumentalities.

Mounted upon the truck and preferably upon the frame 1 is the transversely extending power shaft 64 which is mounted at its ends in bearings 65, and which is connected by a belt or other power transmitting mechanism to an engine or motor 81 of any suitable or desired description. At each end of the shaft 64 are provided a pair of chain drums 66 which are loose upon the shaft 64. The drums of each pair of drums are spaced from each other by means of a sleeve 67 which is preferably pinned upon the shaft 64.

Mounted upon each end of the shaft 64 is a pair of friction clutches 68 designed to engage with one or the other of the drums 66 at that end of the shaft. These clutches 68 are connected to each other by a U-shaped connector 69 so that when one of the clutches 68 is moved into engagement with the adjacent drum 66 the other clutch will be moved out of engagement and vice versa. The connectors of both drums are slidably mounted on supports 70, and the connectors of both drums are respectively connected to levers 71 and 72 by connecting rods 73 and 74. These shipper levers 71 and 72 being mounted on toothed sectors 75 and 76, the levers being provided with latches for engaging the teeth of said sectors, whereby the levers may be held in any adjusted position. It will thus be seen that both of the sleeves 13 and 14 may be caused to rotate with each other, yet either one of the sleeves may be rotated independently of the other, thus providing for a proper adjustment of the lifting devices in case of unevenness of the ground or inclination in the roadbed.

Mounted upon the truck structure adjacent to the lower sides of each chain drum and the drum pulleys are idlers 78. Chains 79 pass around the sleeves 13 and 14 thence pass over the loose drums 66 and thence over the pulleys 78. It will be seen that power applied to the shaft 64 will cause one or the other of the pulleys 66 (depending upon the position of the clutch 68) to rotate, thereby drawing the chains 79 in one direction or the other and thus rotating the sleeves 13 and 14 in one direction or the other.

In order to transmit power to the car axle 85 from the power shaft 64, I have provided a sprocket chain 82 which passes over a sprocket wheel 83 loose on the shaft 64 and which passes over a sprocket 84 on said axle.

This sprocket wheel 83 bears on one side against the collar 86 fast on the shaft 64, while on the other side is a clutch 87ª, by which the sprocket 83 may be pressed in engagement with the shaft 64, this clutch being operated by a lever 87 moving over a sector 88 and engaged therewith in any suitable manner.

The operation of my device will be obvious from what has gone before. The truck is raised to a proper position upon the track, the legs being, of course, in an elevated position. When the truck is properly positioned upon the track, the rail gripping devices 34 are engaged with the rails as are the rail engaging disks 57. Power is then applied to one of each pair of drums 66 which will act through the chain 79 to rotate the sleeves 13 and 14 in one direction. As these sleeves are rotated they will move the jack-screws 18 19 downward until the bases of the jack-screws contact with the ground. As soon as this occurs, the sleeves in their rotation will raise the truck and this in turn will raise the track until the track is suspended upon the jack-screws 18 and 19 at any desired distance above the ground. When the desired elevation has been obtained the levers 26 and 27 are moved so as to rock the shafts 9 and 10 and cant the screws 18 and 19 to the desired inclination. As the screws are canted they will, of course, swing the car and track laterally, the U-shaped members 31 and 32 acting as slings upon which the truck and track are supported. If it is desired to shift the track to a great distance, it is only necessary to lower the track once more, raise the jack-screws, bring them to a vertical position and repeat the operation. After that particular section of the track has been shifted, the jack-screws are raised as before described, and the truck under its own power moves to a new portion of the track and the same operation is repeated.

I have referred above to the rock shafts as being the means whereby the jack screws or legs may be tilted, and the supporting legs canted so as to shift the car and track. I may also, however, use one pair of the supporting legs as a means for shifting or tilting the legs so as to shift the track. Thus if the car and track are to be shifted to the right, as shown in the drawings, the legs on the left side of the car would be set at more of an angle than that on the right side of the car, and this pushing against the road-bed would push the track and car laterally after it has been raised. It will thus be seen that great power may be secured not only for elevating the track and car, but for forcing the track and car laterally and canting the legs.

By means of the construction heretofore described, it will be seen that I provide an apparatus which will successfully and economically shift railroad construction, and with relatively great rapidity, as no joints have to be loosened in order to shift the track. Furthermore, it is pointed out that by the use of the jack-screws as legs, I have a construction which when in operation, relieves the operating mechanism, as the drums or engine from any strain, except such as is necessary in order to rotate the sleeves 13 and 14. When the track is suspended there is absolutely no strain upon the engine or the operating mechanism, the entire weight of the track structure being borne upon the legs 18 and 19, the screw-threaded engagement between said legs and the sleeves being amply sufficient to prevent the sleeves stripping the threads of the legs. It will be seen that inasmuch as the legs are raised and lowered entirely by machinery they may be as large as necessary in order to give them extreme rigidity and stiffness, which could not be the case, were the legs operated by hand.

While I have shown what I believe to be the best form of my invention, and most effective for the general purposes for which it is designed, I do not wish to be limited to the exact construction as shown, as it is obvious that many changes might be made in the embodiment of the principles of the invention, as well as in the detailed construction and the arrangement of the parts without departing from the spirit of the invention. I do not wish to be limited either to the means whereby a canting motion is given to the legs, nor to the means whereby power is transmitted to the sleeves 13, nor to the special type of rail engaging devices illustrated, as it is obvious that all of these parts might be modified in many ways to suit special circumstances of operation.

What I claim is:

1. A track moving machine, comprising a car, means for gripping the rails and means for raising and shifting and lowering both the car, and track simultaneously.

2. A track moving machine, comprising a car, means for gripping the rails, means for actuating said gripping means, and means for shifting the track.

3. A track moving machine, comprising a car, rail gripping means, means for engaging and disengaging said gripping means with the rails, disk shaped elements adapted to engage the inner flange of the rails adjacent the car wheels, means for actuating said elements, and means for shifting the car and track simultaneously.

4. A track moving machine, comprising a car, rail gripping means depending therefrom, means for holding the car firmly on the rails, and means for raising, shifting and lowering the car and track simultaneously.

5. In a track moving machine consisting

of a wheel supported frame, means for holding the wheels thereof in engagement with the rails forming a part of the track, means intermediate said wheels for gripping said rails and means for raising, shifting and lowering both the wheel supporting frame and track simultaneously.

6. In combination with a railroad track, a car, means for firmly holding said car on the track, rail gripping means depending from said car, means for moving said track from one place to another, and means for actuating said track moving means.

7. A track moving machine comprising a car, means for propelling said car, means depending from said car adapted to grip said rails, means for locking said gripping means to the rails, and threaded means carried intermediate said gripping means for moving both the car and track simultaneously.

8. A track moving machine comprising a car, means for propelling said car, rail gripping means depending from said car, means for locking said means, means adapted to engage the rails to firmly hold the car thereon, means for actuating said means, means intermediate said gripping means for raising, shifting or lowering the car and track simultaneously, and means for setting and locking said last mentioned means at any desired angle.

9. A track shifting machine including a support, track engaging means mounted on the support, means for raising and lowering the track engaging means relative to the support, and means for canting said support.

10. A track shifting mechanism including a pair of supporting legs, track engaging means supported on the legs, means for raising and lowering the track engaging means relative to the legs and means for canting said legs.

11. A track shifting mechanism including a supporting leg, track engaging means supported by the leg but freely depending therefrom, means engaging with the leg for raising and lowering the track engaging means relative thereto, and means for canting the leg to swing said track and track engaging means laterally after they have been raised.

12. A track shifting mechanism including a wheeled truck, track gripping means on the truck, approximately vertical legs carried upon the truck and adapted to be moved against the roadbed, means engaging the legs for raising and lowering the truck relative thereto, and means for canting said legs.

13. A track shifting mechanism including a wheeled truck, legs pivotally mounted on the truck having lateral tilting movement, means on the truck for gripping the track, means for elevating the truck and track on said legs, and means for tilting said legs.

14. A track shifting mechanism including a platform, means on the platform for gripping the track to be shifted, downwardly extending legs carried by said platform, means for raising and lowering the platform and track relative to the legs, and means for canting said legs.

15. A track shifting mechanism including supporting legs, means on the legs for gripping the track to be shifted, means engaging the legs for raising the gripping means and track relatively thereto, and means for canting the legs.

16. A track shifting mechanism including a wheeled truck, oppositely disposed legs pivotally mounted on the truck for lateral tilting movement, depending rail gripping devices pivotally supported at their upper ends from said truck, elevating means carried on the truck and engaging said legs, means for operating said elevating means, and means for canting both legs simultaneously.

17. A track shifting mechanism including a wheeled truck, oppositely disposed supporting legs pivotally mounted on the truck having lateral tilting movement, means on the truck for gripping the track rails, means for elevating the truck and track rails on said support, rock-shafts for tilting said legs, and handles extending from said shafts whereby the shafts may be adjustably rotated.

18. A track shifting mechanism including a wheeled truck, means at the opposite ends of the truck for holding the rails of the truck to a car, track gripping means depending from the middle of the truck and adapted to engage the rails of the track, oppositely disposed legs pivotally mounted on each side of the car, means engaging said legs for raising and lowering the truck and track, and means for canting said legs.

19. A track shifting mechanism including a wheeled truck, track engaging means located at the opposite ends of the truck and adapted to hold the wheels thereof in firm engagement with the track, oppositely disposed shafts mounted on the truck and extending longitudinally thereof, oppositely disposed legs mounted on said shafts on each side of the truck, means engaging with the legs for raising or lowering the truck relative to the legs, means freely depending from the shafts for gripping the rails of the track, and means for rotating said shafts to cant said legs.

20. A track shifting mechanism including a frame, wheels at the opposite ends thereof, means adjacent to the wheels for gripping the rails of a track and holding the wheels firmly to the track, longitudinally extending shafts mounted on opposite sides of the truck at the middle thereof, said shafts each having a head formed thereon, oppositely disposed legs passing through said heads,

vertically movable with relation to the head but rotatably moved with said heads and shafts, means on the truck engaging said legs to raise or lower the truck with relation thereto, means on the truck for rotating said shafts and canting the legs, and means freely depending from the shafts for gripping the rails of the track.

21. A track shifting mechanism, a wheeled truck, approximately vertical legs mounted on the truck, track gripping means extending downward from the truck, a motor on the truck, elevating means supported on the legs and connected to the truck to support the latter, a driving shaft on the car, and means operated by the driving shaft engaging the elevating means to operate the latter from the former, and means for canting the legs after the car and track have been raised.

22. In a track shifting mechanism, a wheeled truck, means on the truck for engaging the rails of a track, track gripping means supported on the truck and depending freely therefrom, oppositely disposed rotatable lifting members rotatably supported on the truck, a motor on the truck, means operated by the motor for depressing the lifting members relative to the truck, and thereby raising the latter, and means on the truck engaging the lifting members to cant them laterally.

23. A track shifting mechanism including a wheeled truck, means on the truck for gripping the rails of a track, oppositely disposed screw-threaded approximately vertical supporting members on either side of said truck, screw-threaded heads mounted on the truck through which said supporting members pass, means on the truck for rotating said supporting members, and thereby raising or lowering the truck and track, shafts engaging with the supporting members to cant the same laterally, and means for operating said shafts.

24. In a track shifting mechanism, a wheeled truck, means on the truck for gripping the rails of a track, oppositely disposed screw-threaded supporting members pivotally mounted on each side of the truck and depending from the same, interiorly screw-threaded rotatable members connected to the truck and engaging said screw-threaded supporting members, a motor on the truck, means operatively connecting the motor and the rotatable members, and means for tilting said supporting members and for holding them in any adjusted position.

25. In a track shifting mechanism, a wheeled truck, means on the truck for gripping the rails of a track, oppositely disposed screw-threaded legs on either side of said truck, shafts pivotally mounted in bearings on the truck and having enlarged heads, rotatable members interiorly screw-threaded and mounted in said heads, said rotatable members engaging the legs, a motor on the truck, and means for operatively connecting the motor with the screw-threaded members.

26. In a track shifting mechanism, a wheeled truck, means depending from the truck for gripping the rails of a track, oppositely disposed rock shafts mounted in bearings on the truck, means for rocking said shafts and holding them in any adjusted position, each of said shafts having an enlarged head, internally screw-threaded members rotatably mounted in the heads of the shafts, screw-threaded legs extending through said rotatable members and engaged thereby, means for preventing the rotation of said legs, a driving shaft on the truck, and means for operatively engaging the rotatable members with said driving shaft.

27. In a track shifting mechanism, a truck, wheels on opposite ends of the truck, track engaging mechanism in opposing ends of the truck for holding the wheels in engagement with the track, oppositely disposed rock shafts mounted on the truck and extending longitudinally thereof and rotated between said wheels, each of said rock shafts having an enlarged middle portion, interiorly screw-threaded rotatable members mounted in said enlarged portions, screw-threaded legs passing through said rotatable members and engaged thereby, track gripping mechanism freely depending from the said shafts on each side of the enlarged middle portion thereof, a driving shaft, and means operatively connecting the driving shaft with the rotatable members to rotate the latter from the former.

28. In a track shifting mechanism, a truck having wheels at opposite ends thereof, means at opposite ends of the truck for engaging the rails of a track and holding the wheels thereto, parallel inwardly extending rock-shafts mounted in the middle of the truck, freely depending rail gripping means mounted on said rock-shafts, each of said rock-shafts having a middle enlargement, an interiorly screw-threaded rotatable member mounted in each of the enlargements of the shafts, screw-threaded legs passing through said rotatable members and engaged thereby, means for preventing the rotation of said legs, means for rocking said rock-shafts and holding them in any adjusted position, a driving shaft, drums operatively connected with the driving shafts, and chains passing over the drums and around said rotatable members.

29. In a track shifting mechanism, a truck, wheels at opposite ends of the truck, rail engaging devices on the ends of the truck, oppositely disposed parallel rock-shafts at the middle of the truck, each shaft being enlarged at its middle, rail gripping devices freely depending from the rock-

shafts, interiorly screw-threaded rotatable members mounted in the enlarged portions of the rock-shafts, screw-threaded legs passing through said members and engaged thereby, operating levers mounted on the truck and engaging said rock-shafts to independently operate them, means for operatively connecting the driving shaft with the rotatable members, and means on the truck for independently operating the track engaging device at the ends of the truck, and the rail gripping means at the middle of the truck.

30. In a track shifting mechanism, a truck, wheels at the opposite ends thereof, arms pivotally mounted on the truck at the ends thereof and carrying rail engaging members at their lower ends, means for moving said arms to bring the rail engaging members beneath the head of a rail, parallel rock-shafts carried at the middle of the truck, and on opposite sides thereof, U-shaped hangers extending over the rock-shafts on either side of the middle portion, rail gripping jaws pivotally mounted on said supports, means for forcing said jaws toward each other to grip a rail between the interiorly screw-threaded rotatable members mounted on the rock-shafts, screw-threaded legs passing through said rotatable members and engaged thereby, means for preventing the rotation of said legs, levers mounted on the truck for rocking said rock-shafts to tilt the legs, oppositely disposed independent chain drums mounted on the truck, chains passing thereover and engaging the rotatable members, a motor, and means connecting the motor with the chain drums and connecting the motor with the axle of the truck wheels.

31. In a track shifting mechanism, a truck having wheels at opposite ends thereof, rail engaging means mounted on the ends of the truck adjacent to the wheels, oppositely disposed longitudinally extending rock-shafts supported in bearings on the truck, each of said rock-shafts having an enlarged middle portion, track gripping means suspended from said rock-shafts on either side of the enlarged middle thereof, a rotatable member mounted in each of the enlarged portions of the rock-shafts and interiorly screw-threaded, screw-threaded legs passing through and engaged by said rotatable members, means for preventing the rotation of said legs, crank-arms on the rock-shafts, operating levers connected to said crank-arms, and means for locking said operating levers in parallelism, a driving shaft, oppositely disposed pairs of chain drums loose on said driving shaft, grooves for each pair of chain drums and adapted to connect one of the drums with the shaft and disconnect the other from the shaft, idler pulleys, chains passing around the chain drums, idler pulleys, and around the rotatable members, a motor for operating the driving shaft, and connections between the motor and the axle of the drum for driving the latter.

32. In a track shifting mechanism, a platform, rock-shafts mounted on the platform, interiorly screw-threaded members on the rock-shafts, screw-threaded legs passing through said members, means for relatively rotating the legs and screw-threaded members, and to relatively raise or lower the same, track gripping devices on the truck, and means for canting said legs.

33. A track shifting device including a wheeled truck, elevating legs mounted on said truck and depending therefrom, track gripping means depending from the truck, means for elevating or lowering the truck relative to the said legs, and means for laterally canting the legs.

34. In a track shifting mechanism a wheeled truck, oppositely disposed parallel rock-shafts carried by the truck, interiorly screw-threaded rotatable members carried on the rock-shafts, screw-threaded legs passing through said rotatable members, said legs having cross-bars at their upper and lower ends, longitudinal tie-rods engaging said cross-bars and passing through the said rock-shafts, means on the truck for rotating said rotatable members and to raise or lower the truck, and means on the truck for gripping the track.

35. A track shifting mechanism including two rectangular frames connected to each other at their middle, wheels at opposite ends of the frame for supporting the same and engaging with the track, means at the ends of the truck for holding the wheels in engagement with the track, oppositely disposed parallel rock-shafts located on each side of the middle portion of the truck in the space between the two frames and pivotally supported thereon at each end, each of said shafts having an enlarged middle portion, U-shaped members resting on said shafts on each side of their upper portions thereof, gripping jaws pivotally mounted on said supporting members and depending therefrom, said gripping jaws having an enlarged lower portion, sliding collars on the gripping jaws for closing the jaws, means on the truck for raising and lowering said sliding collars, interiorly screw-threaded rotatable members mounted one in each enlarged portion of each rock-shaft, screw-threaded legs passing through the rotatable members, means for preventing the rotation of said legs, means on the truck for rocking said rock-shafts for tilting the legs, motor operated means on the truck for rotating the rotatable members.

36. In a track shifting mechanism of the character described, oppositely disposed rail gripping means comprising downwardly ex-

tending pivoted supports, jaws pivoted at their upper ends to said supports and adapted to grip the head of a rail, said jaws having upwardly and inclined outer faces, collars surrounding each of said jaws, springs located between the jaws for opening the same, arms connected to said collars, and rock-shafts for raising or lowering said collars.

37. In a track shifting mechanism, a wheeled truck, oppositely disposed jaws pivotally connected at their upper ends to the truck, and means shiftable along the jaws for closing them in one direction or for lifting the jaws vertically upward.

38. In a track shifting mechanism, a wheeled truck, longitudinally extending supporting members mounted on the wheeled truck, U-shaped members extending over the supporting members and freely rotatable thereon, downwardly extending oppositely disposed jaws on the U-shaped members adapted to engage the rails of the track, means for opening the jaws, and means shiftable vertically along the jaws for closing the jaws against the rail or for lifting the jaws and U-shaped supporting members vertically above the rail.

39. In a track shifting mechanism, a wheeled truck, oppositely disposed track engaging jaws pivotally supported at their upper ends and having free vertical movement, each of said jaws having their outer faces outwardly and downwardly inclined, stops projecting from the jaws, a vertically shiftable collar embracing the jaws, and means for shifting the collar in either direction to close the jaws against the track or to engage said stops and lift the jaws bodily above the track.

40. In a track shifting mechanism, a wheeled truck, means on the truck engaging with the road-bed for raising, shifting and lowering the truck, and rail engaging devices mounted on the ends of the truck adjacent to the wheels thereof and comprising arms having rotatable rail engaging elements at their lower ends engageable beneath the head of a rail.

41. In a track shifting mechanism, a truck, oppositely placed wheels at the ends of the truck, and rail engaging devices mounted upon the truck adjacent to each wheel, each of said rail engaging devices comprising a U-shaped member pivotally supported upon the truck exterior to the adjacent wheel and extending downward and inward to the interior faces of the wheel, the extremities of the U-shaped members being provided each with a rotatable member engageable with the head of a rail, and means for moving said U-shaped members to force the rotatable members thereon into engagement with the head of the rail or out of engagement therewith.

42. In a track shifting mechanism, a wheeled truck, means on the truck for gripping the rails of a track to hold the wheels in engagement with said rails, oppositely disposed supporting members rotatably mounted upon the truck, means for elevating the truck upon the supporting members, and means for independently canting said supporting members.

In testimony whereof I have signed my name to the specification in the presence of subscribing witnesses.

HENRY T. DEVITT.

Witnesses:
I. S. DAVIS,
B. F. BERKSTRASSEN,
A. W. ROSS.