May 26, 1936. F. C. STOWELL 2,041,876

TRACK WORKING MACHINE

Filed Sept. 5, 1933 3 Sheets-Sheet 1

Fig. 1.

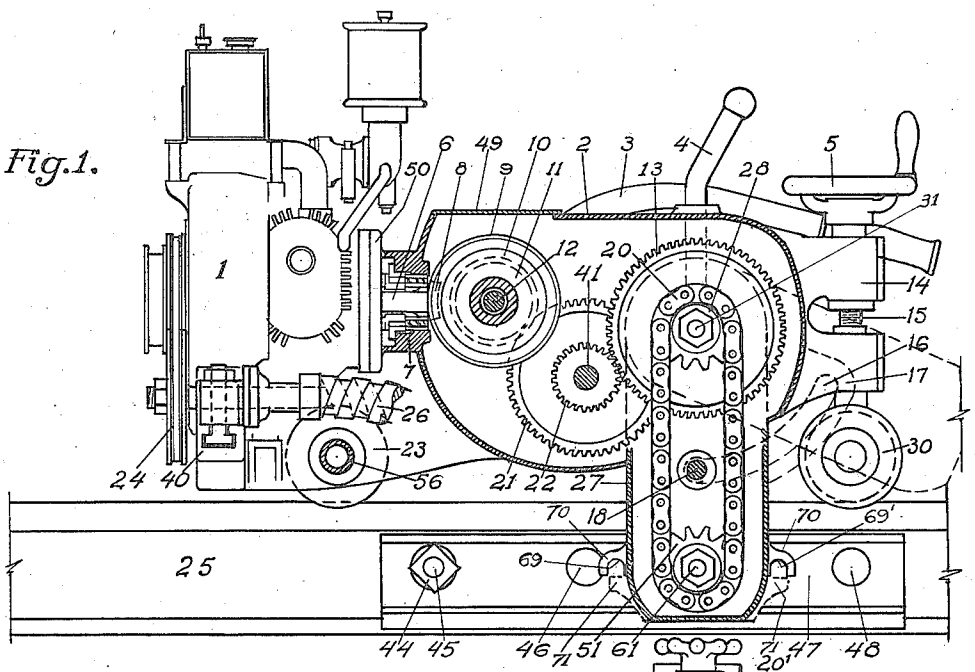
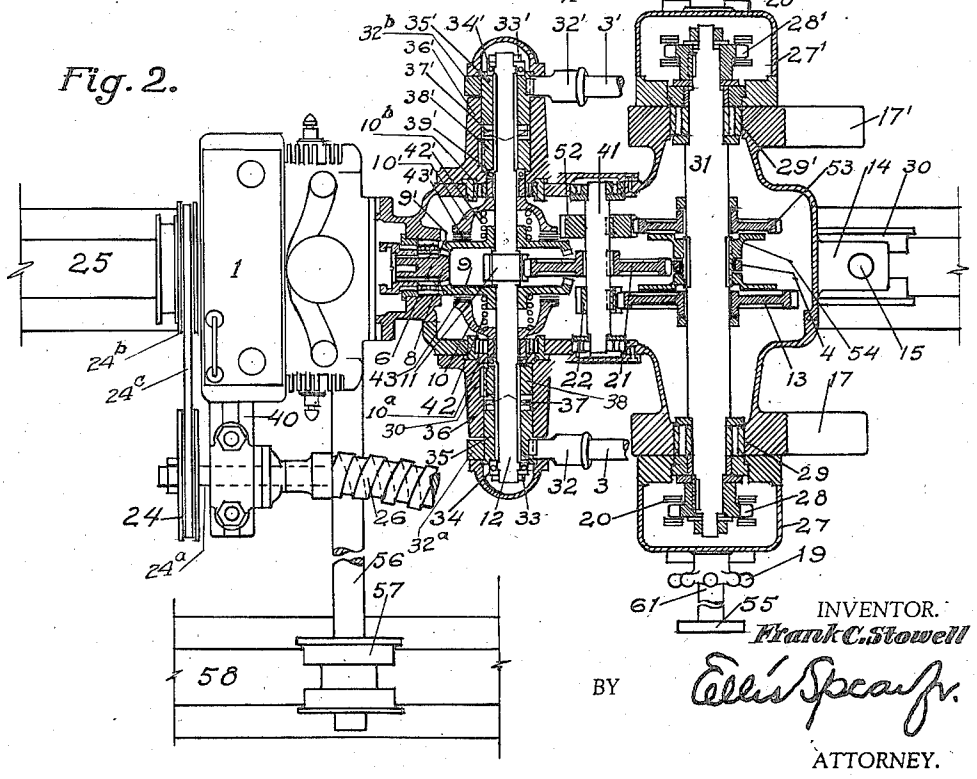


Fig. 2.



INVENTOR.
Frank C. Stowell
BY Ellis Spear Jr.
ATTORNEY.

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Fig. 3.

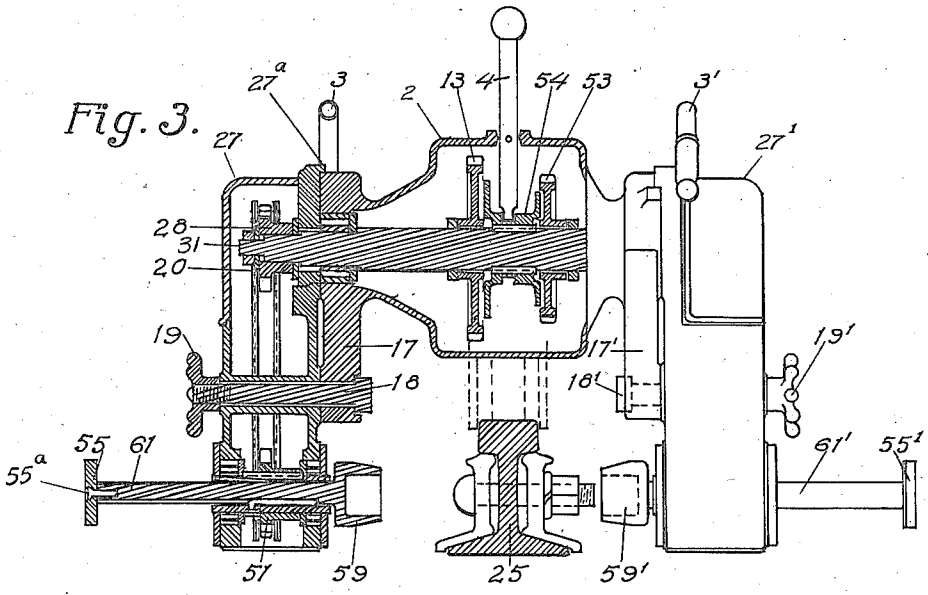


Fig. 4.

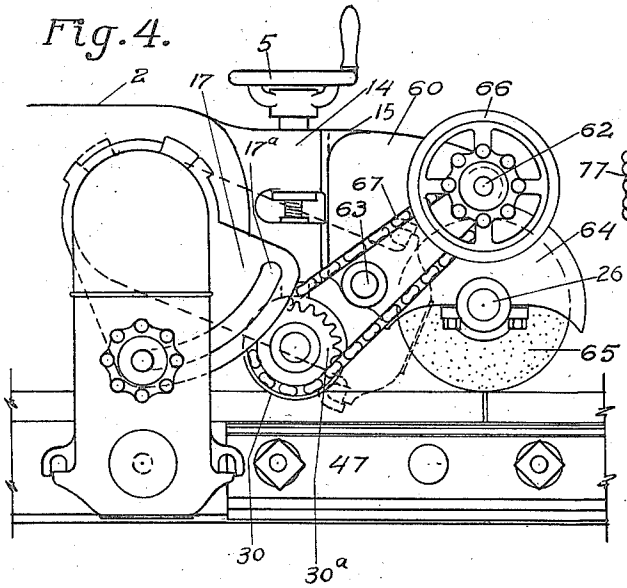
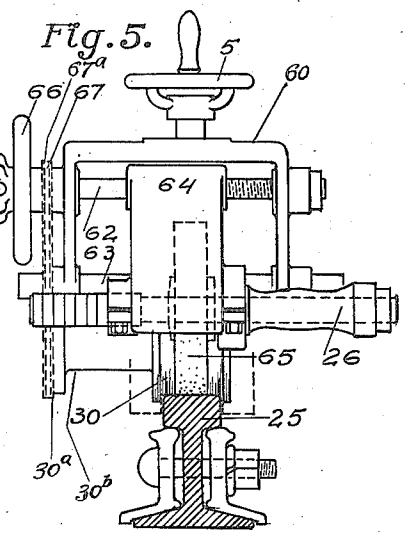


Fig. 5.



INVENTOR.
Frank C. Stowell

BY Ellis Spear Jr.

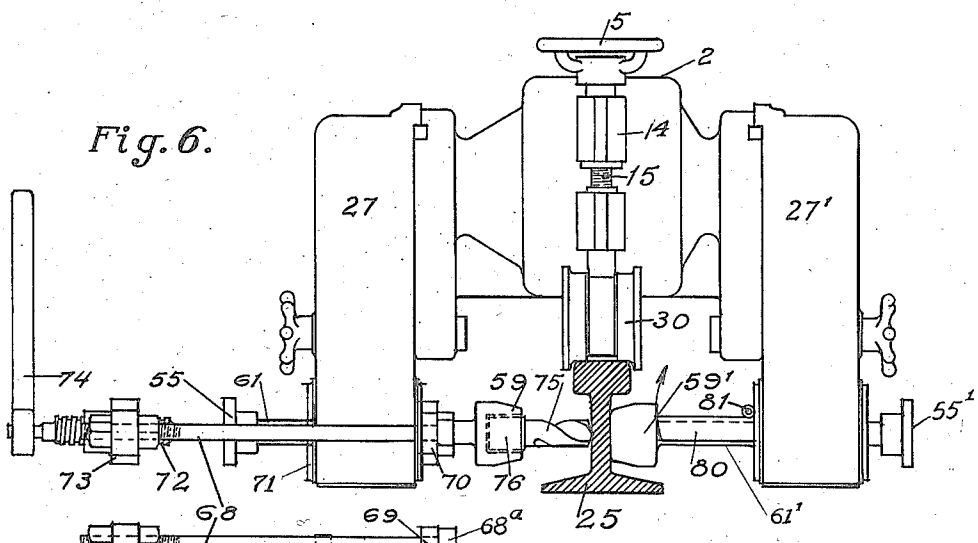
ATTORNEY.

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Fig. 6.



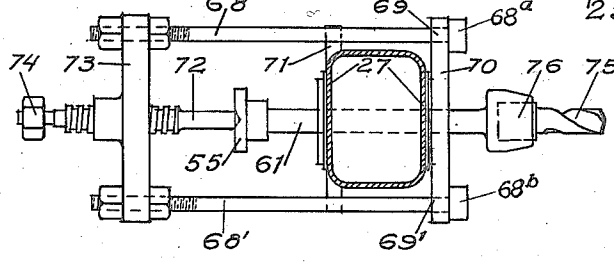


Fig. 7.

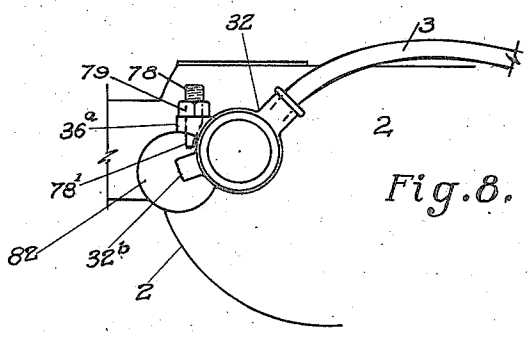


Fig. 8.

INVENTOR.
Frank C. Stowell
BY Ellis Spear Jr.
ATTORNEY.

Patented May 26, 1936 2,041,876

UNITED STATES PATENT OFFICE

2,041,876

TRACK WORKING MACHINE

Frank C. Stowell, Medford, Mass.

Application September 5, 1933, Serial No. 688,157

7 Claims. (Cl. 81—57)

This invention relates generally to rail working machines adapted to be mounted on a single rail, and more particularly to such a machine which is universal in character in that, while it is a portable, self contained unitary structure, it is extremely flexible in operation, and readily reversible in operation, and the functioning tool is capable of being operated at varying speeds for any given speed of the prime mover. My machine is readily adapted to perform a number of varying functions or uses such as those of a nut tightening or loosening machine (referred to in the art as a nutting or denutting machine) a drilling machine, a grinding machine and a boring machine.

While track working machines of the prior art have been used for nutting or applying and tightening nuts upon the bolts that are used at rail joints, in positioning angle bars or plates such machines have been inflexible and of limited application. They were not readily reversible, and hence were not readily adapted far a denutting or nut removing operation. A further objection to such prior art machines is that the speed or force of the functioning tool was not variable for any given speed of the prime mover. These objections and limitations in use made it necessary to restrict it to a single purpose machine, and made the machine wholly unsuited to meet demands requiring reversal in direction and variable speed for any given direction and speed of the prime mover.

One of the objects of this invention is to provide a rail working machine of the type above referred to which will overcome the objections and limitations of prior art machines as above set forth.

A further object is to provide a nutting and denutting machine for rail work readily adapted for performing the operation on either side of the rail and having a plurality of independent manually controlled clutches whereby either the direction of rotation or speed of the tool may be readily reversed and varied for any given direction of rotation and speed of the prime mover.

A further object is to provide a variable or change speed control mechanism employing constantly meshed spur gears which are dependent upon a selective clutching operation by disengaging and meshing of various spur gears as distinguished from the gear shift mechanism heretofore employed.

Such a variable speed control is highly desirable as it eliminates the noise of the clashing of gears and eliminates the chance of stripping or injuring the gear teeth in remeshing in effecting the change speed operation.

A further object is to provide a track working machine for effecting a nutting, denutting, drilling or other operation in which means are provided on one side of the rail for obtaining a balancing reactive force or backing up effect in direct line with the functioning or operative tool on the other side of the rail. Such a feature reduces to a minimum or eliminates the side thrust between the supporting wheel and the rail.

Other and further objects of my invention will be apparent from the following description of the machine.

Fig. 1 is a side view of my machine in place on the rail of a railway track and with a portion cut away to show interior parts.

Fig. 2 is a plan view partly in section.

Fig. 3 is an end and sectional view.

Fig. 4 is a side view of a grinding attachment.

Fig. 5 is an end view of a grinding attachment.

Fig. 6 is an end view of a drilling attachment.

Fig. 7 is a plan view of a drilling attachment.

Fig. 8 is a fragment view of the housing showing adjusting means for direction clutch control levers.

When the same numeral is repeated as prime, it means parts referred to are duplicates but on opposite sides of the mechanism.

In the drawings the machine is shown as comprising generally a power unit which, for the purposes of illustration, is shown as an internal combustion engine, but obviously any other suitable type of power unit may be employed. The power unit comprises a main power shaft **6**, rotatably supported in the bearing **7**, and a beveled gear **8** is mounted on the main shaft **6**.

A hollow housing **2** is provided for supporting and enclosing the various mechanical parts for effecting control of the direction of rotation of the functioning tools and also the mechanism for effecting the variable speed and the mechanism for effecting the connecting and disconnecting of the power means. The housing is oil tight and is adapted to contain oil in which the operating parts are immersed.

The power unit and housing are mounted on wheels **23** and **30** for movement on the track **25**.

Vertical adjustment of one end of the housing is effected by providing a screw threaded support **15**, the lower end of which support preferably engages and rests upon the wheel **30** and has its bearings in suitable arms or brackets connected with the housing. Actuation of the screw member **15** is obtained by the hand wheel

5 or other suitable means mounted at the upper end thereof.

A plurality of supports for wrench socket drills or other tools are provided, one on each side of the rail, in the same vertical plane and in opposed horizontal relation so that while the socket for a nut, e. g. is functioning on one side of the rail, a reactive force or backing up effect may be obtained by the tool on the other side of the rail.

The drive mechanism for the rotatably mounted tool support is contained in depending arm portions 27—27' adjustably secured to opposite sides of the housing 2. A detailed description of the drive mechanism within the casing will hereinafter more fully appear.

Within the housing 2 a suitable drive mechanism is provided for controlling the direction of rotation of the tool on either side of the rail, and also mechanism for obtaining variable speed of the tool for any given direction and speed of the power unit. The reversibility of direction of rotation is a particularly desirable feature in a track working machine, particularly during the acts of applying or removing the nuts upon the bolts. It will be understood that during these operations it is desirable in applying the nut to have the same turned at a fairly high rate of speed requiring comparatively little force or torque, but after the nut has been brought to position, it is desirable to apply an increased force or torque to force the nut securely to position. It is a particularly desirable feature of the present machine that all of the actuating parts are contained in a housing and form a self contained compact unit.

Referring to the actuating mechanism within the housing, this is shown as comprising three shafts 12, 41 and 31, arranged normal or at right angles to the rail and the main power shaft 6. These shafts are parallel to each other and have their ends rotatably supported in suitable bearings in the housing 2.

The shaft 12 may be referred to as a direction control shaft inasmuch as the gear and clutch mechanism for controlling direction of rotation is mounted on this shaft.

The shaft 12 is rotatably supported in bearings 34—34' preferably of ball bearing type. Collars 33—33' are provided at opposite ends of the shaft to prevent axial movement of the shaft 12. The bearings 34—34' are carried in extension portions 36—36' forming a portion of the housing and preferably detachably secured thereto. Annular sleeves 35—35' are provided in the housing extension and serve as additional bearings for the shaft 12. Independently movable annular sleeves 38—38' are also provided in the housing extension. The annular sleeves 35—35' are adapted to be rotated within the housing by terminal receivers 32—32' having ring collars 32*a*—32*b* arranged to move the annular sleeves 35—35' as for example by a key connection. The terminal receivers 32—32' receive clutch energizing levers 3—3'. The annular sleeves 38—38' are so arranged as to permit axial movement thereof along the axis of the shaft 12, in order to effect axial movement of the bell shaped friction clutch discs 10—10' which are also slidable axially along the shaft 12. A spline connection between the housing extension 36—36' and the annular sleeves 38—38' may be employed, it being understood that such spline connection restrains the annular sleeves 38—38' against rotative movement but permits free movement thereof axially of the shaft 12. End thrust bearings 39—39' are interposed between the annular collars 38—38' and the bell shaped frictional clutch discs 10—10'. The clutch discs 10—10' are preferably provided with hub collar portions having bearings 10*a* and 10*b* in the housing 2.

In order to effect axial movement of the bell shaped friction clutch discs 10—10', cooperating eccentric or cam portions 37 are interposed between the annular collars 35—35' and the annular collars 38—38' so that a limited radial (rotary) movement of the annular collars 35—35' by movement of the levers 3 or 3' will effect a sliding movement of the annular collars 38—38' axially along the shaft 12 in order to effect similar axial movement of the bell-shaped clutch discs 10—10'. The clutch members 10—10' are mounted in a suitable manner upon the shaft 12 so as to be rotated therewith, but yet so mounted as to permit free movement axially thereof for effecting the clutch function. While the clutch members 10—10' are referred to as bell-shaped friction clutch discs or members, it is understood that other suitable shapes or forms of clutching members may be employed.

A plurality of bevelled ring gears 9—9' are mounted on the shaft 12, and continually mesh bevelled pinions 8 on the power shaft 6. The gears 9—9' engaging opposite sides of the power pinion 8 are driven in opposite directions, the gears 9—9' being freely rotatable upon the shaft 12.

Friction clutch rings 43—43' are preferably interposed between the clutch member 10 and the gear 9, in order to effect a driven relation between the gear 9 and the shaft 12 when the clutch member 10 is moved axially of the shaft in order to frictionally engage the gear 9 through the clutch rings 43. A spring 42 is interposed between the gear 9 and the clutch member 10, in order normally to disengage the clutch member 10 and the gear 9 when such members are not in driven relation. A similar spring 42' is interposed between the clutch member 10' and the gear 9'. Friction clutch rings 43' are also interposed between the clutch member 10' and the gear 9'.

Actuation of the clutch 10 for engagement with the gear 9 through the lever 3 will drive the shaft 12 in one direction, and actuation of the clutch 10' to effect engagement with the gear 9' through the lever 3' will drive the shaft 12 in the opposite direction.

A spur gear 11 is fixed on the shaft 12 in any suitable manner and as shown the gear 11 is arranged on the shaft intermediate the bevel gears 9—9'.

The gear 11 meshes with a gear 21 fixed on the intermediate shaft 41 which is rotatably supported in bearings, preferably of roller bearing type, and carried in the housing 2.

Other gears 22 and 52 are fixed on the shaft 41, such gears being mounted, one on each side of the gear 21, said gears 22 and 52 being of different sizes in order to effect a change speed operation in cooperation with gears 13 and 53 with which gears 22 and 52 mesh respectively.

The gears 13 and 53 are rotatably mounted upon the variable speed shaft 31 which is rotatably supported in the housing 2 in bearings 29—29' preferably of roller bearing type. The pair of gears 13 and 22 and the pair of gears 53 and 52 are in continuous mesh with each other in order to selectively effect a driving relation between either one of the gears 13 and 53 and the shaft 31.

A double faced clutch unit 54 is so mounted on the shaft 31 as to be slidable axially thereof in either direction, but is rotatable with the shaft 31. Manual control of the clutch unit 54 is effected by the clutch shifting lever 4, in order to obtain a variable speed for any given or constant speed of the power unit 1. This variable speed characteristic is a particularly desirable one in applying or removing nuts from the bolts. The variable speed may be obtained for either direction of rotation.

A further desirable feature of the variable speed apparatus is that the change of speed is effected by a selective clutch operation which eliminates the meshing and remeshing of gears.

The variable speed shaft 31 serves as the direct drive means for the mechanism adapted to hold the tool holding member 59' which serves as a socket adapted to receive the shank of a nut engaging tool, a drill, or other tool. The ends of the shaft 31 extend beyond the sides of the main housing 2 and has fixed on opposite ends thereof sprockets 28—28'. These sprockets in turn drive other sprockets 51—51' and are rotatably supported by suitable means in the lower end of the depending arms or housing portions 27—27'.

The housing is provided with an arcuate segment 17 having an arcuate slot or opening 17*a* therein. The relative position of the depending arm 27 and the arc portion of the housing 17 is controlled and determined by an adjusting bolt 18 and handle 19 threaded thereon. The bolt 18 passes through the arcuate slot 17*a* and also through an aperture in the depending arm 27 so that the arms 27—27' may be secured either in functioning or operative position, as indicated in full line position in Figs. 1 and 3, or in retracted position as indicated by dotted line position of the housing arm 27 in Figs. 1 and 4.

The axis of the shaft 31 serves as a center about which the depending arms 27—27' are moved. Preferably the depending arms 27—27' are not directly suspended from or supported by the shaft 31 but are supported by or suspended from suitable lugs or projections 27*a* which engage an arcuate portion of the main housing 2.

The tool supports 59—59' are provided with shanks or shafts 61—61' which extend through and are driven by the sprockets 51—51' which are rotatably supported in suitable bearings at the lower end of the depending arms 27—27'. The construction and support of the shanks 61—61' are such as to permit axial movement thereof so that the tool support 59 may be moved to and from the rail independently of any movement of the depending arm 27 or of the drive mechanism including the sprockets 28 and 51 and connecting drive 20 therefor. One desirable means for effecting this movement is to provide a cooperating key-way and spline between the sprocket 51 and the shank 61 which will permit free movement of the tool holder 59 to and from the rail. The hand wheel 55 having a central countersunk portion 55*a* therein is provided at the outer end of the shank 61. Such arrangement enables the tool support 49 when it contains a nut engaging tool to be initially adjusted and positioned by hand before the power is applied. The central countersunk portion 55*a* serves as a seat for the drill feed to be hereinafter more fully described in connection with Figs. 6 and 7.

In order to afford a more solid positioning of the machine on the single rail, a steadying support is provided by means of a telescoping hollow shaft 56, one end of the telescoping portion engaging the flange wheel 23' resting on one of the rails 25, and the other end of the telescoping portion being connected with the flanged wheel 57 positioned on the other rail 58.

It is believed that the nutting and denutting operation of the machine will be apparent from the foregoing description without further elaboration.

My machine is not only adapted for applying or removing nuts but is readily adapted for use as a grinding machine for obtaining an accurate surface grinding operation on the rail at the rail joints as at built up rail ends. Such grinding may be performed either on the rail surface or on either side or end of the rail head. The surface grinding may be effected under accurate control in either a vertical plane or 2 directions normal to each other in a horizontal plane.

The adaptation of the machine to surface grinding is shown in Figs. 4 and 5. A housing or yoke 60 may be detachably secured in any suitable manner such for example as by a tongue and groove connection (not shown) to one end 14 of the housing 2, preferably adjacent to the vertical adjusting wheel 5. The vertical adjustment of the grinding wheel 65 is effected by manipulation of the hand wheel 5. The housing 60 is shown as a yoke, generally U-shaped in end elevation (Fig. 5) and rotatably supports at its upper end a shaft 62 having a threaded portion. Suspended from the threaded portion of the shaft 62 is a casing 64 having a threaded portion cooperating with the threaded portion of the shaft 62. The rotary motion of the shaft 62 is controlled by the hand wheel 77 mounted on the end thereof, so that lateral or horizontal adjustment of the casing 64 carrying the grinder may be effected by turning the hand wheel 77. The grinding wheel 65 is rotatably mounted in suitable bearings in the depending casing 64.

Means are provided for moving the grinding wheel lengthwise of the rail. Such means include a flange 30*b* having a sprocket 30*a* thereon adapted to be secured in any suitable manner to the forward supporting wheel 30, and a sprocket 67*a* and the hand wheel 66 mounted to freely rotate on the shaft 62. On the end of the shaft 62, extending beyond the yoke 60, a drive chain 67 mounted to freely rotate on shaft 62, connects the sprockets 67*a* and 30*a*. Rotation of the hand wheel 66 reciprocates the grinder 65 longitudinally of the track. Adjustment of the grinding wheel 65 laterally of the rail is effected by rotation of the wheel 77 which rotates the shaft 62, which in turn feeds the depending casing 64 laterally of the rail according to the direction of rotation of the wheel 77. Adjustment of the grinder 65 in a vertical plane may be effected through the screw 15 by rotation of the hand wheel 5.

The driving connection for the grinder 65 preferably is provided through a flexible driving connection 26 one end of which is detachably secured through a suitable coupling to the grinder 65 (see Fig. 5) and the other end of which is driven by a suitable driving connection from the power unit 1, such, e. g. as by the pulley 24 on the drive shaft 24*a* mounted in a bearing adjustably fixed in sliding relation on a bracket 40 fixed on the power unit 1 (see Fig. 2). The pulley 24 may be driven from another pulley 24*b* driven by the power unit 1 through a belt 24*c*.

The grinding attachment of the type above specified provides a simple and compact structure by which accurate grinding may be accomplished

at various portions of the rail. Accurate grinding operations may be performed by such an attachment that would be impossible of accomplishment with a portable hand operated grinder such as is employed for comparatively rough work. Accurate surface grinding of the rails is an important factor contributing to the silent and smooth riding of cars on railroad rails.

If accurate surface grinding is not required, the grinding wheel may be made portable so as to be readily moved about by hand by merely mounting the grinding wheel at the end of the flexible drive 26. By such an arrangement, the grinder may be moved from rail to rail or different portions of a single rail, as determined by the length of the flexible drive cable and the nature of the work.

In the laying of rails it frequently becomes necessary to drill holes in the rail to receive the bolts. This condition arises where it becomes necessary to cut a certain length of rail, usually at the end of a day's work in a replacing rail operation in order to have a continuous and uninterrupted rail. The drilling operation if performed by hand consumes much time and is very laborious. A machine of the type herein described is readily adapted to perform the drilling operation by provision of a simple attachment such as is illustrated in Figs. 6 and 7. The primary purpose of the attachment is to provide means for readily controlling the feed of the drill. A U-shaped yoke is provided comprising the rods 68—68' threaded at their ends to receive adjustably the cross rod 73. Centrally disposed in the cross rod 73 is a screw threaded aperture adapted to receive a threaded feed screw 72, one end of which is adapted to engage the outer end 55 of the axially slidable shaft 61, on the other end of which is mounted a tool support or socket 59 adapted to receive the shank 76 of the drill 75. The drill 75 may be fed by turning the feed rod 72 by means of an arm 74 at the outer projecting end of the feed shaft 72.

The drill yoke attachment may be readily secured in position for facilitating the drilling operation by mounting the yoke upon the lower end of one of the depending arms 27—27'. The depending arms 27—27' are provided at their inner or rail side with integral lugs or cross bars 70 having preferably arcuate bearings 69—69' (see Figs. 1 and 7) adapted to receive the rods 68—68' respectively. The depending arms 27—27' are also provided at their outer sides with a cross bar or member 71 fixed on the arms (see Figs. 1 and 7) on which the rods 68—68' are supported. The drilling attachment therefore is readily placed in position by merely tilting the yoke and pushing it forward until the rods 68—68' are under and in engagement with the arcuate portions or seats 69—69' in the cross member 70, and then lowering the end of the yoke so that the rods 68—68' are seated on the ends of the cross member 71. The ends of the rods 68—68' are provided with stops 68*a*—68*b* which are drawn against the cross member 70 by the feed screw 72 during the drilling operation.

In order to reduce or eliminate the side thrust between the rail and wheels 23—30, a reactive or backing up force is obtained by providing a check sleeve 80 which as shown is connected by a hinge 81 to the lower end of the arm 27'. The guard, when it serves as a counter resistance during the drilling operation, is lowered so as to hold the shaft 61' in fixed position relative to the rail 25, with the socket 59' in contact with the side of the rail to that on which the drilling operation is being performed.

In operating the levers 3—3', which control the direction of rotation, through the respective clutch members 10—10', it is desirable to provide means for effecting a uniform degree of pressure in the clutching operation. It is also desirable to provide means for adjusting the degree of the pressure uniformly exerted between the clutch and the driving gears. For this purpose there is shown in Fig. 8 an adjusting screw 78 threaded in the lug 36*a* on the housing caps 36—36'. The end 78' of the screw 78 serves as a stop for the lug 32*b* carried by the ring 32*a* which is rotated by the lever 3.

Preferably, means are provided for holding the clutch operating levers 3—3*a* in a neutral position, and also for moving the same from a functioning position in which the clutches are engaged to a neutral position after the operating levers have been released by hand during manual operation. For this purpose the counterweight 82 is carried by the ring 32*a* and is of suitable weight and so arranged that the lever 3 is held in inoperative or neutral position.

Various changes in detail, structure and arrangement may be made without departing from the spirit and scope of this invention.

What I therefore claim and desire to secure by Letters Patent is:—

1. A track working machine the main portion of which is adapted to be movably supported on and symmetrically disposed about the longitudinal axis of the rail, comprising in combination a power unit, a power drive shaft parallel with the rail, an enclosed gear thereon, a housing adapted to receive oil, a plurality of shafts parallel with each other, and rotatably supported in the housing, each of said shafts being transverse to the rail and enclosed within said housing, said shafts including a direction control shaft, an intermediate shaft and a variable speed shaft, a driving gear connection between said shafts, a plurality of arms extending downwardly from opposite ends of the variable speed shaft in the same vertical plane transverse to the rail, one on each side of the rail, means for adjustably connecting said arms to the housing to permit independent movement through an arc, a plurality of work engaging tool supports rotatably supported in horizontal opposed relation, one in each of said arms on opposite sides of the rail, and a chain and sprocket driving connection between said variable speed shaft and each of said work engaging tools.

2. A track working machine as claimed in claim 1 and including a plurality of gears freely rotatable on said direction control shaft, each of said gears being in continuous engagement with the gear on the power drive shaft and driven thereby in opposite direction of rotation, a plurality of clutching means mounted on the direction control shaft to rotate therewith but movable axially thereof, one of said clutches being adapted to engage one of said freely rotatable gears and the other clutch adapted to engage the second freely rotatable gear on said direction controlled shaft, a plurality of gears freely rotatable on said variable speed shaft, a plurality of gears fixed on said intermediate shaft, said gears on the intermediate and variable speed shafts being in continuous mesh, the gears on the variable speed shaft being driven at different speeds, a manually controlled clutching means rotatable with the variable speed shaft and adjustable axially thereof and adapted to selectively effect a driving re-

lation with either one of the gears on the variable speed shaft to effect change of speed thereof, independent manually operated control means for each of the clutches on the direction shaft.

3. A track working machine the main body of which is adapted to be movably supported on and symmetrically disposed above a single rail, comprising in combination a power unit, a power drive shaft parallel with the rail, a gear thereon, a hollow housing adapted to receive oil, a plurality of shafts parallel with each other, and rotatably supported in the housing, each of said shafts being transverse to the rail, said shafts including a direction control shaft, an intermediate shaft and a variable speed shaft all of said shafts being enclosed by the housing, a driving connection including a clutch between the direction control shaft and the intermediate shaft and a driving connection including a clutch between the intermediate shaft and the variable speed shaft, a plurality of arms suspended from the housing one at each end of the variable speed shaft extending downwardly in the same vertical plane, one on each side of the housing, means for adjustably connecting said arms to the housing, a plurality of work engaging tool supports rotatably supported in horizontal opposed relation, one in each of said arms, a driving connection between said variable speed shaft and each of said work engaging tools, and means arranged to permit free axial sliding movement of the tool support independent of the depending arm, to and from the rail.

4. A track working machine as claimed in claim 3 and including a plurality of gears freely rotatable on said direction shaft, each of said gears being in continuous engagement with the gear on the power drive shaft and driven thereby in opposite direction of rotation, a plurality of clutching means rotatable with the direction control shaft but slidable axially thereof, one of said clutches being adapted to engage one of said freely rotatable gears and the other clutch adapted to engage the second freely rotatable gear on said direction controlled shaft, a plurality of gears freely rotatable on said variable speed shaft, a plurality of gears on said intermediate shaft, said gears on the intermediate and variable speed shafts being in continuous mesh, the gears on the variable speed shaft being driven at different speeds, a manually controlled clutching means rotatable with the variable speed shaft and arranged thereon between the two freely rotatable gears and adjustable axially thereof and adapted to selectively effect a driving relation with either one of the gears on the variable speed shaft to effect change of speed thereof, independently manually operated control means for each of the clutches on the direction shaft, said control means including a cam actuated member movable axially of said direction shaft.

5. A track working machine as specified in claim 1, and including a plurality of gears independently rotatable on said direction control shaft in opposite directions, said gears being normally in engagement with opposite sides of the gear on drive shaft, a plurality of independently functioning clutches interposed between the gears on the direction control shaft and said direction control shaft, one portion of each of said clutches being rotatable with but slidable axially of said direction shaft, a clutch spring normally tending to keep said clutch in open disengaged relation, clutch actuating means mounted in the housing about the direction control shaft for limited rotary movement, a cam mechanism interposed between said clutch actuating means and the clutch whereby upon partial rotation of said means the clutch is moved axially against the spring pressure to obtain driving relation through said clutch.

6. A power operated track working machine, the main portion of which is adapted to be movably supported on and symmetrically disposed transversely of the longitudinal axis of the rail comprising a power unit having a power drive shaft and a beveled gear fixed thereon, an enclosed housing, bearings in said housing for said power shaft, a direction control shaft normal to said power shaft having bearings in the housing, a spur gear fixed on the direction control shaft centrally thereof, bevel gears rotatably mounted on said direction control shaft one on each side of said spur gear, said bevel gears last named being in continuous mesh with said bevel gear on the power shaft, a plurality of direction control clutches, each of said clutches being interposed between each of said bevel gears respectively and the direction control shaft, one portion of each of the clutches being mounted to rotate with the direction control shaft and movable axially thereof, a sleeve disposed about the direction control shaft and mounted for limited rotary movement, cam mechanism controlled by said sleeve and arranged to actuate the clutch, manual control means extending from the housing for rotating said sleeve to control the clutching operation, a driven shaft parallel with the direction control shaft and having bearings in the housing, a driving connection between the direction shaft and said driven shaft, the ends of the driven shaft extending beyond the housing and a plurality of nut actuating means driven from said shaft one from each of the projecting shaft ends, whereby the nuts on either side of the rail may be either applied or removed.

7. A track working machine as defined in claim 1 and including a plurality of gears independently rotatable on said direction control shaft in opposite directions, said gears being normally in engagement with opposite sides of the gear on the drive shaft, a plurality of independently functioning clutches interposed between the gears on the direction control shaft and said direction control shaft, one portion of each of said clutches being rotatable with but slidable axially of said direction shaft, a clutch spring normally tending to keep said clutch in open disengaged relation, clutch actuating means mounted in the housing about the direction control shaft for limited rotary movement, a cam mechanism interposed between said clutch actuating means and the clutch whereby upon partial rotation of said means the clutch is moved axially against the spring pressure to obtain driving relation through said clutch, and including manual actuating means for moving said clutch actuating means, an adjustable stop to limit the movement of said manual actuating means and to regulate the degree of clutching engagement against the spring pressure.

FRANK C. STOWELL.