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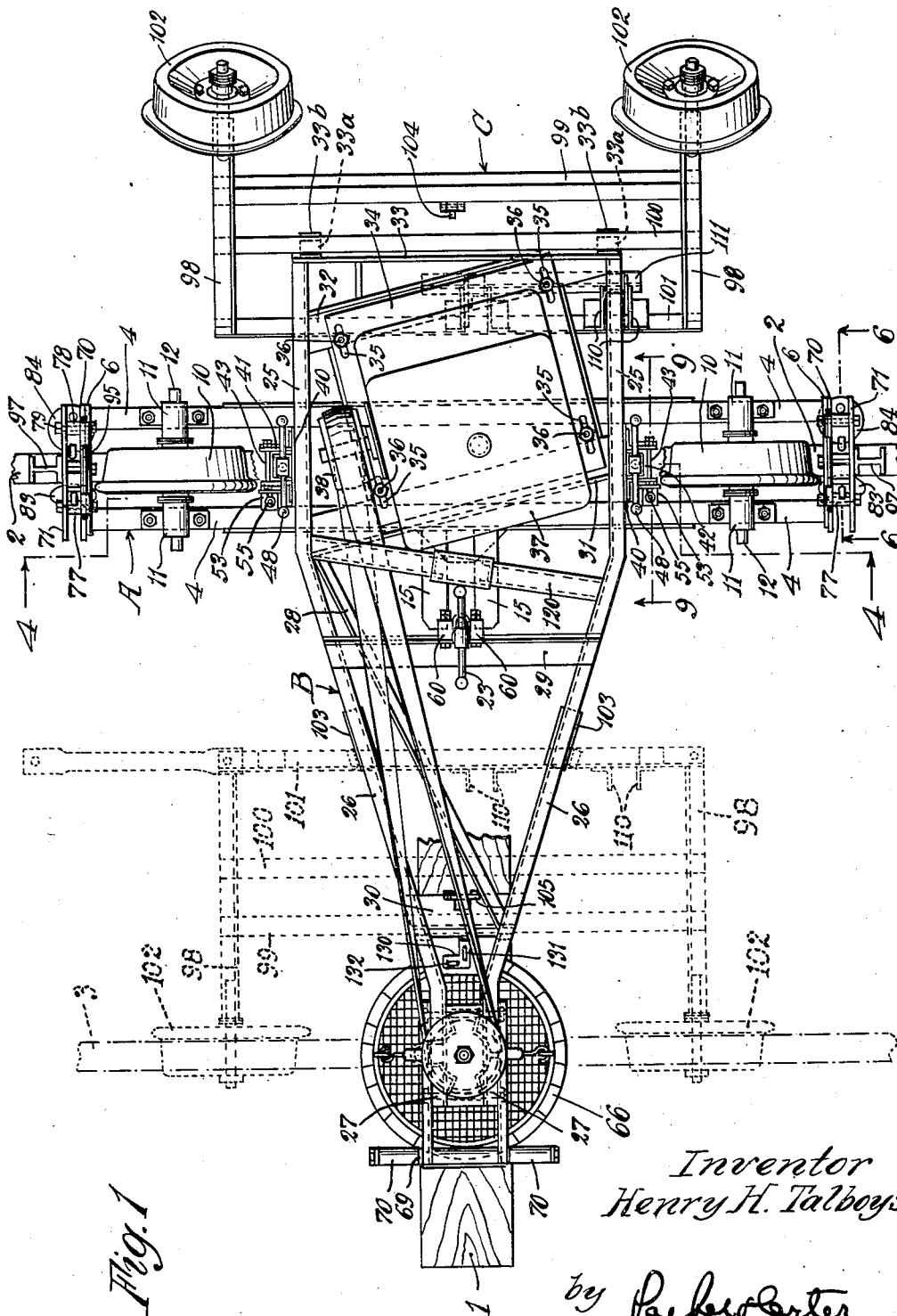
H. H. TALBOYS

2,336,652

ADZING MACHINE

Filed March 10, 1941

7 Sheets-Sheet 1



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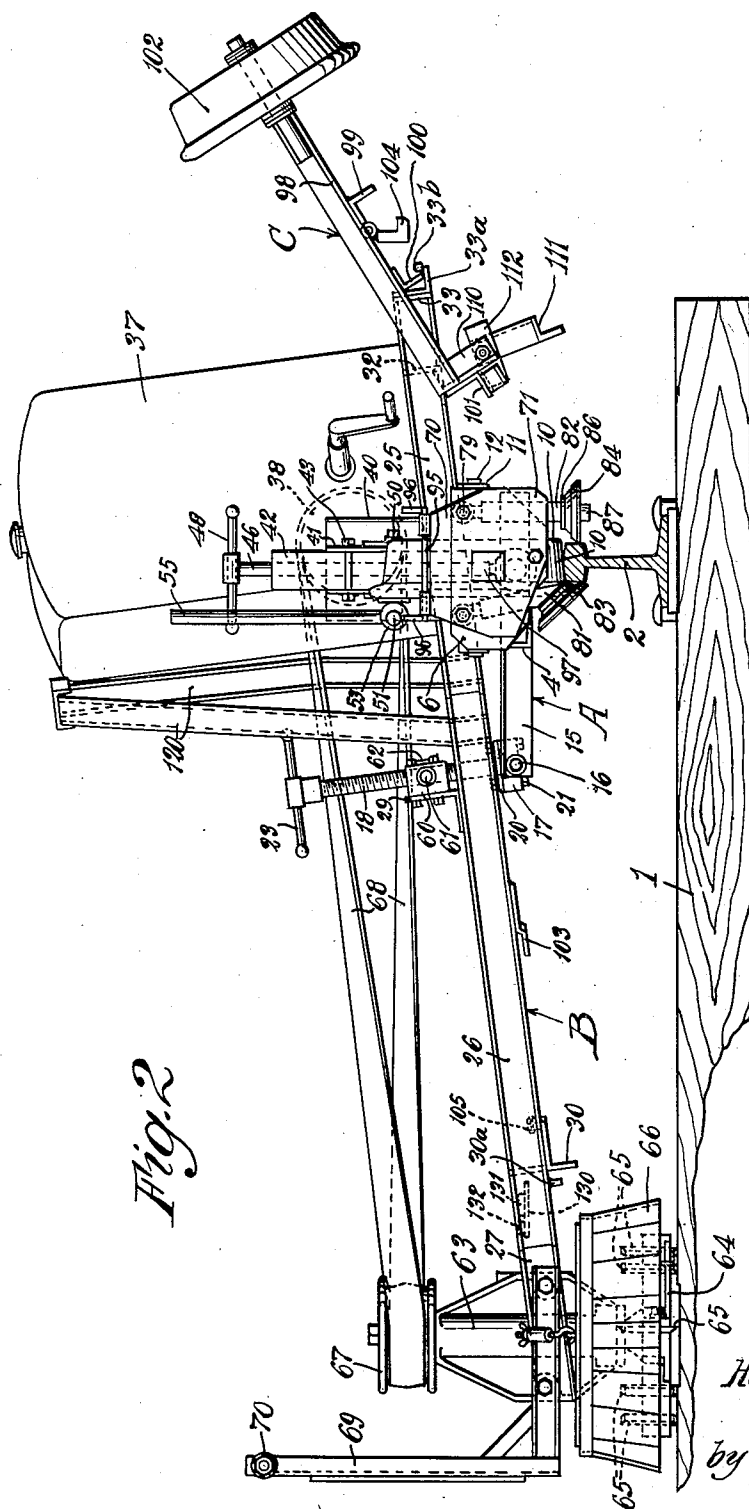
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ADZING MACHINE

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ADZING MACHINE

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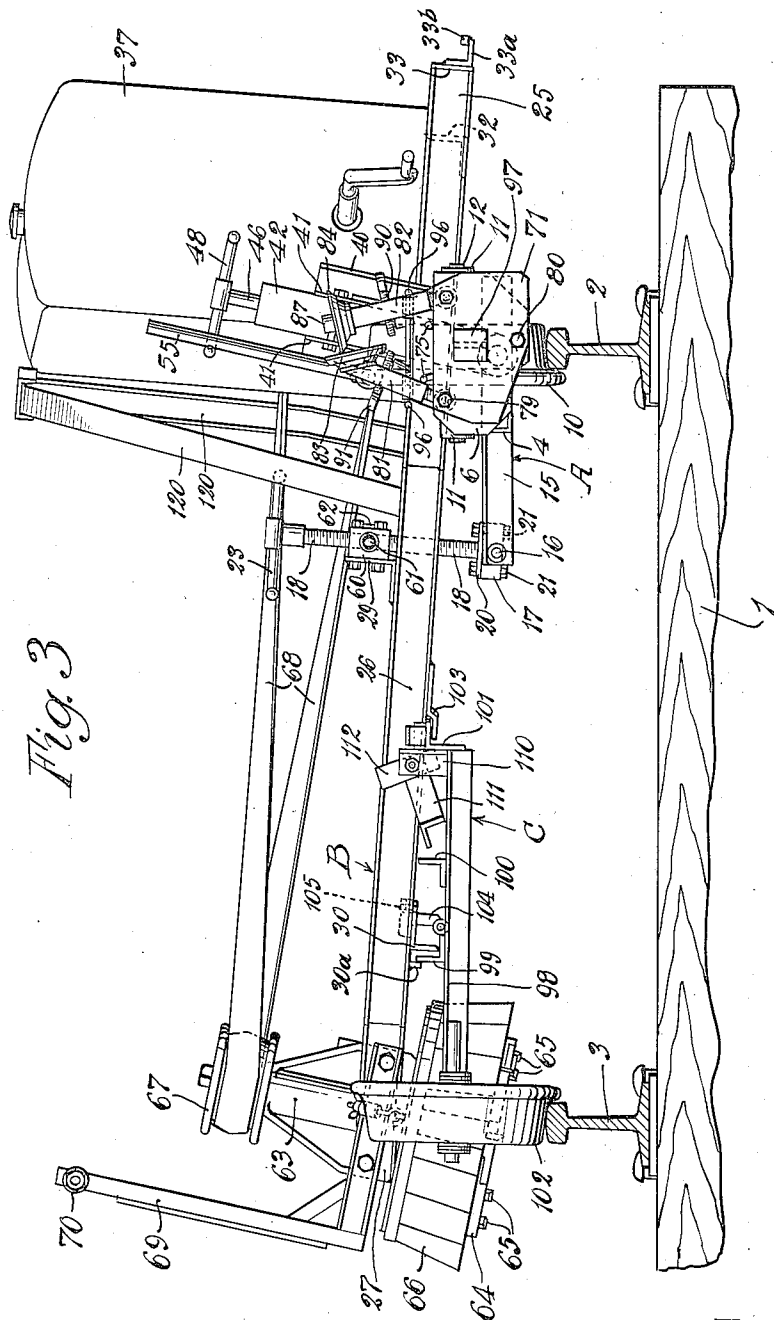


Fig. 3

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Fig. 4

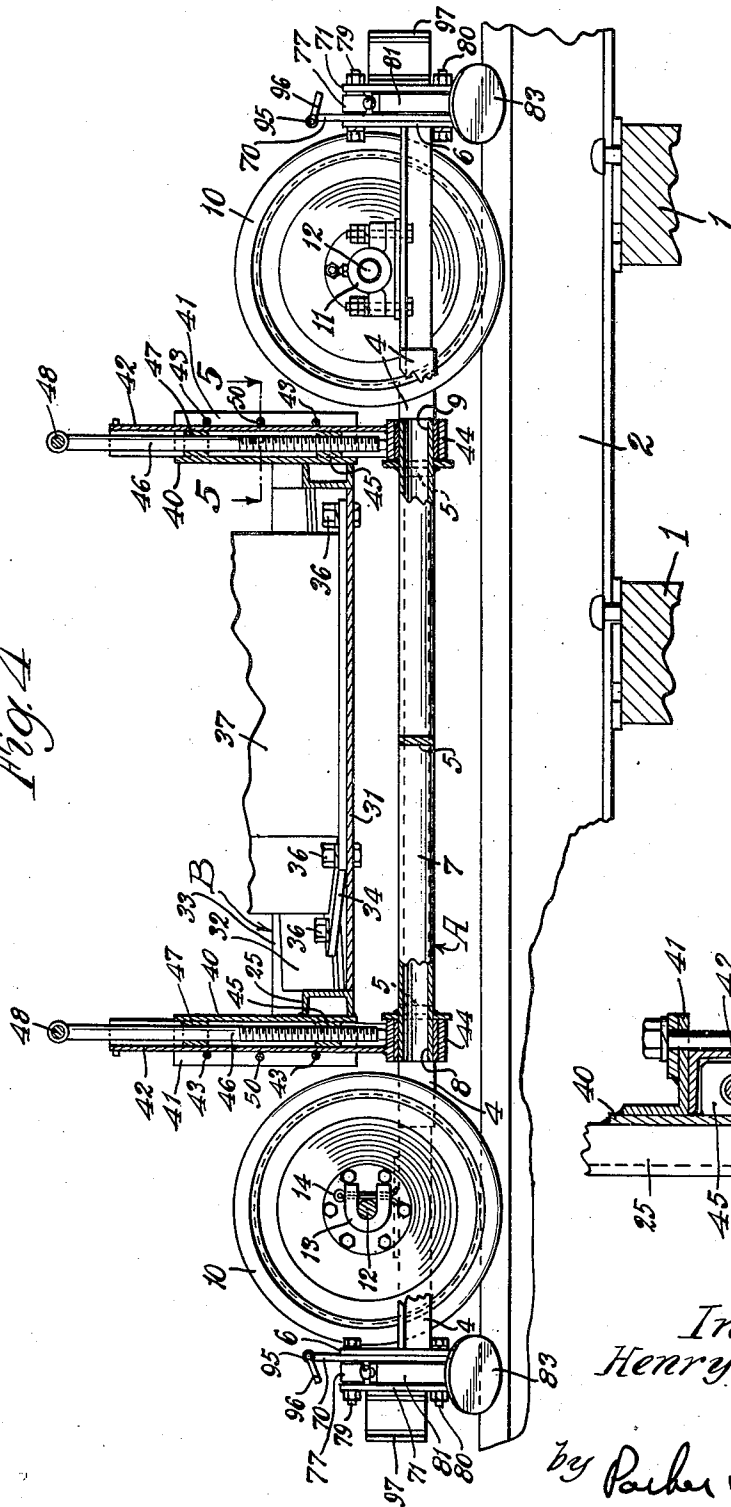
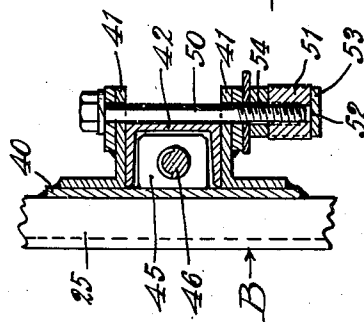


Fig. 5



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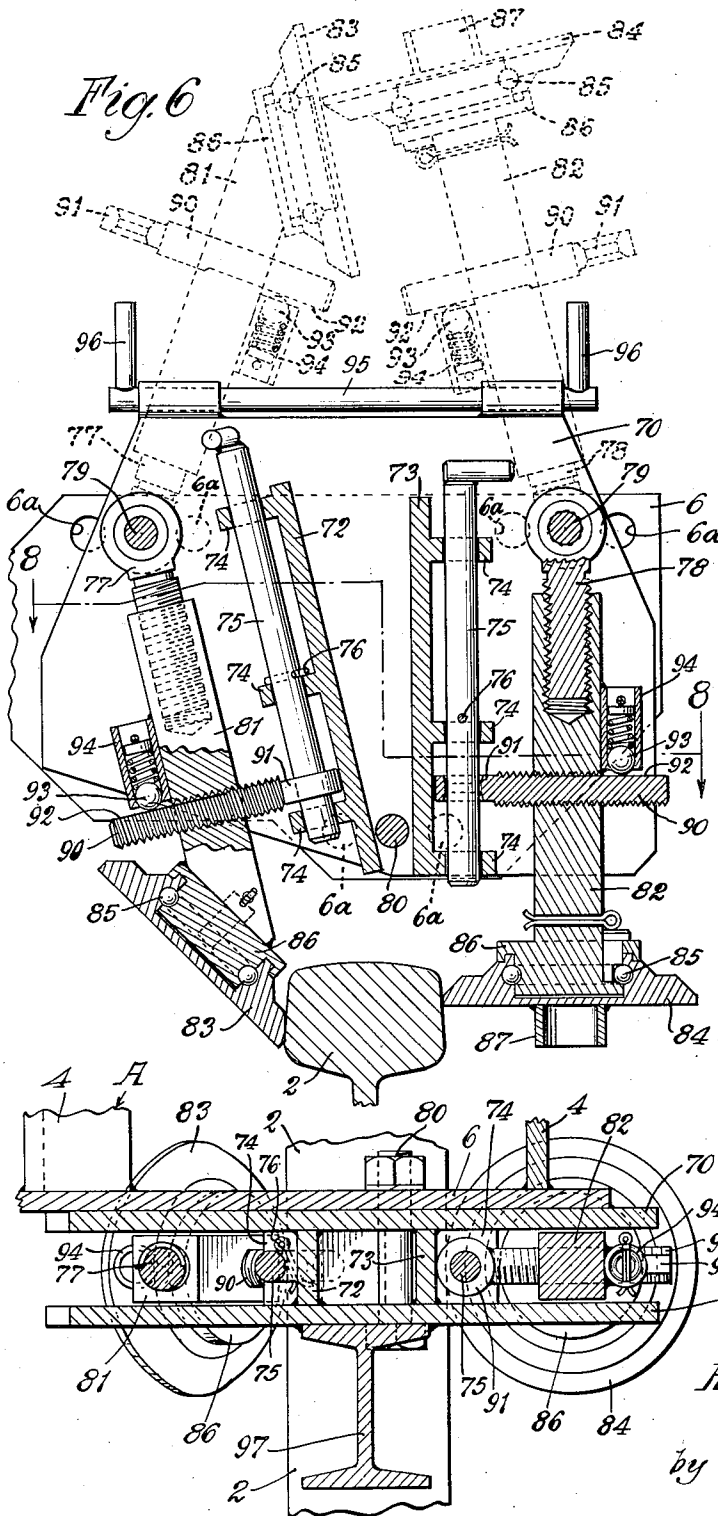
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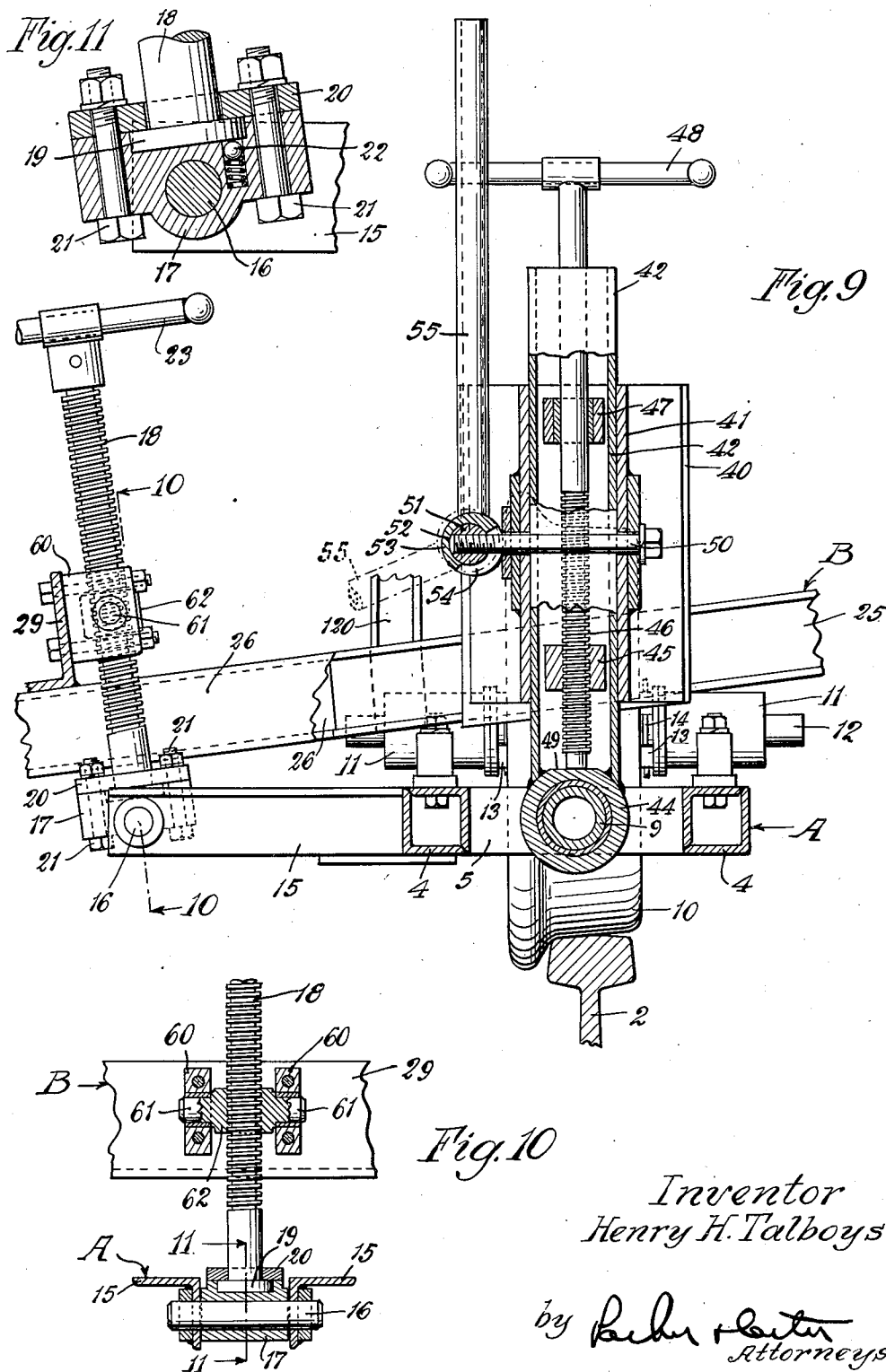
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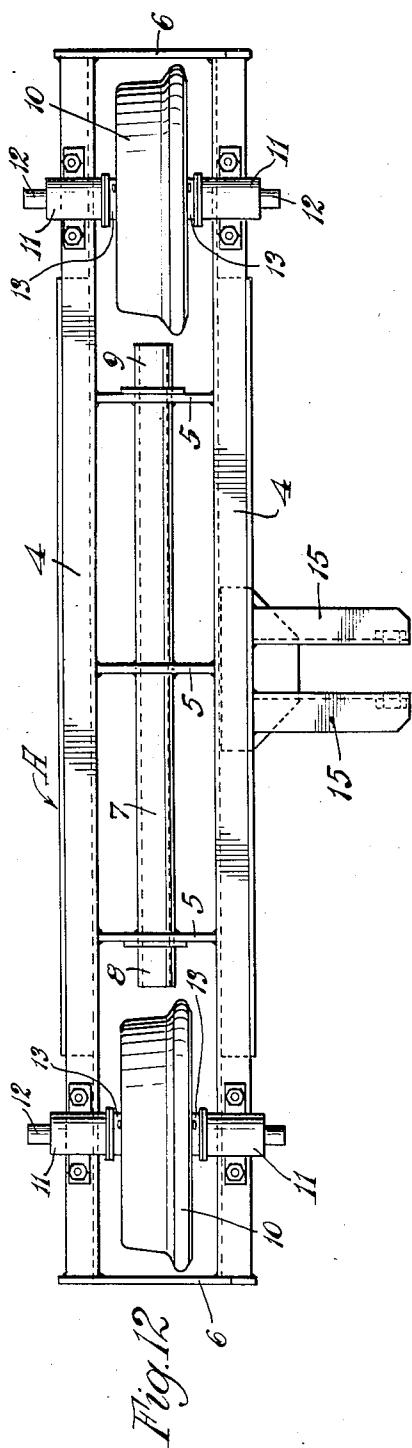
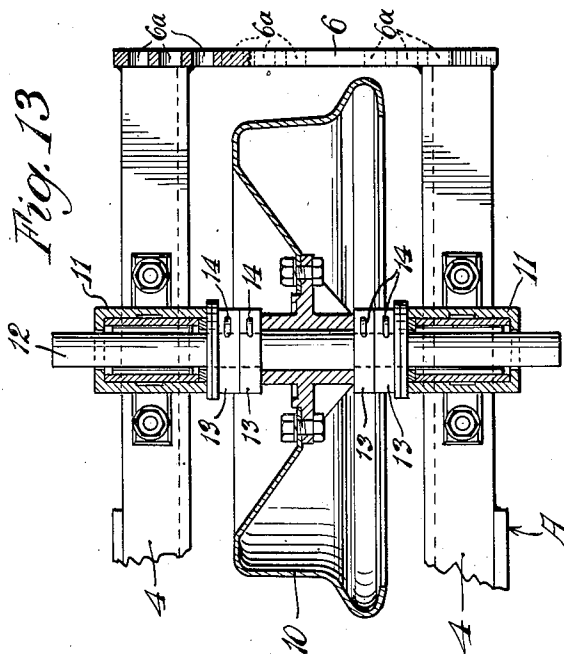
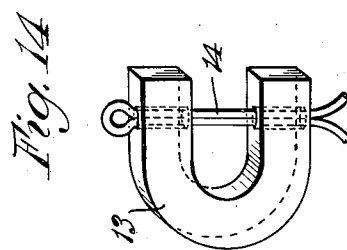
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UNITED STATES PATENT OFFICE

2,336,652

ADZING MACHINE

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Application March 10, 1941, Serial No. 382,603

22 Claims. (Cl. 144-133)

The invention relates to an improvement in adzing machines and has for one purpose the provision of means for adzing railroad ties.

Another purpose is the provision of an adzing machine for railroad ties which may be conveyed along the rails of a track.

Another purpose is the provision of an adzing device which may be supported upon the single rail of a track when in use and is provided with a working head operable against ties, for example ties supporting the single rail upon which the adzing machine rides.

Another purpose is the provision of improved means for adjusting the axis of the adzing head so that, for example, the device may be adaptable for use upon rails of different height.

Another purpose is the provision of improved means for holding the adzing machine upon a single rail.

Another purpose is the provision of improved means for adjusting the frame upon which the cutter is mounted.

Other purposes will appear from time to time in the course of the specification and claims.

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

Fig. 1 is a plan view;
Fig. 2 is a side elevation illustrating the device in use;

Fig. 3 is a side elevation illustrating the device ready for transportation along a track;

Fig. 4 is a section on the line 4-4 of Fig. 1;

Fig. 5 is a section on an enlarged scale on the line 5-5 of Fig. 4;

Fig. 6 is a section on an enlarged scale on the line 6-6 of Fig. 1;

Fig. 7 is a partial end elevation of the structure illustrated in Fig. 6;

Fig. 8 is a section on the line 8-8 of Fig. 6;

Fig. 9 is a section on an enlarged scale on the line 9-9 of Fig. 1;

Fig. 10 is a section on the line 10-10 of Fig. 9;

Fig. 11 is a section on an enlarged scale taken on the line 11-11 of Fig. 10;

Fig. 12 is a plan view of the truck frame;

Fig. 13 is an enlarged section through one of the truck frame wheels; and

Fig. 14 is a perspective view of a spacer.

Like parts are indicated by like symbols throughout the specification and drawings.

Referring to the drawings, 1 indicates a railroad tie upon which are mounted the rails 2 and 3 of a track. As shown in Fig. 3, the device is in conveying relationship, with wheels in con-

tact with both rails. Illustrated for example in Fig. 12 is a truck frame having longitudinally horizontal parallel frame elements 4, 4, located at each side of a rail. 5 indicate transversely extending connecting plates intermediate the ends of the truck frame, and 6 are end plates. Mounted in the plates 5 is a longitudinally extending tube 7, having ends 8, 9, the purpose of which will later appear. Track wheels 10 are journaled at each end of the frame in any suitable bearings 11. The wheels 10 may be transversely adjustable in the bearings 11 and in relation to the side frame members 4. Illustrated for example is a wheel shaft 12 and U-shaped spacers 13, which may be interposed between the ends of the bearings 11 and the hub of the wheel 10. These U-shaped spacers are provided with cotters 14, which when removed permit the ready removal of any individual spacer. By varying the number of spacers at opposite sides of the hub of the wheel 10, the wheel may be transversely adjusted.

Inwardly extending from one of the side frame members 4 are two parallel arms 15. These arms may, for example, be angles, as shown in Figs. 9 and 10, and at their ends they receive between them a bearing pin 16, which passes through flanges of the arms 15, and also through a bearing block 17, which is countersunk to receive the head 19 of the screw threaded shaft 18.

The head 19 is held in position in relation to the bearing block 17, for example, by the plate 20 and bolts 21. 22 is any suitable friction device for preventing unintended rotation of the shaft 18 in relation to the block 17. Any suitable manual handle 23 may be employed for rotating the shaft 18, for a purpose which will later appear.

Positioned above the truck frame 4 is an upper or main frame which includes side frame members 25, 25, which have converging portions 26, terminating in end parallel portions 27. The members 25, 25 are connected by transverse reinforcements 28, 29, 30, 31 and 32, and the end member 33. Any suitable engine platform 34 is mounted on the supports 31, 32. It may be adjusted upon them in any suitable manner, as by the employment of slots 35 in the engine platform, through which pass any suitable bolts or screws 36 whereby the engine support may be adjusted along the axis of the slots 35, as shown in Fig. 1. Mounted upon the platform 34 is any suitable engine 37, the details of which do not form part of the present invention, but which is provided with a drive pulley 38. It will be ob-

served that the axis of the drive pulley and its associated shaft is inclined to the line of the rail, and that the pulley 38 is located adjacent one side of the platform 34 and the frame which includes the members 25, 25. The frame thus formed is tiltably supported upon the truck frame, or it might be more proper to say that the truck frame is tiltable in relation to the main frame. For convenience the truck frame in general will be referred to as A, and the main frame in general as B.

At each end of the main frame B is a plate 40, which may for example be welded to one of the members 25. Welded in turn to the plates 40 are spaced angles 41, between each pair of which is slidably located a channel 42. The angles 41 may be connected by any suitable bolts 43. At the bottom of the channel 42 is welded a sleeve 44, which surrounds one of the ends 8 or 9 of the shaft 7, mounted on the truck frame A. Welded to a lower portion of each of the plates 40 is a screw threaded lug 45, in meshed relation with a screw 46, which extends upwardly through the channel 42 and is further guided on the plate 40 by an apertured lug 47, welded to the upper portion of each of the plates 40. 48 is a handle for rotating the screw 46. The lower end of each screw 46 rests against a flat portion 49 of one of the bearing sleeves 44. It will be understood, therefore, that rotation of the handle 48 will raise or lower the main frame B in relation to the truck frame A. When the adjustment is satisfactory, in order to prevent the weight of the main frame and its associated parts from resting on the threads of the screw 46, clamping means are provided for pressing the flanges of the angles 41 against the U-shaped member 42 in locking relationship.

There may be provided, for example, a bolt 50, which extends through the angles 41 and is threaded into a cylindrical bearing 51, which in turn is carried within the eccentric aperture 52 of a rotatable cylinder 53, which is provided with a slot 54 for clearing the bolt 50, and is also provided with a handle 55 for manual rotation. It will be understood that, when the parts are in the full line position in which they are shown in Fig. 9, the channel 42 is clamped between the angles 41, and this clamping relationship supports the weight of the main frame and prevents wear on the screw 46. When the handle 48 is rotated into the dotted line position, on the other hand, the tension of the screw 50 is released, and the operator can then rotate the handle 48, and raise or lower the main frame. The handle 48 for convenience is slidable in the upper portion of the screw 46.

It will be observed, as in Fig. 4, that the supporting and adjusting structure above described is in duplicate. It will be understood, therefore, that the opposite ends of the main frame may be independently adjusted in order to obtain an accurate alignment of the axis of the adzing cutter, which will later be described.

Mounted on the transverse support or angle 29 are bearings 60, which receive the trunnions 61 of a nut 62, which is screw threaded to receive the screw 18, as shown in Fig. 10. As the screw 18 is mounted on the laterally extending arms 15 of the truck frame A, this provides a third point of adjustment between the two frames. Rotation of the handle 23 is effective to move the adjacent parts of the two frames toward or away from each other. This is effective to adjust the angle of the wheels 10.

Mounted at the opposite side of the main frame B is the cutter head and its associated parts. As shown in Figs. 2 and 3, any suitable bearing member 63 is fixed to the parallel ends 27 of the angles 26. The details do not form part of the present invention and are not illustrated, but it will be understood that, rotatable within the member 63, is any suitable driven shaft, to the lower end of which is secured any suitable adzing head 64, carrying cutters 65. 66 is any suitable surrounding, protecting apron. 67 is a pulley, which may be connected with the drive pulley 38 of the motor, as by any suitable belt 68. As above described, the motor may be adjusted toward or away from the pulley 67 in order to obtain a proper tension on the belt 68, and the axis of rotation of the motor is at right angles to the general extension of the belt. 69 is any suitable handle structure carrying hand pieces 70 which are effective for raising and lowering the outer end of the main frame B and moving the adzing head upwardly or downwardly in relation to the parts to be adzed. It is also effective for moving the device longitudinally along the rail.

Bolted or otherwise secured to the end plates 6 of the truck frame A is a roller supporting structure for supporting rollers to engage the opposite sides of the single rail upon which the adzing machine is supported when it is in the adzing position, as shown in Fig. 2. The structure may include two spaced plates 70, 71, connected by spacers 72, 73. The spacer 73 is shown in Fig. 6 as vertical, and the spacer 72 is upwardly and outwardly inclined therefrom. Each of these spacer members has at its outer side a plurality of apertured ears 74 to receive locking pins 75, having cotters 76, which permit a limited withdrawal of the locking pins 75 upwardly through the lugs or ears 74. Pivoted between the plates 70, 71 are eye bolts 77, 78, through the eyes of which bolts pass bolts 79, which may be employed to hold the whole assembly in position on one of the end plates 6 of the truck frame A. An additional bolt 80 may be employed for holding the bottom of the assembly to the plate 6. A plurality of apertures 82 are provided in the plate 6 for the bolts 79 and 80, in order to permit longitudinal adjustment of the above described assembly.

The eye bolts 77, 78 carry in screw threaded relation bars 81, 82, respectively. These bars may be adjusted for length by being rotated in relation to the eye bolts. At the bottom of each such bar is rotatably mounted rollers 83, 84, respectively. They may be mounted upon any suitable ball bearings 85, which also serve to hold the rollers 83, 84 upon supporting bearing blocks 86, the opposed portions of the rollers and bearing blocks constituting races of the balls. It will be observed that the roller 84 is vertically axised, whereas the roller 83 has an inclined axis, the purpose of which will later be discussed. Extending downwardly from the roller 84 is a tubular extension 87, the purpose of which will later appear. The rollers may be adjusted toward and away from the opposed faces of the rail and may be locked in adjusted position by the following means:

Each bar 81, 82 has screw threaded therein an eye bolt 90, the eye 91 of which may receive the locking pin 75, as shown in Fig. 6. When the parts are locked in the position shown, the rollers 83, 84 are opposed to opposite faces of the rail and are fixed against lateral movement in relation to the rail or to each other. However, the

adjustment may be obtained by withdrawing the pins 75 and swinging the blocks 81, 82 out and rotating the eye bolts 90 to any desired adjustment. Each of the eye bolts 90 has a flattened portion 92, opposed to a spring thrust ball 93, in a housing 94, welded to the square bars 81, 82, respectively. This prevents unintended rotation of the eye bolt and keeps its eye aligned to receive the locking rods 75. When desired, as during transport of the device along a rail, or when necessary to clear anything adjacent the rail, the bars 81, 82 may be swung up into the dotted line position of Fig. 6 and may be held in that position, for example, by the locking rod 95, with its outwardly extending fingers 96. The plates 71 may also carry any suitable bumper members 97.

When the adzing machine is being conveyed along a track, as in the position of Fig. 3, the outer end of the main frame B is supported by a sub frame, generally indicated as C, which sub frame includes transversely extending angles 98, connected by any suitable longitudinally extending angles 99, 100 and 101. The sub frame C carries any suitable rail engaging wheels 102 at its opposite end. When the sub frame C is in supporting position, a flange of the angle 101 is slipped between the supporting fingers 103, and the main frame members 25. A flange of the angle 99 is received in a flange of the angle 30 of the main frame and abutments or bars 30a on the main frame. Any locking hook 104 may be slipped over the flange of the angle 30, and a pivoted locking bar 105 prevents unintended release. When the device is to be used the sub frame C is positioned at the opposite end of the main frame B, as shown in Fig. 2. In that position the angle 101 abuts against the lower face of the main frame, and the angle 100 is received on the angles 33a, which have upwardly extending blocks or toes 33b. The weight of the wheels 102 is effective to hold the parts in position.

Mounted on the angle 101 are two pairs of angle abutments 110, between which are pivoted the supporting leg structure 111. 112 is a stop to limit its downward rotation. It is effective to prevent over-tilting of the main frame when the handle 69, 70 is released, and prevents such rotation of the main frame as would permit the inclined rollers 83 to clear the rail and to permit the device to slip off.

For ease in raising the device, for example when it is desired to hoist it on a derrick, crane, or the like, a rigid bail is provided, which includes converging side members 120. The bail is so located that the weight is in balance so that, when the adzing machine is upwardly lifted, as by a derrick, it will hang in a generally horizontal position. The device is sufficiently closely in balance so that, regardless of the location of the sub frame C, it may be lifted up by a crane without tilting sufficiently from the horizontal plane to be disadvantageous.

In order to permit proper leveling or adjustment of the main frame, a leveling means is provided, generally indicated as 130, which includes a longitudinal spirit level 131 and a transverse spirit level 132.

It will be realized that, whereas there is illustrated and described a practical and operative device, nevertheless many changes may be made in the size, shape, number and disposition of parts provided said changes come within the scope of the claims. The use and operation of the invention are as follows:

The adzing machine includes, basically, the

truck frame A, the main frame B, and the sub frame C. The adzing machine may be moved along a track like any other car, at which time the sub frame C is in the position in which it is shown in Fig. 3, and the rollers 83, 84 may be moved up into the position in which they are shown in Fig. 3, and held locked in their upper position by the fingers 96.

When the device is to be used for adzing, the lock 104, 105 is released, and the sub frame C is moved from the dotted line to the full line position of Fig. 1, and as also shown in Fig. 2. Although in Fig. 2 the adzing head is shown in cutting position, it will be understood that the wheels 102 on the subframe C are of sufficient weight, and the leverage is sufficient normally to tilt the outer end of the main frame upwardly away from the track. At such time the limit member 111 is effective to limit it against over-tilting, although, if desired, it could be rotated up into inoperative position.

Assuming that an ordinary tie is being adzed, it is important that the axis of the cutter head be perpendicular to the rail surface. The bearing sleeve 63 is fixed in relation to the main frame B and any adjustment of the axis of rotation of the cutter is obtained by adjusting the relation of the truck frame A to the main frame B. A precise adjustment may be made by the employment of the three-point adjustment above described. There being one of the screws 46 at each end of the main frame, the main frame may be very precisely leveled, and this leveling can be checked by consulting the spirit level 131. The third adjustment is, of course, provided by the screw 18. The two spirit levels 131, 132 enable the operator to obtain a very precise adjustment of the axis of rotation of the cutter head in relation to the vertical. Once the adjustment is obtained, wear of the threads of the adjusting screws 46 is prevented or reduced, by the clamping means shown in Fig. 9, including the clamping and releasing handle 55.

One reason for adjusting the sub frame is to take care of variation in rail height, and the adjusting means above described care for adjustments for height and level. The adjustments, including the screw 18, are effective for adjusting the plane of the track wheels 10. The track wheels may be adjusted to vertical position, or they may be slanted a little inwardly in order to tend to hold the truck on the rail. This is especially important on crossings where the outer guide rollers 84 may be too large and must be rotated and held in inoperative position, as illustrated in dotted line in Fig. 6. The inner guide rollers 83 are inclined to clear guard rails, crossings, etc.

Whereas the double spirit level may be employed to control the flat setting of the cutter head, it is possible, of course, to cant the cutter if it is desired to do so where adzing rails on curves. The engine is adjusted laterally simply to take up the tension of the belt.

In adjusting, the cutter is laid on the tie in the position in which it is shown in Fig. 2, and the main frame is then adjusted to suit, or, rather, more correctly, the truck frame is adjusted in relation to the main frame, depending, for example, on the height of the rail employed.

It is also possible to adjust the track wheels laterally by the horseshoe-shaped washers 13, which can be moved without taking the wheels off.

The guide rollers 83, 84 may both be adjusted

for height by simply rotating the bars 81, 82 in relation to the eye bolts 77, 78. Lateral adjustment is provided by the rotation of the eye bolts 90, 91, and, as above described, both types of guide rollers may be swung upwardly away from the rail and locked in raised position by the fingers 96. The limit tube 87 on the horizontal guide of the roller 84 is effective to keep the truck from being jerked off the track, as for example when the cutter hits a spike. Even if the machine is jolted sufficiently to cause the roller 84 to clear the top of the rail, the tube 87 engages the side of the rail and prevents the adzing machine from going over. The rollers are designed to keep the gauge side roller against the gauge side of the rail in going through crossings and frogs—hence the tilting of the axis of the rollers 83, as shown in Fig. 6.

What is claimed is:

1. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for adjusting the truck frame upon the main frame, including adjusting means interposed between said frames and located at opposite ends of the main and truck frames and aligned along the rail upon which said wheels are supported, and additional adjusting means laterally inwardly spaced from said rail.

2. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for adjusting the truck frame upon the main frame, including adjusting means interposed between said frames and located at opposite ends of the main and truck frames and aligned along the rail upon which said wheels are supported, and additional adjusting means laterally inwardly spaced from said rail, each such adjusting means being independently adjustable whereby the truck frame may be tilted both longitudinally and laterally in relation to said main frame.

3. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for adjusting the truck frame upon the main frame, including adjusting means interposed between said frames and located at opposite ends of the main and truck frames and aligned along the rail upon which said wheels are supported, and additional adjusting means laterally inwardly spaced from said rail, said first mentioned adjusting means including connections between the two frames adapted to permit relative rotation of the frames about a longitudinal axis.

4. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means

for adjusting the truck frame upon the main frame, including adjusting means interposed between said frames and located at opposite ends of the main and truck frames and aligned along the rail upon which said wheels are supported, and additional adjusting means laterally inwardly spaced from said rail, said first mentioned adjusting means including connections between the two frames adapted to permit relative rotation of the frames about a longitudinal axis generally coincident with the rail upon which the truck frame is supported.

5. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for adjusting the truck frame upon the main frame, including adjusting screws on one of said frames, and means for rotating them, and nut members in mesh therewith upon the other such frame, and means for locking said frames together when adjusted and for thereby preventing wear upon the threads of said screws and nuts.

6. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for adjusting the truck frame upon the main frame, including adjusting screws on one of said frames, and means for rotating them, and nut members in mesh therewith upon the other such frame, and means for locking said frames together when adjusted and for thereby preventing wear upon the threads of said screws and nuts, including interpenetrating members on said frames, a tension member extending through said interpenetrating members, means for tensioning it, and for thereby locking said interpenetrating members together, said interpenetrating members when not locked having sufficient clearance to permit relative movement of the frames.

7. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail only of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, means for supporting its outer end on the opposite rail, a rotary working head mounted on the main frame, and means for rotating it about a generally vertical axis normally fixed in relation to the main frame, and means for bodily tiltably adjusting the truck frame, in relation to the main frame, about a generally horizontal axis, generally parallel with and adjacent the rail upon which the truck frame is supported.

8. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for tiltably adjusting the truck frame, in relation to the main frame, about a generally horizontal axis, generally parallel with and adjacent the rail upon which the truck frame is supported, including a lateral extension from the

truck frame toward the opposite rail, and an adjusting connection between it and the main frame.

9. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for tiltably adjusting the truck frame, in relation to the main frame, about a generally horizontal axis, generally parallel with and adjacent the rail upon which the truck frame is supported, including a lateral extension from the truck frame toward the opposite rail, and a screw threaded adjusting connection between it and the main frame.

10. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, a rotary working head mounted on the main frame, and means for rotating it, and means for tiltably adjusting the truck frame, in relation to the main frame, about a generally horizontal axis, generally parallel with and adjacent the rail upon which the truck frame is supported, including a lateral extension from the truck frame toward the opposite rail, and an adjusting connection between it and the main frame, and readily accessible manual operating means therefor.

11. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail only of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, means for supporting its outer end on the opposite rail, a rotary working head mounted on the main frame, and means for rotating it about a generally vertical axis normally fixed in relation to the main frame, and three point adjusting means intermediate the truck frame and the main frame.

12. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail only of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, means for supporting its outer end on the opposite rail, a rotary working head mounted on the main frame, and means for rotating it about a generally vertical axis normally fixed in relation to the main frame, and three point adjusting means intermediate the truck frame and the main frame, including two adjusting connections aligned along an axis generally parallel with the rail on which the truck frame is supported, and a third adjusting connection transversely removed from said axis.

13. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail only of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, means for supporting its outer end on the opposite rail, a rotary working head mounted on the main frame, and means for rotating it about a generally vertical axis normally fixed in relation to the main frame, and three point adjusting means intermediate the truck frame and the main frame, including two adjusting connections aligned along an axis gen-

erally parallel with the rail on which the truck frame is supported, and a third adjusting connection transversely removed from said axis in the direction of the opposite rail.

14. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail only of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, means for supporting its outer end on the opposite rail, a rotary working head mounted on the main frame, and means for rotating it about a generally vertical axis normally fixed in relation to the main frame, and means for tiltably adjusting the truck frame, in relation to the main frame, about a generally horizontal axis, and a power plant mounted on and movable with the main frame, and an actuating connection between it and the rotary working head.

15. In a machine adapted for use upon a railroad track, supporting wheels adapted to engage one rail only of the track, a truck frame upon which said wheels are supported, a main frame mounted upon said truck frame and spanning the rails of the track, means for supporting its outer end on the opposite rail, a rotary working head mounted on the main frame, and means for rotating it about a generally vertical axis normally fixed in relation to the main frame, three point adjusting means intermediate the truck frame and the main frame, a power plant mounted on and movable with the main frame, and an actuating connection between it and the rotary working head.

16. In a machine adapted for use upon a railroad track, a truck frame overlying one rail only of said track, wheels on said truck frame, engaging said one rail only, a main frame mounted on said truck frame and spanning both rails of the track, rail engaging means on said main frame for engaging the opposite rail of the track, a rotary working head mounted directly on the main frame for rotation about a generally vertical axis, and means for tiltably adjusting the main frame and the truck frame about a generally horizontal axis generally parallel with the track.

17. In a machine adapted for use upon a railroad track, a truck frame overlying one rail only of said track, wheels on said truck frame, engaging said one rail only, a main frame mounted on said truck frame and spanning both rails of the track, rail engaging means on said main frame for engaging the opposite rail of the track, a rotary working head mounted directly on the main frame, and means for tiltably adjusting the main frame and the truck frame about a generally horizontal axis generally parallel with the track.

18. In a machine adapted for use upon a railroad track, a truck frame overlying one rail only of said track, wheels on said truck frame, engaging said one rail only, a main frame mounted on said truck frame and spanning both rails of the track, rail engaging means on said main frame for engaging the opposite rail of the track, a rotary working head mounted directly on the main frame, and means for tiltably adjusting the main frame and the truck frame about a generally horizontal axis generally parallel with the track, the axis of the working head being fixed in relation to the main frame.

19. In a machine adapted for use upon a railroad track, a truck frame overlying one rail only

of said track, wheels on said truck, frame in supporting relationship with the said rail only, a main frame spanning both rails, motor means on said main frame, a rotary working head on said main frame, a driving connection between said motor means and said rotary head, the main frame being tiltably mounted in relation to said truck frame for adjustment about generally horizontal axis, generally parallel with the track, and means for supporting the outer end of said main frame on the opposite rail of the track.

20. In a machine adapted for use upon a railroad track, a truck frame overlying one rail only of said track, wheels on said truck frame in supporting relationship with said rail only, a main frame spanning both rails, motor means on said main frame, a driving connection between said motor means and said rotary head, the main frame being tiltably mounted in relation to said truck frame for adjustment about a generally horizontal axis, generally parallel with the track, and means for supporting the outer end of said main frame on the opposite rail of the track, said supporting means being removable, the truck frame and the main frame, when the supporting means has been removed, being freely tiltable upon the rail upon which the truck frame is mounted.

21. In a machine adapted for use upon a railroad track, a truck frame overlying one rail only of said track, wheels on said truck frame in supporting relationship with said rail only, a main frame spanning both rails, motor means on said main frame, a driving connection between said motor means and said rotary head, the main

frame being tiltably mounted in relation to said truck frame for adjustment about a generally horizontal axis, generally parallel with the track, and means for supporting the outer end of said main frame on the opposite rail of the track, said supporting means being removable, the truck frame and the main frame, when the supporting means has been removed, being freely tiltable upon the rail upon which the truck frame is mounted, said rotary working head being mounted for rotation on the main frame about a generally vertical axis generally aligned with said opposite rail.

22. In a machine adapted for use upon a railroad track, a truck frame overlying one rail only of said track, wheels on said truck frame in supporting relationship with said rail only, a main frame spanning both rails, motor means on said main frame, a driving connection between said motor means and said rotary head, the main frame being tiltably mounted in relation to said truck frame for adjustment about a generally horizontal axis, generally parallel with the track, and means for supporting the outer end of said main frame on the opposite rail of the track, said supporting means being removable, the truck frame and the main frame, when the supporting means has been removed, being freely tiltable upon the rail upon which the truck frame is mounted, said rotary working head being mounted for rotation on the main frame about a generally vertical axis generally aligned with said opposite rail, said axis being normally fixed in relation to the main frame.

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