

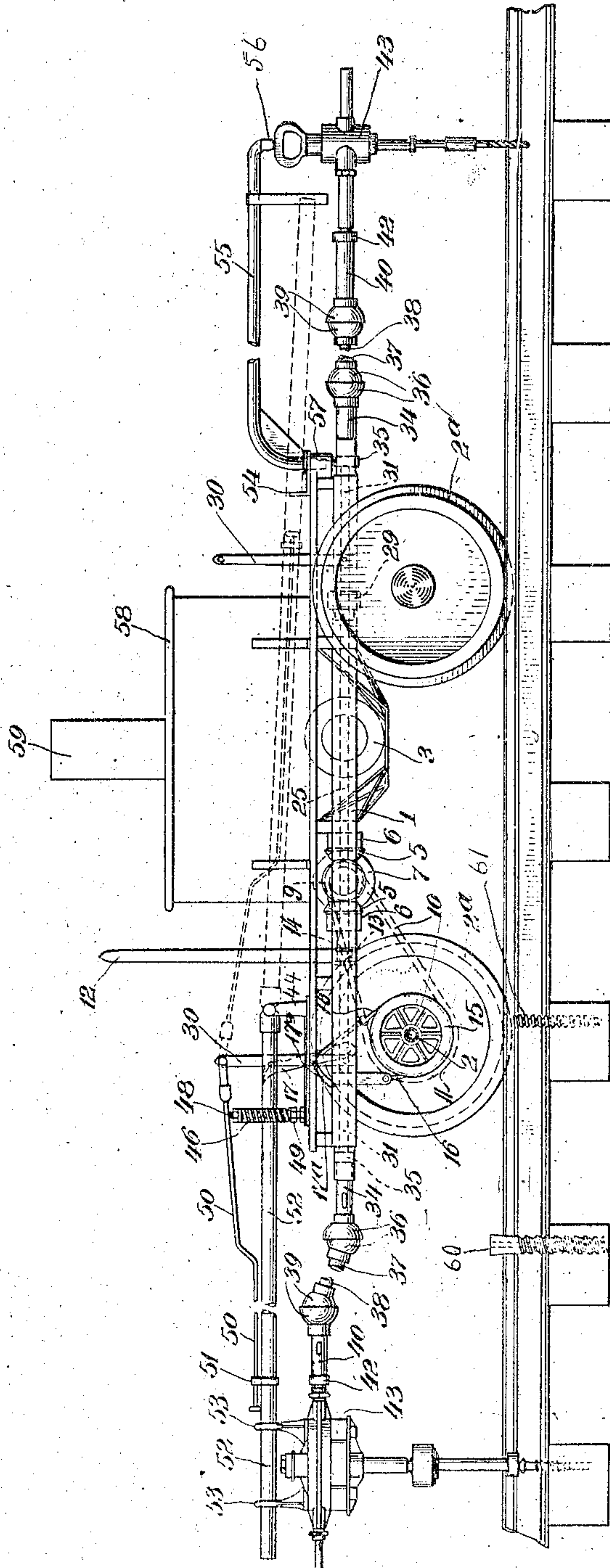
H. W. JACOBS.  
 TRACK CAR AND TOOL DRIVING MACHINE.  
 APPLICATION FILED NOV. 23, 1908.

975,042.

Patented Nov. 8, 1910.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses:  
 A. Newcomb  
 W. Meekle

Inventor  
 Harry W. Jacobs  
 By *Wm. H. Wright*  
 Wm. H. Wright

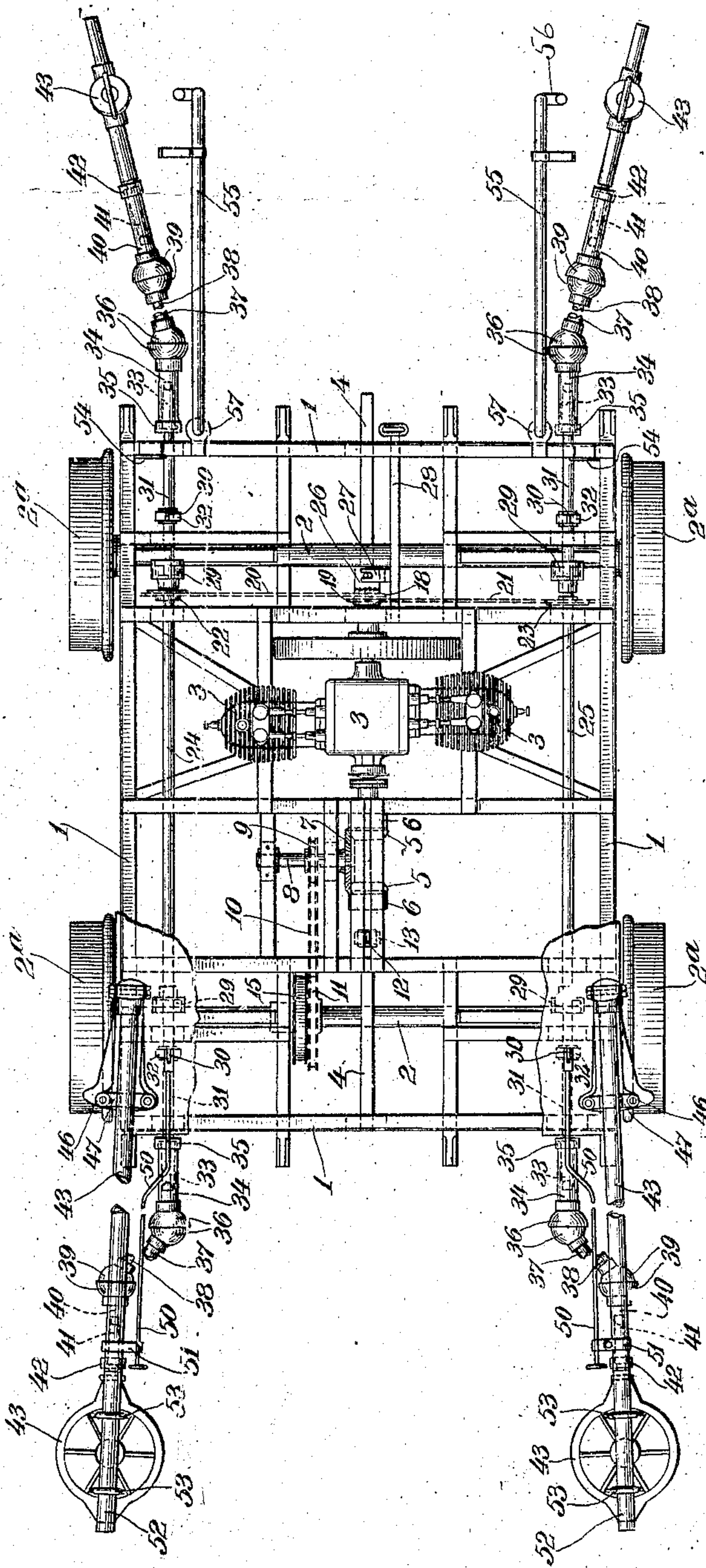
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3 SHEETS—SHEET 2.

Fig. 2



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3 SHEETS—SHEET 3.

Fig. 3

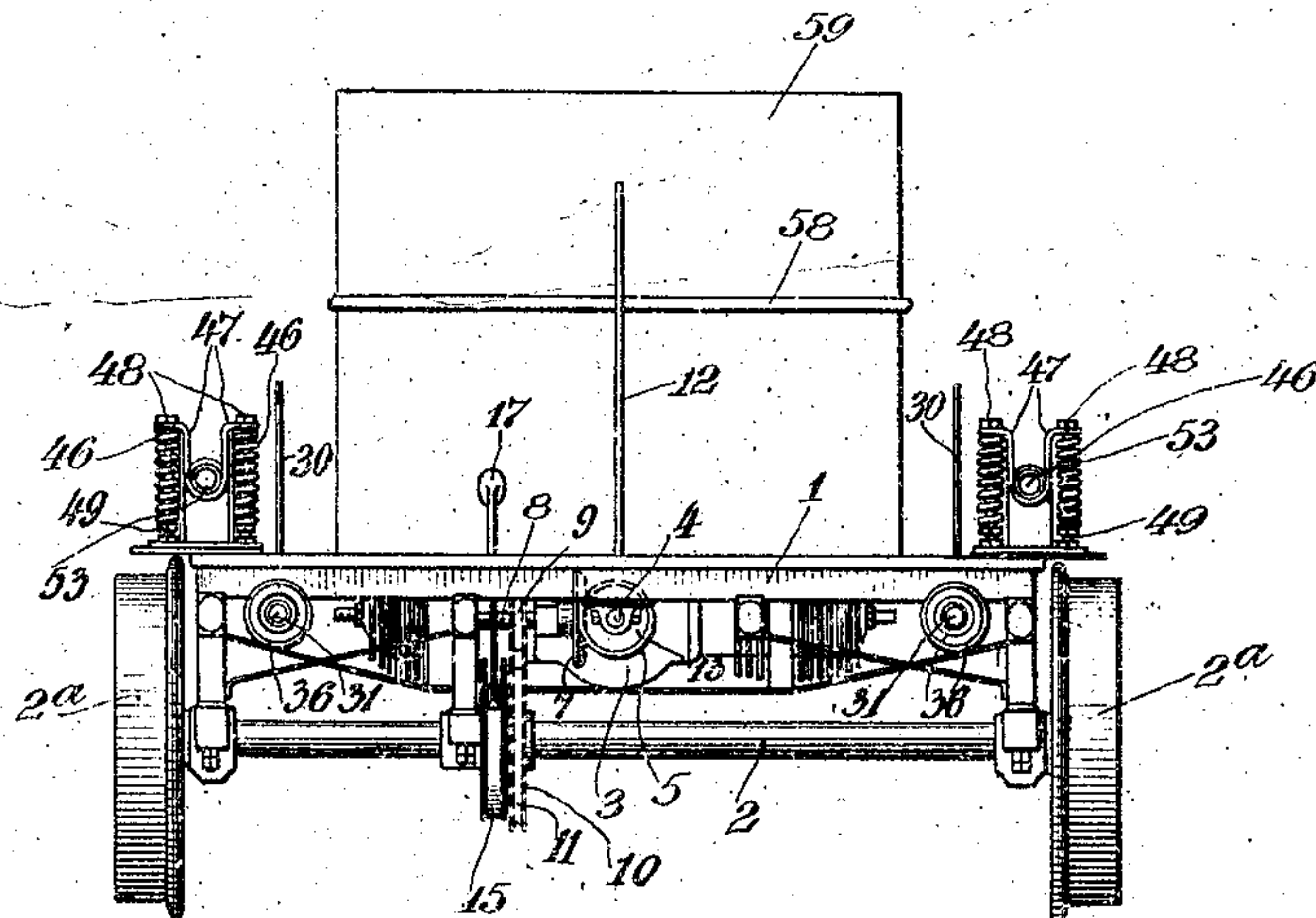
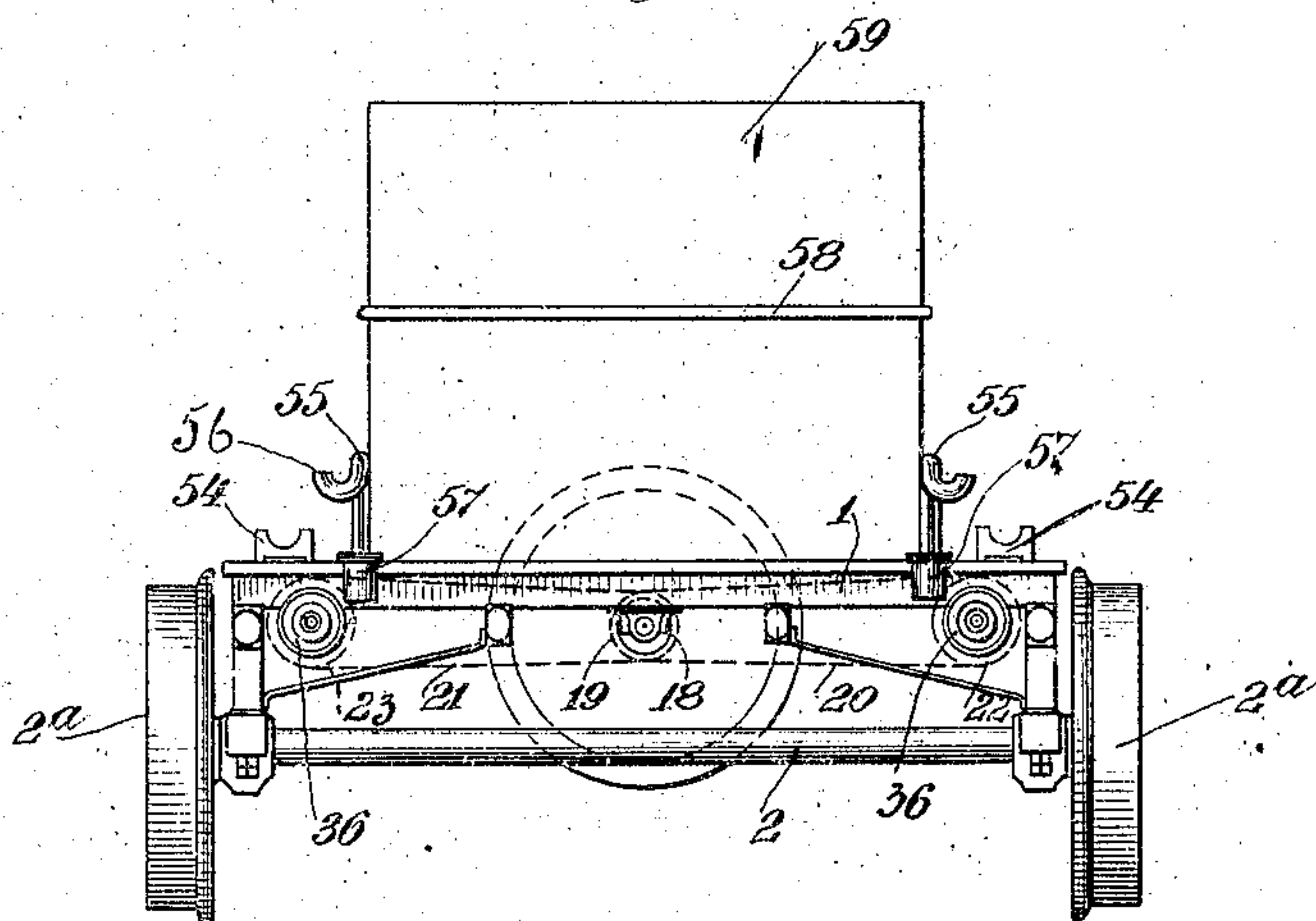


Fig. 4



Witnesses:  
 A Newcomb  
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 Henry W. Jacobs  
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# UNITED STATES PATENT OFFICE.

HENRY W. JACOBS, OF TOPEKA, KANSAS.

## TRACK-CAR AND TOOL-DRIVING MACHINE.

975,042.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed November 23, 1908. Serial No. 464,051.

*To all whom it may concern:*

Be it known that I, HENRY W. JACOBS, of Topeka, in the county of Shawnee, and in the State of Kansas, have invented a certain  
5 new and useful Improvement in Track-Cars and Tool-Driving Machines, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to an improvement  
10 in track cars and tool driving machines.

The object of my invention is to provide a car by which holes may be drilled in railway cross ties in proper relation to the rails, and for driving screw spikes in said holes  
15 for maintaining the rails in proper position.

I also provide upon my machine means for driving wooden dowels for retaining the screw spikes in the cross ties, and also means for driving Thollier's linings or any  
20 other devices made for the purpose of increasing the holding power of screw spikes in cross ties.

These various operations may be carried out by means of my apparatus at different  
25 points simultaneously, the machine not being limited to use of any one particular tool for a given time.

I have shown one embodiment of my invention in the accompanying drawings, in  
30 which—

Figure 1 is a side elevation of my car; Fig. 2 is a plan view thereof with the seat removed; Fig. 3 is an end view of the car from the front thereof; Fig. 4 is an end  
35 view of the car from the rear thereof.

In the drawings above referred to, 1 is a car body or frame which is supported on axles 2 having wheels 2<sup>a</sup> secured thereto in the usual manner. Upon the car is located  
40 a motor which may be of any desired character, but which I have shown in the above figures as a double opposed air cooled explosive motor 3. The shaft 4 of the motor is supported upon the frame by means of  
45 suitable bearings and is located parallel to the track upon which the car runs. As shown in the drawings, I preferably, although not necessarily, locate the motor closer to one end of the car than the other.  
50 To the longer end of the shaft 4 and as close to the motor as practicable, I locate a transmission mechanism, preferably constructed of two bevel pinions 5 splined to the shaft. These bevel pinions 5 have attached  
55 thereto friction clutches 6 and are adapted

to mesh with a bevel gear 7 which is attached to a jack shaft 8 located at right angles to the shaft 4 and secured to the frame by means of suitable bearings. At the middle of the jack shaft there is located  
60 a sprocket wheel 9 which connects by means of a sprocket chain 10 with another sprocket wheel 11 attached to one of the axles 2 of the car, as shown in the drawings, the front axle. Through this train of mechanism the  
65 car is propelled forward or backward as desired through the operation of a lever 12 which engages a shifter 13 attached to a feather key 14 and arranged to engage the clutches 6. When the feather key 14 is  
70 shifted into its central position between the clutches 6—6, the motor shaft 4 is allowed to rotate independently of the bevel gear 7, as the bevel pinions 5 are thrown out of mesh therewith.  
75

In order to stop the car when desired, I attach to the sprocket wheel 11 a brake band wheel 15 upon which is located a brake band  
80 16 connected with and adapted to be operated by a foot lever 17. The foot lever 17 coöperates with a rack 17<sup>a</sup> carried by the car body, the purpose of which is to hold the lever in its tightened position when it is desired to lock the car and prevent its movement during the operation of the various  
85 tool devices.

Upon the opposite end of the motor shaft I have located two sprocket wheels 18 and 19, which are connected by means of  
90 sprocket chains 20 and 21 respectively with sprocket wheels 22 and 23, which are attached to the jack shafts 24 and 25 secured to the car frame by suitable bearings and extending longitudinally thereof. The sprocket  
95 wheels 18 and 19 are seated upon a single hub, and the latter is adapted to be engaged by a crown clutch 26 which is operated by a shifter 27 controlled by means of a push rod 28. It will be seen that by this construction, whenever the crown clutch 26 is disengaged  
100 from the hub of the sprockets 18 and 19, the shaft 4 is allowed to rotate freely within the said hub and independently of the sprockets. In this position of the crown clutch 26, the jack shafts and their various power-driven  
105 connections are of course thrown out of operation, and under these conditions the motor can be used exclusively for the purpose of propelling the car.

To each of the jack-shafts 24 and 25 I at- 110



5 tach a friction clutch 29 which is designed  
 to be thrown in and out of operation by  
 means of a lever 30 located upon an exten-  
 sion 31 of each of the jack-shafts. These  
 extensions are, of course, separable from the  
 jack-shafts, to permit the friction clutches  
 29 to be operated. Each lever 30 is connect-  
 10 ed to an extension of the jack-shaft 31 by  
 means of a feather key and a shifter 32 of  
 the ordinary type. Each extension 31 is  
 further constructed with a taper shank 33  
 upon its end, which is designed to fit within  
 a taper socket 34 and to be locked thereto by  
 means of a removable ring 35. The taper  
 15 socket 34 is connected to a telescoping shaft  
 35 through the agency of a universal joint,  
 the parts of which are inclosed by hemi-  
 spherical casings 36 projected from opposite  
 sides thereof. The telescoping shaft 36 com-  
 20 prises an outer large member 37 which fits  
 over an inner member 38, the former being  
 connected to the universal joint above re-  
 ferred to. The smaller section 38 of the  
 telescoping shaft 35 is again connected  
 25 through the agency of a similar universal  
 joint 39, protected in a similar manner, to  
 a taper socket 40, constructed in the same  
 manner as the taper socket 34. This is  
 adapted to receive a taper shank 41 to which  
 30 it can be removably secured by means of a  
 ring 42 similar to the ring 35. The taper  
 shank 41 conveys power direct to a drill  
 screw-driver or other tool indicated at 43.

35 At one end of the car, the front end, as  
 shown in the drawings, I attach two cranes  
 52 for supporting spike drivers. These  
 cranes are supported by stands 44 which ex-  
 tend in a vertical direction pivotally sup-  
 porting the inner ends of the cranes. The  
 40 cranes 52 are supported for yielding move-  
 ment in a vertical direction by means of  
 springs 46, of which there are two provided  
 for each crane, one located on either side  
 thereof. The two springs 46 coöperating  
 45 with either of the cranes 52, are connected  
 by a saddle shaped bar 47 which passes un-  
 der the particular crane 52. Inasmuch as  
 the springs 46 are retained upon vertical  
 bolts 48 and are confined thereon by means  
 50 of adjustable nuts 49, it will be seen that the  
 cranes 52 can be readily raised or lowered as  
 desired and that the springs can be com-  
 pressed to a greater or less degree, according  
 as it is found desirable.

55 The levers 30 located at the front of the  
 car in proximity to the cranes 52 above de-  
 scribed, are provided with operating levers  
 50 which extend beyond the front of the car  
 and adjacent to the cranes 43, to which they  
 60 are attached by supports 51, so that the said  
 levers 30 can be operated from the outer end  
 of the crane without the necessity of mount-  
 ing upon the car body. The tools 43 located  
 at this end of the car are supported from the  
 65 crane lever arms 52 by means of retaining

brackets 53, which are constructed in such a  
 way that they may be readily pushed longi-  
 tudinally along the crane lever arms 52.

During the time that the car is used for  
 traveling from one point to another, the 70  
 tools 43 are uncoupled by removing the re-  
 movable rings 35 and sliding the retaining  
 brackets 53 off the outer ends of the crane  
 lever arms 52. The tools 43 and their at-  
 tached shafts, etc. are then placed upon the 75  
 top of the car body and the crane lever arms  
 52 are folded backwardly upon their hori-  
 zontal pivots until they rest upon the sup-  
 ports 54 located at the rear of the car.

At the rear of the car there are located 80  
 two crane arms 55, one for each tool devic  
 43. When the tools 43 are not in use they  
 are placed upon brackets 56 extending later-  
 ally from the ends of the crane arms 55.  
 When, however, it is desired to use the car 85  
 for going to another point on the track, the  
 tools 43 are uncoupled by removing the de-  
 detachable rings 35, and the tools 43 with their  
 attached shafts are placed upon the top of  
 the car. The cranes 55 which are supported 90  
 in sockets 57 located upon the body of the  
 car are also removed out of the sockets and  
 placed upon the top of the car.

Over the motor 3 I locate upon the car  
 body a dos-à-dos seat 58, to be used by the 95  
 workmen. The back 59 of this seat is used  
 as a storage reservoir for hydrocarbon to  
 be supplied to the motor.

The operation of my device is as fol-  
 lows:—During the movement of the car 100  
 from one point to another, the lever 12 is  
 thrown to one side so as to cause one of the  
 beveled gears 5 to engage with the beveled  
 gear 7, which throws the power of the motor  
 into connection with the front axle of the 105  
 car, so as to propel the forward pair of  
 wheels. The crown clutch 27 has also been  
 disengaged from the hub upon which  
 sprockets 18 and 19 are located by moving  
 the operating rod 28. In this condition the 110  
 tools located at the various corners of the  
 car have been removed and placed upon the  
 top of the car body, the forward crane arms  
 52 have been folded backwardly upon their  
 pivots so as to rest upon the supports 54, 115  
 and the rear crane arms 55 have been re-  
 moved from their sockets 57 and placed upon  
 the car body with the tools. When the  
 point is reached at which it is desired to re-  
 pair the track, the lever 12 is thrown so 120  
 that the gears 5 are entirely disengaged  
 from the beveled gear 7, and the brake 17  
 is operated so as to tighten the band 16  
 and stop the car. The car is locked in this  
 position through the agency of the rack 17<sup>a</sup> 125  
 which coöperates with the foot lever 17.  
 The crane arms 52 are now removed from  
 their supports 54 and allowed to drop upon  
 their spring supports and extend toward  
 the front of the car. The various tapered 130



sockets 34 are next attached to the taper shanks 33 by means of the detachable rings 35, the tools 43 at the front of the car having been first supported upon the crane lever arms 52 by inserting the retaining brackets 53 over the same. The crane arms 55 are now inserted in their sockets 57 at the rear of the car, and the tools 43 located in proximity thereto are temporarily supported upon them. In this position of the various parts it is now possible to throw into operation anyone of the tools that it is desired to operate, independently of all the others.

When it is desired to connect the tools with the source of power, the operating rod 28 connected with the crown clutch 27 is first moved so as to connect the sprockets 18 and 19 with the shaft 4. The jack-shafts 24 and 25 are caused to be rotated as a consequence. In order to convey power to anyone of the tools, it is now merely necessary to operate one of the levers 30, which through the agency of the friction clutch 29, causes a rotation of the extension 31, and as a consequence the various shafts, sockets, etc. connected directly to the particular tool.

It will, of course, be understood that during the operation of the tools located at the rear of the car, the same are removed from their supporting brackets 56 located upon the cranes 55. In throwing the tools 43 located at the front of the machine into operation, it is not necessary to mount the car to operate the levers 30, but it is merely necessary to move one of the levers 50 which extend in proximity to the tools themselves.

Any form of tool can be used in the devices which I have above described. Tools for drilling holes, cutting threads, countersinking, driving and facing off wooden dowels and for screwing in spikes, might readily be used. The cranes 52 are especially adapted to support tools used for screwing in spikes.

In Fig. 1 I have shown a wooden dowel 60 of the character referred to, and in the same figure I have shown a Thollier's lining 61. Thollier's linings can be driven, and all operations required for fitting them in cross-ties can be performed by special attachments. In like manner special attachments can be made for fitting any other devices made for increasing the holding power of screw spikes and cross-ties.

Various other changes can be made in the construction above described which come within the scope of my invention, and I consider that many different applications and changes of the various details can be made without departing from the spirit of my invention.

I claim:

1. In a machine for track construction, the combination of a car, a motor thereon and power driven connections attached to

said motor for simultaneously driving a plurality of tools at the rear end of the car and also a plurality of tools at the forward end thereof.

2. In a machine for track construction, the combination of a car, a motor thereon and power driven connections attached to said motor for driving a plurality of tools independently of one another at the rear end of the car and also a plurality of tools independently of one another at the forward end thereof.

3. In a machine for track construction, the combination of a car, a motor thereon and power driven connections attached to said motor for driving a plurality of tools simultaneously and independently of one another at the rear end of the car and also a plurality of tools simultaneously and independently of one another at the forward end thereof.

4. In a machine for track construction, the combination of a car, a motor thereon and one or more subsidiary shafts driven by said motor for simultaneously driving a plurality of tools at the rear end of the car and also a plurality of tools at the forward end thereof.

5. In a machine for track construction, the combination of a car, a motor thereon and one or more subsidiary shafts driven by said motor for driving a plurality of tools independently of one another at the rear end of the car and also a plurality of tools independently of one another at the forward end thereof.

6. In a machine for track construction, the combination of a car, a motor thereon and one or more subsidiary shafts driven by said motor for driving a plurality of tools simultaneously and independently of one another at the rear end of the car and also a plurality of tools simultaneously and independently of one another at the forward end thereof.

7. In a machine for track construction, the combination of a car, a motor thereon, one or more subsidiary shafts driven by said motor for simultaneously driving a plurality of tools at the rear end of the car and also a plurality of tools at the forward end thereof, and independently movable power driven tools attached to said shafts.

8. In a machine for track construction, the combination of a car, a motor thereon, one or more subsidiary shafts driven by said motor for driving a plurality of tools independently of one another at the rear end of the car and also a plurality of tools independently of one another at the forward end thereof, and independently movable power driven tools attached to said shafts.

9. In a machine for track construction, the combination of a car, a motor thereon, one or more subsidiary shafts driven by said



motor for driving a plurality of tools simultaneously and independently of one another at the rear end of the car and also a plurality of tools simultaneously and independently of one another at the forward end thereof, and independently movable power driven tools attached to said shafts.

10. In a machine for track construction, the combination of a car, a motor thereon and power driven connections located upon the car at the points thereof where the edges of the car body overlies the rails for connection with power driven tools.

11. In a machine for track construction, the combination of a car, a motor thereon and power driven connections at each corner of the car body for connection with power-driven tools.

12. In a machine for track construction, the combination of a car, a motor thereon and power driven shafts running longitudinally along the sides of the car having connections for power driven tools.

13. In a machine for track construction, the combination of a car, a motor thereon and power driven shafts running longitudinally along the sides of the car having connections for power driven tools at both ends of the car.

14. In a machine for track construction, the combination of a car, a motor thereon, a tool on the car, power driven connections from the motor to the tool and a crane for supporting the tool while not in use.

15. In a machine for track construction, the combination of a car, a motor thereon,

power driven connections for a tool and a crane for supporting the tool at each corner of the car.

16. In a machine for track construction, the combination of a car, a motor thereon, power driven connections for a tool and a crane for supporting the tool while being used at each corner of one end of the car.

17. In a machine for track construction, the combination of a car, a motor thereon, power driven connections for a tool and a crane for supporting the tool while not in use at each corner of one end of car.

18. In a machine for track construction, the combination of a car, a motor thereon, power driven connections for a tool a crane for supporting the tool, and means for permitting the folding of the crane out of the way when not in use.

19. In a machine for working upon railroad tracks, in combination, a car, a motor, and tools at each side of each end of the car, all so arranged that a plurality of operations may be carried on at each end of the car.

20. In a motor car, a longitudinal tool shaft projecting from the opposite ends of the car, means for driving the shaft from the motor, and means for attaching tools to both ends of the shaft.

In testimony that I claim the foregoing I have hereunto set my hand.

HENRY W. JACOBS.

Witnesses:

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M. MEIKLE.