Jan. 14, 1936. M. D. BOWEN 2,027,628

ROADWAY MACHINE

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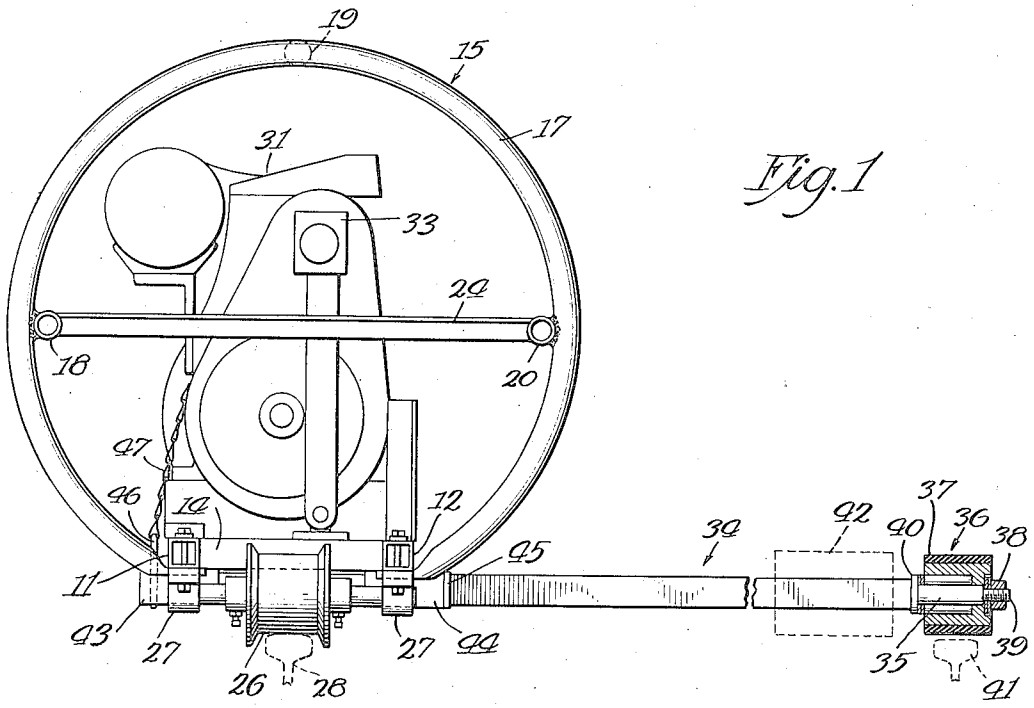


Fig. 1

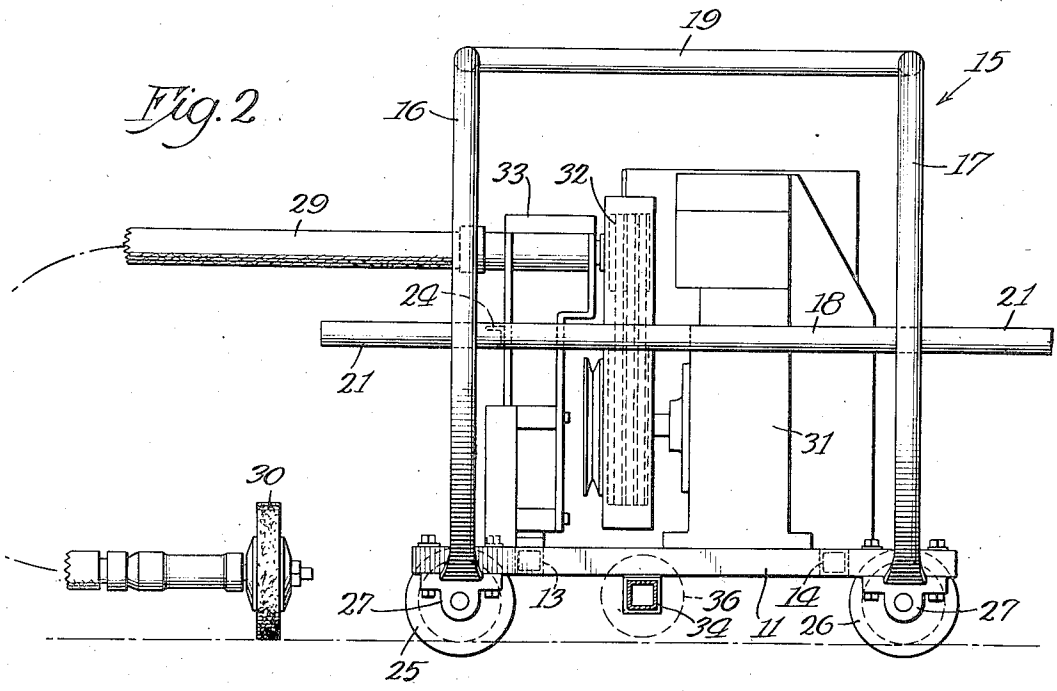


Fig. 2

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Fig. 4

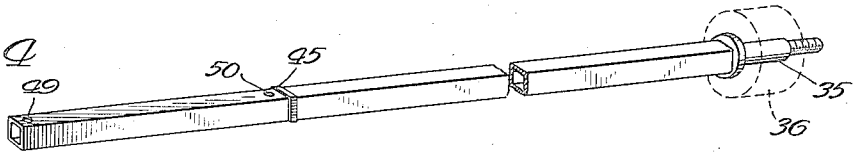


Fig. 3

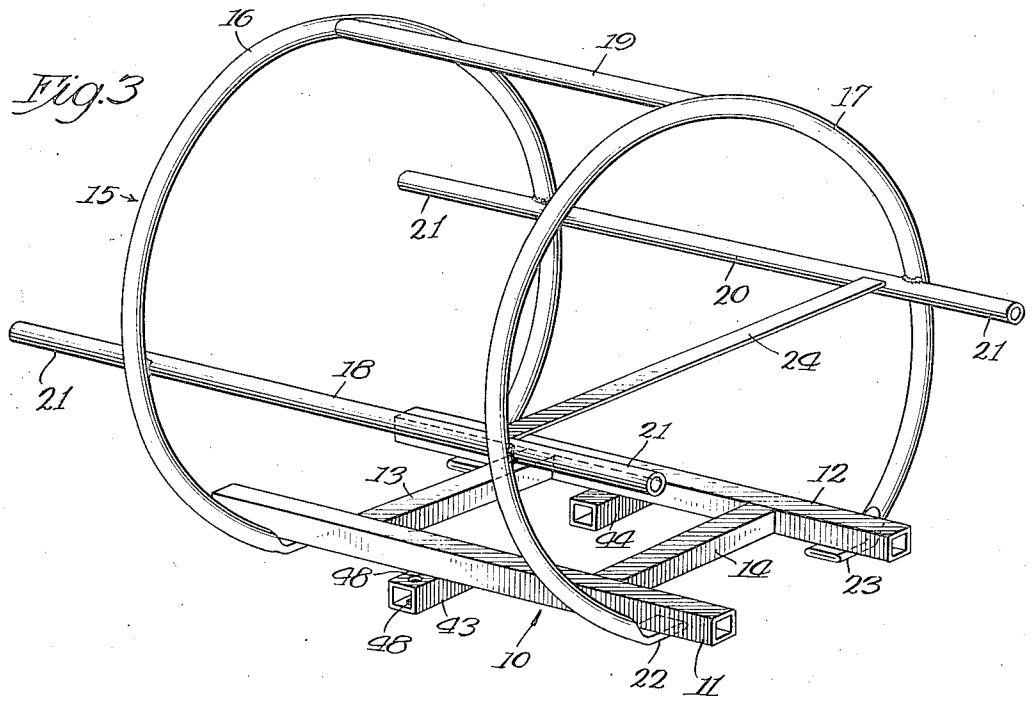
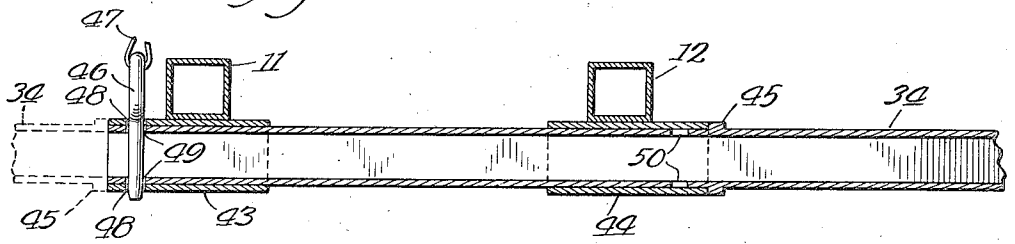


Fig. 5



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UNITED STATES PATENT OFFICE

2,027,628

ROADWAY MACHINE

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Application March 2, 1933, Serial No. 659,331

6 Claims. (Cl. 105—177)

This invention relates to that class of railway equipment known as roadway machines, and includes gasoline engine-driven generators; dolly cars, hand or engine operated; maintenance of way grinding machines; rail drills; spike drivers; spike pullers; bolt tighteners; rail and joint oiling machines; tamping machines, air, electric or mechanical; motor cars; track gauge machines; track level; surface machines; etc.

The roadway machines in use at the present time required that the machine be turned end for end when being transferred from one rail to another on the same track, and if the work is to progress in the same general direction, it is necessary for the machine to be run backwardly a part of the time. This is an inconvenience and causes considerable loss of time.

One of the principal objects of the present invention, therefore, is to enable these machines to operate on either rail of a track in a forward direction without necessitating backward running of the machine.

It is also an object of the invention to provide a derailing frame that enables the machine to be toppled off the track on either side of the weight supporting rail without allowing the machine elements to come in contact with the ground.

Further and other objects and advantages will become apparent as the disclosure proceeds and the description is read in conjunction with the accompanying drawings, in which

Fig. 1 is an end elevational view of a cross grinding machine embodying the principles of this invention;

Fig. 2 is a side, elevational view of the machine, the guide arm, however, being shown in section;

Fig. 3 is a perspective view of the derailing and base frames;

Fig. 4 is a perspective view of the guide arm with a part broken away; and

Fig. 5 is a longitudinal, sectional view showing the means for supporting the guide arm on the base frame.

In machines of this type, it is desirable to have the center of gravity of the machine substantially in vertical alinement with one of the track rails in order to facilitate removal of the machine from the track when a train is approaching. The concentration of the mass of the machine over one of the rails is clearly shown in Fig. 1.

For the purpose of disclosure, a particular type of roadway machine, known as a cross grinder, has been illustrated in the drawings and will hereafter be described. It will be distinctly understood, however, that the invention is applicable to all roadway machines of which the cross grinder is but an example.

Referring first to Fig. 3, the reference character 10 designates generally a base frame upon which the cross grinding apparatus is mounted. The frame comprises side sills 11 and 12, connected together by cross sills 13 and 14, all of which are securely welded together. The sills are here shown as made from square tubing, but they may be channel bars, angle bars, or any other suitable kind of framework material.

A derailing frame 15 is mounted on the base frame and comprises substantially circular spaced end members 16 and 17 connected together by spacing members 18, 19 and 20. The spacers 18 and 20 extend in both directions beyond the end members 16 and 17 and form handles 21 by which the entire machine may be lifted. The ends of the circular members 16 and 17 are flattened as indicated at 22 and 23 and welded to the bottoms of the side sills 11 and 12, respectively. An angle cross bar 24 strengthens the structure.

A pair of flanged wheels 25 and 26 are journaled in tandem between the ends of the cross sills 11 and 12 in journal boxes 27 and are adapted to travel on the rail 28 of the track. Since the rail 28 carries almost the entire load of the machine, it will be referred to as the weight-supporting rail of the track.

Suitable apparatus is mounted on the base frame for imparting rotation to the flexible shaft 29 of the cross grinder wheel 30. The apparatus includes a motor 31 which transmits power through a belt drive 32 to the flexible shaft 29. A belt tightener 33 is provided to adjust the tension of the belt drive 32 when occasion requires.

The apparatus mounted on the base frame 10 is arranged so that its center of gravity is substantially in vertical alinement with the weight-carrying rail 28. This being so, it is necessary to provide suitable means for steadying the machine on the track.

To this end a guide arm 34 is provided, which is adapted to be secured on either side of the base frame 10. The guide arm is made of square tubing and is provided with a rounded shank 35 at its end for rotatably supporting a roller 36. Preferably, this roller is rubber-coated, as indicated at 37. A nut 38 screwed on to the threaded end 39 of the shank holds the roller in place against a shoulder 40. The roller is adapted to ride upon the rail 41 of the track and is of such size and is so positioned that when resting on the rail, the machine is tilted slightly toward the center of the track. This is shown clearly in Fig. 1 where the roller 36 is positioned slightly above the top of the track, thereby indicating that when the roller rests on the track, the machine is slightly tilted to obtain stable equilibrium.

In some cases, it may be desirable to add a counterweight, as shown in dotted lines at 42,

to the guide arm to insure proper stability of the machine.

The inner end of the guide arm is adapted to telescopically engage a pair of socket members 43 and 44 which are welded to the bottoms of the side sills 11 and 12, respectively. The sockets in the present case comprise pieces of square tubing of proper size, but it will be understood that any suitable means for supporting the inner end of the guide arm is contemplated by the term "sockets."

A shoulder 45 is formed on the guide arm and fixes the position of the guide arm in the sockets 43 and 44. It will be clearly seen from the drawings that the guide arm may be inserted in the sockets 43 and 44 from either side of the machine so that the machine may be used on both rails of a track in a forward direction without running the machine backwardly.

A lock pin 46 is conveniently attached to a chain 47 for locking the guide arm in the sockets 43 and 44. When the guide arm is on the right side of the machine (as shown in Figs. 1 and 5) the lock pin is inserted through the alined apertures 48 in the socket 43, and the alined apertures 49 in the guide arm 34. When the machine is transferred from the rail 28 to the rail 41, the guide arm 34 is removed by taking out the pin 46 and withdrawing the arm from the sockets. It is then transferred to the other side of the machine and inserted into the sockets 43 and 44 as shown in dotted lines in Fig. 5. The pin 46 is then placed through the alined apertures 48 and 50 in the socket 43 and guide arm 34, respectively.

It will be seen that the entire machine may be quickly toppled from the track by merely lifting up on the guide arm 34 and rolling the machine clear of the track. The derailing frame 15 protects the machine elements and prevents their contact with the ground. The machine may even be completely inverted without causing damage.

When operating a machine on a multiple track right of way, it may become necesary to topple the machine in the direction of one of the companion tracks. Since the guide arm 34 is detachable it may be quickly removed from the machine and may be thrown clear of the companion track. Chain 47 facilitates the removal of pin 46 so that the time required for the removing of the guide arm is only a matter of seconds.

The derailing frame and reversible guide arm constitute a unit which is readily attachable to all forms of roadway machines, such as mentioned at the beginning of the specification.

What I claim, therefore, is:

1. In a roadway machine adapted to travel along a railroad track, the combination of a base frame, front and rear wheels arranged in tandem supporting the frame over one of the track rails, apparatus mounted on the frame with its center of gravity substantially in vertical alinement with said rail, a guide arm projecting from the frame in the direction of the other rail and adapted to ride upon said other rail to steady the machine on the track, said arm being capable of being atached to and quickly removed from either side of the base frame.

2. In a roadway machine adapted to travel along a railroad track, the combination of a base frame, front and rear wheels arranged in tandem supporting the frame over one of the track rails, apparatus mounted on the frame with its center of gravity substantially in vertical alinement with said rail, a guide arm projecting from the frame in the direction of the other rail and adapted to ride upon said other rail to steady the machine on the track, said arm being capable of being attached to and quickly removed from either side of the base frame, and a derailing frame permitting the machine to be rolled from either rail without allowing the apparatus mounted on the base frame to come in contact with the ground.

3. In a roadway machine adapted to travel along a railroad track, the combination of a base frame, front and rear wheels arranged in tandem supporting the frame over one of the track rails, apparatus mounted on the frame with its center of gravity substantially in vertical alinement with said rail, a guide arm projecting from the frame in the direction of the other rail and adapted to ride upon said other rail to steady the machine on the track, said arm being capable of being attached to and quickly removed from either side of the base frame, and a counterweight carried on the arm.

4. In a roadway machine adapted to travel along a railroad track, the combination of a base frame, front and rear wheels arranged in tandem supporting the frame over one of the track rails, apparatus mounted on the frame with its center of gravity substantially in vertical alinement with said rail, a guide arm projecting from the frame in the direction of the other rail and adapted to ride upon said other rail to steady the machine on the track, and guide arm sockets on the base frame for supporting the arm, said arm being capable of being attached to and quickly removed from the sockets from either side of the machine.

5. In a roadway machine adapted to travel along a railroad track, the combination of a base frame, front and rear wheels arranged in tandem supporting the frame over one of the track rails, apparatus mounted on the frame with its center of gravity substantially in vertical alinement with said rail, a guide arm projecting from the frame in the direction of the other rail and adapted to ride upon said other rail to steady the machine on the track, guide arm sockets on the base frame for supporting the arm, said arm being capable of being attached to and quickly removed from the sockets from either side of the machine, and means for locking the guide arm in place.

6. In a roadway machine adapted to travel along a railroad track, the combination of a base frame, front and rear wheels arranged in tandem supporting the frame over one of the track rails, apparatus mounted on the frame with its center of gravity substantially in vertical alinement with said rail, a guide arm and means carried by the frame for receiving an end portion of the guide arm so that said arm projects from the frame in the direction of the other rail and is adapted to ride upon said other rail to steady the machine on the track, said arm being arranged so that the center of gravity of the machine, exclusive of the arm, is moved slightly toward the center of the track when the arm is allowed to rest on said other rail, said means for receiving an end portion of the guide arm being arranged so that the arm may be extended from either side of the frame, whereby the tandem wheels may be mounted on either rail of the track with the machine facing a given direction.

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