

W. C. ANDERSON.
 APPARATUS FOR MAINTAINING CROWNED ROADS.
 APPLICATION FILED MAR. 8, 1909.

980,394.

Patented Jan. 3, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

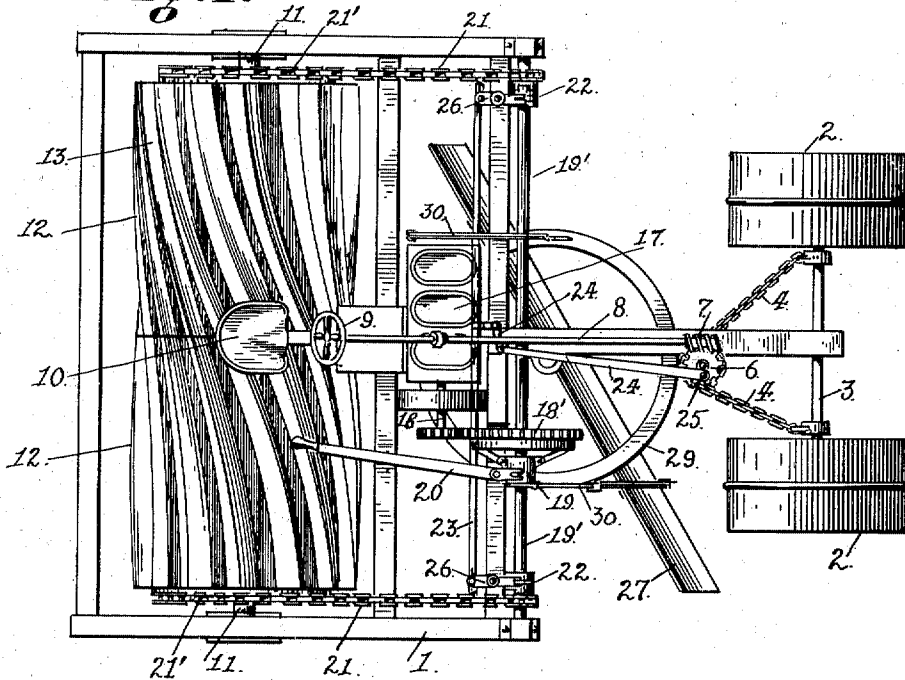
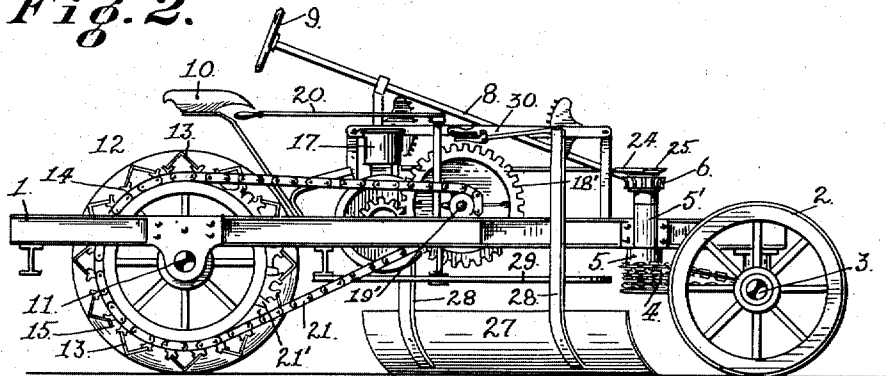


Fig. 2.



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WITNESSES.

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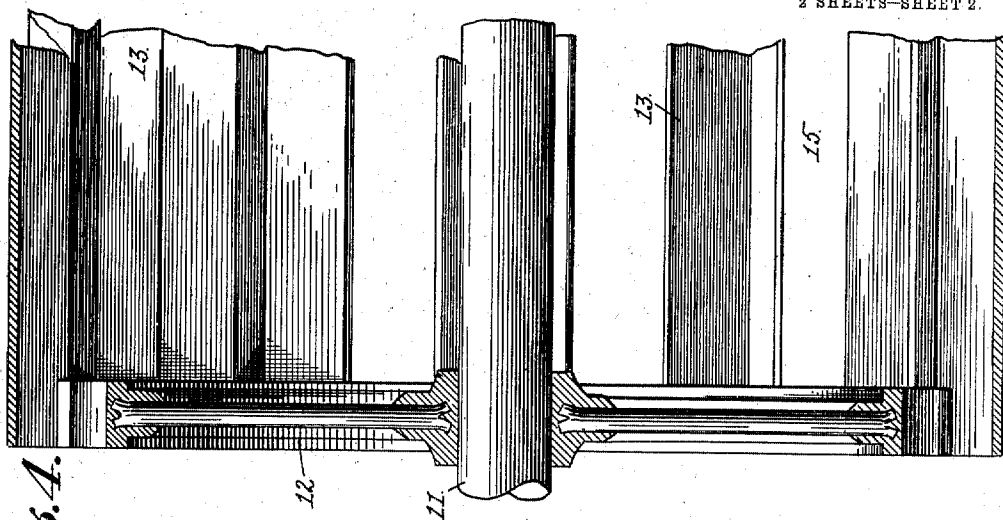


Fig. 4.

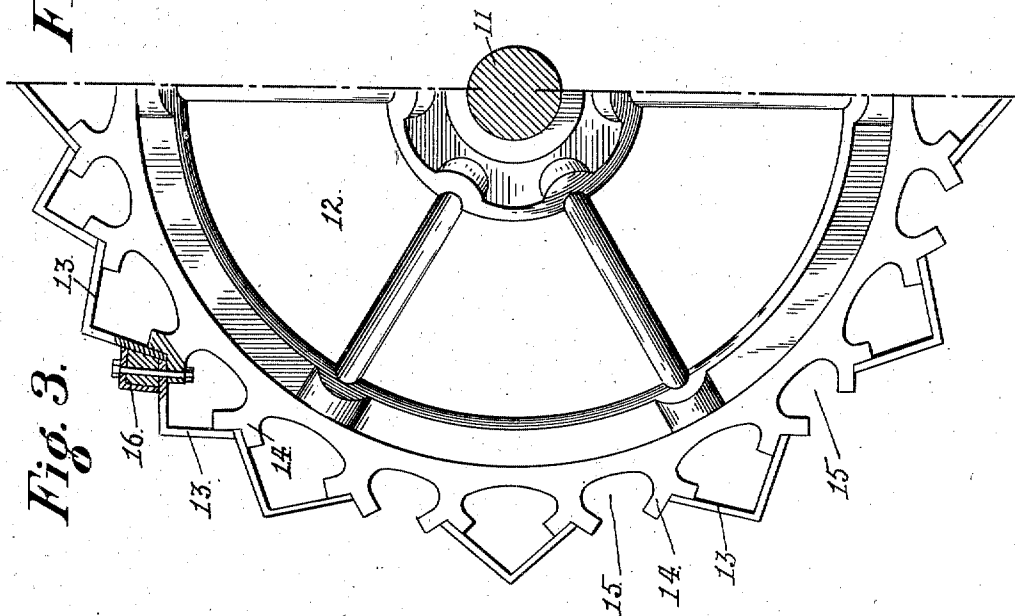


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM C. ANDERSON, OF SAN JOSE, CALIFORNIA.

APPARATUS FOR MAINTAINING CROWNED ROADS.

980,394.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed March 8, 1909. Serial No. 481,933.

To all whom it may concern:

Be it known that I, WILLIAM C. ANDERSON, a citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Apparatus for Maintaining Crowned Roads, of which the following is a specification.

My invention relates to the general class of road-working implements, and, particularly, to apparatus designed for the maintenance of roads.

Country roads, whether wholly of dirt, or partially, rocked are given a decided "crown", and are so maintained only by frequent work upon them, the washed out and wearing crown being constantly renewed by material thrown from the sides to the center. Their good condition is dependent upon such attention, for it is only by this care that they are drained of water and kept reasonably hard. But even at best, such frequent and extensive work is seldom given; and the wheels of vehicles soon wear them, especially in the wet season, into deep ruts, preventing that drainage upon which their good condition depends, and converting them into mud holes.

It is the object of my invention to effectually counteract the result of the wheel-ruts in preventing drainage, by providing for numerous cross grooves or depressions, running from the crowned axis of the road to each side, and traversing the wheel ruts, so that the water may run off and thereby maintain the crown.

With this object in view, my invention consists in the novel apparatus which I shall now fully describe, by reference to the accompanying drawings in which—

Figure 1 is a plan of my apparatus. Fig. 2 is a side elevation of the same. Fig. 3 is a detail, enlarged, showing in side elevation the ribbed construction of the roller. Fig. 4 is a section of the same.

1 is a frame, carried in front by the wheels 2, the axle 3 of which is swiveled to the frame and is turned by a chain 4, operated by a drum 5 connected by a shaft 5' with a worm-gear 6, with which engages a worm 7 on the end of the steering post 8, which extends rearwardly and carries a steering wheel 9 within reach of the driver when occupying the seat 10.

The rear end of the frame is carried by an axle 11. Upon this axle are freely mounted

to rotate, the two alined and abutting sections of the roller 12, each section being rotatable independently, to provide for turning, as I shall presently point out. The roller has a ribbed periphery, the ribs in the best construction, being helically directed as seen in Fig. 1, from one end of the roller to the other, so that instead of traveling over the road with a succession of jars, as would be the case if they extended parallel with its axis, it will roll comparatively smoothly. This helical direction of the ribs is, however, not essential to my invention, as they may be otherwise directed. The ribs may be formed in any suitable manner and in any suitable number. A good construction is to form them of angle iron pieces 13, so secured to the peripheral flanges 14 of the roller as to present their angles outwardly. These strips may be readily replaced and renewed. As I have shown in Fig. 3, the ribs 13 may be so arranged in point of number as to provide for different conditions under which the apparatus is used. For example, if the roller is used when the road is very muddy and sticky, the ribs will be fewer in number, and more widely separated thereby leaving open the depressed peripheral channels 15, in which the mud will accumulate and from which it will fall out, thus avoiding the clogging of the ribs. When the road is less sticky, the ribs 13 may be placed closer together as shown in the upper part of Fig. 3, and, if necessary to carry this still further, smaller, supplemental ribs, such as 16 may be placed between the main ribs 13.

It is intended to make the apparatus self-propelling.

17 is a suitable motor, the drive shaft 18 of which is connected by gears 18' with a cross-drive shaft 19', which is thrown into and out of action by a clutch 19 operated by a lever 20 under control of the driver. Chains 21 operated by the shaft 19' extend to sprockets 21', one on the outer end of each roller section. These chains are normally operated in unison, but each is separately controlled by an end clutch 22. These clutches are operated by a cross rod 23 which is, itself, operated by a bell-crank link connection 24 with a crank pin 25 on the worm gear 6 of the steering mechanism.

The connection of the slide rod 23, at each end, with its clutch lever 26 is a slotted one as shown, so that the rod has a limited

play, to provide for a slight movement of the steering gear, such as would be necessary to slightly change the direction of the machine, and in this case, the driving-gear clutches will not be affected and each roller section will be driven alike. But when a sharp or a full turn is to be made, the necessary increased movement of the steering gear worm wheel 6 will, through the link connection 24 and the slide rod 23, act to throw one clutch out leaving the other in action. Thus one roller section may turn independently of the other. It may be here stated, that provision will be made, by relatively timing and constructing the driving sprockets, to bring the roller sections, after a turn, into proper position relatively to each other, in order that their helically directed ribs will be continuous from end to end of the roller, thereby making a continuous groove in the road.

In order to prepare the road in advance of the roller, both by dressing its surface and by throwing the dirt toward the middle, the frame 1 carries a scraper 27 of ordinary road-pattern. This scraper is suspended by hangers 28, and has a turn table 29, on which it can turn to vary its angle. The hangers 28 are vertically movable, in order to raise or lower the scraper. Levers 30 are here shown, for this purpose.

The operation of the apparatus is as follows:—After a rain, while the road is still wet, the machine is run over it, on one side of the crown. The scraper serves to level and dress the surface and throw the material to the middle. The following roller presses in the road surface a number of indentations or grooves in a general direction crosswise of the road, running from the crown down toward the sides and intersecting the wheel ruts. These pressure grooves provide so many drains for the water, which will thus run off the crown down to the side, leaving the road comparatively dry and thus not subject to the wear of the traffic. The crown of the road can thus be maintained. The machine in returning will travel over the other side of the road, and if care be taken to run the apparatus over the road, frequently, when it is needed, the road can be made to last in good condition for a length of time well worth the effort.

Having thus described my invention what

I claim as new and desire to secure by Letters Patent is:—

1. In an apparatus for the described purpose, the combination of a frame, pressure rolls arranged side by side, ribs on the respective rolls, the ribs on each roll being spirally arranged upon the periphery thereof and the ribs of one roll constituting in effect a continuation of the ribs on the other roll, the said rolls adapted to form and leave in the surface of the road a succession of water draining grooves, a scraper arranged in front of and overlapping the respective rolls, and means carried by the frame for operating said rolls, and means whereby said rolls may be operated either independently or together.

2. In an apparatus for the described purpose, a pressure roller having its periphery formed with flanges separated by pocket spaces, and angle-iron indenting ribs secured to said flanges.

3. In an apparatus for the purpose described, a pressure roller having its periphery formed with flanges separated by pocket spaces, and angle iron indenting ribs secured to said flanges, the parts being constructed and arranged to position the ribs in a helical course about the roller.

4. In an apparatus for the described purpose, a pressure roller having its periphery formed with flanges separated by pocket spaces, angle-iron indenting ribs secured to said flanges, and a scraper extending longitudinally of and forwardly of said roller.

5. In an apparatus for the described purpose, the combination of pressure rollers arranged side by side with no substantial space therebetween, ribs on the respective rollers, the ribs on one roller constituting in effect a continuation of the ribs on the other roller, the said rollers adapted to form and leave in the surface of the road a succession of water draining grooves, and a scraper arranged in front of and overlapping the respective rollers.

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

WILLIAM C. ANDERSON.

Witnesses:

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D. B. RICHARDS.