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ROLLER ROAD PLANER

Filed March 31, 1930

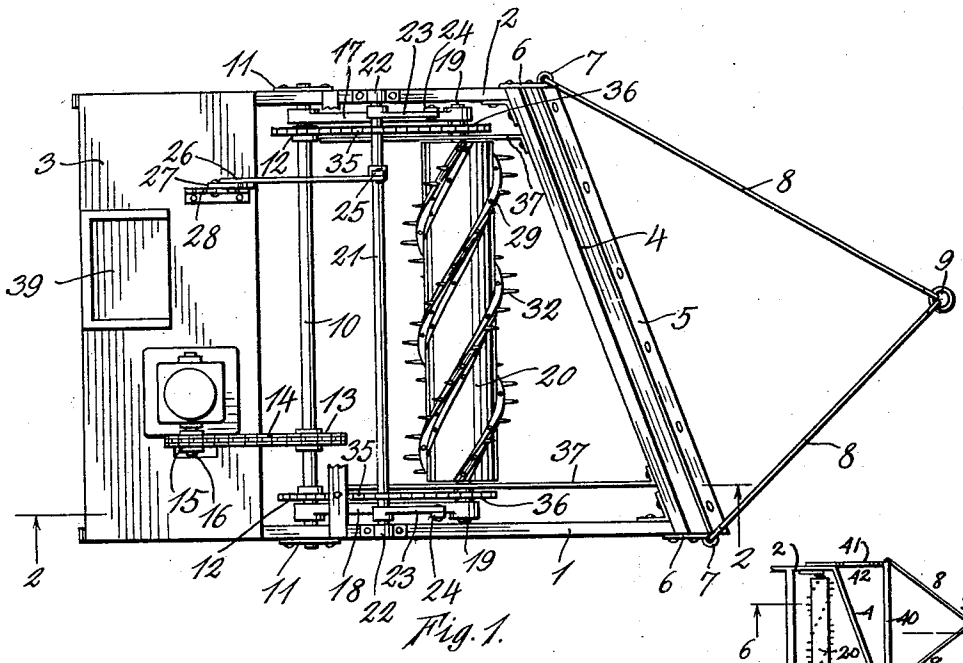


Fig. 1.

Fig. 5.

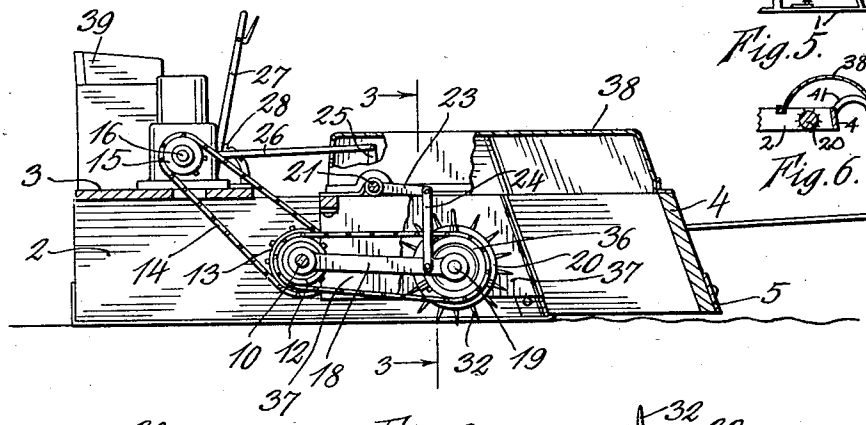


Fig. 2.

Fig. 6.

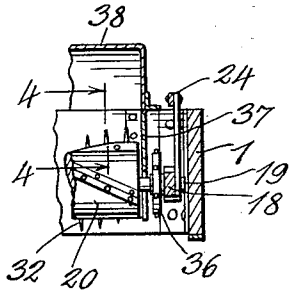


Fig. 3.

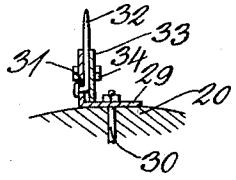


Fig. 4.

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UNITED STATES PATENT OFFICE

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ROLLER ROAD PLANER

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This invention relates to improvements in machines for repairing highways and has reference more particularly to a machine for leveling roads that have become corrugated due to automobile traffic.

It is a well known fact that roadways especially those that have been surfaced, as, for example, oiled roads, have a tendency to become transversely corrugated by the automobile traffic, and this makes a very unsatisfactory surface on which to travel. It is also well known that such corrugated roads are very difficult to repair due to the fact that the surface is so hard that the ordinary graders and scrapers will not function properly and it therefore becomes necessary to rip up the road surface and to prepare an entirely new surface, which is very expensive and otherwise objectionable.

It is the object of this invention to produce a machine that shall be so constructed that it will grind off the tops of the ridges in the manner of a planer passing over a rough board and in this way the high spots are reduced and the material removed from them deposited in the low spots, thereby leveling the surface of the road without the necessity of making an entirely new road surface.

This invention, briefly described, consists of a frame having two parallel sides that form runners upon which the frame is supported. This frame is adapted to be pulled along the road by means of a tractor or by means of horses. Located within the frame is a toothed roller that is turned by power derived from an internal combustion engine and which can be adjusted vertically and held in adjusted position so as to determine the depth to which it will cut. When this frame and roller are pulled over the road and the roller rotated at a high speed, it will grind or cut down the tops of the corrugations and other unequalities and leave the road surface smooth, after which it can be rolled and refinished by means of oil or in some other way.

Having thus briefly described the invention, the same will now be described in detail, and for this purpose reference will be had to the accompanying drawing in which the preferred embodiment of the invention has been illustrated, and in which:

Fig. 1 is a top plan view of the device showing the cover removed;

Fig. 2 is a section taken on line 2—2, Fig. 1;

Fig. 3 is a section showing a portion of the device, the section being taken on line 3—3, Fig. 2;

Fig. 4 is a section taken on line 4—4, Fig. 3, and shows one manner of securing the teeth to the roller;

Fig. 5 is a plan view showing a slightly modified construction; and

Fig. 6 is a section taken on line 6—6, Fig. 5.

The frame which carries the machinery consists of two side members or runners that have been designated by reference numerals 1 and 2. The rear ends of these runners are connected by means of planks 3 that are secured to the upper edges of the runners in the manner shown. The runner indicated by numeral 2 is shorter than the one indicated by numeral 1 and the two forward ends are connected by means of a plank 4 which is therefore transversely inclined. The lower front edge of plank 4 is provided with a steel plate 5 that protects it against wear and this plate serves to remove stones and other loose particles and to deposit them to one side of the machine in the manner in which a snow plow operates. The front ends of runners 1 and 2 are provided with attaching means 6 that consist of bars whose front ends are provided with loops 7 to which the links 8 are secured. The front ends of links 8 are connected with a ring 9 to which the horses or the tractor is hitched. A shaft 10 is journaled in bearings 11 in the runners and carries two sprocket wheels 12, one located near each end. A large sprocket wheel 13 is secured to the shaft intermediate its ends and cooperates with a chain 14 that extends to a sprocket wheel 15 on the end of the motor drive shaft 16. Two auxiliary frame members 17 and 18 are pivotally attached at the rear ends to shaft 10 and are provided at their front ends with bearings 18 in which the journals 19 of the roller 20 are rotatably mounted. A shaft 21 is journaled in bear-

ings 22 and is provided with two arms 23 that extend forwardly and which are connected with links 24 whose lower ends are pivotally connected with the front ends of the auxiliary frame members in the manner shown most clearly in Fig. 2. Shaft 21 is also provided with an upwardly extending arm 25 to the upper end of which a connecting rod 26 is attached. This connecting rod is pivotally attached at its rear end to a control lever 27. This lever cooperates with a quadrant 28 in the usual manner so that it can be adjusted and held in any adjusted position. It is evident that by means of lever 27 the roller 20 can be moved upwardly or downwardly with respect to the frame and held in adjusted position.

The roller may be made of wood, metal or any suitable material and has been shown in the drawing as comprising a solid cylindrical member but it is to be understood that the roller can be constructed in any suitable way and that the one illustrated in the drawing is merely illustrative and it is not applicant's intention to be limited to the construction shown. In the embodiment shown in the drawing two angle irons 29 have been secured to the outer surface of the roller and spiraled so as to form a double pitch spiral in the manner shown in Fig. 1. One flange of the angle irons is secured to the roller at short intervals by means of bolts 30. The other flange is provided with openings 31 through which the teeth 32 extend. Plates 33 are clamped against the other surface of the teeth by means of bolts 34 in the manner shown in Fig. 4. By the arrangement just described, the teeth are held rigidly and in such a way that they can be quite easily moved and replaced whenever this is necessary. The length of the teeth have been purposely exaggerated in the drawing and are preferably shorter in proportion so that they will not readily bend when in use.

Sprocket chains 35 extend from the sprocket wheels 12 to cooperating sprocket wheels 36 secured to the journals 19 of the roller. When the engine is operating it will turn the roller at a high rate of speed and therefore the teeth will cut or grind the elevations as the device is pulled over the road, thereby leveling the surface in the manner pointed out above.

For the purpose of preventing dust and dirt from being thrown upwardly, and to the sides, plates 37 have been provided between the ends of the rollers and the sprocket wheels 36 and these plates serve to protect the bearings 18 and the sprocket chains 35 from the dust and dirt. A cover 38 is provided for the top of the frame in the manner shown in Fig. 2. This cover prevents stones and dirt from being thrown upwardly and also helps to keep down the dust and dirt. Seat 39 is provided for the operator. The machine shown has a length of about sixteen feet and is comparatively narrow and therefore as it is pulled over the road, it does not tilt very much about its transverse axis and therefore the surface cut by the rotating roller will be quite regular and even.

In Figs. 5 and 6 a slightly modified construction has been illustrated. The cover 38*a*, instead of being flat as shown in Fig. 2, is upwardly arched and has its front end secured to a transverse bar 40, one end of which is secured to the front end of member 1 and the other end of which is secured to the front end of side 2, by means of a curved iron bar 41. The links 8 are connected to the opposite ends of bar 40. The roller 20 can be rotated in either direction and when rotated counterclockwise can be used to gather rocks which are discharged through the opening 42.

From the above description it will be seen the machine that forms the subject of this invention is especially well adapted for use for smoothening roadways that have become irregular due to the wear of the vehicles and which is so constructed that it cuts down the elevations, thereby making it unnecessary to tear up the road surface for the purpose of completely refinishing the same, and in this manner a large amount of saving can be effected in the maintenance and repair of roads.

Having described the invention what is claimed as new is:

1. In a device of the class described, in combination, a main frame having two runners, means for holding the runners in spaced parallel relation, a shaft extending across the frame and having its ends journaled in the runners, two auxiliary frame members rotatably connected at one end to the shaft, a toothed roller rotatably connected with the other ends of the auxiliary frame members, means for raising and lowering the roller with respect to the runners, means for rotating the shaft, means for transmitting rotation from the shaft to the roller, a guard for the roller and means located in front of the roller for removing large loose bodies from its path.

2. A device for the purpose specified comprising, in combination, a frame composed of two substantially parallel runners of unequal length, means for holding the runners in parallel relation and with the rear end of each runner located substantially on a perpendicular from the end of the other runner, whereby the forward ends of the runners will extend forwardly unequal distances, a board connecting the forward ends of the runners, said board making an obtuse angle with the shorter runner and an acute angle with the other runner, a shaft extending from one runner to the other and having its ends journaled in bearings in the runner, two auxiliary frame members rotatably attached to the ends of the shaft, a roller rotatably con-

nected with the free ends of the auxiliary frame members, the roller being provided with teeth and means for raising and lowering the roller.

In testimony whereof we affix our signature.

ANTONIO MONTANO.
EUGENIO R. ROMERO.