

Nov. 10, 1931.

DE WITT C. HUNTLEY

1,831,116

ROAD ROLLER

Filed July 5, 1928

2 Sheets-Sheet 1

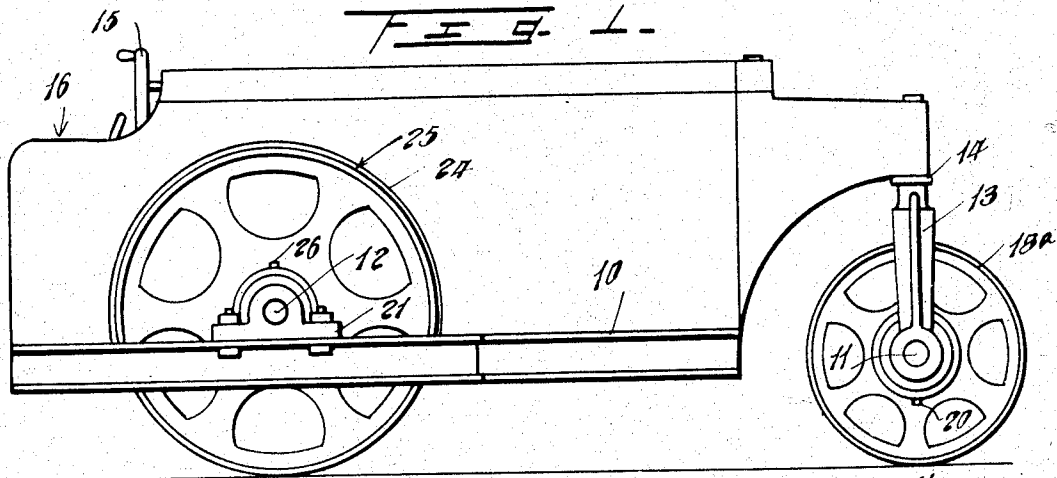
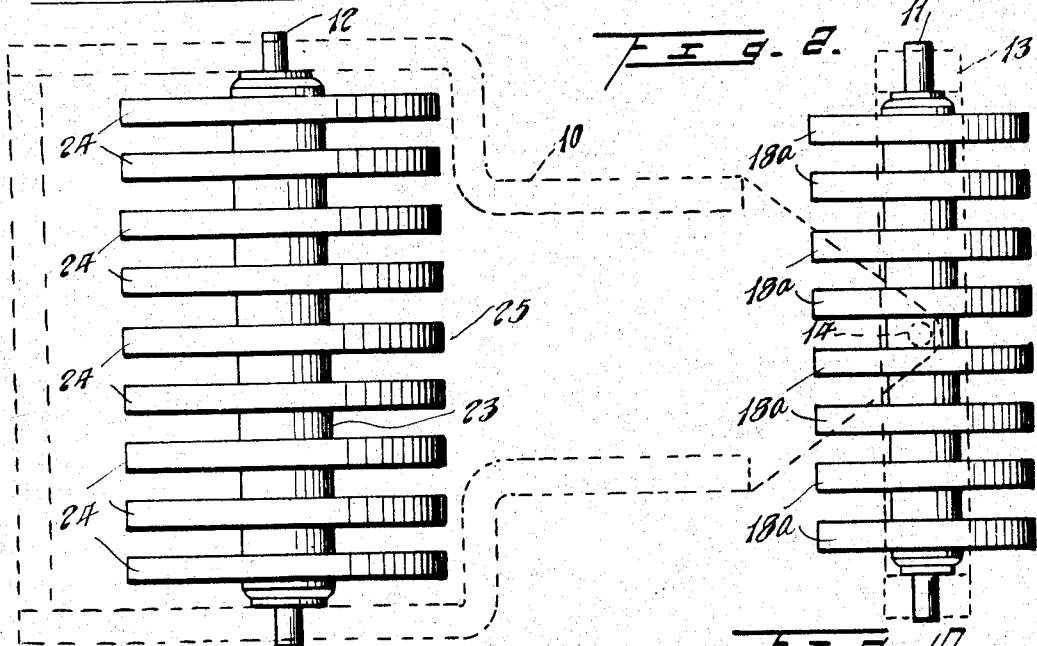
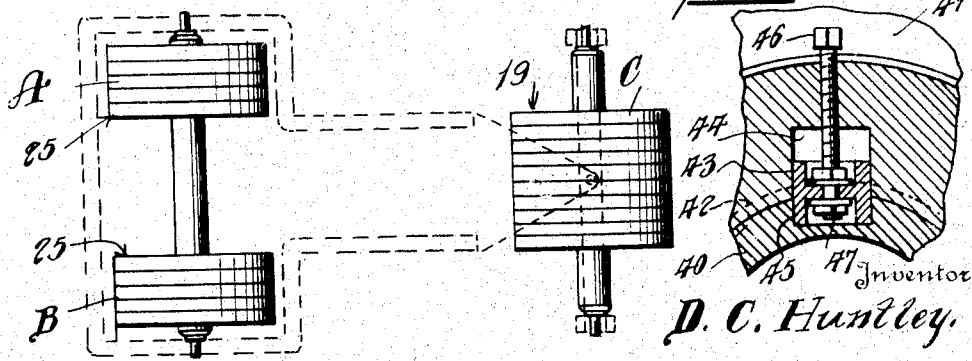


Fig. 3.

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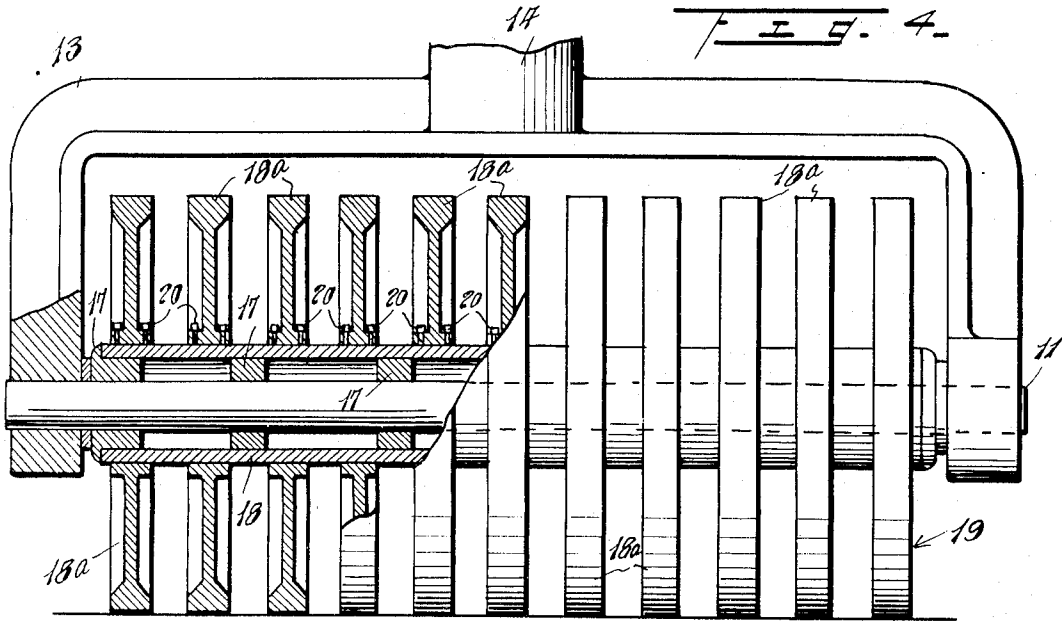
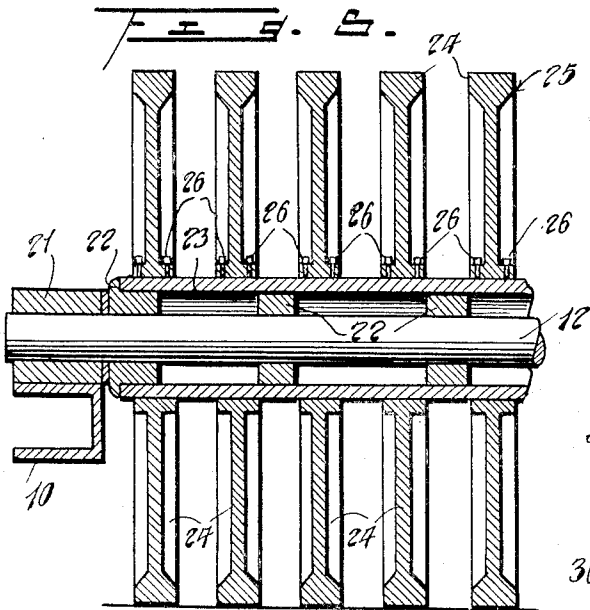
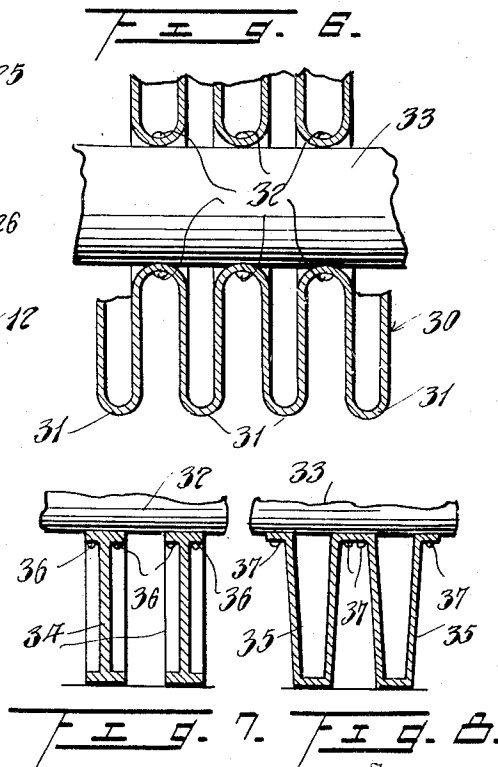
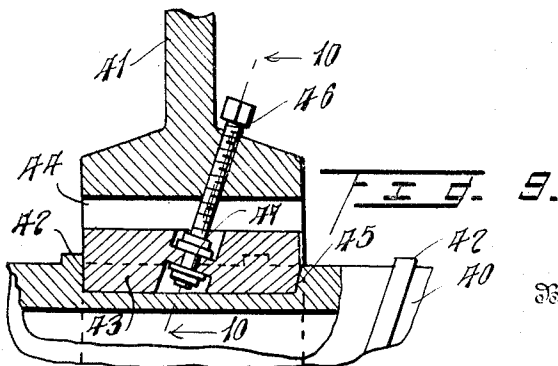
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ROAD ROLLER

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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ROAD ROLLER

Application filed July 5, 1928. Serial No. 290,612.

This invention relates to a road roller and it aims to provide a construction wherein the rollers are made up of relatively narrow equidistantly spaced roller portions, with portions of one roller being alined in front of spaces of the coacting roller. Such a construction allows free movement of the soil between the roller sections or elements to allow the elements to sink deep into loose cultivated earth to pack the same from the bottom up instead of from the top down as is the case with existing smooth base rollers.

I contend that the corrugations and many of the chug holes and ruts found in a worn graded earth road are formed by the common or existing type of road roller pressing the loose soil in front of the roller until it becomes sufficiently compact to carry the roller, when it is folded under and into the unpacked soil below and the formation of a new earth fold is commenced, which process is continually repeated as the roller moves along and the series of earth folds or cross ridges are perfected as the roller moves forward and backward over the roadbed. As a result, under the wear of traffic, the less compact soil between the harder ridges is worn away first, leaving a cross-ridge or corrugated surface. The ill effects of the common road roller as above outlined, are overcome by having the base or tread of the rollers divided into sections which are relatively narrow so as to sink down into the roadbed, packing the soil from the sub-grade up, making a perfect pack, crushing the lumps and clods and forcing loose stones to the bottom, away from the surface. With such narrow roller sections, the loose earth escapes at the sides of the tread and cannot pack or fold in front of the roll and form a cross ridge as with the common smooth roll.

It is also an object of the present invention to provide a construction wherein the rolls or roller sections may be adjusted in order to form a roll of unbroken surface to give results substantially similar to existing rollers when desired.

Various additional objects and advantages will become apparent from a consideration of the description following taken in connec-

tion with accompanying drawings illustrating an operative embodiment.

In said drawings:—

Figure 1 is a side elevation of a tractor having rolls embodying my improvement; 55

Figure 2 is a plan view of the rolls used in the tractor of Figure 1, the frame of the tractor being suggested in dotted lines;

Figure 3 is a plan view of the parts of Figure 2 with the roller elements or sections disposed to form three units made up of such sections in contact; 60

Figure 4 is an enlarged front elevation, partly broken away, of the front roller;

Figure 5 is a fragmentary longitudinal sectional view of the rear roller; 65

Figure 6 is a fragmentary view illustrating a modified form of roller.

Figures 7 and 8 are detail cross sectional views illustrating further modified forms of rollers; 70

Figure 9 is a fragmentary longitudinal sectional view through a still further modified form, and

Figure 10 is a cross sectional detail taken on the line 10—10 of Figure 9. 75

Referring specifically to the drawings, 10 designates a tractor body adapted to be propelled in any suitable manner. Said body carries a front axle 11 and a rear axle 12. The front axle 11 is fixed in a bracket 13 swivelled by means of a standard 14 at the front of the body, for steering purposes, under control of conventional means 15 located at the rear of the body and accessible to an operator located within a pit 16. 85

Carried by the axle 11 and journaled thereon is a tubular or hollow shaft 18 having bearings or spacing members 17 fixed thereto. Carried by the shaft 18 and rotatable therewith are a multiplicity of equidistantly spaced relatively narrow rollers or units 18^a collectively forming a land roller 19. Units 18^a are preferably adjustably secured by binding screws 20 on such shaft 18. 95

The rear axle 12 is fixedly mounted on the frame or body 10 as at 21 and a hollow shaft or tube 23 having bearing or spacing members 22 fixed thereon is journaled on it. Such shaft 23 carries equidistantly spaced units 24, 100

- which are roller sections and relatively narrow and collectively form a rear roller generally designated 25. Such rollers 24, similar to the rollers or units 18^a are adjustable longitudinally of the shaft 23 but are adapted to turn therewith, and their adjustment may be secured through the provision of binding screws 26 carried thereby and engageable with the shaft 23.
- It is to be noted that in the normal arrangement of the rollers 19 and 25, that the units 18 and 24 thereof are disalined with each other so as to be alined with the spaces between the units of the respective roller members. As a result of this construction, the front roller 19 will first engage the plowed or cultivated earth in the process of making the road, sinking deep into the same and the units 24 will thereafter engage the earth between portions previously engaged by the rollers or units 18, to attain the results previously mentioned.
- By reason of the fact that the rollers 19 and 24 are adjustable along their respective shafts, they may be brought together into the form shown in Figure 3 where the rollers 25 are equally divided to substantially form relatively wide rollers A and the rollers 19 are brought together to form a relatively wide roller C, the latter being in line with and of a length corresponding to the space between rollers A and B.
- In Figure 6 a modified form is shown wherein either of the rollers mentioned may be made up of corrugated metal 30 formed into roller portions 31 which are relatively narrow to give the same results as the units 18^a and 24, the roller being secured as by rivets or other fastenings 32 to a hollow shaft 33.
- Other modifications are shown in Figures 7 and 8 and therein hollow mounting shafts 32 and 33 are provided, having roller units 34 and 35 riveted thereto as at 36 and 37, respectively, such units being of different shape and corresponding in function to those at 18^a and 24.
- Referring to Figures 9 and 10, a hollow shaft 40 is provided, corresponding to the shafts 18 and 23 along which roller units 41 corresponding to those at 18^a and 24 are longitudinally and rotatably adjustable, having interengagement with screw threads 42. When the roller units 41 are supported above the ground, they may in this form of the invention be turned by hand so as to move them longitudinally of the shaft 40 into close relation to form solid rollers such as those at A, B and C in Figure 3 or to space them equidistantly apart like the rollers in the other views. In order to hold the rollers 41 in proper equidistantly spaced relation, each roller is equipped with a coupling block 43 which is accommodated in the slot 44 of the roller 41 and movable into and out of a slot or socket 45 provided in the shaft 40. To effect the movement of the blocks 43 into and out of the socket 45, a screw 46 is threaded into the roller 41 and has swivel connection at 47 with the blocks. The screw 46 may be of the type adapted for engagement and adjustment upon the application of a wrench or tool thereto.
- Various changes may be resorted to provided they fall within the spirit and scope of the invention.
- I claim as my invention:—
- A road roller device consisting of rollers arranged one behind the other, each roller consisting of a multiplicity of relatively narrow roller units, the units of each roller being alined with the spaces between the units of the other roller, and means whereby said units may be adjusted to arrange pluralities thereof in contact.
- In testimony whereof I affix my signature.
- DE WITT C. HUNTLEY.