N. DURBIN.

LAND ROLLER.

APPLICATION FILED MAR. 16, 1910.

981,398.

Patented Jan. 10, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

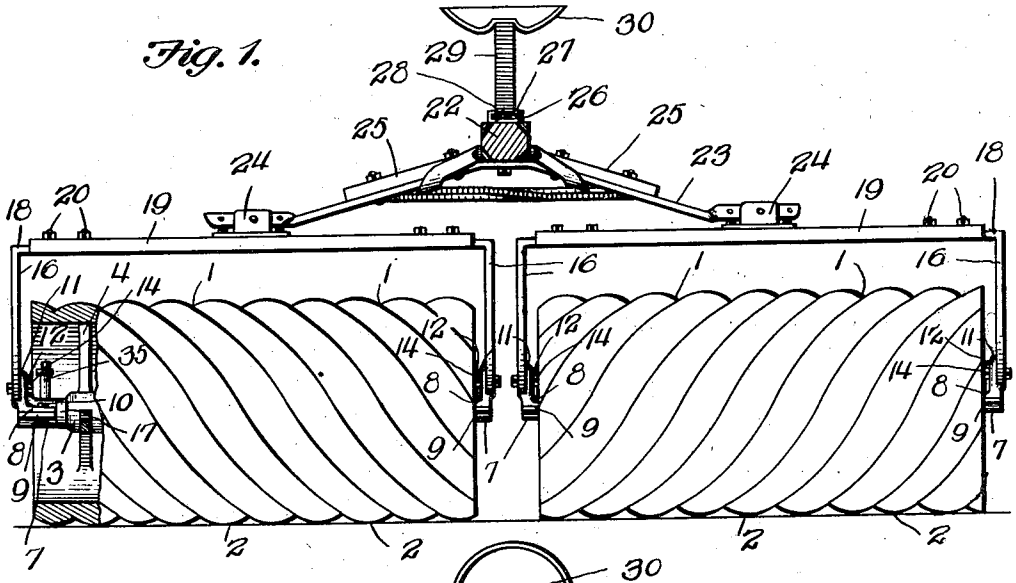
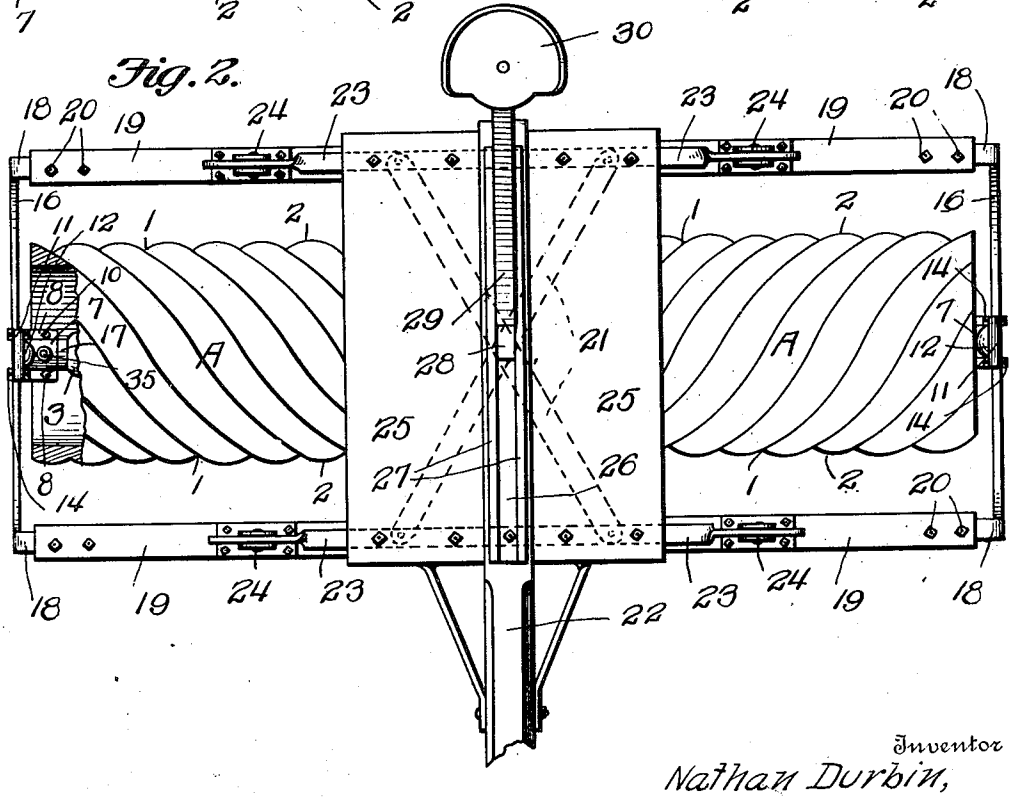


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

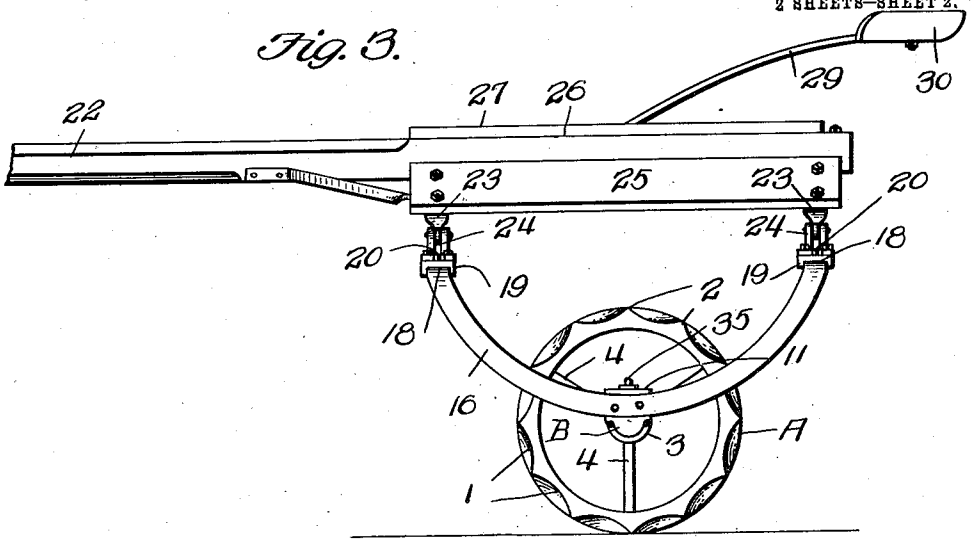
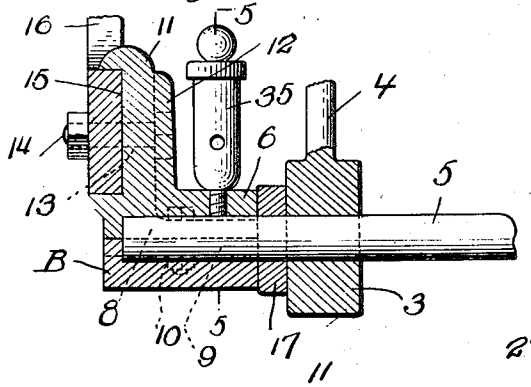


Fig. 4.



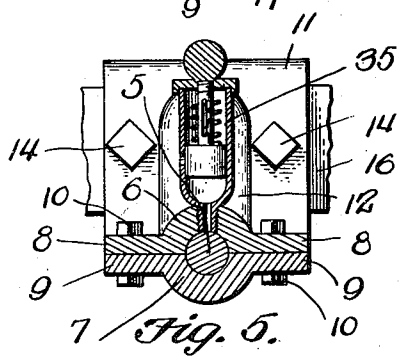
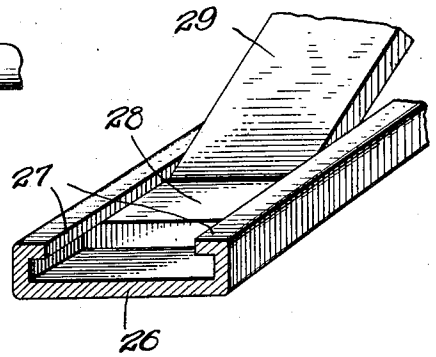


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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LAND-ROLLER.

981,398. Specification of Letters Patent. Patented Jan. 10, 1911.

Application filed March 16, 1910. Serial No. 549,672.

To all whom it may concern:

Be it known that I, NATHAN DURBIN, a citizen of the United States of America, residing at Taylorville, in the county of Christian and State of Illinois, have invented new and useful Improvements in Land-Rollers, of which the following is a specification.

This invention relates to land rollers, and the prime object of the invention is to produce a land roller by the use of which the clods and caked matter upon the surface of the ground may be effectually crushed, disintegrated and spread or leveled, this object being attained in part by forming the roller with a spirally grooved surface.

A further object of the invention is to produce a land rolling implement including a plurality of rollers which shall be mounted in a suitable draft frame in such a manner as to be capable of yielding movement in various directions.

Further objects of the invention are to simplify and improve the general construction and operation of a device of the character outlined above.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings,—Figure 1 is a front elevation of a land roller constructed in accordance with the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation. Fig. 4 is a sectional detail view taken through one of the roller bearings longitudinally of the axle. Fig. 5 is a transverse sectional detail view taken on the plane indicated by the line 5—5 in Fig. 4. Fig. 6 is a perspective detail view of the seat support used in connection with the invention.

Corresponding parts in the several figures are denoted by like characters of reference.

The cylindrical body A of each of the improved rollers is formed with spiral grooves 1, 1 upon its outer surface, the formation of said grooves producing correspondingly spiral ribs 2, 2 which may be substantially rounded, as illustrated in Figs. 1 and 2 of the drawings, although it is to be understood that they may be formed with relatively sharp edges, as suggested in Fig. 3. The rollers are formed preferably of cast iron, and said rollers preferably consist of cylindrical shells of suitable weight and thickness, the same being provided with hubs 3 supported by spokes or spiders 4. Said hubs are also spaced from the ends of the shells, as will be best seen in Figs. 1 and 2, in order that the roller-supporting bearings may be disposed partly within the cylindrical shells; the object being to enable the rollers to be disposed as closely together as possible when several rollers are used in a singe frame and in longitudinal alinement with each other.

Each roller is mounted upon a shaft or axle 5 extending through the hubs, which latter may be keyed, shrunk or otherwise secured upon said axle. The ends of the axle are supported in boxes B composed of upper and lower members 6 and 7 having laterally extending flanges 8 and 9 for the passage of the connecting bolts 10. The upper box member 6 is provided adjacent to its outer edge with an upstanding flange 11 having a reinforcing web 12 and provided with apertures 13 for the passage of fastening members, such as bolts 14. The outer face of the flange 11 has a groove 15 for the accommodation of an arcuate bar or yoke 16 constituting a part of the frame structure and upon which the bearing boxes are secured by means of the bolts 14. The shaft or axle of each roller is provided at each end with a bearing constructed in the manner described, which, it will be observed insures a very simple and effective supporting device. Washers, such as 17, may be interposed between the hubs 3 and the boxes 8 in order to insure steadiness of motion. The yokes 16 are provided at the ends thereof with inturned flanges or brackets 18 engaging the undersides of channel bars 19 disposed longitudinally of each roller above the same and serving to connect the yokes 16 at the ends thereof; the flanges 18 of the yokes being firmly secured to the channel bars by means of bolts 20.

The channel bars 19, taken in connection

with the yokes 16 and the bearing boxes B, constitute the supporting frame of each roller, and two rollers with their respective supporting frames are utilized in the construction of the complete machine, as shown in the drawings hereto annexed. A tongue 22 is provided, the same being supported by means of braces 23 firmly secured upon the underside thereof and having their ends pivotally mounted in boxes 24 upon the upper sides of the channel bars 19. It will be seen that the two roller frames are thus connected together by means of the braces 23, which in turn support the tongue 22 as well as the platform boards 25 which are firmly bolted or otherwise secured upon the braces. Cross braces 21 are used to reinforce the construction. It will be observed that the rollers will readily adapt themselves to the surface of the land that is not absolutely level, thus enabling the crushing operation to be performed in a most thorough and effective manner.

Securely mounted upon the upper side of the tongue is a longitudinally disposed grooved bar 26 having inturned flanges 27 for the accommodation of a T-head 28 formed at the lower end of a bar 29 supporting the seat 30. This simple construction enables the seat to be adjusted longitudinally of the tongue, thus enabling the weight of the driver to be applied where it shall be mostly needed and where it will be most effective to assist in the crushing operation of the machine. The upper members of the bearing boxes B are equipped with suitably constructed oil cups 35 to enable the bearings to be conveniently lubricated when desired.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood. I have found that the spiral form of the rollers is most effective in crushing and disintegrating the soil and in leveling the same in the best condition for subsequent operations. The frame structure as herein described is simple and thoroughly efficient for the purpose for which it is provided.

Having thus described the invention, what is claimed as new, is:—

1. A roller provided with hubs, an axle extending through the hubs, boxes constituting bearings for said axle, said boxes including upper members having upstanding reinforced flanges provided with grooves in their outer faces, yokes secured in said grooves and having inturned ends, and channel bars disposed in parallel relation to the axle and connecting the inturned ends of the yokes.

2. In a device of the character described, a pair of roller-supporting frames, each including a pair of channel bars, yokes connected therewith, bearing boxes supported by the yokes, roller-carrying axles supported in the bearings, said channel bars being provided with bearing members upon their upper sides intermediate the ends thereof, a tongue, brace members supporting said tongue and connected pivotally with the bearing members on the upper sides of the channel bars, and platform members secured on the tongue-supporting braces.

In testimony whereof I affix my signature in presence of two witnesses.

NATHAN DURBIN.

Witnesses:
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