

Feb. 8, 1955

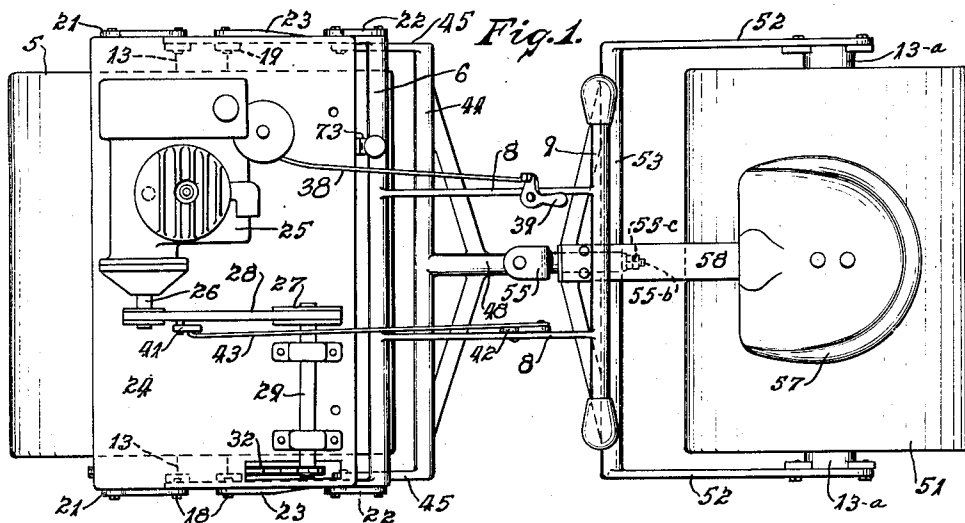
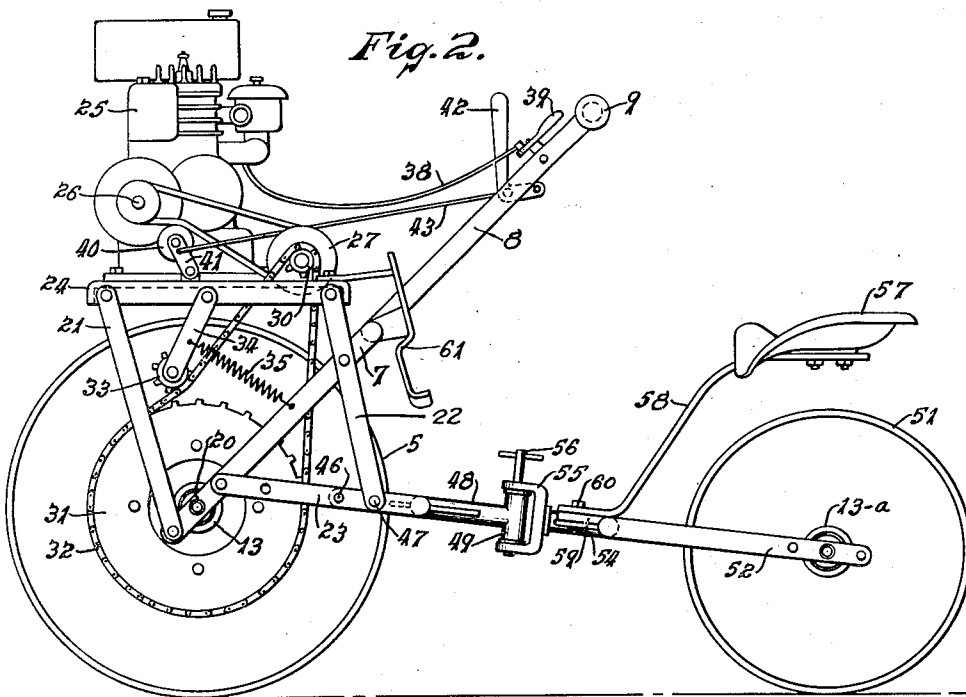
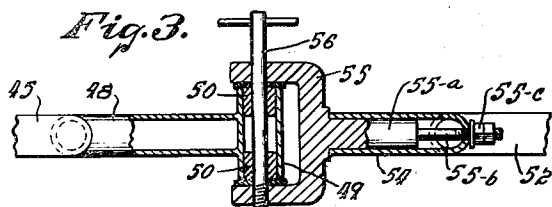
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2,701,616

SURFACE ROLLER AND MOTOR PLATFORM MOUNTING THEREON

Filed Feb. 10, 1950

2 Sheets-Sheet 1



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Fig. 4.

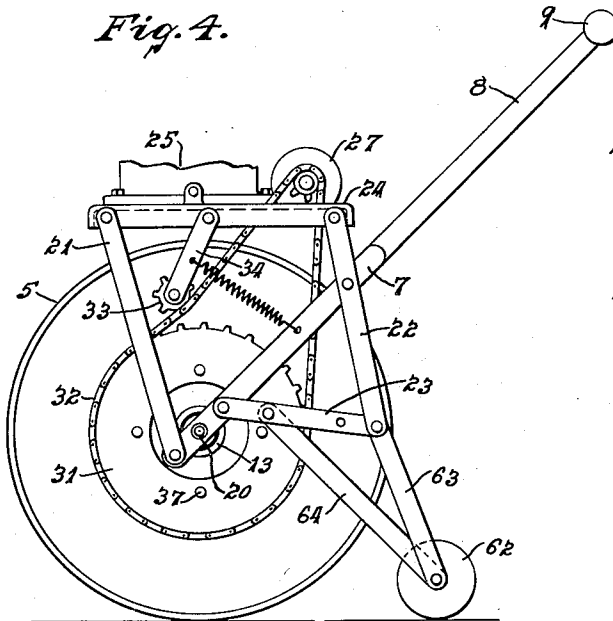


Fig. 6.

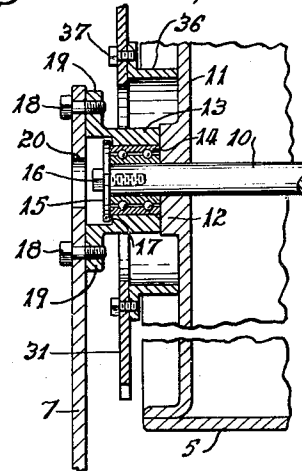


Fig. 5.

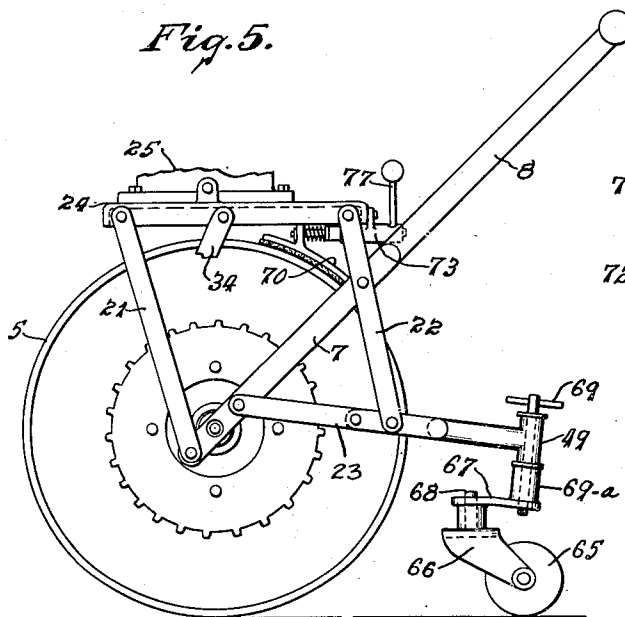
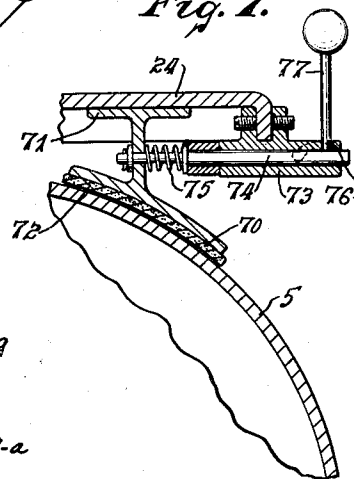


Fig. 7.



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SURFACE ROLLER AND MOTOR PLATFORM MOUNTING THEREON

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4 Claims. (Cl. 180—19)

This invention relates to a surface roller and more particularly to a roller for rolling lawns, road surfaces and the like.

An object of the invention is to provide a roller which is motor driven and which is convertible for different uses by being adapted to receive different attachments.

A further object of this invention is to provide a roller which may be either attached to a separate roller having a seat for carrying the operator or to other supporting means when wanted for use as a single roller.

A further object of the invention is to provide a construction for a motor driven roller having a swivel connection whereby it may be attached to a separate roller, or to a caster for supporting the main roller when it is desired to be used independently.

A still further object of this invention is the provision of a novel frame construction for supporting a driving motor upon the roller.

Further objects and advantages of this invention will be more clearly understood from the accompanying drawings in which:

Fig. 1 is a plan view of a roller embodying my invention.

Fig. 2 is a side view thereof.

Fig. 3 is an enlarged fragmentary view, partly in central vertical section, of the swivel connection used on said roller.

Fig. 4 is a side view of the roller showing a supporting roller bar secured thereto to permit independent use of the roller.

Fig. 5 is a side view of said roller showing a castor attached thereto in lieu of the roller bar.

Fig. 6 is a fragmentary view, in central horizontal section, showing the construction by which the frame is rotatably attached to the roller.

Fig. 7 is a side view, partly in central vertical section, illustrating a brake mechanism which may be used with my improved frame construction.

In the embodiment of my invention, as illustrated in the drawings, the numeral 5 denotes a main roller which may be of conventional hollow construction and adapted to be filled with water in order to render the roller of the desired weight for particular rolling purposes.

My present invention is particularly directed to the provision of a suitable frame construction for supporting a driving motor upon said main roller and which frame is adapted to permit the attachment of various devices for use in connection with the said roller.

The said frame preferably consists of a cross bar 6 having attached to the ends thereof side members 7—7 which receive the roller therebetween. A handle, preferably in the form of spacer bars 8—8, extends from the cross bar 6 and has secured thereto a handle bar 9 by means of which the roller may be guided.

The said side members 7—7 are rotatably secured to the roller 5 by the bearing construction shown in Fig. 6, wherein an axle bar 10 extends through the roller coaxially therewith and projects from the sides 11 thereof through a boss 12; the said boss and axle bar being welded to the sides 11 of the roller or otherwise secured thereto to provide a leak proof connection.

A supporting collar 13 is rotatably mounted upon the end portions of the axle 10 which project from each side of the roller and anti-friction bearings 14 are preferably used between the said collar and the axle 10. The collar is retained connected to the axle by means of a retaining washer 15 which fits against the end of the axle, is se-

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cured thereto by a screw 16 and engages an annular shoulder 17 on said collar.

Each of the side members 7—7 of the frame is secured to a collar 13 by means of fastening screws 18—18 which are threaded to radial projections 19—19 on the collar and the said side members are each provided with an opening 20 therethrough which permits access to the head of the screws 16.

The said frame further includes a pair of front supporting bars 21—21, which are connected to the ends of the side members 7—7 and extend upwardly therefrom, and a pair of rear supporting bars 22—22 which are also connected at an intermediate point thereof to the side members 7—7 and extend above and below the same.

A pair of tie bars 23—23 connect the lower ends of the bars 22—22 with the side members 7—7 and provide means whereby various attachments may be connected to the roller as will be hereinafter described.

A platform 24 is secured to the upper ends of the bars 21—21 and 22—22 and is thereby supported above the roller 5. A driving motor, such as a gasoline engine indicated at 25, is mounted upon the said platform for driving the roller. This motor has a driving shaft 26 with a pulley which drives a second pulley 27 through a belt 28.

The pulley 27 rotates a shaft 29 which is rotatably mounted upon the platform 24 and carries a sprocket 30 which drives the roller 5 through a sprocket 31, that is secured to said roller, and a chain 32. If desired, a roller or sprocket 33 may be rotatably mounted on a supporting bar 34 that swings from the platform 24 and is urged, by means of a spring 35, to take up slack in the chain 32.

The sprocket 31 is preferably ring-shaped and is secured to the end plate 11 of the roller 5 by spacing means which may be in the shape of a ring 36 or may consist of separate studs that are secured to the end plate and receive fastening screws 37 by means of which the sprocket 31 is secured thereto.

The motor 25 is controlled by means of a conventional flexible cable 38 which is connected to an operating lever 39 that is preferably mounted in a convenient position adjacent to the handle bar 9. A clutch device, which may consist of an idler pulley 40, may be also provided for tightening or loosening the belt 28 and thereby controlling the driving of the roller 5 by means of the motor 25. This pulley 40 is preferably mounted upon a bar 41 which is pivoted upon the platform 24 and is operated by means of a clutch operating lever 42 that is also mounted convenient to the handle bar 9 and connected to the bar 41 by means of a tie rod 43.

In the form shown in Figs. 1 and 2, a secondary attachment fork is provided which includes a cross bar 44 having side members 45—45 thereon that are attached, by means of screws 46 and 47, to the bars 23 and 22 at the opposite ends of the roller 5. This attachment fork has a shank 48 with a vertical tubular head 49 secured to the end thereof and is preferably provided with suitable bearing members 50—50 therein.

A trailing roller 51 is rotatably mounted between side members 52—52 of a fork which includes a connecting cross-bar 53 and a shank 54 at the end of which is swivelly secured a C-shaped head 55 adapted to receive therein the tubular head 49. This head 55 is preferably swivelly connected to the fork by means of a projection 55-a thereon which is rotatably secured within the shank 54 by a threaded extension 55-b that projects through the bar 53 and has nuts 55-c thereon abutting the side of said bar. A swivel pin 56 extends through the head 55 and the bearings 50—50 and thereby swivelly secures the trailing roller 51 to the main roller 5.

The rotatable connection between the members 54 and 55-a, and the swivel connection between the heads 49 and 55, are on an axis perpendicular to each other and thereby jointly provides a two way swivel connection which operates as a universal joint between the front and rear rollers.

It will be noted that this swivel connection between the heads 49 and 55 is located in a substantially central position between the axis of the rollers 5 and 51. This causes the roller 51 to more closely track, or follow, the front roller 5 when the device is steered around corners.

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The side members 52—52 are rotatably connected to the roller 51 by collars 13-a which are rotatably connected to the axle shaft of the trailing roller.

A suitable seat 57 may be mounted upon a supporting spring bar 58 which is preferably secured to side projections 59 on the shank 54 by means of fastening screws 60. If desired, foot rests, such as shown at 61, may be provided for the operator when the seat 57 is used.

In the form illustrated in Fig. 4, a roller bar 62 is attached to the main roller for supporting the frame, with the motor thereon, in upright position when the said roller is adapted for use without the trailing roller. The said roller bar 62 is readily attached to the frame by means of opposed side bars 63 and 64, at opposite sides of the roller, which are secured to the connecting bar 23 of the frame as shown.

In the form illustrated in Fig. 5, a caster wheel 65 is attached to the head 49 to support the roller 5 and facilitate the steering of said roller when it is used independently of the trailing roller. The said caster wheel is rotatably mounted in the fork 66 which is swivelly connected to a supporting extension 67 by means of a swivel post 68. This extension 67 is rigidly secured to the above described head 49 by means of a screw 69 that is threaded to a post 69-a on the extension 67.

As illustrated in Fig. 7, a brake mechanism may be provided for locking the roller to the frame and thereby preventing said roller from rolling down an incline when left unattended. This mechanism may include a brake shoe 70 having a foot 71, which is slidable against the underside of the platform 24, and a brake lining 72 which engages with the surface of the roller 5. This shoe is supported in a bearing member 73 that is secured to the platform 24 and slidably and rotatably supports the operating bar 74 which carries a spring 75 thereon bearing against the shoe 70. The bearing member 73 is provided with a cam slot 76 through which projects the handle 72 which is secured to the operating bar 74.

When it is desired to lock the roller 5 against rotation, the handle 77 is rocked in a clockwise direction so that it moves forwardly in the cam slot and forces the bar 74 also forwardly. This applies tension on the spring 75 and urges the shoe 70 and the lining 72 thereon against the wheel 5 and locks it. When the handle 77 is in its vertical position, as shown, the brake shoe is withdrawn from the roller, against the tension of the spring 75, so that no braking action takes place.

I claim:

1. A surface rolling device including a roller, a supporting frame carried on said roller for supporting a driving motor therefor, said frame including at each end of the roller a supporting bar rotatably secured to the roller by bearing means co-axial therewith, a pair of upright bars secured to said supporting bar, one of said upright bars extending downwardly from the said supporting bar, a tie bar between the supporting bar and the lower end of the downwardly extending upright bar for securing the said bar against movement relatively to the supporting bar, a supporting platform secured between the upper end portions of the opposed upright bars and disposed above the roller, a fork-shaped member including the supporting bars at the opposite ends of the roller and a cross bar between said supporting bars, a handle portion projecting from said cross bar rearwardly of the frame, a separate fork-shaped member including the opposite tie bars of the frame and a cross

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bar between said tie bars, a shank portion extending rearwardly from said cross bar of the separate fork-shaped member, and means on said shank portion for connecting a separate member thereto.

2. A surface rolling device comprising a roller having an axle, a frame including a supporting bar at opposite ends thereof, bearing means secured to each supporting bar and rotatably connected to said axle, a pair of upright bars secured to each of said supporting bars, a platform supported upon said upright bars, a tie bar at each side of the frame for preventing swinging movement of the upright bars relatively to the supporting bars, a motor mounted upon said platform, a driving connection between said motor and roller, and means connected to said frame for supporting it in position upon the roller.

3. A surface rolling device comprising a roller having an axle, a bearing member at each end of the roller and rotatably secured thereto, an angular supporting bar secured to each of said bearing members, a pair of upright bars secured to said supporting bars, a tie bar connecting at least one of said upright bars to the supporting bar to thereby prevent swinging movement thereof, a platform carried upon the upper end portions of the said upright bars, a motor mounted upon said platform and having a driving connection with said roller, a fork-shaped portion including said tie bars and extending rearwardly therefrom, a connecting member on said fork-shaped portion, and means swivelly secured to said connecting member for retaining said frame in position upon the roller.

4. A surface rolling device comprising a roller having co-axial projections at each end thereof, a collar rotatable on each of said projections and having an annular shoulder, a retaining washer secured to the end of each projection and engageable with the annular shoulder of the collar thereon, supporting bars secured to the ends of said collars and extending over the ends of the said projections, and a supporting frame mounted upon said supporting bars and extending above the roller.

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