

May 31, 1932.

D. B. COOK

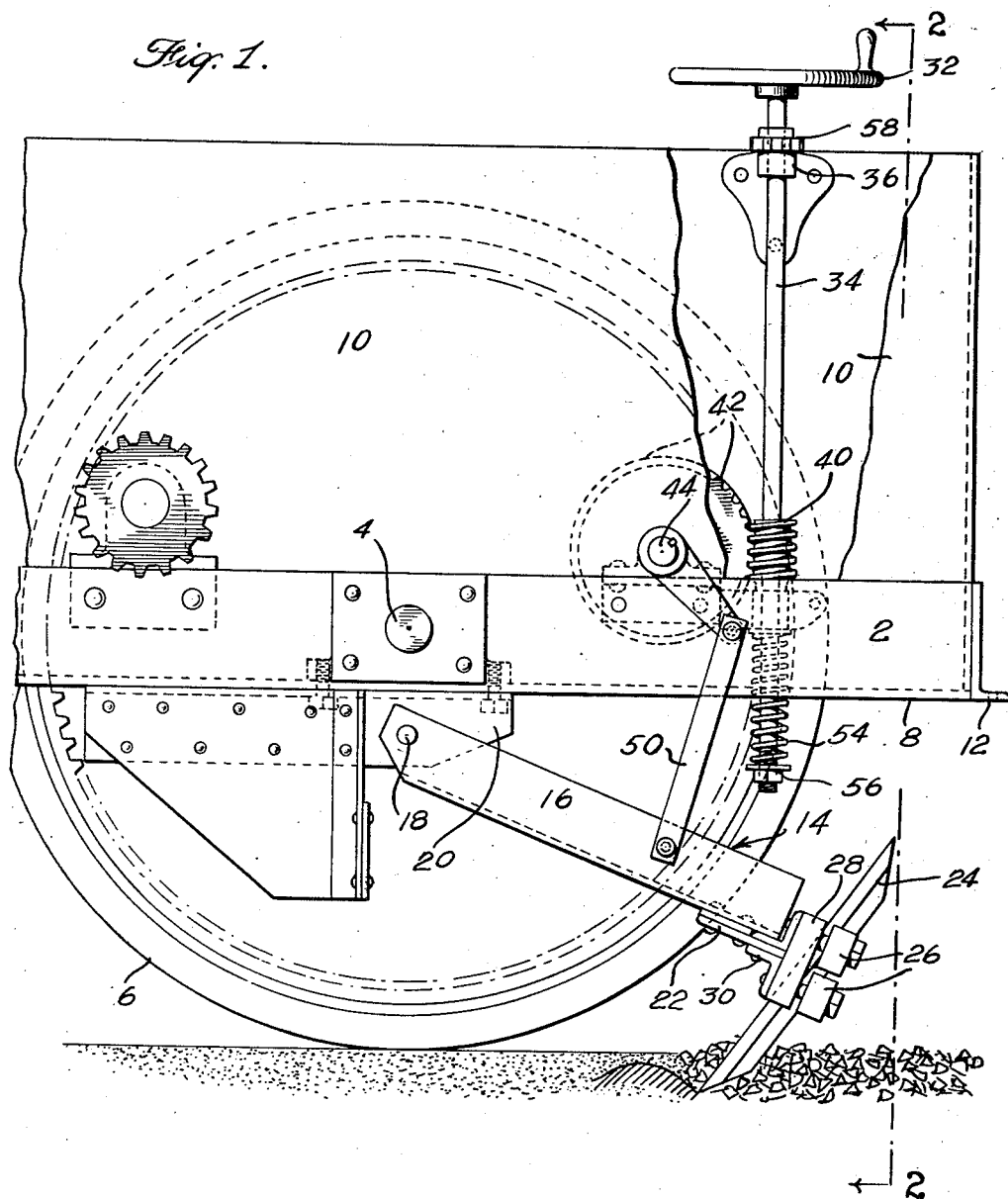
1,860,805

SCARIFIER

Original Filed Jan. 28, 1926

2 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

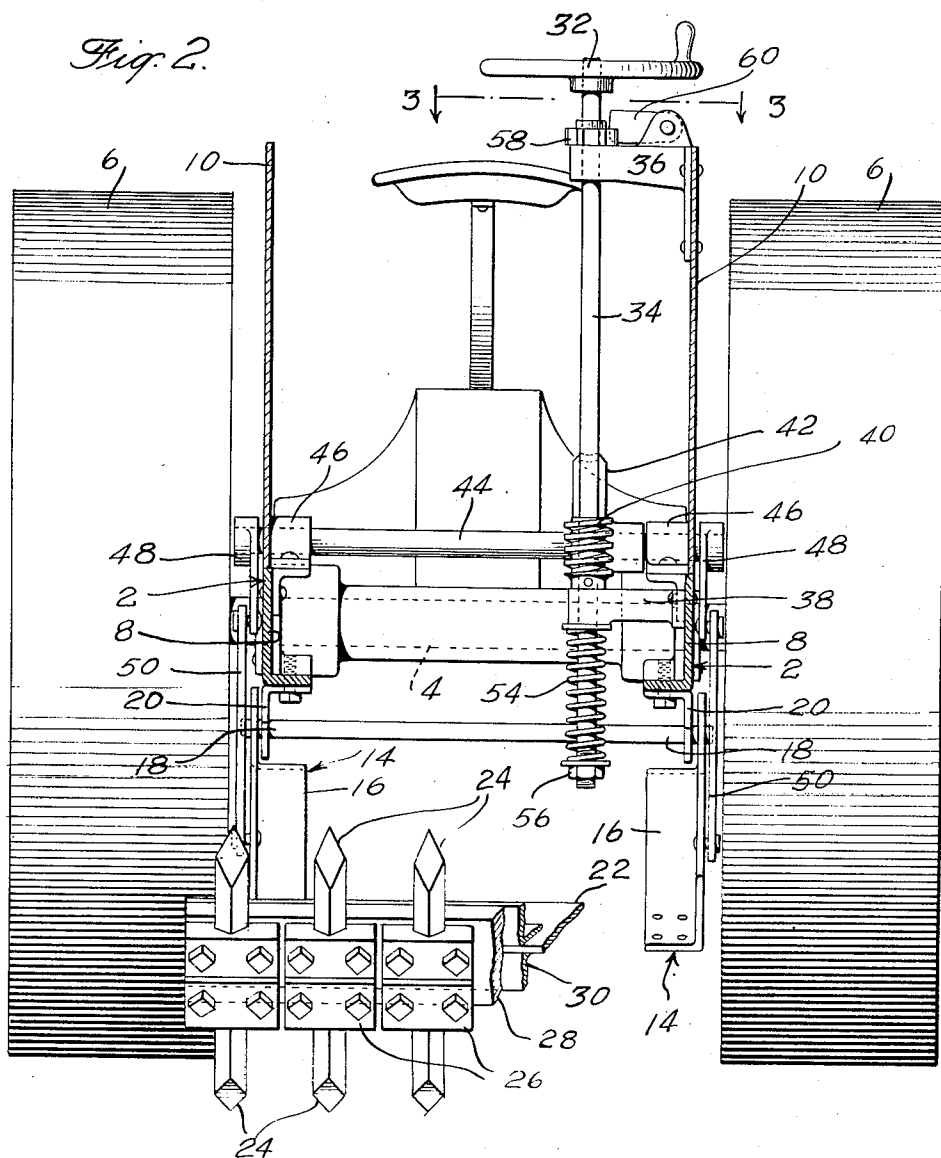
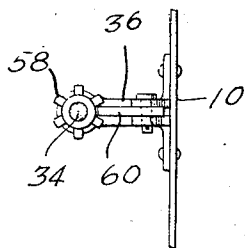


Fig. 3.



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SCARIFIER

Application filed January 28, 1926, Serial No. 84,300. Renewed October 23, 1931.

Scarifying attachments for road rollers and other road vehicles in general commercial use are usually operated by compressed air operable means. While such operating means for these devices are more or less satisfactory, particularly on the larger types of road rollers, they are expensive to manufacture and install, and take up considerable room on the vehicle; and it has been found that because of the jar and rough usage to which this class of machines is subjected they are liable to frequently get out of order.

Accordingly, an object of the present invention is to provide a scarifying attachment which to a certain extent overcomes these disadvantages of the prior commercial constructions.

Another object of the invention is to provide a novel and improved scarifying device of the character indicated.

Another object of the invention is to provide a scarifying attachment for a road roller or other road vehicle in which the parts thereof are so arranged that it offers less resistance to the proper steering of the vehicle than is the case with scarifying attachments generally in commercial use.

The several features of the invention, whereby the above mentioned and other objects may be attained, will be clearly understood from the following description and accompanying drawings, in which:

Figure 1 is a side elevation, with one of the wheels removed and partly broken away, of the rear portion of a road roller having a scarifying attachment applied thereto embodying the features of the invention in their preferred form;

Fig. 2 is a rear sectional elevation taken on the line 2—2 of Fig. 1; and

Fig. 3 is a detail sectional plan view taken on the line 3—3 of Fig. 2.

The road roller illustrated in the drawings is provided with a frame or chassis 2 which is supported upon the axle 4 of rear rollers 6. The frame 2 comprises longitudinally extending angle irons or beams 8 which extend rearwardly a distance beyond the peripheries of the rollers 6, and side plates 10 are secured to the upper edge thereof and

constitute therewith the sides of the body of the roller. The rear ends of the angle irons 8 are connected by an angle iron or bar 12 which forms a draw-bar that may be used for hauling purposes.

In the illustrated construction the scarifying attachment is provided with a supporting frame 14 which is made up of longitudinally extending angle irons 16 having their forward ends pivotally mounted on a rod 18 projecting laterally from bracket angle irons 20 secured to the undersides of the frame angle irons 8. The rear ends of the angle irons 16 are secured together by a bar 22 riveted to the under sides thereof. The scarifying device comprises a plurality of equally spaced picks 24 that are held by clamping blocks 26 against a bar 28 which is secured to a suitably built up T-shaped support 30 riveted to the transverse bar 22. The pivot rod 18 upon which the supporting frame for the scarifying attachment is mounted, is located in the same vertical plane with the axis of the axle of the rear rollers and is spaced in proximity thereto, and the scarifying picks 24 are arranged in proximity to the periphery of the rollers so that they are spaced a distance in front the draw-bar 12. The scarifying device is adapted to be raised and lowered out of and into operative position by means of a hand wheel 32. This hand wheel is secured to the upper end of a vertical shaft 34 which is journaled in suitable bearings in a bracket 36 secured to one of the side plates 10 near its upper edge, and a bracket 38 secured to the corresponding angle iron 8. The vertical shaft 34 carries a worm 40 which engages a worm wheel 42 that is secured on a shaft 44, having its ends extending through and journaled in suitable bearings in brackets 46 secured on the angle irons 8. The ends of the worm wheel shaft 44 extend through apertures in the side plates 10, and a rearwardly extending arm 48 is secured on each of them. The free or rear end of each arm 48 is connected by a link 50 with the rear portion of the corresponding angle iron 16 of the supporting frame of the scarifier. With this construction it will be apparent that by turning the hand wheel 32 the scarifying device

may be raised and lowered, the scarifying device being swung about the axis of the pivot rod 18.

In the illustrated construction, the vertical shaft 34 is mounted for axial movement in its bearings in the brackets 36 and 38. The downward movement of the vertical shaft 34 is limited by the engagement of the lower end of the worm 40 with the upper end of the bearing in the bracket 38. The shaft is pressed downwardly by means of a spring 54 coiled about the lower end thereof and interposed between the underside of the bracket 38 and an adjustable nut and washer 56 screw-threaded on the lower end thereof. The tension of the coiled spring 54 is such that the scarifying device is held firmly down in engagement with the road or other surface being operated upon, the engagement of the lower end of the worm 40 with the bracket 38 limiting the downward movement of said device. In case, however, the picks 24 of the scarifying device strike a rock or other obstruction that they are unable to loosen and pass, the coiled spring 54 permits them to yield sufficiently to ride over the obstruction, the picks acting through the links 50, arms 48, worm wheel 42 and worm 40 to shift the hand-operated shaft 34 upwardly against the tension of the spring 54.

The hand-operated worm shaft 34 is held from turning movement by a tooth-wheel 58 secured on the upper end portion thereof and a cooperating pawl 60 mounted on the bracket 36, the pawl being adapted to be removed from engagement with the tooth-wheel 58 when it is desired to turn the shaft.

The arrangement of the pivot rod 18 for the scarifying device directly beneath the rear axle and in proximity thereto permits the picks 24 of the device to be arranged in proximity to the peripheries of the rear rollers and thus reduces to a minimum the resistance offered to the proper steering of the roller. Also such positioning of the picks of the scarifying device permits the draw-bar 12 to be arranged well back of the picks, and thus the draw bar may serve as a bumper to prevent the object being hauled from striking the picks.

As will be evident to those skilled in the art, my invention permits various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. The combination of a vehicle frame, a support having its forward portion pivotally mounted on said frame, a scarifying device mounted on the rear portion of said support, and means for raising and lowering said scarifying device comprising a worm and a worm wheel, a shaft upon which the worm wheel is mounted, a rearwardly projecting arm secured to the shaft, a link connecting the rear end of said arm with said pivoted

support, a second shaft carrying said worm, vertically arranged and mounted for axial movement in opposite directions, a hand wheel for operating said worm shaft secured on the upper end thereof, a fixed stop for limiting the axial movement of said worm shaft in a direction to permit the lowering of said scarifying device, abutments on the vehicle frame and worm shaft, and a spring coiled about the shaft and interposed between said abutments for yieldingly holding the worm shaft from axial movement in the opposite direction.

2. The combination of a vehicle frame, a support having its forward portion pivotally mounted on said frame, a scarifying device mounted on the rear portion of said support, and means for raising and lowering said scarifying device comprising a shaft vertically arranged, manually operable means at the upper end of the shaft for turning it, bearings for the upper and lower portions of the shaft permitting turning and axial movement of the shaft, a worm secured on the shaft adjacent the top of the lower bearing so that said bearing serves to limit the downward axial movement of said shaft, a spring coiled about said shaft between said lower bearing and an abutment on the shaft so as to tend to press said shaft downwardly, a worm wheel in operative engagement with said worm, a shaft upon which the worm wheel is mounted, and operative connections between said worm wheel shaft and said support whereby said support may be raised and lowered by turning said manually operable shaft, said spring allowing upward movement of said scarifier support under excessive upward strain.

3. The combination of a vehicle frame, a scarifying device mounted on the frame and adapted to be raised and lowered to move it out of and into operative position, and means for thus moving said device comprising a worm wheel and suitable operative connections acting when said wheel is turned in opposite directions to raise and lower said device respectively, an actuating worm engaging the worm wheel, a shaft vertically arranged and mounted for axial up and down movement, said worm being secured on said shaft, a spring for yieldingly holding said shaft from upward movement so as to cooperate with the worm to prevent turning movement of the worm wheel in a direction to raise said scarifying device but permitting turning movement of the wheel in said direction upon an excessive upward pressure being placed on said device, and a fixed stop for limiting upward axial movement of said shaft.

In testimony whereof, I have signed my name to this specification this 20th day of October, 1925.

DAVID B. COOK.