No. 710,165. Patented Sept. 30, 1902.

L. B. McALPINE.

ROAD ROLLER.

(Application filed Jan. 16, 1902.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 2.

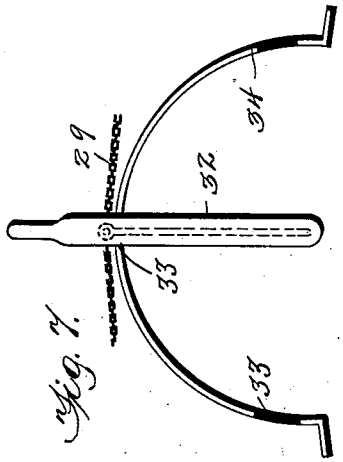


Fig. 1.

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Fig. 6.

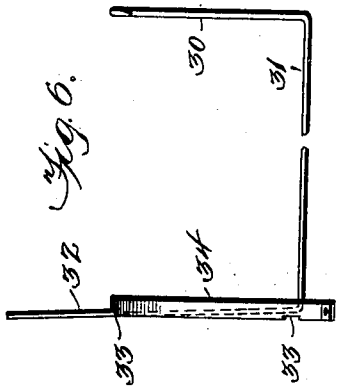


Fig. 7.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 3.

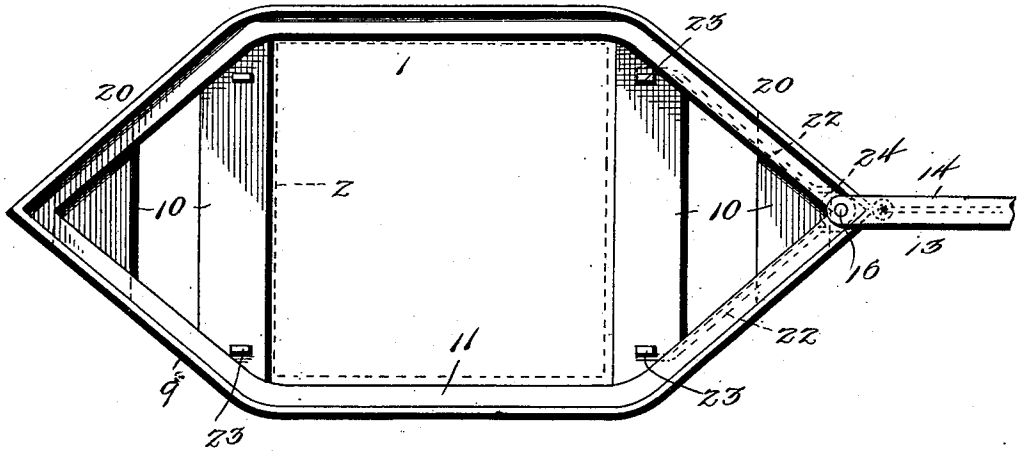


Fig. 4.

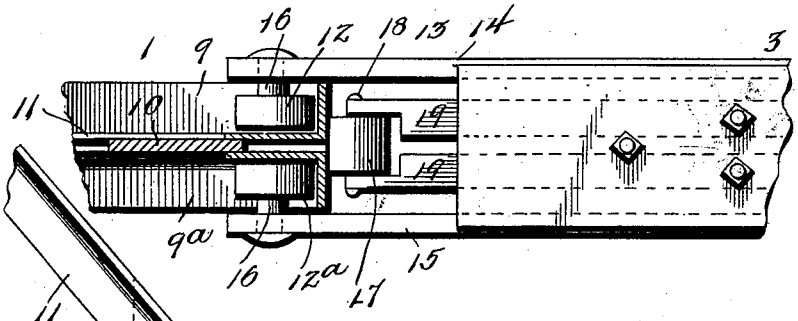
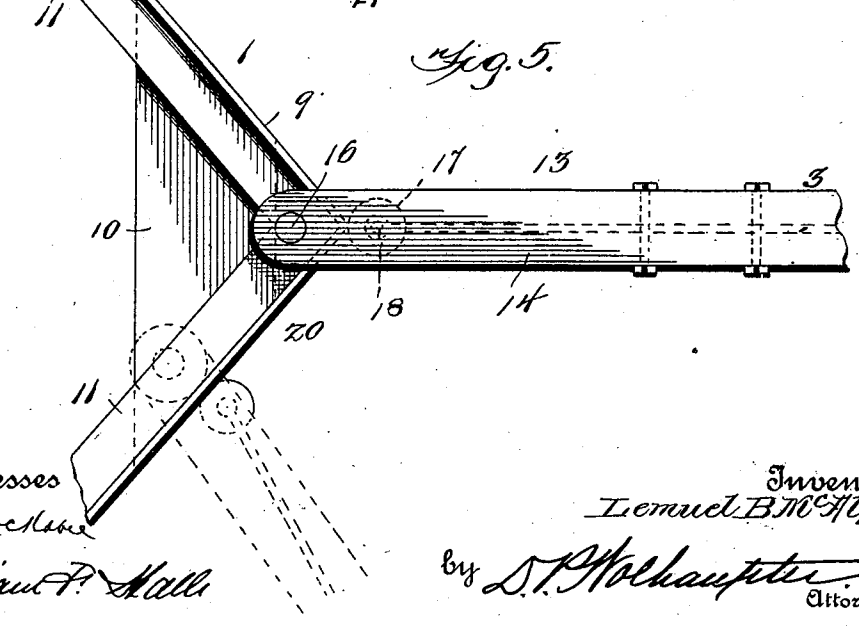


Fig. 5.



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UNITED STATES PATENT OFFICE.

LEMUEL B. McALPINE, OF MARATHON, NEW YORK, ASSIGNOR TO CLIMAX ROAD MACHINE COMPANY, OF MARATHON, NEW YORK, A CORPORATION OF NEW YORK.

ROAD-ROLLER.

SPECIFICATION forming part of Letters Patent No. 710,165, dated September 30, 1902.

Application filed January 16, 1902. Serial No. 90,065. (No model.)

To all whom it may concern:

Be it known that I, LEMUEL B. McALPINE, a citizen of the United States, residing at Marathon, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Road-Rollers, of which the following is a specification.

This invention relates to road machinery, and has special reference to that class of machines commonly termed "road-rollers" and particularly adapted for rolling down and smoothing roads made of dirt, crushed or broken stone, or, in fact, of any material ordinarily utilized in the construction of roads, driveways, or walks.

To this end the invention contemplates certain new and important improvements in road-rollers of the type drawn or operated by separate power, such as draft-animals or separate engines or motors. It is the purpose of the invention to make this class of road-rollers not only of a true reversible type, but also capable of having the draft applied thereto from any point, direction, or angle, as the peculiar conditions of the work may require.

In carrying out the above object the invention contemplates a novel combination of elements providing practical and thoroughly effective means for quickly and easily changing the draft to any point or direction desired without disconnecting any of the draft appliances, also to provide means whereby the roller may not only be drawn straight ahead from either end, but may also be drawn sidewise or diagonally to permit of the machine being easily drawn out from a bad or abrupt place or turned or drawn completely around, as demanded by the exigencies of the occasion.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The essential features of the invention involved in the track or carrying frame, which completely encircles the roller in connection with the shiftable draft appliances, having a permanent traveling trolley connection therewith, are necessarily susceptible to a wide range of modification as to structural details and the like without departing from the spirit or scope of the invention; but a preferred and practical embodiment of the improvements is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a reversible road-roller embodying the improvements contemplated by the present invention. Fig. 2 is a vertical longitudinal sectional view of the machine. Fig. 3 is a detail plan view of the roller-carrying frame to illustrate the continuous form thereof to provide a continuous runway for the trolley. Fig. 4 is an enlarged detail view showing more plainly the trolley at the inner end of the shiftable draft appliance or pole. Fig. 5 is an enlarged detail view of one of the end portions of the carrying-frame, showing different positions of the trolley connection. Fig. 6 is a detail elevation of the lifting device associated with the pole and trolley latches. Fig. 7 is a detail side view of the same device.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In carrying out the invention the elements of the machine which coöperate to permit of the reversing and shifting of the draft appliance or pole without disconnection thereof from the frame and also for fastening or locking the draft appliance or pole in fixed positions may necessarily be associated or combined with the roller proper in any suitable or approved manner without departing from the spirit of the invention, as it is obvious that different kinds of rollers, different ways of mounting the same in connection with the carrying-frame, as well as different forms of scrapers and other appliances, may be combined in divers ways without affecting the manipulation and adjustment of the draft appliance or pole in the manner contemplated by the invention. However, for illustrative purposes a very practical way of utilizing the improvements is shown in the drawings; so in the description of the essential features of the invention particular reference will be made to these drawings.

A necessary feature of the invention re-

sides in the employment of a carrying-frame, (designated in the drawings by the numeral 1,) which carrying-frame is designed to completely encircle the roller 2 and provides a continuous runway about the roller, whereby the draft appliance or pole 3 may be shifted or reversed in the manner to be hereinafter fully explained. The said carrying-frame 1 is of an oblong form and of a sufficient width to accommodate therein the roller proper, 2. As stated, this roller may be of any approved type and in the construction shown in the drawings has the axle 4 thereof mounted in the bearings or boxes 5, supported by and dependent from the diametrically opposite straight side portions of the frame, and the latter also sustains at the upper side thereof the arched top housing 6, upon which is mounted the driver's seat 7, the foot-rests 8, and other parts of the machinery which should be within convenient reach of the driver or operator.

Referring more specifically to the improvements contemplated by the present invention, it will be understood that the continuous carrying-frame 1, which horizontally encircles the roller 2, may be constructed in any suitable manner, so long as provision is made for a continuous runway on or upon the frame; but a practical construction which has been resorted to has been shown in the drawings and consists in constructing the horizontal carrying-frame 1 of separate upper and lower companion frame members 9 and 9^a, arranged in slightly-spaced parallel relation, with interposed spacing elements or plates 10 arranged therebetween to maintain this relation. The said upper and lower companion frame members 9 and 9^a of the carrying-frame may be rigidly united together at convenient points by suitable connections or couplings, and in order to provide a well-defined runway or guiding means entirely around the roller the said upper and lower companion frame members 9 and 9^a are provided at their inner contiguous edges with the horizontal inwardly-projecting guiding-flanges 11, which serve to retain in proper operative relation to the frame the upper and lower interior guide-rollers 12 and 12^a, forming members of a trolley 13, which is bolted or otherwise suitably fastened to the inner end of the draft appliance or pole 3. It will thus be seen that the construction described, involving the provision of the frame members with inwardly-projecting guide-flanges 11, practically forms upon the inner side of the roller-encircling frame upper and lower tracks, which together complete a continuous runway extending entirely around the roller and permitting the trolley 13 to be shifted thereon to any desired position without disconnection of the draft appliance or pole. The trolley 13 may be constructed in various ways; but, preferably, essentially consists of the upper and lower supporting-arms 14 and 15, to the innermost ends of which are fitted short roller-axles 16, projecting inwardly and carrying thereon the interior guide-rollers 12 and 12^a, which guide-rollers are disposed at the inner sides of the said supporting-arms and are arranged in the same vertical plane.

In addition to the roller-supporting arms 14 and 15 the trolley 13 preferably includes an exterior guard-roller 17, mounted upon a vertical axle 18, secured to the inner ends of a pair of spaced vertically-alined spring-arms 19, which are arranged longitudinally of the draft appliance or pole and are secured fast at their outer ends thereto. The inner end portions of the said spring-arms are therefore free to yield or move under any sidewise pressure that may be exerted during the shifting movement of the draft appliance or pole, as indicated by dotted lines in Fig. 5 of the drawings. The said guard-roller, in connection with its spring-arms, therefore serves to keep the trolley always in proper traveling engagement with the runway of the carrying-frame during the reversing or shifting operation.

The oblong form of the carrying-frame 1 provides for a prolongation thereof beyond opposite sides of the roller; but in the preferable construction the end portions 20 of the frame are angular or V-shaped, whereby the draft may be more accurately centered when the machine is drawn straight ahead from either end.

With the draft appliance or pole in a centered position at either end of the frame the interior guide-rollers 12 of the trolley are centered within the apices of the frame end portions 20 and may be fastened in such position by any suitable fastening means. However, a simple and practical expedient which is resorted to for accomplishing this result consists in employing at each end of the frame a trolley-latch 21. This trolley-latch essentially consists of a vertically-swinging frame arranged to work within and above the frame end portion 20 with which it is associated, and said latch comprises the opposite outwardly-divergent side arms 22, having pivotal supports 23 at their inner ends and united at their outer ends with an inwardly-curved bearing-keeper 24, which is adapted to drop behind the vertically-alined guide-rollers 12 and 12^a, and thus fasten the trolley against displacement. At the same time, when the trolley-latch 21 is used alone it will be obvious that it not only serves as a fastening for the trolley, but also provides a hinge-joint for the draft appliance or pole, whereby the same may be swung sidewise to permit of the roller being turned out from an abrupt place or completely turned around, if so desired.

The trolley-latch at each end of the frame, while it may be used single or alone in the manner explained, has associated for conjoint use therewith at each end of the frame an auxiliary or pole latch 25. This pole-latch not only works above the end portion of the frame, but is also of a sufficient length to extend beyond the frame and engage with the

draft appliance or pole. The said pole-latch in its simple form essentially consists of a suitably-braced vertically-swinging frame comprising opposite side arms 26, each having a pivotal support at its inner end, as at 27, upon the frame or framework of the machine and united at their outer ends with an approximately U-shaped locking-cuff 28, adapted to fit astride the upper side of the draft appliance or pole 3 at the inner end portion thereof, as plainly illustrated in Figs. 1 and 2 of the drawings. With both the trolley-latch and the pole-latch in their lowered operative positions the draft appliance or pole is rigidly held in a straight position for drawing the machine straight ahead. By holding the pole-latch out of engagement with the draft appliance or pole the latter may be swung on a pivot, as described, and by holding both latches in elevated inoperative positions the draft appliance or pole may be readily shifted or run on the carrying-frame to any position desired, as the particular character of work may demand.

Various expedients may be resorted to for raising the two latches and holding them in inoperative position. A simple expedient, however, is shown in the drawings, and consists in employing lifting chains or connections 29, which are suitably connected with any convenient portions of the latches and are also connected to a swinging pull-arm 30. This pull-arm is carried at the outer end of a rock-shaft 31, journaled in suitable bearings on top of the top housing of the machine and having united to its outer end an upstanding adjusting-lever 32, which is adapted to spring into engagement with the notches 33 of an upstanding locking-segment 34, bolted on top of the housing 6 and constituting means for holding the lever 32 locked in its adjusted position. By throwing the lever 32 to either side of its axis it will be obvious that either set of latches may be raised or lowered, according to the position of the draft appliance or pole.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described improvements will be readily apparent without further description, and it will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the class described, the carrying-frame having a continuous runway, and a draft appliance shiftable to any position on the frame.

2. In a machine of the class described, the carrying-frame having a continuous runway, and a draft appliance having a permanent shiftable engagement with the runway to permit the appliance to be shifted to any position and disposed at any angle with reference to the said frame.

3. In a machine of the class described, the combination with the roller, of a continuous carrying-frame horizontally encircling the roller, and a draft appliance having a traveling trolley connection with the frame and shiftable to any position thereon.

4. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller and having a continuous runway, and a shiftable draft appliance having a trolley connection with the runway.

5. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller and providing a continuous runway, and a shiftable draft appliance carrying a trolley having a traveling engagement with the frame.

6. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller and providing a continuous runway, and a shiftable draft appliance carrying a trolley having interior and exterior rollers coöperating with the frame.

7. In a machine of the class described, the combination of the roller, of a carrying-frame encircling the roller and having separate upper and lower track portions, and a shiftable draft appliance carrying a trolley having separate guide-rollers engaging the separate track portions of the frame.

8. In a machine of the class described, the combination with the roller, of a continuous carrying-frame encircling the roller, and a draft appliance having a trolley provided with interior guide-rollers working inside of the frame and with an exterior guard-roller working on the outside of the frame.

9. In a machine of the class described, the combination with the roller, of a continuous carrying-frame encircling the roller, and a draft appliance having a trolley provided with interior guide-rollers working inside of the frame and with a yieldably-supported exterior guard-roller working on the outside of the frame.

10. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller and having upper and lower members provided with inwardly-projecting guiding-flanges, and a draft appliance having a trolley provided with interior guide-rollers engaging the separate flanged portions of the frame, and an exterior spring-supported guard-roller working upon the exterior of the frame.

11. In a machine of the class described, the combination with the roller, of a carrying-frame encircling the roller, a shiftable draft appliance having a traveling engagement with the frame, and a latch comprising means for holding the draft appliance to a fixed position and also constituting a pivot-bearing therefor.

12. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller, a shiftable draft appliance carrying a trolley engaging the frame and provided with an interior roller, and a latch having a bearing-keeper adapted to engage said trolley-roller.

13. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller, a shiftable draft appliance having a trolley connection with the frame, and a pair of latches arranged at each end of the frame and adapted to engage respectively with said trolley connection and with the draft appliance or pole beyond the frame.

14. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller, a shiftable draft appliance having a trolley connection with the frame, and a pair of vertically-swinging latches arranged at each end of the frame and adapted to engage respectively with said trolley connection and with the draft appliance beyond the frame.

15. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller, a shiftable pole having a trolley connection with the frame, a pair of vertically-swinging latches pivotally supported at each end of the frame, one of said latches having a bearing-keeper for engagement with the trolley, and the other of said latches having a locking-cuff adapted to engage astride the pole beyond the frame, and a lifting device having operative connections with the said latches.

16. In a machine of the class described, the combination with the roller, of a carrying-frame horizontally encircling the roller, a shiftable pole having a trolley connection with the frame, a trolley and a pole-latch pivotally supported at each end of the frame, and a lifting device mounted upon the machine and including a pull-arm having flexible connections with both sets of latches.

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

LEMUEL B. MCALPINE.

Witnesses:

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THADDEUS R. CLARK.