Jan. 27, 1925. 1,524,403

J. C. MERWIN

APPARATUS FOR DISTRIBUTING AND SPREADING MATERIAL

Filed Sept. 19, 1922 2 Sheets-Sheet 1

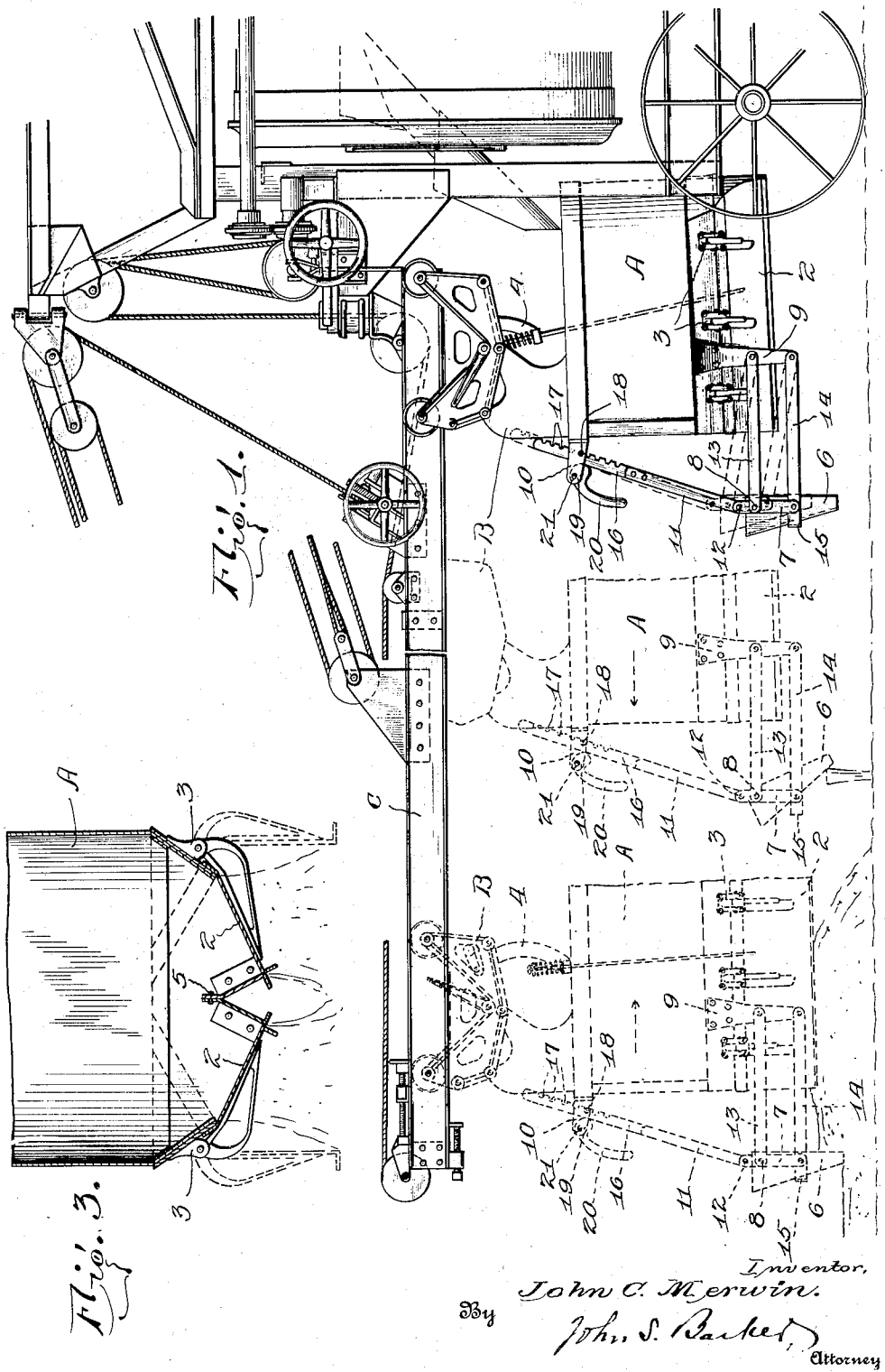


Fig. 1.

Fig. 3.

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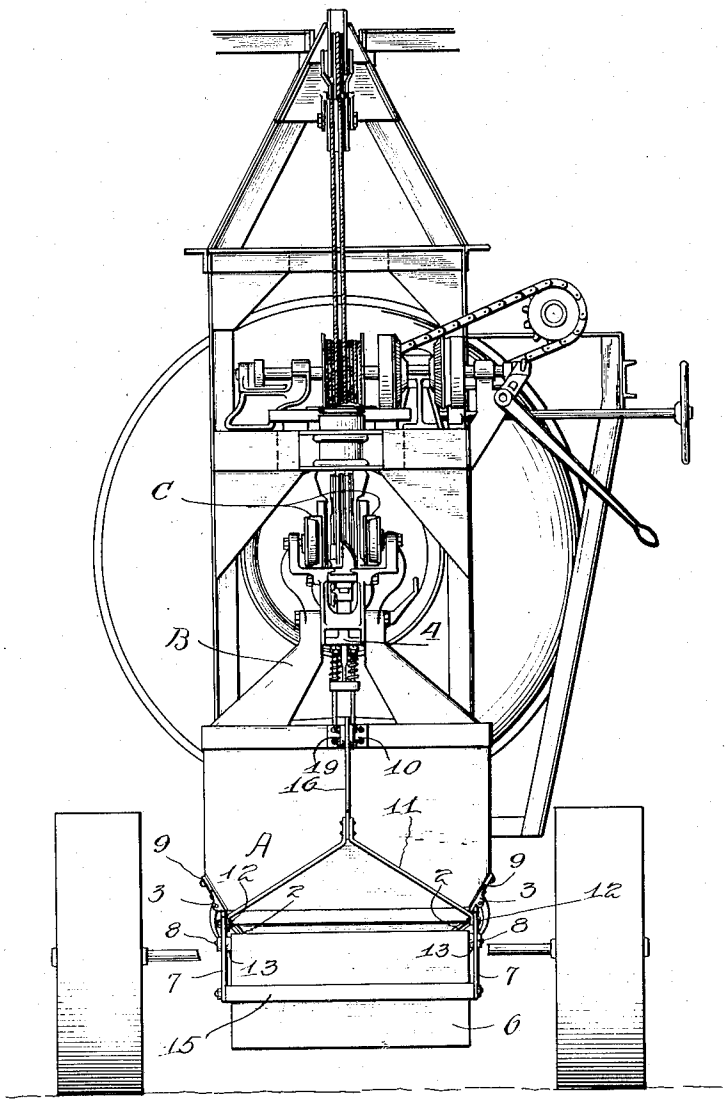


Fig. 2.

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Patented Jan. 27, 1925. 1,524,403

UNITED STATES PATENT OFFICE.

JOHN CLIFFORD MERWIN, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO CHAIN BELT COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

APPARATUS FOR DISTRIBUTING AND SPREADING MATERIAL.

Application filed September 19, 1922. Serial No. 589,186.

To all whom it may concern:

Be it known that I, JOHN CLIFFORD MERWIN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Distributing and Spreading Material, of which the following is a specification.

The improvements herein described relate to apparatus for distributing and spreading material in construction work, the particular embodiment of the invention illustrated being used in connection with a distributing bucket for concrete constituting part of a paving machine.

Figure 1 is a side view of apparatus embodying the invention;

Fig. 2 is an end view thereof; and

Fig. 3 is a transverse sectional view.

In the drawings A designates the bucket of a concrete paving machine suspended from a carriage B arranged to move backward and forward along a track C, which in the present instance is the adjustable swinging boom of a concrete mixing machine. The bucket is of the bottom-discharge type and is provided with a pair of doors 2, 2 which are united with the bucket by hinges 3. The doors are closed and so held by links 4 in a well-known manner. The doors open outwardly, that is, away from the longitudinal center of the bucket, and are preferably of such width that their edges do not meet when the doors are closed. Instead they come into engagement with the lower edges of a dividing piece 5, of inverted V-shape located in the bottom of the bucket. This piece is preferably formed of structural metal and has its ends secured fast to the front and rear ends respectively of the bucket. It serves to strengthen the bucket at its lower, discharge, end, and also to divide the charge of the bucket when the doors are opened, deflecting it somewhat laterally so that the ridge or mound of discharged material is not as high as is the case in using the buckets usually found on street paving machines, thus lessening the labor required to spread and level such material.

I have provided the bucket with a leveling device, which constitutes part of the present invention. This consists of a strike-off or spreading piece 6, which is preferably a stout and rather heavy bar thicker at its upper edge than its lower, carried by the bucket A and disposed transverse to its path of movement along the track C. It is supported at its ends by the bars 7, 7, with which it is connected near its upper edge by pivots 8, 8, on which it is free to turn. 9, 9 are brackets carried by the lower portion of the bucket, and 10 a bracket also carried by the bucket at a higher level than the brackets 9. The former are preferably attached to the sides of the bucket, and the latter to its rear wall in the central transverse plane of the bucket. The bars 7, 7 that support the strike-off bar are carried by an adjustable hanger 11, to which they are united by the pivots 12. The bars 7 are also respectively connected with the brackets 9 by parallel links 13 and 14 and connecting pivots. The strike-off bar 6 is supported so as to be free to swing upon the pivots 8, but is prevented from movement in a direction away from the bucket beyond a determined position by a cross bar 15, which is preferably integral with the links 14.

The strike-off bar and its supporting hanger 11 are vertically adjustable, in order to change the height of the working edge of the bar so that the thickness of the bed of leveled and smoothed concrete may be varied. To effect this adjustment the hanger 11 is connected with an adjustable bar 16, which is arranged to lie between the wings 19 of the bracket 10. These wings are preferably spaced apart just enough to accommodate the bar 16. One of the edges of the bar 16, preferably the one toward the bucket, is notched, as indicated at 17, and arranged to engage with a cross pin 18 supported in the wings of the bracket 10, and extending across the open space between such wings. A cam lever 20, mounted on a pivot 21, bears against the outer edge of the bar 16 and is adapted to hold such bar securely with its notched edge in engagement with the pin 18. The links, 13 and 14, connecting the bars that carry the strike-off bar with the brackets 9, are preferably of the same length and parallel with each other.

The operation of the apparatus described is as follows: The bucket is filled, from a concrete mixer or other source, and run out along the track C to the place where the

material is to be distributed, when the doors 2 are opened, permitting the contents of the bucket to discharge by gravity. The piece 5 in the bottom of the bucket divides the discharging stream of material, deflecting laterally each portion of the stream somewhat, with the result that the mound of material formed from the discharged load is transversely broader and not so high as would be the case were the piece 5 not employed. The leveling and spreading bar 6 has been vertically adjusted to the desired height and swings freely from its pivotal supports 8. On the outward run of the bucket, the bar is free to swing inward, as represented in dotted lines in Fig. 1, in case its lower edge meets with an obstruction, such for instance as a grade stake, workmen's tools, or other obstructions such as are encountered in paving operations. After passing an obstruction the bar falls back into normal position by gravity. On the return run of the bucket the bar 6 spreads and levels the material dumped from the bucket, being held in working position by the cross bar 15.

The apparatus which I have described is easily applicable to the bucket of a concrete paving machine, either when first manufactured or after it has been in use. The invention, however, is not limited in its useful applications to a concrete bucket but may be used in connection with conveying receptacles and construction machinery of a wide variety of types.

What I claim is:

1. The combination with a conveying and distributing receptacle for loose material, of a pivoted spreading and leveling bar, supported from the receptacle and free to swing on its pivots in one direction but rigid against swinging movements beyond a determined position, in the other direction.

2. The combination stated in claim 1, including means for vertically adjusting the leveling bar without interfering with the said movements on its pivots.

3. The combination with a conveying and distributing receptacle for loose material, of a leveling bar, supporting pieces at the ends of the bars with which it is pivotally connected, means for limiting the movements of the bar on its pivots in one direction, links for connecting the supporting pieces with the receptacle, and means from which the supporting pieces are hung.

4. The combination with a conveying and distributing receptacle for loose material, of a leveling bar, supporting pieces at the ends of the bars with which it is pivotally connected, means for limiting the movements of the bar on its pivots in one direction, a pair of parallel links connecting each supporting piece with the receptacle, and means from which the supporting pieces are hung.

5. The combination with a conveying and distributing receptacle for loose material, of a leveling bar, supporting pieces at the ends of the bars with which it is pivotally connected, means for limiting the movements of the bar on its pivots in one direction, links for connecting the supporting pieces with the receptacle, a hanger from which the supporting pieces are hung, and means by which the said hanger may be supported at various heights.

6. The combination with a conveying and distributing bucket for loose material, of a leveling bar, a hanger for supporting the leveling bar, a vertically adjustable bar formed with a notched edge connected with the hanger, a bracket carried by the bucket and formed with wings between which the adjustable bar lies, a pin carried by the bracket with which the notched edge of the vertical bar engages, and means for forcing the bar into engagement with the pin and there maintaining it.

7. The combination with a distributing bucket for loose material, of a pivotally supported leveling bar, means for limiting the movement of the leveling bar on its pivots in one direction, a hanger for supporting the leveling bar, a vertical bar with a notched edge connected with the hanger, a bracket carried by the bucket formed with wings spaced apart and between which the said vertical bar lies, a pin supported in the bracket with which the notched edge of the vertical bar is adapted to engage, and means for holding the bar in engagement with the said pin.

JOHN CLIFFORD MERWIN.