April 25, 1939. J. R. ROYER 2,156,065

SWEEPING MACHINE

Filed June 3, 1936 3 Sheets-Sheet 1

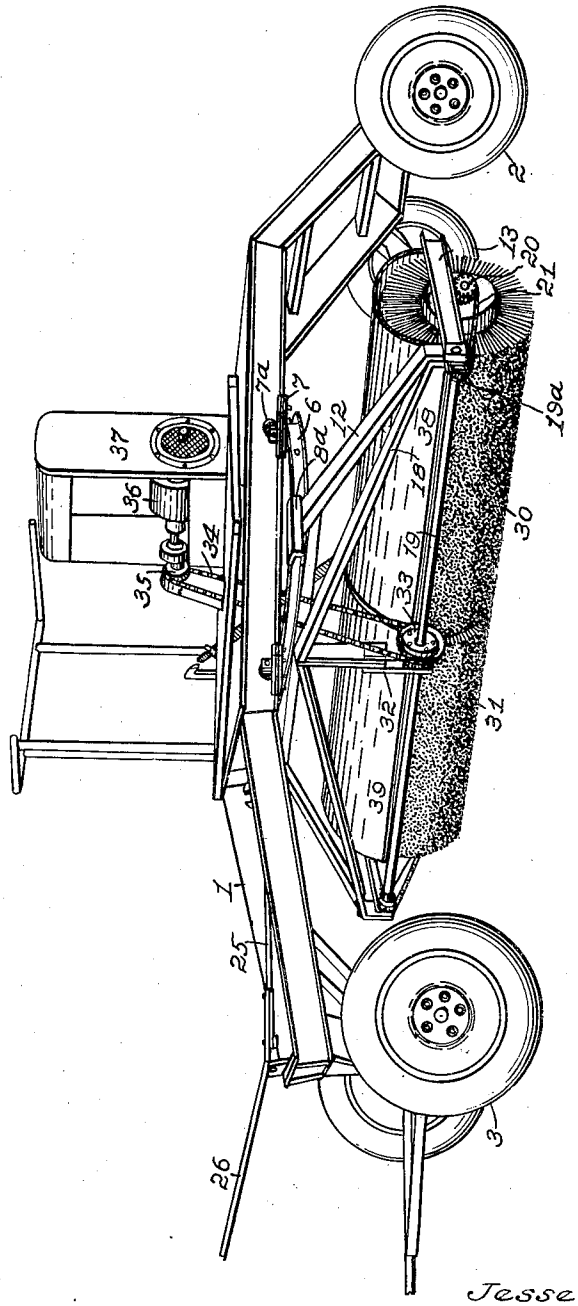


Fig. 1.

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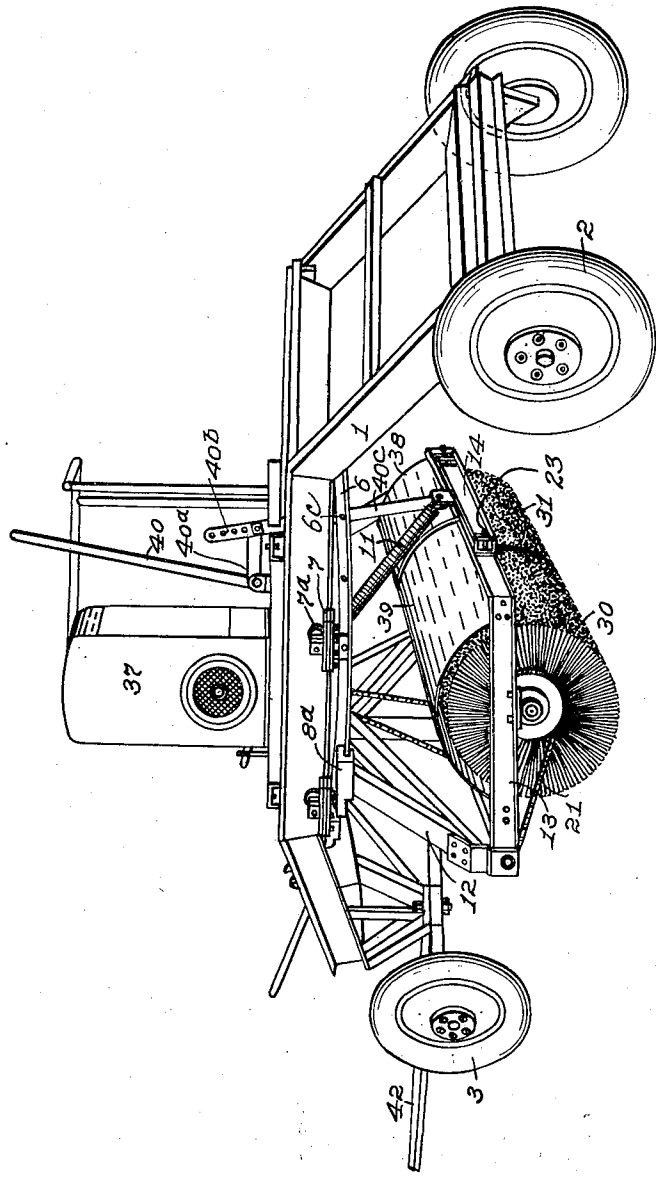


Fig. 2.

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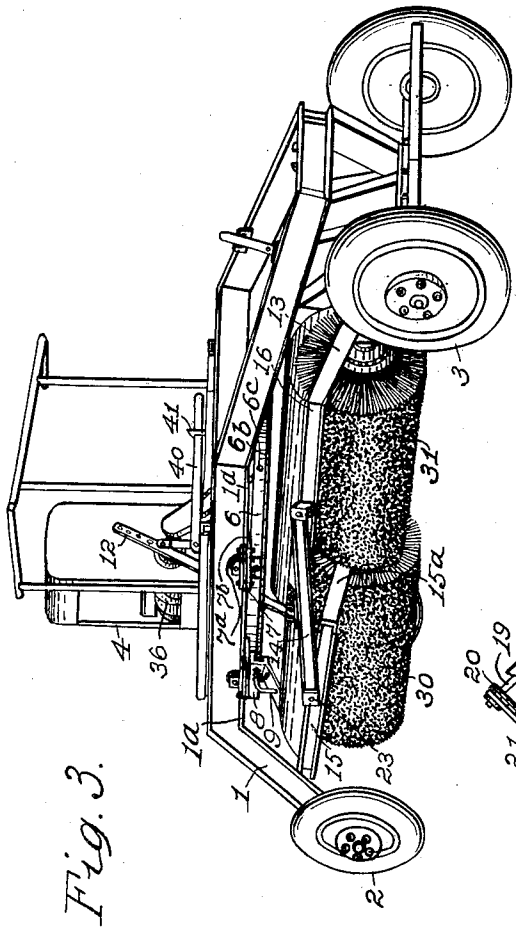


Fig. 3.

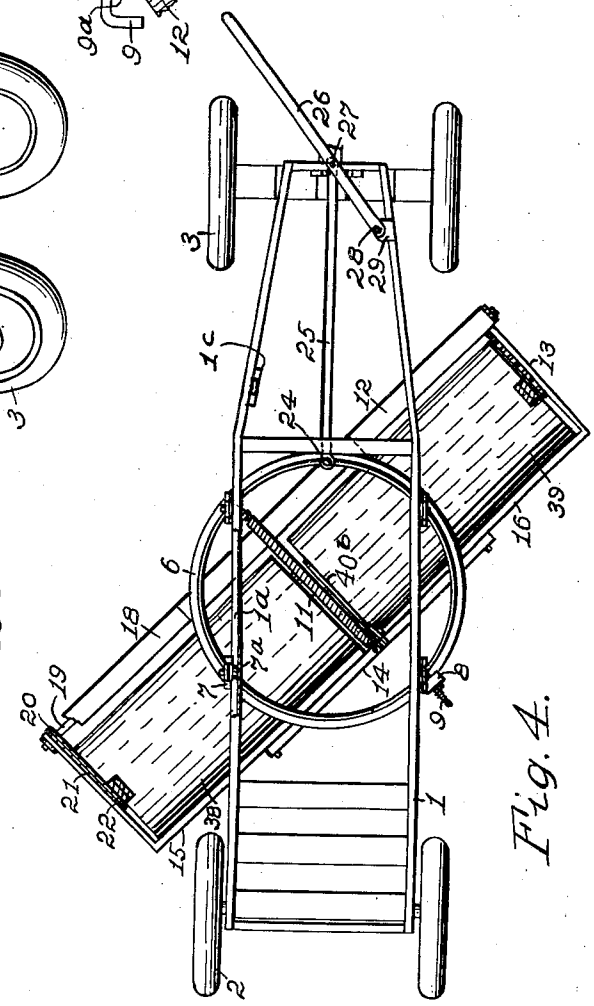


Fig. 4.

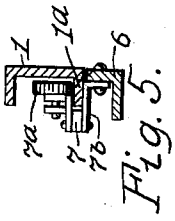


Fig. 5.

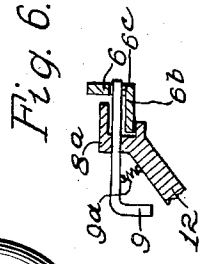


Fig. 6.

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Patented Apr. 25, 1939 2,156,065

UNITED STATES PATENT OFFICE

2,156,065

SWEEPING MACHINE

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Application June 3, 1936, Serial No. 83,223

2 Claims. (Cl. 15—82)

My invention relates to improvements in sweeping machines, and an object of my improvements is to provide coacting means for adjustably shifting longitudinally and securing releasably a brushing device mounted on such a machine.

Another object of my improvements is to provide means on such a machine for rotating the brush thereof in any of its adjusted positions.

Another object of my improvements is to supply in the machine a longitudinally adjustable sub-frame on the main frame, together with a manually controllable rotary brushing device supported for sidewise swinging adjustments on the sub-frame.

Another object of my improvements is to combine with a longitudinally adjustable sub-frame on the main frame a swingable rotary brush depending from the sub-frame with means for lifting and lowering the brush adjustably.

Another object of my improvements is rockably supporting the brush device upon the subframe for sidewise swinging of the device, and including releasable locking means for holding the former in adjusted positions upon the latter.

Another object of my improvements is to provide anti-friction bearing devices upon the subframe to travel along side ways of the main frame to permit easy longitudinal adjustments of the sub-frame therealong.

Another object of my improvements is to supply a pair of rotary brushes in the machine arranged for differential lifting and lowering movements relative to each other in their respective working positions, with means for controlling such movements thereof.

Various modifications in the details of construction and arrangement of parts of the machine may be made without departure from the principles and scope of this invention as defined in the following claims.

In the appended drawings, Figs. 1, 2 and 3 show perspectives of my improved sweeping machine, taken respectively from different lateral points of view, and with respectively differently adjusted positions of the rotary brushing devices. Fig. 4 is a top plan of the machine with parts removed or broken away. Fig. 5 is an enlarged end elevation of one of the trolley devices for carrying the sub-frame longitudinally on the main frame, and Fig. 6 is an enlarged cross section of a releasable fastening means for locking the supporting frames of the brushes in desired positions of horizontal rotary adjustments upon the sub-frame.

This machine pertains to those appropriate for highway sweeping, but may be employed otherwise as desired within the scope of permitted activities of the machine.

Referring to the drawings, in which a machine of this type and use is shown and which has been successfully operated in actual reduction to practice, the numeral 1 denotes the main frame bars with fixed front and rear connections, as shown in Fig. 4. The main frame is supported for transportation on rear wheels 2 and dirigible front wheels 3, and may be propelled by power means connected to a hitch tongue 42, or by a motor upon the frame.

In a housing 37 fixed on a swingable platform on the main frame may be mounted a prime motor 36, herein intended for use in rotating the sweeping brushes 30 and 31.

The numeral 6 denotes a circular sub-frame positioned immediately under the main frame 1. Fig. 5 shows one of a plurality of trolley devices 7 having spaced parts 7*b* embracing loosely the lower flange 1*a* of the main frame 1 and having each a roller 7*a* riding upon said flange. The parts 7*b* are secured fixedly upon the sub-frame, and thus the sub-frame 6 may be shifted longitudinally along the main frame 1.

As shown in said Fig. 4, the circular sub-frame 6 may be shifted to and fro longitudinally along the side bars of the frame 1, and this is effected by the use of a hand-lever 26 having its rear end pivoted at 28 to a bracket 29, the lever being pivoted at 27 to the forward end of a link-bar 25 whose rear end is pivoted at 24 to said sub-frame. Catches 1*b* and 1*c* are fixed on the end and one side of the main frame into which the lever 26 may be sprung in either position of the subframe as adjusted longitudinaly along the main frame, as shown in Figs. 1 and 3.

Referring now to Figs. 2 and 6, the numerals 30 and 31 denote like rotatable brushes or sweeper-brooms having each a shaft with projecting end pintles seated rotatable in bearing brackets on a pair of arms 13 swingably mounted in front on a cross shaft 19, as shown in Fig. 1, carrying a sprocket-wheel 33. This wheel carries an end of a sprocket-chain 34, whose upper end is carried around a sprocket 35 on the shaft of a motor 36 in the housing 37. An arched frame construction 18 has its depending ends apertured to receive the ends of the rotary shaft 19. The outer ends of the broom shafts have sprockets 20 carrying sprocket-chains 21 mounted in the rear upon sprockets 19*a* on the shaft 19. By the said means the brushes 30 and 31 are both rotated. These brushes may have dirt deflectors 38 and 39

respectively over the brushes 30 and 31, mounted on the parts 16 which carry the arms 13.

Means are provided for manually lifting and lowering the brushes 30 and 31 tiltably, with the elements 15 and 16, as shown in Figs. 2 and 3. These are best shown in Fig. 3, which show a rock-arm 14 pivotally connected at its ends at 23 to the middles of the bars 15 and 16, it being understood that the bars 15 and 16 have arms such as 15a terminally apertured to receive the inner ends of the brush shafts. An arm 40c has its lower end pivoted to the middle of the rock-bar 14, and, as shown in Fig. 2, the upper part of the arm 40c has a plurality of pin-holes 40b therealong for receiving a pivot-pin in a crank end 40a of a hand-lever 40 operable manually for lifting or lowering both brushes 30 and 31 simultaneously.

A coiled tension spring 11 is connected between the middle of the rock-bar 14 and as shown in Fig. 4 to a side element of the main frame 1, permitting the brushes 30 and 31 to be suspended resiliently to clear obstructions in the way. It will be observed that as the brushes are resiliently supported either brush may ride upwardly over projections, or upon a marginal portion of a highway, while the other brush as indicated in Fig. 3, may subside below the other, as in sweeping a shoulder alongside paving.

As shown in Fig. 1, spaced arms 12 are at their outer lower ends seated on the ends of the shaft by connections to the arch-bars 18, and project upwardly and inwardly with offset inwardly grooved terminals 8a which ride loosely upon the outer flange 6b of the ring or sub-frame 6. In Fig. 6 is shown a releasable locking device for securing one of the arms 12 to the sub-frame 6. The sub-frame has a plurality of holes, spaced apart at selected positions, in its web at 6c. In one of the widened heads 8a of said arms 12 is a pin-hole arranged to be placed opposite either of the pin-holes 6c as the brushes are swung around, and to seat a handled pin 9 loosely longitudinally in a hole 6c as selected, and the pin 9 is connected to the arm 12 by a tension spring 9a. When the pin 9 is seated in a hole 6c, it is retained therein by the spring 9a as against accidental displacements. The brushes 30 and 31 may be by the above means swung around to desired sweeping angles relative to the main frame 1. It will also be noted, that the deflectors 39 aid in delivering to one side dust or particles of mire thrown up by the brushes, particularly when the brushes are placed obliquely relative to said main frame 1.

I claim:

1. In a sweeping machine, in combination, a main frame, said main frame having rigidly connected channel bar side beams with outwardly directed flanges, a ring below said beams having mounted thereon trolley wheels ridable along the lower flanges of the beams, means for shifting said ring to and fro along said beams, comprising a hand-lever having an end pivoted to one side frame beam, a rigid bar link pivotally connected at opposite ends to said ring and to a medial part of the hand-lever respectively, socket members at the end of said frame and on one side beam respectively to receive the hand-lever in either when removably sprung thereinto to secure the ring in either of longitudinally adjusted positions on the main frame, a sub-frame comprising rigid hangers having upper terminations rockably mounted on the ring, releasable locking means for securing the hangers as adjusted on the ring, a pair of alined rotary brushes supported pivotally independently on the hangers, adjusting means movably mounted on the main frame and pivotally to the lower ends of the hangers including bearing members for the shafts of the brushes for differentially supporting the brushes, a motor on the main frame, and driving connections between the motor and the respective brushes for rotating the brushes independently.

2. In a sweeping machine, in combination, a main frame, said main frame having rigidly connected channel bar side beams with outwardly directed flanges, a ring below said beams having mounted thereon trolley wheels ridable along the lower flanges of the beams, a sub-frame comprising rigid hangers having their upper terminations rockably mounted on the ring, releasable locking means for securing the hangers as adjusted on the ring, a pair of alined rotary brushes supported pivotally independently on the hangers, adjusting means movably mounted on the main frame and pivotally to the lower ends of the hangers including bearing members for the shafts of the brushes for differentially supporting the brushes, a motor on the main frame, and driving connections between the motor and the respective brushes for rotating the brushes independently as differently supported in relative positions upon a surface to be brushed.

JESSE R. ROYER.