March 17, 1936. N. W. CUMMINS 2,034,025

CARPET SWEEPER

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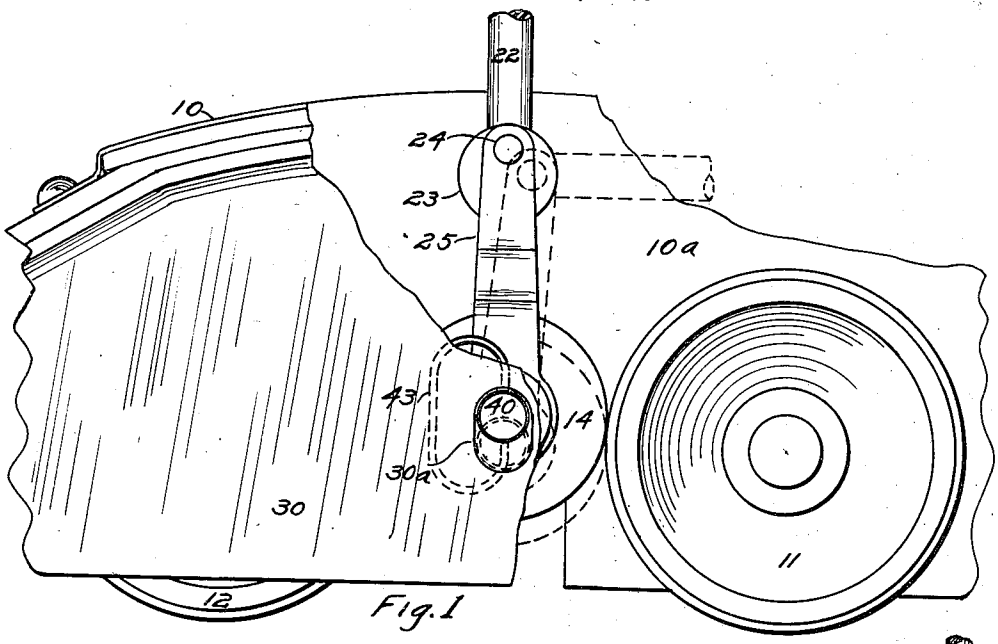



Fig. 1

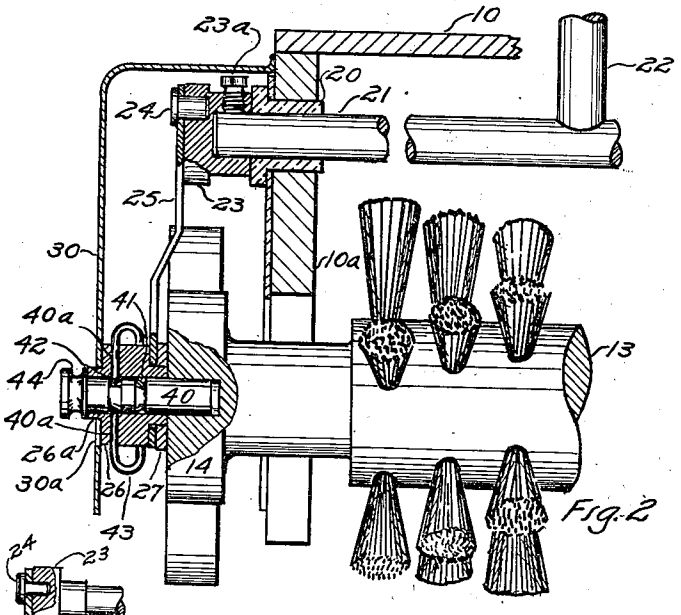



Fig. 2

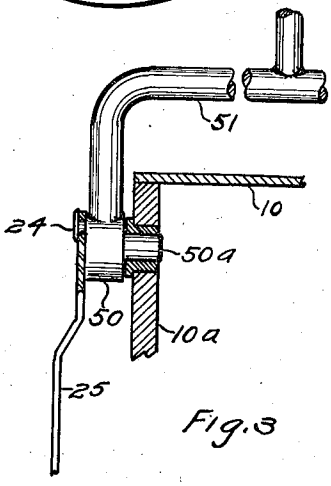



Fig. 3

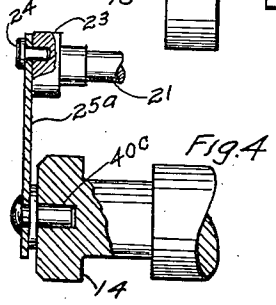



Fig. 4

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## CARPET SWEEPER

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13 Claims. (Cl. 15—41)

This invention relates to an improved carpet sweeper equipped with an adjustable brush, controlled by the operating handle.

The principal objects of the invention are to produce a carpet sweeper equipped with a very simple and readily operative means for removing and returning the rotary brush and to control the degree of brush contact with the floor, independent of operating pressure or force applied to the sweeper through the handle during normal operations.

Other objects and advantages of the method, structure and combinations are here-in-after set forth in detail and will be apparent to persons skilled in the art to which this invention relates and to their advantages in-so-far as they are patentably novel, I will claim the same as here-in-after set forth.

*Drawing*

Figure 1 is a section of an end view in elevation of an assembled carpet sweeper with portions of the housing and end case removed to depict the relation of only so much of the adjacent related members as is necessary for an understanding of the invention.

Fig. 2 is a fragmentary cross sectional central transverse view of the sweeper housing end case and bearings illustrated in Fig. 1 as viewed from the right hand side. This figure also shows in elevation the movable members associated with said bearings. Both ends of the sweeper are substantially duplicates and are so treated in the specification, one end having been omitted to permit enlarged views. Both ends will be described as being illustrated.

Fig. 3 discloses a practical means for adapting the conventional bail type of handle to the novel mechanism through which this invention accomplishes the principal objects set forth here-in and can be regarded as a modification of Fig. 2.

Fig. 4 represents in a more or less diagrammatic elevational view, a modification of the structure adapted to mount and control the brush unit from the normal operation of the operating handle.

*Structure and operation*

Numeral 10 indicates the sweeper body or housing to which are mounted conventional drive traction wheels 11, 12 in normal relation to the carpet sweeper brush unit 13, which is equipped or fashioned with a driven friction pulley 14, the face of said pulley being planimetrically aligned with the wheels. These several parts co-ordinate to function in response to applied, transmitted and resultant forces, as is well understood in the sweeper industry, to effect cleaning of floor surfaces.

Vertical side walls 10*a* of the sweeper housing are provided with bearings 20, in which is rotatively mounted a cross shaft 21 and to which are optionally attached or secured operating handle 22 and cupped collars 23. In the faces of the latter are eccentrically fixed flange stud shafts 24 on which one end of links 25 are rotatively mounted, the other enlarged ends of said links being held on bushings 26 by disc collars 27. Bushings 26 are fashioned with projecting concentric bosses 26*a* of slightly less diameter than the width of slots 30*a* of mechanism cases 30 in order that said bosses can freely travel vertically downward and vertically up in response to force transmitted by the rotation of shaft 21 and its associated parts. The throw of shafts 24 and the length of slots 30*a* being relatively proportioned for free movement on the true center line of the sweeper which positively maintains brush 13 in said true central location.

A concentric bearing is provided in bushings 26 to slidably accommodate plungers or stub shafts 40, the inner ends of the latter functioning as pivots for brush unit 13, which is thus axially aligned between the pair of said plunger pivots. In each plunger 40 are provided two grooves 41, 42 into which freely lodge the ends of spring 43, which likewise freely pass through holes 40*a*, according to whether the plungers are inserted into the bearings of the brush unit as shown in the assembly drawing, are withdrawn (not shown) for removing the brush unit in which instance the ends of the springs would be disposed in grooves 41. This structure is to effectively retain the plungers 40 in either of the two positions while finger notches 44 are placed in the ends of said plungers, to enable the operator to manipulate these parts without the use of tools. While changing the plunger from one position to the other, the spring ends are forced to ride over that part of the body which lies between the notches. When the plungers are withdrawn, the brush unit can be readily removed.

As shaft 21 is rotated from the full lines position shown in Fig. 1, to the dotted line position or vice versa, a crank or reciprocating action is imparted to links 25 which in turn causes the same action to be applied to sweeper brush unit 13 through bushings 26 and pivots 40. It will thus be perceived that when the sweeper is being used to collect dirt from under furniture the handle 22 will be rotated through an arc of ap-

proximately 90 degrees to permit the entire sweeper to clear interfering objects and thereby automatically force bristles of the brush unit to make a greater contact with the floor surface under treatment and consequently produce the great desideratum of increased brush contact without exerting manual pressure. This principle is in contrast to former sweepers which require manual pressure, difficult and burdensome at times to apply, to cause a similar brush contact.

*Modification*

The enlarged ends **50** of bail handle **51** shown in Fig. 3 are rotatably mounted in vertical case walls **10***a* by pivots **50***a* and are provided with flanged stub shafts **24** as explained for the companion structure and depicted in the other figures. Aside from optional structural details of the handle mounting identical results are accomplished.

In the modified structure shown in Fig. 4, links **25***a* are counterparts of **25**, however they must be very flexible to permit removing pivots **40***c* from brush pulleys **14** to admit of installing and removing the brush unit.

Set screws **23***a* can be loosened to permit other positions for shafts **24** by rotating and relocating collars **23** in terms of handle **21** with the objective of setting the brush in terms of the floor for a desired contact. This is especially useful when the bristles have become worn, a resetting after long use will thus recondition the brush for additional effective use and postpone renewal of this part.

*Scope*

The apparatus selected to disclose this invention is in terms of more or less standard type sweepers. However, it must be understood that the basic principles disclosed herein can be incorporated into other types of sweeper units, that substitution of equivalent elements, eliminations and rearrangements can be indulged to effect modifications without departing from the spirit of this invention. Therefore, I wish to be limited only by the appended claims.

I claim:

1. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels and extending transversely and centrally of said housing and mounted therein by vertically adjustable means, an operating handle extending through said housing and attached to a shaft pivotally mounted within and extending through the end walls of said housing and equipped with a crank at each end, a connecting link between each of said cranks constituting means operable to lower and raise said brush in response to the angular travel of said handle.

2. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels and extending transversely and centrally of said housing and journaled on pivots which are axially slidably mounted in vertically adjustable bushings, an operating handle pivotally attached to said housing and equipped with cranks, connecting links attached to said cranks and said bushings cooperating to lower and raise said brush in response to the angular travel of said handle; said pivots being slidable through said links and bushings.

3. In a carpet sweeper, the combination of a housing mounted on two pair of traction wheels and provided with a case disposed over each pair of said wheels, a brush unit driven by said wheels and transversely disposed in said housing and journaled therein on horizontally slidable pivots carried in vertically adjustable bushings guided by vertical slots in said cases, an operating handle extending through said housing and attached to a shaft mounted within and extending through the end walls of said housing and projecting under said case and equipped with a crank at each end, a connecting link between said cranks and said bushing whereby said brush will be lowered and raised in response to the angular travel of said handle.

4. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels and journaled at each end on a pivot horizontally slidable to two rest positions in bushings suitably supported by said housing to maintain said brush unit at an operating position with reference to said wheels, spring means cooperating with said pivots and carried by said bushings to yieldingly hold said pivots at selected locations.

5. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels and journaled therein on pivots horizontally slidable to two positions in bushings supported to maintain said brush unit at an operating position with reference to said wheels and spring means cooperating to retain said pivots at either of said positions.

6. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels and extending transversely of said housing and mounted therein by vertically adjustable bearings, a pivotal operating handle attached to said housing and equipped with a crank, a connecting link between said crank and said bearing to lower and raise said brush in response to the angular travel of said handle, and means for angularly adjusting said crank with reference to said handle.

7. In a carpet sweeper, the combination of a housing equipped with an auxiliary case externally attached to each end wall thereof and traction wheels attached to said walls and disposed under said cases, a brush unit driven by said wheels mounted on vertically adjustable bearings, said bearings being lodged under said cases, an operating handle attached to a shaft pivotally mounted in and extending through and beyond the end walls and into said cases, said shaft being equipped with a crank at each end, a connecting link between each of said cranks and the brush bearings, said links, cranks and bearings being organized to lower and raise said brush in response to the angular travel of said handle.

8. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels and journaled at each end on a pivot horizontally slidable to two rest positions in sleeves suitably supported by said housing to maintain said brush unit at an operating position with reference to said wheels, spring means associated with each of said pivots and cooperating therewith to retain same in either of said rest positions.

9. In a carpet sweeper, the combination of a housing mounted on two pair of traction wheels and provided with a case disposed over each pair of said wheels, a brush unit driven by said wheels and transversely disposed in said housing and journaled therein on horizontally slidable pivots carried by bushings extending through said case.

10. In a carpet sweeper, the combination of a housing mounted on two pair of traction wheels and provided with a case disposed over each pair of said wheels, a brush unit driven by said wheels and transversely disposed in said housing and journaled therein on horizontally slidable pivots carried by bushings extending through said case, a pivotal operating handle attached to said housing and equipped with a crank, a connecting link between said crank and said sleeve whereby said brush will be lowered and raised in response to the angular travel of said handle.

11. In a carpet sweeper, the combination of a housing mounted on two pair of traction wheels and provided with a case disposed over each pair of said wheels, a brush unit driven by said wheels and transversely disposed in said housing and journaled therein on horizontally slidable pivots carried by vertically slidable bushings extending through said case, a pivotal operating handle attached to said housing and equipped with a crank, a connecting link between said crank and said sleeve whereby said brush will be lowered and raised in response to the angular travel of said handle.

12. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels, bearings for each end of said brush comprising a bushing and a pivot slidable therein, an operating handle pivotally mounted to said housing and equipped with cranks, connecting links, one end of each being connected to each crank and the other end being connected to said bushings.

13. In a carpet sweeper, the combination of a housing mounted on traction wheels, a brush unit driven by said wheels and extending transversely and centrally of said housing and journaled on pivots, an operating handle pivotally attached to said housing and equipped with cranks, connecting links attached to said cranks, said pivots being axially slidably mounted in one end of said links; said handle, cranks, links and pivots cooperating to lower and raise said brush in response to the angular travel of said handle.

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