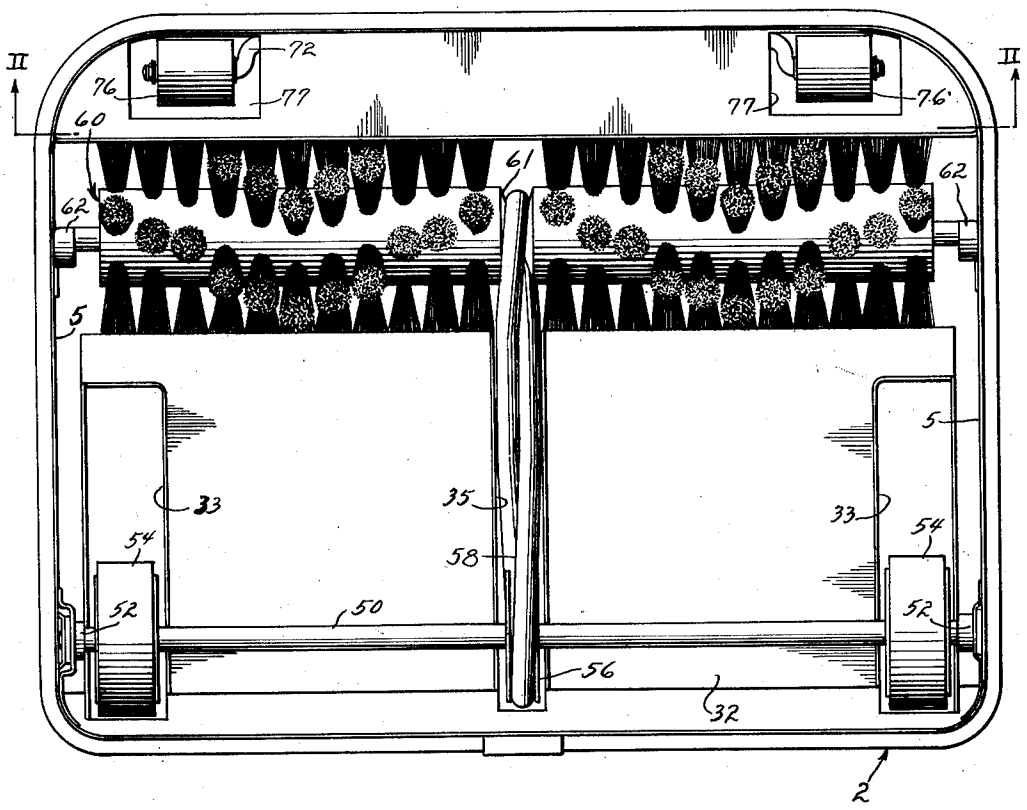
July 18, 1950 L. H. SNYDER ET AL 2,515,671

WHEEL ADJUSTMENT FOR CARPET SWEEPERS

Filed July 13, 1946 2 Sheets-Sheet 1

Fig. 1



INVENTORS
Leland H. Snyder
Kermit D. Yost

BY
The Firm of Charles W. Hills

ATTYS

July 18, 1950 L. H. SNYDER ET AL 2,515,671

WHEEL ADJUSTMENT FOR CARPET SWEEPERS

Filed July 13, 1946 2 Sheets-Sheet 2

Fig. 2

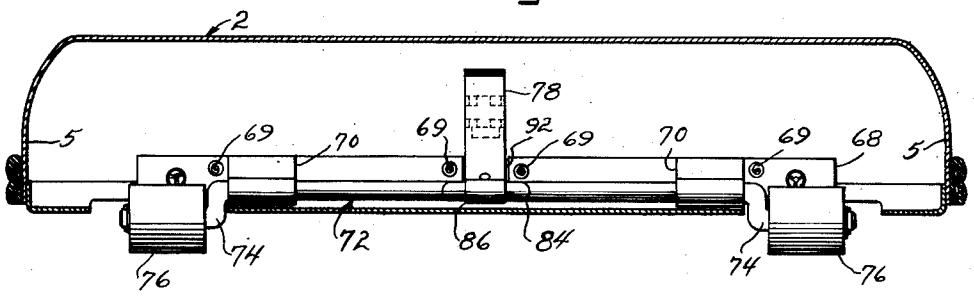


Fig. 3

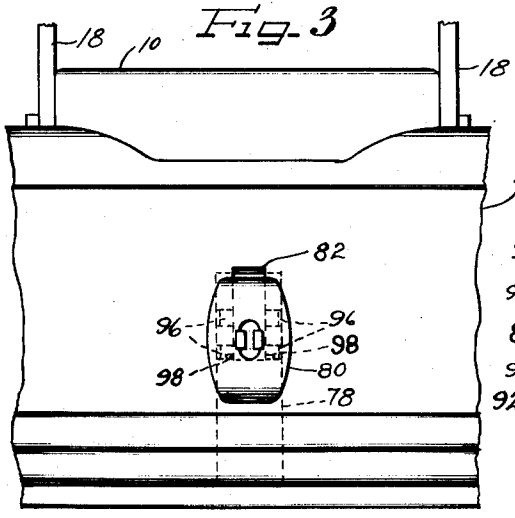
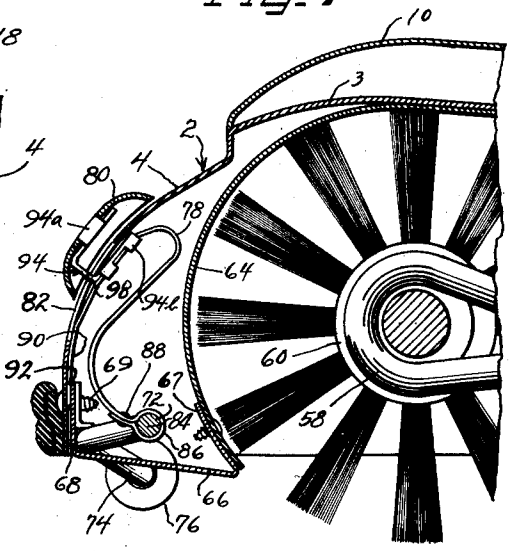


Fig. 4



INVENTORS
Leland H. Snyder
BY Kermit D. Yost
The Firm of Charles W. Hills
ATTYS

Patented July 18, 1950 2,515,671

UNITED STATES PATENT OFFICE

2,515,671

WHEEL ADJUSTMENT FOR CARPET SWEEPERS

Leland H. Snyder and Kermit D. Yost, Chicago, Ill., assignors, by mesne assignments, to Carlton Hill, Benjamin H. Sherman, Charles F. Meroni, J. Arthur Gross, and Donald J. Simpson, partners, doing business as Charles W. Hills, Chicago, Ill.

Application July 13, 1946, Serial No. 683,498

10 Claims. (Cl. 280—44)

1

This invention relates to carpet sweepers.

As to some features of this invention, this application constitutes a continuation-in-part of our copending application Serial No. 632,414, filed December 3, 1945, now abandoned. The casing and dust pan construction of the carpet sweeper disclosed in our copending application is utilized in accordance with this invention to house a novel and improved casing height adjustment mechanism as well as an improved brush drive arrangement.

A feature of this invention is the provision of an extremely simple, yet sturdy and reliable mechanism for conveniently accomplishing the vertical adjustment of the relative height of the sweeper casing, and house the rotary brush element thereof, with respect to the floor surface on which the sweeper is to perform cleaning operations. The front casing supporting wheels of the carpet sweeper are journaled upon the offset portions of a rock shaft which is suitably journaled in the sweeper casing. Accordingly, the pivotal position of the rock shaft relative to the sweeper casing determines the relative height of the casing supporting wheels with respect to the casing and effectively adjusts the vertical position of the rotary brush element with respect to the floor or rug surface being cleaned. Accordingly, an improved adjustable positioning mechanism for determining the pivotal position of such rock shaft is provided which comprises a leaf spring element having one end secured to the rock shaft and another portion thereof secured to a manually operable positioning member which is adjustably movable relative to the casing to thereby vary the point at which the other portion of the leaf spring member is secured to the casing. Accordingly, not only is the height of the casing relative to the floor or rug surface immediately adjustable, but in addition, there is effectively provided a resilient connection between the casing and the casing supporting wheels which is responsive to the amount of vertical pressure exerted on the casing by the operator, and hence will permit immediate downward adjustment of the height of the rotary brush element of the sweeper with respect to the floor or rug surface by the momentary application of a vertically downward pressure on the casing by the operator.

Another feature of this invention is the utilization of the rear casing supporting wheels as the floor operated driving means for the rotary brush element of the carpet sweeper. Such rear wheels are secured to a common axle and a central pulley on such axle drives the rotary brush element through a belt connection therewith.

2

Accordingly, it is an object of this invention to provide an improved carpet sweeper construction.

Another object of this invention is to provide an improved casing height adjustment mechanism for a carpet sweeper by which the effective height of the rotary brush element of the carpet sweeper may be conveniently manually adjusted with respect to the floor or rug surface to be cleaned.

A particular object of this invention is to provide an improved casing height adjusting mechanism for a carpet sweeper wherein a casing supporting wheel is journaled upon an offset portion of a rock shaft and the pivotal position of such rock shaft is adjustably determined by a leaf spring member having one end thereof secured to the rock shaft and the other end secured to a positioning member which is movable with respect to the casing to any selected one of a plurality of positions.

A further object of this invention is to provide an improved brush driving arrangement for a carpet sweeper.

The specific nature of the invention as well as other objects and advantages thereof will become apparent to those skilled in the art from the following detailed description of the annexed sheets of drawings which, by way of preferred example only, illustrate one specific embodiment of the invention.

On the drawings:

Figure 1 is a bottom plan view of a carpet sweeper constructed in accordance with this invention;

Figure 2 is a sectional view taken along the plane II—II of Figure 1;

Figure 3 is a partial front elevational view of the exterior of the carpet sweeper casing; and

Figure 4 is an enlarged scale, partial sectional view showing the position of the brush height adjusting mechanism.

As shown on the drawings:

A carpet sweeper constructed in accordance with this invention comprises a hollow casing 2 open at the bottom thereof and having an arcuately shaped front wall 4 and substantially straight side walls 5. On the top surface 3 of casing 2, a channel shaped member 10 is secured in any convenient manner, such as by welding, in upstanding relationship thereto to pivotally mount an operating handle to casing 2.

The top surface 3 of sweeper casing 2 termi-

nates forwardly of the side walls 5 and thus provides space for reception of a removable dustpan 32. Dustpan 32 comprises a sheet metal member suitably shaped to define a container having a top surface which conforms to the general plane of the top surface 3 of casing 2 when the dustpan 32 is assembled in the sweeper casing.

Adjacent the rear end of sweeper casing 2, a driving shaft 50 is rotatably journaled in suitable bearings 52 mounted in opposed facing relationship in the side walls 5 of casing 2. A pair of floor engaging wheels 54 are mounted on and secured to drive shaft 50 respectively at opposite ends thereof and hence drive shaft 50 is rotated as the sweeper casing 2 is pushed along the floor or rug surface. At a central portion of drive shaft 50 a driving pulley 56 is secured thereto. A belt 58, preferably formed of rubber or rubber-like material, cooperates with drive pulley 56 to drive a rotary cleaning brush element 60 which is rotatably journaled adjacent the front end of the sweeper casing 2 in suitable bearings 62 mounted in the side walls 5 of the sweeper casing. The brush 60 may conveniently have an annular depression 61 formed in the central portion thereof to function as a pulley to receive the belt 58.

It should be noted that the dustpan 32 has the bottom wall thereof shaped to provide a pair of side recesses 33 which respectively accommodate the driving wheels 54 and a central recess 35 which accommodates the driving pulley 56 and the belt 58. To insure that the dirt picked up by the brush element 60 will be conveyed into dustpan 32 irrespective of the direction of rotation of such brush element, an arcuate baffle plate 64 is provided which closely surrounds the front portions of the rotary brush element and hence insures that any dirt picked up by the bristles of such brush element will be carried around the periphery of the brush and then discharged into the dustpan 32. The baffle plate 64 is mounted within the sweeper casing by having one marginal portion secured to the underside of the top wall 3 of casing 2 and the bottom marginal portion thereof suitably secured to an upstanding margin 67 of a relatively narrow bottom plate 66 which extends along the front edge of the casing 2 and has an upturned marginal portion 68 which is suitably secured to the bottom marginal portions of the front wall 4 of the sweeper casing 2, as by screws 69.

A pair of bearing support brackets 70 are suitably secured to the inside face of the bottom marginal portion of the front wall 4 of casing 2. Such bearing brackets 70 rotatably journal the coaxial central portions of a rock shaft 72 which has radially offset end portions 74. Floor engaging rollers or wheels 76 are respectively mounted on the offset portions 74 of the rock shaft. Suitable apertures 77 may be provided in the bottom of plate 66 to permit the wheels 76 to project therethrough.

From the afore-described construction, it will be apparent that the vertical height of the casing 2 with respect to the floor or rug surface being cleaned, and hence the vertical height of the brush element 60 with respect to such surface, is dependent upon the pivotal position of the offset portions 74 of rock shaft 72 with respect to the casing 2. In accordance with this invention the pivotal position of the rock shaft 72 is adjustably determined by a leaf spring member 78 in cooperation with a manually operable positioning knob 80.

Front wall 4 of casing 2 is provided with a generally vertically extending slot 82. The portion of rock shaft 72 lying adjacent the slot 82 is bent to provide an offset 84. The leaf spring 78 is a generally looped shaped member and has the one end 86 thereof pivotally secured to the offset portion 84 of rock shaft 72 as by having such end portion 86 bent around the rock shaft and secured by a rivet 88. The other end portion 90 of the leaf spring 78 is disposed closely adjacent the inner surface of front wall 4 of the casing and is preferably received in a guideway 92 which may be conveniently defined between the front wall 4 and the upstanding marginal portion 68 of the bottom plate 66.

The manual positioning knob 80 is secured to the adjacent portion of leaf spring 78 by a generally U-shaped connecting member 94 having one arm 94*a* rigidly secured to knob 80 and the other arm 94*b* projecting through slot 82 and secured to the adjacent portion of leaf spring 78.

It is therefore apparent that as the knob 80 is moved vertically along the front wall 4 of the casing it effectively shifts the secured position of one arm of the loop shaped leaf spring 78 and hence effects a shift in the pivotal position of the rock shaft 72 with respect to the casing 2. To lock the positioning knob 80 in any selected one of a plurality of positions along the slot 82, the side walls of slot 82 are provided with a plurality of notches 96 spaced along the length thereof and ears 98 are provided respectively on each side of connecting member 94 which selectively engage in the notches 96. Ears 98 may be disengaged from any particular pair of notches 96 by depressing knob 80 against the outward bias exerted by spring 78.

It is therefore apparent that a carpet sweeper constructed in accordance with this invention provides a structure having unusually simple components yet which is rugged and capable of long service under rough conditions of usage. The height of the rotary brush element relative to the floor is very conveniently adjusted by manipulation of the knob 80. It should be noted that the leaf spring member 78 not only permits adjustment of the normal height of the brush element relative to the surface being cleaned, but also will permit momentary adjustment of such height by the application of a vertically downward pressure to the sweeper casing by the operator. Such additional pressure produces a deflection of leaf spring member 78 and hence a corresponding adjustment of the pivotal position of the rock shaft 72, resulting in lowering the effective height of the rotary brush element 60 with respect to the surface being cleaned.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention, and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

We claim as our invention:

1. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, a leaf spring member having one end secured to said rock shaft, means for securing the other end of said leaf spring to said casing, whereby the flexure of said leaf spring determines the pivotal position of said rock shaft, said last-mentioned means including manually operable means for selectively

changing the secured position of said leaf spring relative to said casing thereby adjusting the height of said casing relative to the floor.

2. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, a leaf spring member having one end secured to said rock shaft, means for securing the other end of said leaf spring to said casing, whereby the flexure of said leaf spring determines the pivotal position of said rock shaft, said leaf spring having a portion thereof disposed adjacent a wall of said casing, and a manually operable positioning member movably mounted on said casing wall and engageable with said leaf spring portion to selectively shift the secured portion of said leaf spring to any one of a plurality of positions along the path of said positioning member.

3. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, a leaf spring member having one end secured to said rock shaft, means for securing the other end of said leaf spring to said casing, whereby the flexure of said leaf spring determines the pivotal position of said rock shaft, said leaf spring having a portion thereof disposed adjacent a wall of said casing, a manually operable positioning member movably mounted on said casing wall and engageable with said leaf spring portion to selectively shift the secured position of said leaf spring to any one of a plurality of positions along the path of said positioning member, and detent means for locking said manually operable positioning member in any selected one of a plurality of positions relative to said casing.

4. In a carpet sweeper having a casing, a rock shaft pivotally journalled in said casing, a floor engaging casing supporting wheel journalled on an offset portion of said rock shaft, a loop-shaped leaf spring member having one arm secured to said rock shaft, said leaf spring having the other arm thereof disposed adjacent a wall of said casing, and a manually operable positioning member movably mounted on said casing wall and engageable with said other arm of said leaf spring to selectively shift the secured position of said other arm to any one of a plurality of positions along the path of said positioning member thereby selectively adjusting the height of said casing relative to the floor.

5. In a carpet sweeper having a casing, a rock shaft pivotally journalled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, said casing having a slotted wall portion, a leaf spring member having one end secured to said rock shaft and the other end disposed adjacent the slotted portion of said casing, a positioning member slidable on the exterior of the slot defining portions of said casing wall, and a projection on said positioning member extending through said slot and engageable with said other end portion of said leaf spring, whereby the pivotal position of said rock shaft may be selectively adjusted by movement of said manual positioning member along said slot defining portions of said casing wall.

6. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, said casing having a slotted wall portion, a leaf spring member having one end secured to said rock shaft and the other end disposed adjacent said slotted wall portion, a positioning member slidable on the exterior of the slot defining portions of said casing wall, a projection on said positioning member extending through said slot and engageable with said other end portion of said leaf spring, whereby the pivotal position of said rock shaft may be selectively adjusted by movement of said manual positioning member along said slot defining portions of said casing wall, and detent means for locking said manual positioning member in any selected one of a plurality of positions along said slot.

7. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, a leaf spring member for resiliently governing the position of said support wheel, said spring member having one end secured to said rock shaft, and manually operable means for adjustably positioning the other end of said leaf spring member relative to said casing, whereby the height of said casing relative to the floor may be selectively adjusted.

8. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, a leaf spring member for resiliently governing the position of said support wheel, said spring member having one end secured to said rock shaft, manually operable means for adjustably positioning the other end of said leaf spring relative to said casing, whereby the height of said casing relative to the floor may be selectively adjusted, and detent means for locking said manually operable means in any selected one of a plurality of positions relative to said casing.

9. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, a leaf spring member having one end secured to said rock shaft, an internal frame member cooperating with one wall of said casing to define a guideway, the other end of said leaf spring member being slidably secured in said guideway, said leaf spring member having an intermediate portion thereof disposed adjacent said wall of said casing, and a manually operable positioning member movably mounted on said casing wall and engageable with said leaf spring portion to selectively secure said portion of said leaf spring to said casing in any one of a plurality of positions along the path of said positioning member.

10. In a carpet sweeper having a casing, a rock shaft pivotally journaled in said casing, a floor engaging casing supporting wheel journaled on an offset portion of said rock shaft, said casing having a slotted wall portion, a leaf spring member having one end secured to said rock shaft and the other end disposed adjacent said slotted wall portion, a positioning member slidable on the exterior of said slot defining portions of said casing wall, a projection on said positioning member extending through said slot and engageable with said other end portion of said leaf spring, whereby the pivotal position of said rock shaft may be selectively adjusted by movement of said manual positioning member along the slot defining portions of said casing wall, said slot defining wall portion having a plurality of

notches formed therein at spaced intervals along the length thereof, and a pair of ears mounted on said projection and selectively engageable with said notches to lock said positioning member in any selected one of a plurality of positions along the length of said slot, said ears being constructed and arranged to disengage said notches by movement of said positioning member toward said slot.

LELAND H. SNYDER.
KERMIT D. YOST.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,850,710	Fairfax	Mar. 22, 1932
1,880,915	Dyer	Oct. 4, 1932
1,882,464	White	Oct. 11, 1932
2,050,361	Milligan	Aug. 11, 1936
2,109,311	Dayton	Feb. 22, 1938
2,396,846	Hahn	Mar. 19, 1946