April 14, 1931. F. W. PULLEN 1,800,958

CARPET SWEEPER MECHANISM

Filed March 25, 1927

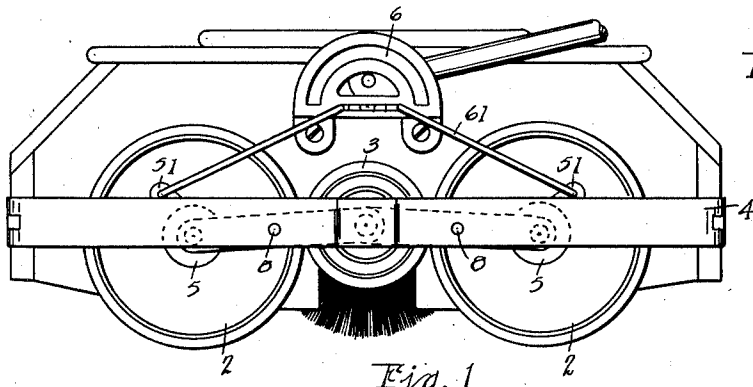


Fig. 1

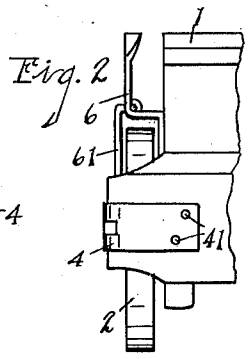


Fig. 2

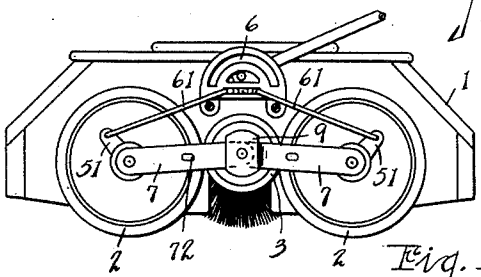


Fig. 3

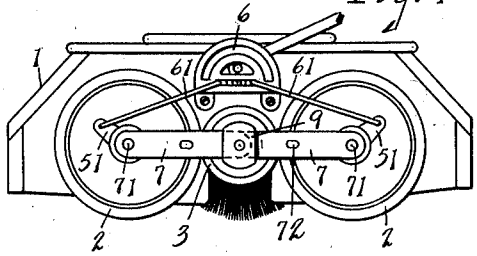


Fig. 4

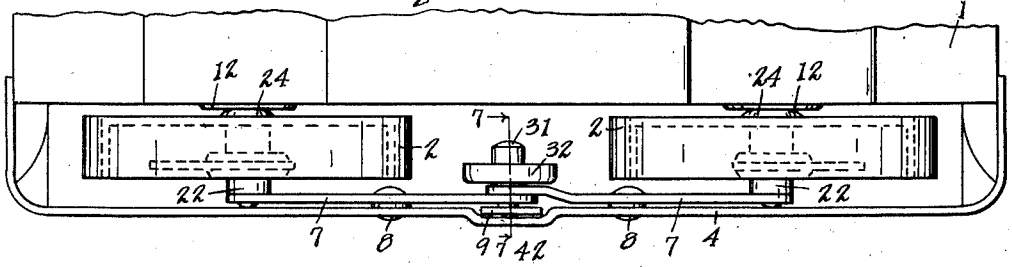


Fig. 5

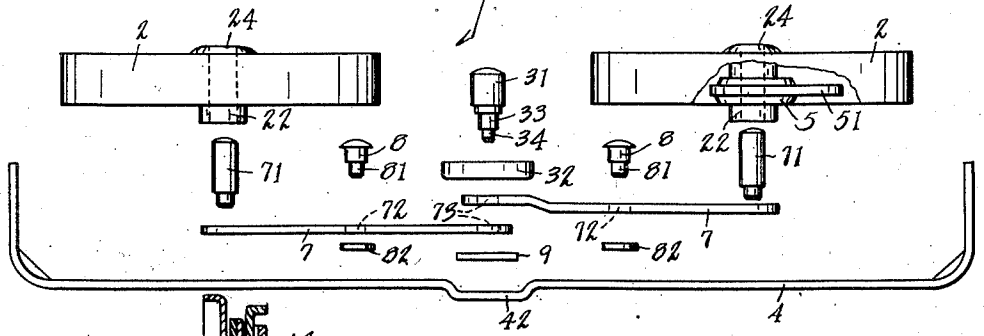


Fig. 6

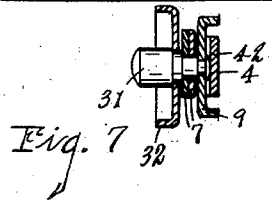


Fig. 7

INVENTOR
Fred W. Pullen
BY Chappell & Earl
ATTORNEYS

Patented Apr. 14, 1931

1,800,958

UNITED STATES PATENT OFFICE

FRED W. PULLEN, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO BISSELL CARPET SWEEPER COMPANY, OF GRAND RAPIDS, MICHIGAN

CARPET-SWEEPER MECHANISM

Application filed March 25, 1927. Serial No. 178,283.

This invention relates to improved carpet sweeper brush drive mechanism in which stub axles are used for the floor wheels and rods are avoided.

The objects of the invention are:

First, to provide improved means of automatically controlling the relative height of the brush and floor wheels under varying conditions.

Second, to provide improved adjusting fulcrumed connections between the floor wheels and brush.

Third, to provide an improved automatically adjustable support means for brush and floor wheels.

Fourth, to provide improved adjustable brush supporting pivot means for carpet sweepers.

Fifth, to provide an improved construction of rodless mechanism for carpet sweepers.

Objects relating to details of construction and operation will appear from the detailed description to follow. The invention is defined in the claims. A structure embodying my invention in a stub axle structure is clearly illustrated in the accompanying drawings in which:

Fig. 1 is an end view of a carpet sweeper of regular Bissell design incorporating my improved brush control mechanism.

Fig. 2 is a detail elevational view taken from the right hand of the parts appearing in Fig. 1.

Fig. 3 is an end view of the parts seen in Fig. 1, with the brush in elevated position when the carpet sweeper is not in operation.

Fig. 4 is an end view of the same, showing its relation to the floor line and the position of the brush when the carpet sweeper is in action.

Fig. 5 is a plan view showing the details of my invention as there adapted to a rodless carpet sweeper; that is, a structure in which stub axles are provided for the floor wheels with springs on the case ends.

Fig. 6 is a detail view of the parts of my improved driving mechanism in disassembled relation.

Fig. 7 is an enlarged detail vertical sectional view taken on line 7—7 of Fig. 5.

The parts of the drawings will be identified by numerals of reference which are the same in all the views.

1 is the carpet sweeper casing of usual form. 2, 2 are the floor wheels. 3 is the usual brush with its friction pulley. 4 is the end bar embracing these parts and secured to the casing by nails 41, 41 (see Fig. 2). 5, 5 are the usual ball bearings for the hubs of the floor wheels provided with projecting arms 51 for the connection of the spring. 6 is the spring plate support for the floor wheel spring 61, connected to the arms 51 of the bearings in the usual way. These bearings and connections are the well known "cyco" bearing construction in Bissell carpet sweeper illustrated in U. S. Patent No. 877,852, Jan. 28, 1908, to Mason and Shanahan.

I provide equalizing lever supports 7 between the floor wheels and the brush. These are carried on fulcrum pins 8 on the end bars 4. Stub axle pins 71 on the outer ends of the levers 7 enter the hubs 22 of the floor wheels and are journaled therein. Each lever 7 is slotted centrally at 72 for the fulcrum pin 8 and at its inner or brush end is slotted at 73 where it engages the brush pivot 31. 31 is the brush pivot which engages the end of the brush in the usual way, and is provided with a bearing part 33 which is embraced by the slots 73, 73 on the inner ends of the levers 7. The outer end of the shouldered pin 31 is riveted at 34 to a vertical slide 9. This slides vertically in a way 42 centrally of the end bar 4 by a bend in the same. The riveted end of pin 31 is in a central depression in the bar. The ends of the slide 9 are bent outwardly at right angles

at the top and bottom and provide a limiting stop for the slide. A bar 82 is provided on the bar 4 at each fulcrum point between the levers 7 and the end bars 4.

A wear plate 12 is provided for the inner end 24 of the hub to slide upon.

From this description it will be seen that on the manipulation of the carpet sweeper the brush will be driven because of the yielding spring connection between the floor wheels and the brush wheel, and as the handle of the carpet sweeper is manipulated the brush will adjust itself to the floor level whether that be a carpet or rug with a long pile or a hard surfaced carpet or even a hard floor. The brush automatically takes the correct position to properly sweep the surface over which the carpet sweeper is passed. This is done automatically by the action of the carpet sweeper when it is manipulated. The action of the floor wheels while free is equalized.

The structure is shown as a rodless floor wheel carpet sweeper. The floor wheel hubs 22 terminate in sliding shoes or disks 24 which are free to play on wear plates 12 on the case ends. The wear plates are preferably fiber disks. No connecting rods between the floor wheels at the opposite ends of the case are necessary and the entire space is unobstructed and the structure correspondingly efficient.

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

1. In a carpet sweeper structure, the combination of a case, an end bar with a vertical way at the center, a vertical slide in said way at the center of the end bar, a brush pivot secured to said slide, a carpet sweeper brush on said pivot, floor wheels to contact with said brush and having hubs, bearings embracing said hubs and having projecting arms, a tensioning spring secured to the end of the case and connected to said arms for resiliently maintaining said floor wheels in operative relation to said brush, levers with stub axle journal pins projecting laterally therefrom into the hubs of said floor wheels, shoes on the inner ends of said hubs adapted to slide on the case end, and fulcrum pins for said levers on the said end bar, as described.

2. In a carpet sweeper sturcture, the combination of a case, an end bar provided with fulcrum pins each side of the center and with a vertical way at the center, a vertical slide in said way at the center of the end bar, a brush pivot secured to said slide, a carpet sweeper brush on said pivot, floor wheels to contact with said brush and having hubs, bearings embracing said hubs and having projecting arms, a tensioning spring secured to the end of the case and connected to said arms for resiliently maintaining said floor wheels in operative relation to said brush, levers slotted and fulcrumed on said fulcrum pins with stub axle journal pins projecting laterally therefrom into the hubs of said floor wheels, and slotted pivoted connection to the brush pivot at the meeting ends of said levers.

3. In a carpet sweeper structure, the combination of floor wheels and brush with projecting spindle driven thereby, a case, spring means for maintaining yielding contact between the floor wheels and the brush, lever connections from the brush spindle to said floor wheels with stub axles for said floor wheels carried by said levers, and fulcrums therefore supported by the said case, the said lever fulcrum connections being slotted to permit the maintaining of contact between the said floor wheels and the brush and whereby the brush and floor wheels are equalized and are free to coact in response to said levers to accommodate different conditions of sweeping.

4. In a carpet sweeper structure, the combination of a case, end bars attached to said case and each provided with a vertical central slideway and with fulcrum pins on opposite sides of said slideway, horizontal levers carrying stub axles on their outer ends, the inner ends overlapping and having registering slots, said levers having longitudinal fulcrum slots near their centers engaging said fulcrum pins, floor wheels on said stub axles, a brush having hubs between said wheels and operated thereby and having central spindles engaging the slots in the inner ends of said levers, slides in said ways with journal bearing connections to said brush spindles, and spring means acting on said floor wheels to maintain yielding contact between said wheels and said brush hubs and afford yielding spring support for said sweeper.

5. In a carpet sweeper structure, the combination of a case, end bars attached to said case and each provided with a vertical central slideway and with fulcrum pins on opposite sides of the said slideway, horizontal levers carrying stub axles on their outer ends, the inner ends overlapping and having registering slots, said levers having longitudinal fulcrum slots near their centers engaging said fulcrum pins, floor wheels on said stub axles, a brush having hubs between said wheels and operated thereby and having central spindles engaging the slots in the inner ends of said levers, slides in said ways having stops at the ends and with journal bearing connections to said brush spindles, and spring means acting on said floor wheels to maintain yielding contact between said wheels and said brush hubs and afford yielding spring support for said sweeper.

6. In a carpet sweeper structure, the combination of a case, end bars attached to said case and each provided with fulcrum pins on

opposite sides of the center, horizontal levers carrying stub axles on their outer ends, the inner ends overlapping and having registering slots, said levers having longitudinal fulcrum slots near their centers engaging said fulcrum pins, floor wheels on said stub axles, a brush having hubs between said wheels and operated thereby and having central spindles engaging the slots in the inner ends of said levers, and spring means acting on said floor wheels to maintain yielding contact between said wheels and said brush hubs and afford yielding spring support for said sweeper.

In witness whereof I have hereunto set my hand.

FRED W. PULLEN.