

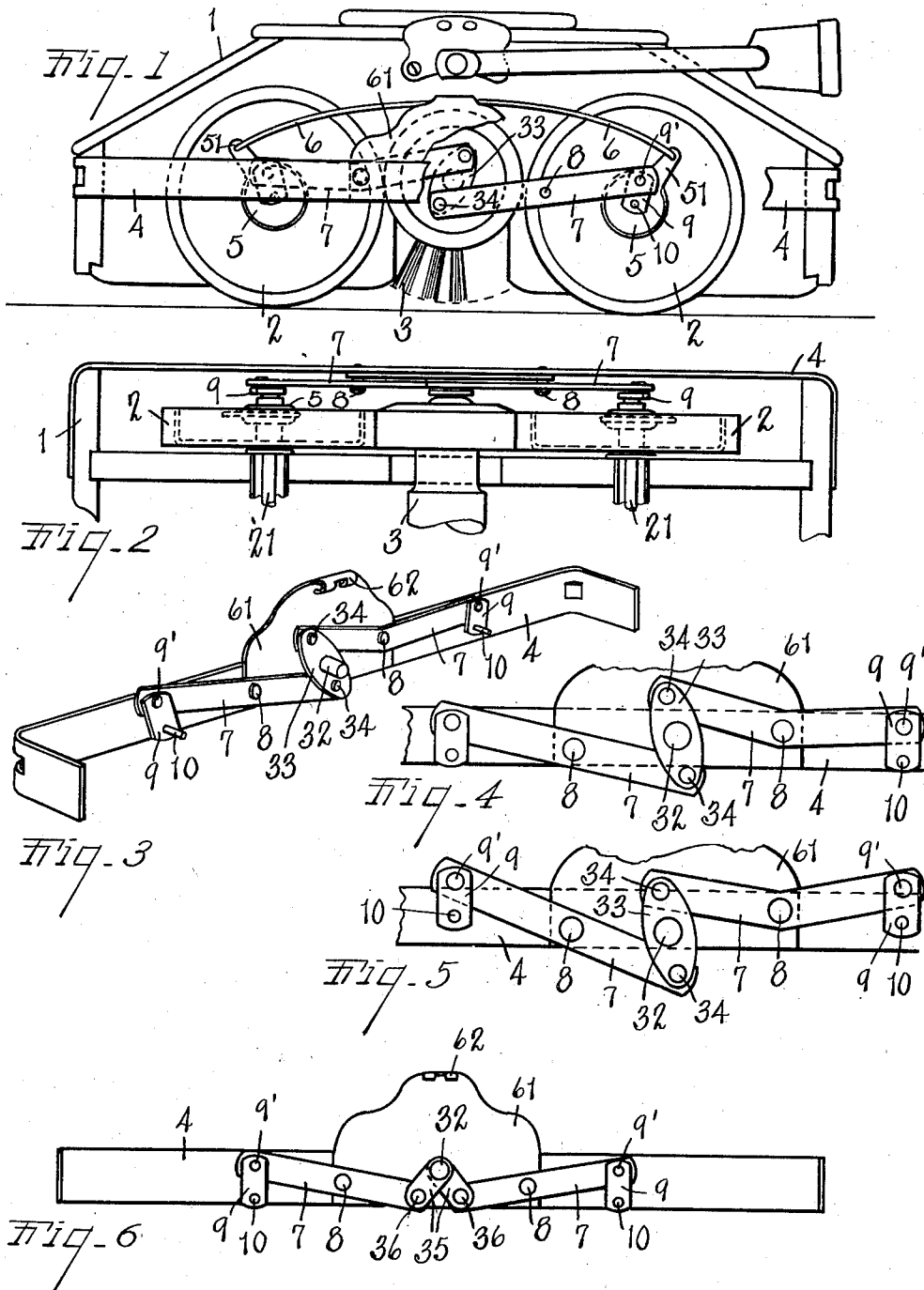
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CARPET SWEEPER BRUSH DRIVE MECHANISM

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CARPET SWEEPER BRUSH DRIVE
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7 Claims. (Cl. 15-41)

This invention relates to improved carpet
sweeper brush drive mechanism.

The objects of the invention are:

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

Second, to provide improved adjusting ful-
crumed connections between the floor wheels and
brush and an improved automatically adjustable
support for the brush pivot in that connection.

Objects relating to details of construction and
operation will appear from the detailed descrip-
tion to follow. The invention is defined in the
claims. Structures embodying my invention are
clearly illustrated in the accompanying drawing,
in which:

Fig. 1 is an end view of a carpet sweeper of
an approved Bissell design incorporating my im-
proved brush control mechanism.

Fig. 2 is an inverted plan view of the end of
the carpet sweeper illustrated in Fig. 1.

Fig. 3 is an interior perspective detail view of
the guard rail, spring supporting plates and
equalizer levers of the structures illustrated in
Figs. 1 and 2.

Fig. 4 is a fragmentary elevation view showing
the adjustment and relation of the equalizing
levers and the brush pivot when the same is in
normal position.

Fig. 5 is a similar elevation view with the brush
pivot in its lowermost position, which position it
assumes when the brush is sweeping hard carpet
or bare floor.

Fig. 6 is an elevation view of the inside of a
guard bar and the supporting equalizing levers
and the brush pivot of a modified structure.

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

1 is a carpet sweeper casing of the usual form.
2, 2 are the floor wheels at one end of the carpet
sweeper. 21, 21 are the connecting axle rods for
the floor wheels in the opposite ends of the case.
(They are seen in Fig. 2.) 3 is the usual brush.
4 is the end guard bar embracing the mechanism
at the end of the carpet sweeper casing. 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 carried
by the spring plate 61 which is riveted or other-
wise secured to the end guard bar 4. The spring
6 is retained by the central loop 62 and engages
the ends of the arms 51 in the usual way.

I provide equalizing lever supports 7 between
the floor wheels and the brush. These are car-
ried on fulcrum pins 8 on the end bars 4. At

the outer ends of the support levers 7 are sus-
pending links 9 carried by pivots 9' and having
journal pins 10 for engagement with journal
bearings at the hub centers of wheels 2 at each
side and are journaled in the floor wheels at each
side. This permits the wheel to have effective
lateral motion as illustrated in Fig. 1 for per-
mitting the wheel to contact with and drive the
hub of the brush. Each of these levers is piv-
oted centrally to the fulcrum pins 8. The brush 10
is carried by the journal pin or pivot 32 which
engages the end of the brush by insertion therein
in the usual way. The brush pivot is provided
with a cross bar 33 to which the inner ends of
the levers 7 are pivoted at opposite ends by
pivots 34, 34, the arm 33 rocking on its axis
whenever the brush is raised or lowered by the
action of the casing on the floor wheels on the
equalizing lever supports 7.

In Fig. 6 I have modified this by substituting
a pair of links 35, 35 connected to the brush,
journal pin 32 at their upper ends and by pivots
36, 36 at their lower ends to the inner ends of
levers 7 so that the brush is raised and lowered
by the action of the two links 35 when the carpet
sweeper is operated in the usual way and self-
adjusts itself to the proper sweeping height.

From this description it will be seen that on
the manipulation of the carpet sweeper, the brush
will be driven because of the yielding connection
between the floor wheels and the brush hub in
the usual way and as the handle on 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.

When pressure is applied downwardly upon
the sweeper it forces the case downward and the
inner ends of the lever 7 are thus carried down
and with them the brush pivot which is main-
tained in its central position at the end of the
carpet sweeper by the cross bar 33.

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

1. In a carpet sweeper, the combination of a
case, an end member attached to and extending
along the end of the case provided with fulcrums
each side of and spaced from its center in oppo-
site directions, a carpet sweeper brush within the

case and having a hub at its end, floor wheels disposed at each side of said driving hub and disposed to have yielding contact with said hub, spring connecting means extending from said floor wheels and having means connecting to said case to maintain said floor wheels in yielding contact with said brush hub and to support the case yieldingly in elevated position, a supporting journal for the end of the brush, an equalizing lever pivoted between its ends on each fulcrum of said end member, each lever having at its inner end an upwardly extending link having its free end pivoted to said brush journal, said equalizing levers having their outer ends pivoted to the floor wheels, said fulcrums and the floor wheel connections being such that upon pivoting of said equalizing levers the distance between the axis of the floor wheels and the axis of the hub is not altered, whereby said spring connecting means maintains said floor wheels yieldingly in contact with said driving hub and said equalizing levers equalize the action of said floor wheels, whereby pressure on the case creates between said floor wheels and said brush hub relative movement in opposite vertical directions.

2. In a carpet sweeper structure, the combination of a case, an end member fixedly attached to and extending along the end of said case, provided with fulcrums each side of its center and spaced in opposite directions therefrom, a rotatable carpet sweeper brush within said case and having a driving hub at its end, floor wheels at each side of said hub disposed to have yielding driving contact with the hub of said brush, spring connecting means extending from said floor wheels and having means connected to said case to maintain said floor wheels in yielding contact with the brush hub and to support said case yieldingly in elevated position, a supporting journal pin for the end of said brush, a vertical cross arm connected to said brush journal pin, equalizing levers pivoted between their ends on the fulcrums of said end member, one having its inner end pivoted to the upper and one having its inner end pivoted to the lower end of said cross arm, and link supports pivoted to the outer ends of said equalizing levers bearing journal pins cooperating with the said floor wheels whereby the floor wheels and brush move in opposite vertical directions relative to the case when pressure is applied to the case while maintaining driving contact between said wheels and said brush hub.

3. In a carpet sweeper structure, the combination of a case, an end member fixedly attached to and extending along the end of said case, provided with fulcrums each side of its center spaced therefrom in opposite directions, a rotatable carpet sweeper brush within said case and having a driving hub at its end, floor wheels at each side of said hub disposed to have yielding driving contact with the hub of said brush, spring connecting means extending from said floor wheels and having means connected to said case to maintain said floor wheels in yielding contact with the brush hub and to support said case yieldingly in elevated position, a supporting journal pin for the end of said brush, a vertical cross arm on said brush journal pin, equalizing levers pivoted between their ends on the fulcrums of said end member one having its inner end pivoted to the upper and one having its inner end pivoted to the lower end of said cross arm, and pivotal connections from the outer end of each equalizing lever to one of said floor wheels, said fulcrums and said last named connections being such that

upon pivoting of said equalizing levers the distance between the axis of the floor wheels and the axis of the hub is not altered, whereby the floor wheels and brush move in opposite directions relative to the case when pressure is applied to the case and the spring connecting means maintain the floor wheels in yielding contact with the brush hub.

4. In a carpet sweeper structure, the combination of a case, a rotatable brush in said case and having a hub, a supporting journal for the end of said brush, a vertical cross arm secured to said journal, equalizing levers fulcrumed between their ends on the end of the carpet sweeper structure at points spaced horizontally along the end of the carpet sweeper from each side of said brush, the lever on one side having its inner end pivotally connected to the top of said arm, the lever on the other side having its inner end pivotally connected to the bottom of said arm, whereby the journal and the brush will have substantially vertical movement when the levers are pivoted about their fulcrums, yielding floor wheels contacting said brush hub, spring means extending from the floor wheels to the carpet sweeper structure to support it from said floor wheels and to hold said floor wheels yieldingly in engagement with said hub, connections from the said floor wheels to the outer ends of said equalizing levers, said fulcrums and connections to the wheel being such that upon pivoting of said equalizing levers the distance between the axis of the floor wheels and the axis of the hub is not altered, whereby said spring means holds said wheels in contact with said hub and said wheels are equalized and vertical movement of the brush and wheels in opposite vertical directions are obtained when pressure is applied to the top of the carpet sweeper.

5. In a carpet sweeper structure, the combination of a case, an end member fixedly attached to and extending along the end of the case provided with fulcrums each side of and spaced from its center in opposite directions, a rotatable carpet sweeper brush within said case and having a driving hub at its end, floor wheels disposed at each side of said driving hub and disposed to have yielding driving contact with the hub, spring connecting means extending from said floor wheels and having means connected to said case to maintain said floor wheels in yielding contact with said brush hub and to support the case yieldingly in elevated position, a supporting journal pin for the end of the brush, an equalizing lever pivoted intermediate its ends on each fulcrum of said end bar, link means joining the inner end of each equalizing lever to said journal pin, and link means joining the outer ends of said equalizing levers to said floor wheels whereby the floor wheels and brush move in opposite vertical directions relative to the case when pressure is applied to the top of the case while maintaining driving contact between said wheels and the brush hub.

6. In a carpet sweeper structure, the combination of a case, an end member fixedly attached to and extending along the end of the case provided with fulcrums each side of and spaced from its center in opposite directions, a rotatable carpet sweeper brush within said case and having a driving hub at its end, floor wheels disposed at each side of said driving hub and disposed to have yielding driving contact with the hub, spring connecting means extending from said floor wheels and having means connected to said case

to maintain said floor wheels in yielding contact with said brush hub and to support the case yieldingly in elevated position, a supporting journal pin for the end of the brush, an equalizing lever pivoted intermediate its ends on each fulcrum of said end bar, link means joining the inner end of each equalizing lever to said journal pin, and means joining the outer ends of said equalizing levers to said floor wheels, whereby the floor wheels and brush move in opposite vertical directions relative to the case when pressure is applied to the top of the case while maintaining driving contact between said wheels and the brush hub.

7. In a carpet sweeper structure, the combination of a case, an end member fixedly attached to and extending along the end of the case provided with fulcrums each side of and spaced from its center in opposite directions, a rotatable carpet sweeper brush within said case and

having a driving hub at its end, floor wheels disposed at each side of said driving hub and disposed to have yielding driving contact with the hub, spring connecting means extending from said floor wheels and having means connected to said case to maintain said floor wheels in yielding contact with said brush hub and to support the case yieldingly in elevated position, a supporting journal pin for the end of the brush, an equalizing lever pivoted intermediate its ends on each fulcrum of said end bar, means joining the inner end of each equalizing lever to said brush pivot, and link means joining the outer ends of said equalizing levers to said floor wheels, whereby the floor wheels and brush move in opposite vertical directions relative to the case when pressure is applied to the top of the case while maintaining driving contact between said wheels and the brush hub.

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