

J. H. GRAHAM.

CARPET SWEEPER.

APPLICATION FILED AUG. 16, 1917.

Patented July 19, 1921.

2 SHEETS—SHEET 1.

1,384,999.

Fig. 1.

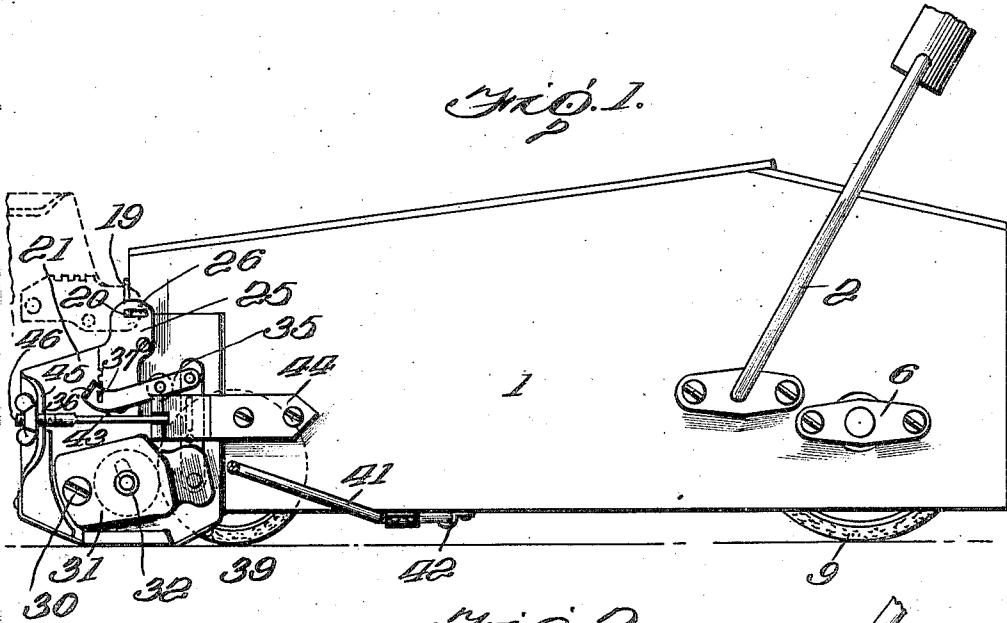


Fig. 2.

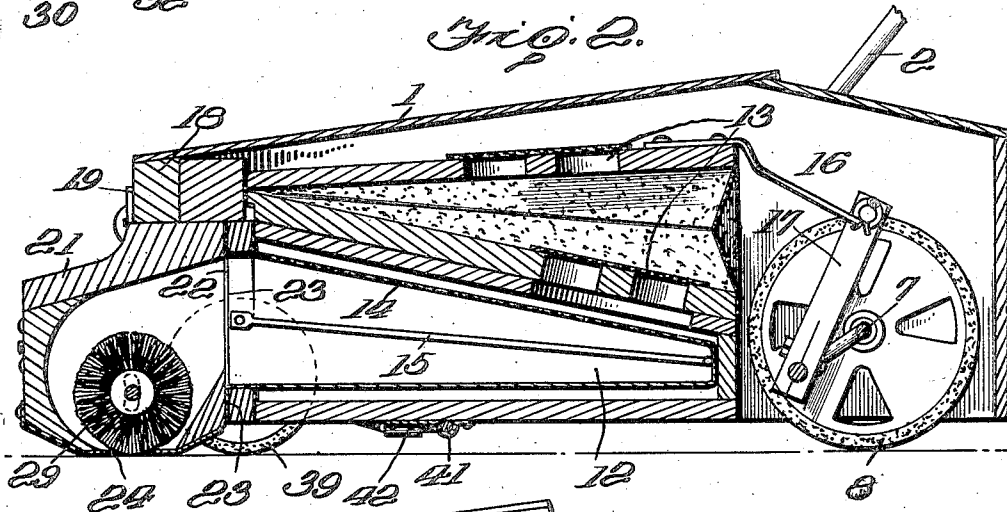
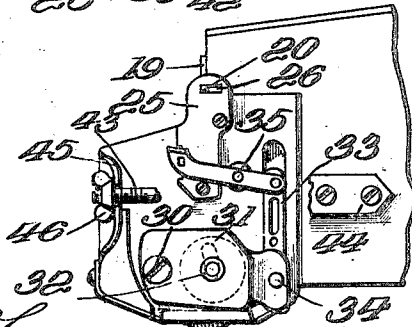


Fig. 3.



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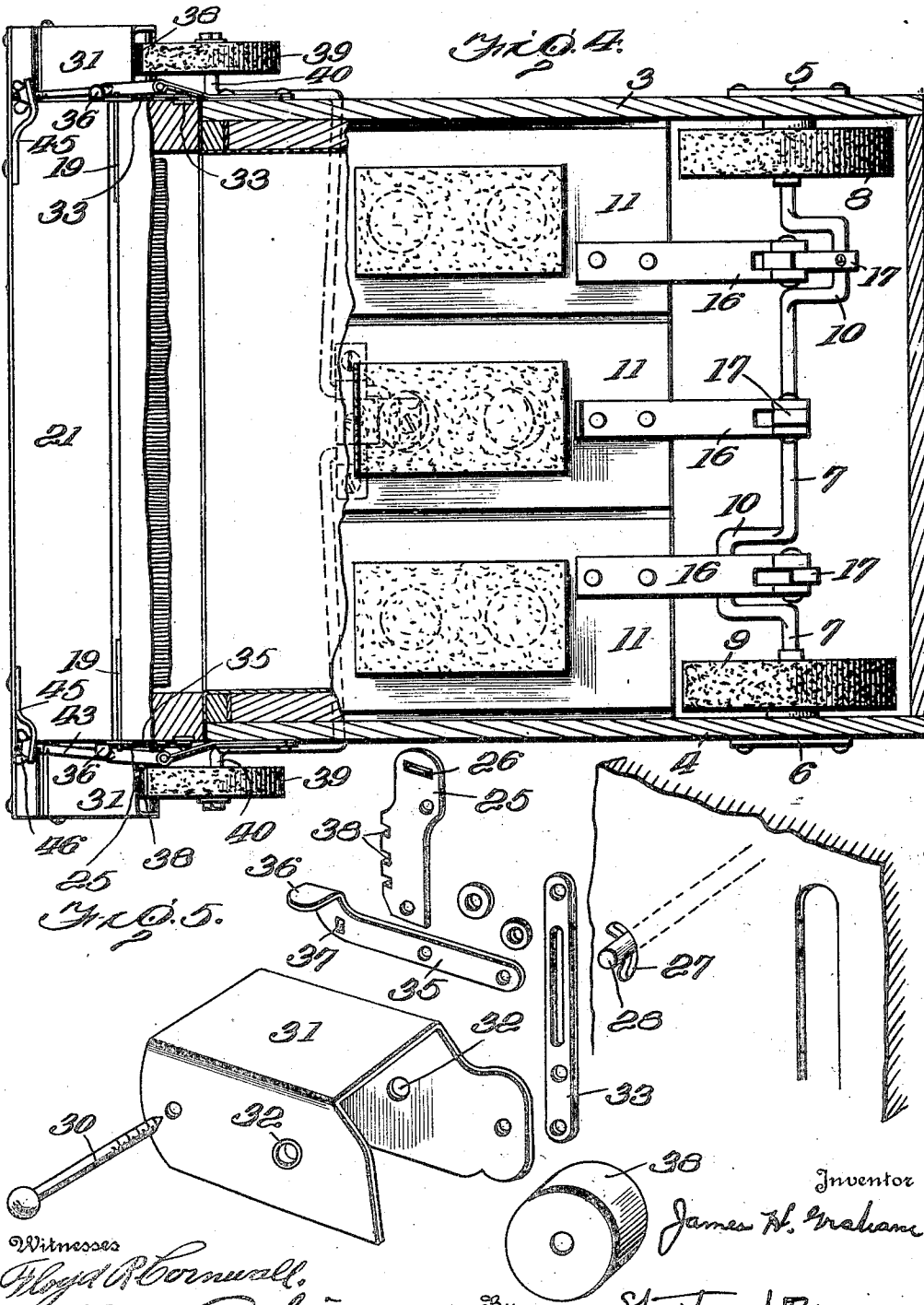
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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CARPET-SWEEPER.

1,384,999.

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To all whom it may concern:

Be it known that I, JAMES H. GRAHAM, a citizen of the United States, residing at Torrington, in the county of Litchfield, State of Connecticut, have invented certain new and useful Improvements in Carpet-Sweepers, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

My invention relates to improvements in carpet sweepers.

The object of the invention is to provide a carpet sweeper in which a rotary brush is used in conjunction with means for creating a suction and the brush so arranged in the vacuum nozzle that it can be readily adjusted vertically to vary the pressure of the brush on the surface being swept, the arrangement being such that the anti-friction wheels of the sweeper will at all times have an even pressure on the drive-rollers of the brush, regardless of its adjusted position.

Another object of the invention is to provide a swinging nozzle so arranged that it can be moved upwardly to permit access to the dust chamber and removal of the dust container, certain details of structure and operation being hereinafter more fully set forth.

In the accompanying drawings,—

Figure 1 is a side elevation of the sweeper showing the suction nozzle thrown upwardly in dotted lines;

Fig. 2 is a longitudinal vertical sectional view of Fig. 1;

Fig. 3 is an enlarged side elevation of the brush-adjusting means and means of pivotally mounting the vacuum nozzle;

Fig. 4 is a plan view partly in section;

Fig. 5 is an enlarged perspective view of the brush-adjusting means, showing the several parts in their disassembled relation.

Referring now to the drawings, 1 represents the housing which is made of the usual material and has the pivoted operating handle 2, which likewise is of the usual construction and material and needs no further description. Mounted in the side walls 3 and 4 of the housing are bearings 5 and 6, in which is rotatably mounted the shaft 7, having rigidly fixed thereto the two rear supporting wheels 8 and 9 adjacent the side walls 3 and 4 of the housing. The shaft 7

intermediate the wheels 8 and 9 is provided with a series of cranks 10; which as shown are three in number, it being understood that the same could be varied without departing from the invention, the number of cranks being governed by the number of bellows in the housing, there being a crank for each bellows.

Arranged in the upper part of the housing in front of the shaft 7 are the bellows 11, communicating with the dust receptacle 12 through the openings 13 controlled by the flap valves, all of which is understood. Arranged in the receptacle is the dust bag 14 held in extended position by means of the wire frame 15. The outer end of the bag or receptacle is open at the front of the housing.

The upper rear face of the bellows 11 have secured thereto the rigid arms 16, which extend rearwardly and are pivotally connected to pitmen 17, such pitmen having their opposite ends connected to the cranks, by means of which the bellows are operated by the forward or rearward movement of the housing, all of which is readily understood.

The outer end of the housing 1 has an extension 18 at its upper end below which is arranged the horizontal opening communicating with the dust chamber or receptacle 12. The said extension has secured to its outer end, plates 19, which have lateral extensions or pins 20 beyond the sides of the housing, which form hangers or hinges upon which the vacuum nozzle 21 is supported, as will now be described. This vacuum nozzle extends all the way across the end of the housing and is provided with an elongated opening 22, in its rear face which communicates with the open front end of the dust chamber or receptacle and fits tightly against the vertical wall 23 of the portion of the housing below the extension. The bottom of the nozzle is provided with an elongated opening 24, extending entirely across the same and is surrounded by a rubber or other elastic material, so that the nozzle will tightly engage the surface to be swept and cause a greater suction at a point directly below the opening 24.

The ends of the nozzle 21 are provided with plates 25 rigidly secured thereto and having elongated slots 26 in their upper ends, through which the pins 20 extend,

whereby the nozzle is supported on the housing and allowed to swing outwardly, as shown in dotted lines in Fig. 1. The end walls of the nozzle below the plates 25 are provided with vertical accurate slots 27, through which extend the trunnions 28, carried by the rotary brush 29 arranged in the nozzle. This brush is so arranged that it extends entirely across the nozzle and directly over the opening 24 and is adapted to extend through the same for sweeping or stirring up the dust directly below the nozzle. Pivoted to the end walls of the nozzle at 30 are housings 31, which have openings 32 through which the trunnions 28 pass, and said plates form bearings for the brush, whereby it may be supported for rotation. The plates 31 have secured to the ends opposite the pivots the links 33 pivoted at 34, extending upwardly and having pivotally connected thereto one end of the intermediately pivoted levers 35. The outer free ends of the levers are provided with lateral turned portions 36 forming fingerholds, whereby each lever is grasped for operating it. The said levers on the inside of the laterally turned portions 36, are provided with struck out portions 37, which extend inwardly and engage the notches 38 arranged in the plate 25, whereby the levers are held or locked in these adjusted positions for holding the brush in its adjusted position.

The housings 31 have arranged therein the friction rollers 38 rigidly carried by the trunnions 28 of the brush and adapted to engage the forward wheels 39 arranged on the outside of the main housing. The housings 31 have their rear ends open to allow these wheels 39 to enter the same and engage the friction rollers 38. The forward wheels 39 are mounted on the laterally turned ends 40 of the yoke 41, which is preferably made of spring metal, whereby the wheels have a limited spring action. The yoke 41 at the center is provided with a U-shaped bent portion extending through clips 42 carried by the bottom of the main housing 1, as shown in dotted lines in Fig. 4 of the drawings, for securing the same to the housing.

The nozzle 21 is held tightly in position by means of the rods 43 pivoted to the straps 44 carried by the sides of the housing, extending forwardly and entering the bifurcated ends of the plates 45 carried by the ends of the nozzle 21. The ends of the rods are screwthreaded and have thumb nuts 46 screwed thereon, adapted to engage the outer face of the plates and draw the nozzle tightly against the ends of the housing opposite the dust receptacle.

In operation, the forward push on the operating handle moves the housing forward; the wheels 39 engage the rollers 38 carried by the brush and rotate the same; and the brush extending through the opening in the

lower face of the nozzle engages the surface to be swept and stirs up the dust. The rotation of the rear supporting wheels operates the bellows through the cranks 10 and causes a suction in the nozzle through the dust chamber or receptacle. The suction thus draws all of the dust from the surface exposed to the slot in the nozzle. When it is desired to cause a greater or less pressure of the brush on the surface being swept, the levers 35 are moved up or down and through the link connections the housings 31 are raised and lowered and the brush trunnions being mounted in said housing the brush is raised and lowered. When it is desired to remove the dirt or dust from the sweeper, the nuts 46 on the rods 43 are unscrewed and the rods swung outwardly from between the forked ends of the plates 45 and the nozzle is free to be swung outwardly, as shown in dotted lines in Fig. 1, and leaves the dust chamber open, so that the bag may be removed for cleaning.

The front wheels 39 which drive the brush are in effect anti-friction rollers enabling the cleaner to move more readily over the carpet than would be the case if the front supporting nozzle simply dragged thereon.

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

1. A carpet sweeper comprising a housing, suction means in the housing, a nozzle at the end of the housing and in communication with the suction means, a rotary adjustable brush in the nozzle, plates secured to the ends of the nozzle and having slots therein, pins carried by the housing and passing through the slots in the plates for pivotally supporting the same on the housing, means for tightly holding the nozzle against the end of the housing, and means carried by the housing for rotating the brush within the nozzle.

2. A carpet sweeper comprising a housing, suction means in the housing, a nozzle at the end of the housing and in communication with the suction means, a rotary brush vertically movable in the nozzle, pivoted housings carried by the ends of the nozzles, trunnions carried by the brush and extending into said housings, friction rollers carried by the trunnions within the housings, intermediately pivoted levers carried by the ends of the nozzles, segments carried by the nozzles, lugs carried by the levers and engaging the segments, links connecting the free ends of the pivoted housings with the intermediately pivoted levers, and spring supported wheels carried by the main housing and engaging the rollers within the housing for rotating the brush.

3. A carpet sweeper comprising a housing, suction means in the housing, a nozzle

at the end of the housing and in communication with the suction means, a rotary brush vertically movable in the nozzle, pivoted housing carried by the ends of the nozzle, 5 trunnions carried by the brush and extending into said housing, friction rollers carried by the trunnions within the housings, means for rocking said housing on their pivots and holding them in their adjusted 10 position, and spring supported wheels car-

ried by the main housing and engaging the rollers within the housing for rotating the brush.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES H. GRAHAM.

Witnesses:

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