

(No Model.)

3 Sheets—Sheet 1.

W. J. DREW.
CARPET SWEEPER.

No. 306,008.

Patented Sept. 30, 1884.

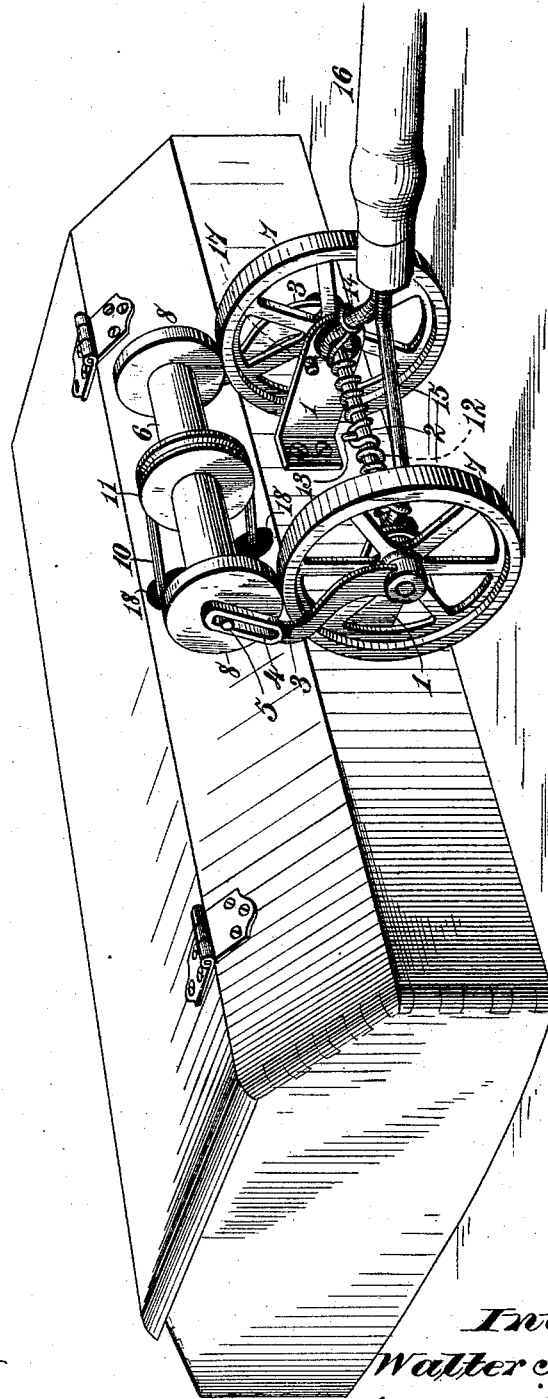


Fig. 1.

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George W. Rea

Inventor.
Walter J. Drew,
By *James L. Norris,*
Atty.

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Fig. 2.

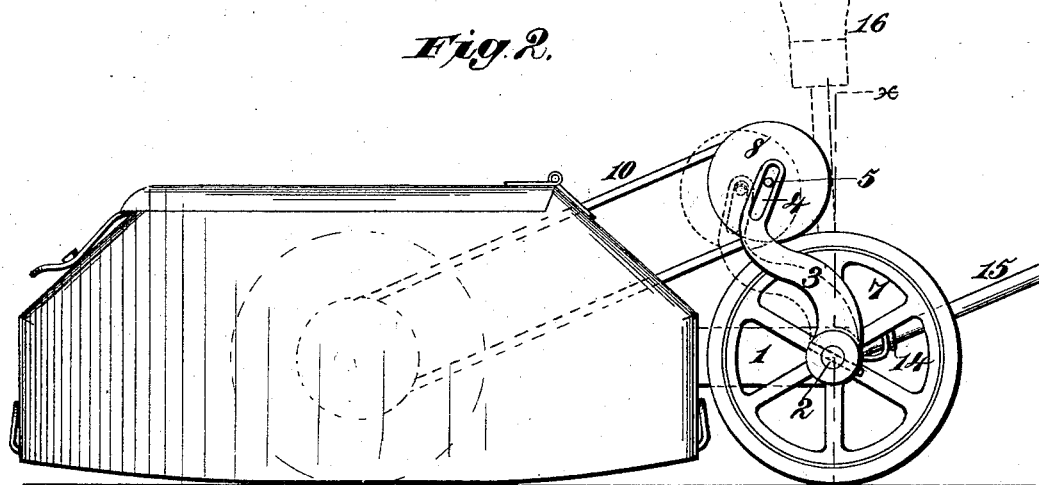
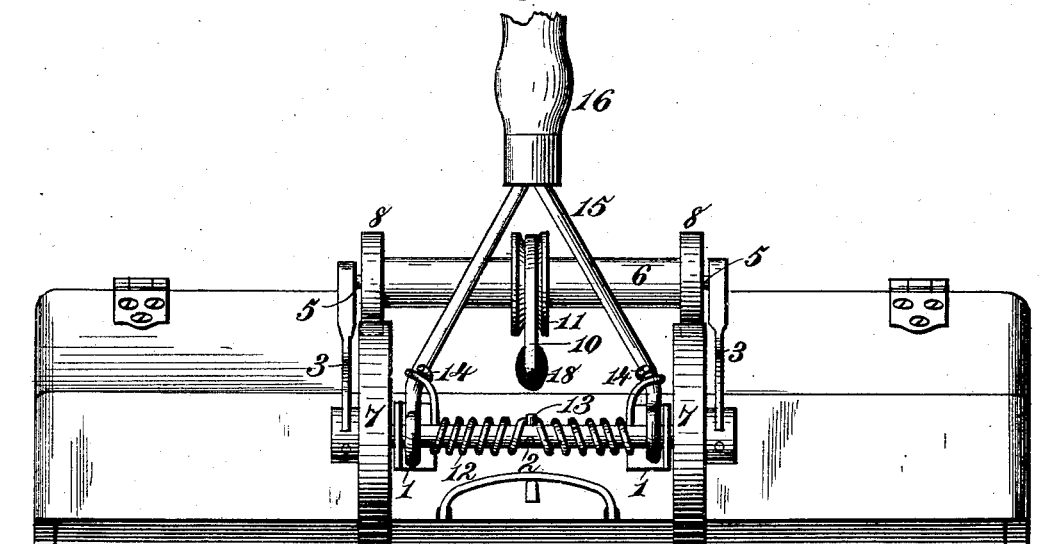


Fig. 3.



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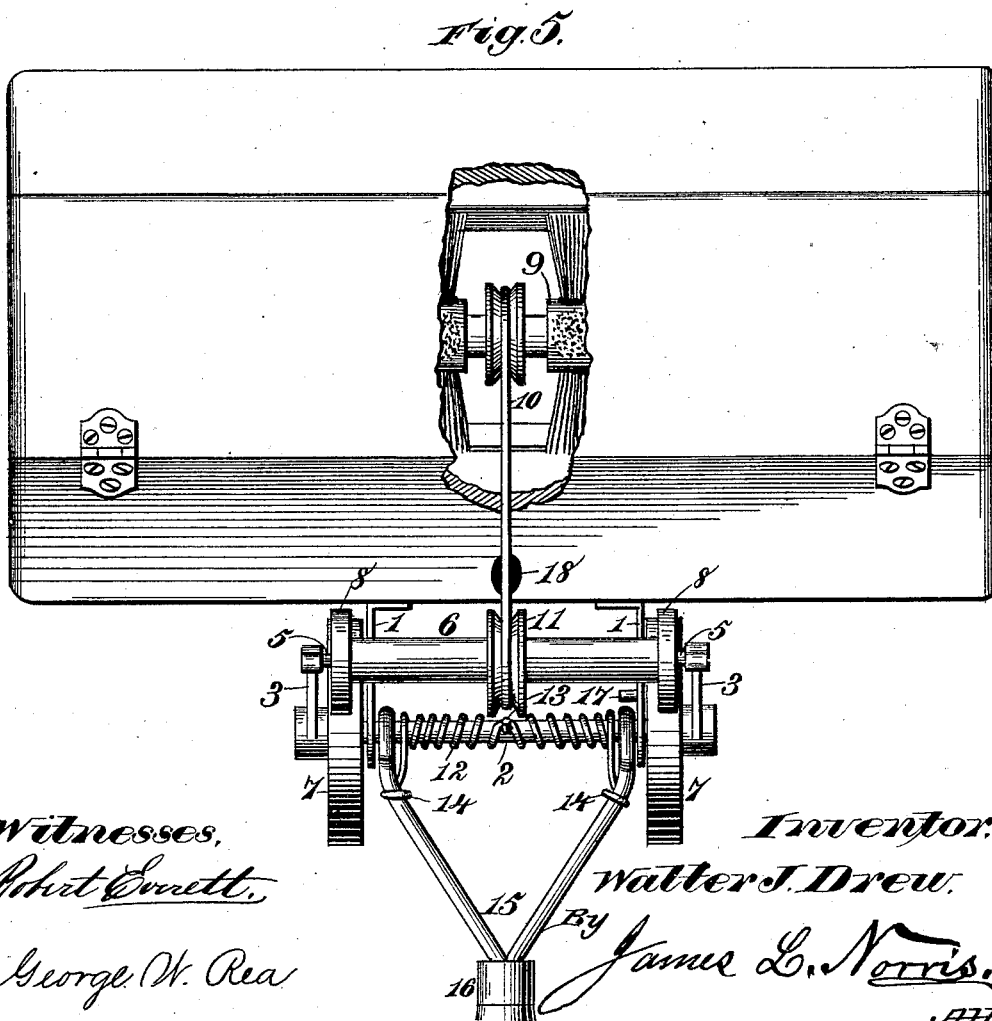
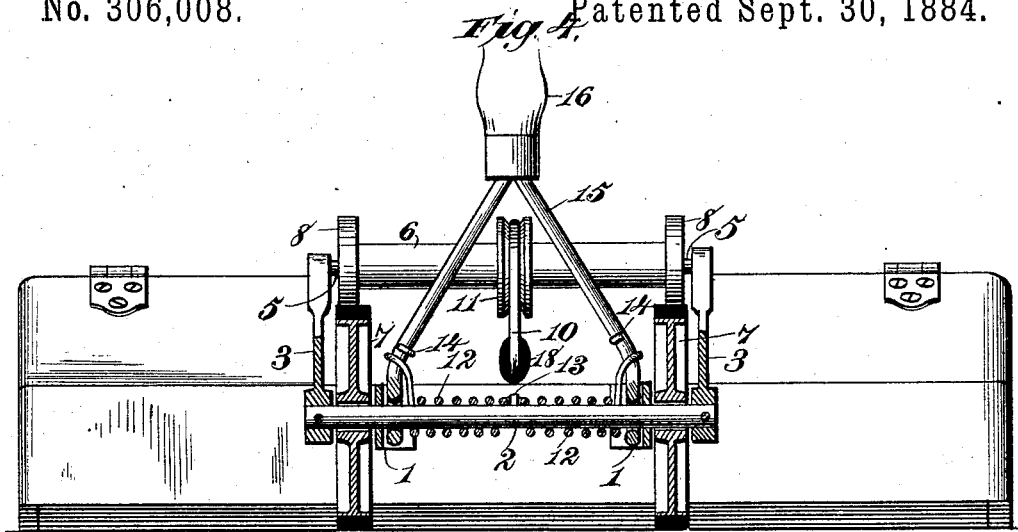
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

WALTER J. DREW, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO THE
BISSELL CARPET SWEEPER COMPANY, OF SAME PLACE.

CARPET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 306,008, dated September 30, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. DREW, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Carpet-Sweepers, of which the following is a specification.

This invention relates to improvements in that class of carpet-sweepers which travel over the floor and have their revolving brush operated by a belt passing around a wheel rotated by traveling on the floor.

The invention has for its objects to provide novel mechanism for driving the brush-shaft by a belted connection with friction-wheels, whereby the shaft is rapidly revolved by a comparatively slow movement of the sweeper-case without complex gearing; to provide means whereby a constant pressing contact is maintained between the friction-wheels which drive the belt to revolve the brush-shaft; to provide means whereby the propelling-handle is automatically raised and held in an upright position when the sweeper is not in use; to provide novel means for automatically elevating the propelling-handle, and at the same time relieving the tension of the belted connection which revolves the brush-shaft through the medium of friction-wheels; to provide means for driving the brush-shaft by a belt-connection, keeping the belt under tension while the sweeper is being manipulated, and automatically relieving the tension of the belted connection when the sweeper is not in use, and to provide a novel combination of devices for driving the brush-shaft by a belted connection with friction-wheels, balancing the sweeper case or frame, keeping the belt under tension while the sweeper is being manipulated, and automatically elevating the propelling-handle and relieving the tension of the belt when the sweeper is not in use. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a carpet-sweeper illustrating my invention, with the propelling-handle lowered, as when using the sweeper; Fig. 2, an end elevation of the sweeper, showing the propelling-handle lowered in full lines and elevated in dotted lines, and

the position of the parts in full lines when the belt is under tension, and the same in dotted lines when the tension of the belt is relieved. Fig. 3 is a rear side elevation with the handle elevated; Fig. 4, a longitudinal central sectional view taken on the line *xx* of Fig. 2, through the axle of the driving-wheels which travel on the floor; and Fig. 5, a top plan view with the handle depressed, the sweeper-case being centrally broken away to show in full lines the connection of the belt with the brush-shaft.

The sweeper case or frame, the brush-shaft journaled therein, and the dust pan or pans may be of any usual or desired construction. To the side of the case or frame are rigidly attached two brackets, number 1, having perforations in their outer ends, through which loosely pass an axle, 2, the ends whereof project beyond the brackets, and are provided at their extremities with rigidly-attached arms or hangers 3, which project upward and forward of the axle, and are each provided at the upper end with an inclined slot, 4, receiving the journals 5 of a shaft, 6, arranged parallel to the axle. The friction-wheels 7, which travel in contact with the floor or floor-covering, are loosely journaled on the axle between the brackets and the arms or hangers, and each wheel is in direct contact with a friction-wheel, 8, suitably attached to the shaft at the ends thereof, so that the floor-wheels 7 become what I will term the "driving-wheels," while the wheels 8 become the driven wheels, the direct frictional contact between the wheels serving to transmit a revolving motion to the brush-shaft 9 through the medium of a suitable belt or band, 10, which encircles the brush-shaft and passes around a grooved pulley, 11, attached to the axis or shaft of the driven friction-wheels. To increase the frictional contact between these wheels, the driving-wheels or the friction-wheels, or both, may be provided with rubber tires, and the driving-wheels are preferably of about twice the diameter (more or less) of the driven wheels, whereby the latter are rapidly driven by comparatively slow revolutions of the driving-wheels, thus imparting considerable speed to the brush-shaft by a comparatively slow traveling movement of the sweeper on the floor. I have shown the belt passing around and in

contact with the brush-shaft itself; but, obviously, a wheel or pulley may be provided on said shaft, and, further, the belt may be of any suitable construction—such, for example, as a flat or round leather band. The axle of the driving-wheels is provided with a coiled spring, 12, which is reversely wound on the axle from the center thereof toward each end, the center of the spring being suitably attached to the middle of the axle, as by a transverse locking-pin, 13; and each outer end of the coiled spring is formed into or otherwise provided with an eye or loop, 14, through which respectively pass the arms of a bail, 15, the said arms at their inner extremities loosely encircling or otherwise loosely mounted on the axle at or adjacent to the inner sides of the brackets 1, while the outer ends of the bail are suitably constructed to provide for their secure attachment to the propelling handle 16 of the sweeper. The coiled spring being locked or connected to the axle at the center, its resiliency serves to automatically elevate the propelling-handle to a vertical or approximately vertical position, and such action of the spring in elevating the handle obviously relieves its tension somewhat, which, being transmitted to the axle by the connecting-pin 13, tends to turn the axle in a forward direction, thereby allowing the arms or hangers 3 to move forward, and with them the axis or shaft of the driven wheels, in such manner that the tension of the belt is relieved. This is the normal position of the sweeper when not in use; but when it is desired to manipulate the same, the propelling-handle is depressed, thus winding up or increasing the tension of the coiled spring, which, through the connecting-pin 13, is transmitted to the axle, thereby tending to turn it in a rearward direction, pressing the arms or hangers rearward and the driven wheels into closer contact with the driving-wheels, and placing the belt under the tension required to positively revolve the brush-shaft when the sweeper is caused to travel over the floor. One of the brackets, or both, if desired, is provided with a lateral pin, 17, which constitutes an abutment, against which the bail strikes when the handle is elevated by the action of the spring, for limiting the forward movement of the handle and maintaining it in an upright position. When the propelling-handle is depressed, it is still subject to the influence of the spring, the eyes or loops 14 of which constitute yielding fulcrums for the bail, and by this means the sweeper-case is nicely balanced on the driving-wheels when being manipulated, and can be quickly wheeled in all directions. The arrangement of the journals of the driven wheels in the inclined slots of the arms or hangers, in conjunction with the tension of the belted connection, tends to throw the peripheries of the driven wheels into firm and close frictional contact with the peripheries of the driving-wheels.

I do not confine myself to two friction driv-

ing-wheels and two friction driven wheels, nor to any specific arrangement of the driving devices on the sweeper case or frame; but I obtain satisfactory results by centrally arranging the devices on the back side of the case or frame, the latter having suitable orifices, 18, for the entrance of the endless belt into the case and its connection with the brush-shaft.

The details of construction and the arrangement of parts may be variously modified without changing the character of the invention.

While I am aware that the brush-shaft of a sweeper has heretofore been actuated by a belt passing around a wheel traveling on the floor, or around a pulley attached to one end of said wheel, and also that the brush-shaft of a sweeper has been actuated by an endless belt mounted on pulleys, such belt being driven by its frictional contact with the periphery of a wheel traveling on the floor, I am not aware that the brush-shaft of a carpet-sweeper has heretofore been revolved by a belted connection with the axis or shaft of a friction-wheel in direct frictional contact with a friction driving-wheel rotated by the traveling movement of the sweeper.

A carpet-sweeper embodying my invention is very convenient in use, for the reason that when the handle is depressed the tension of the coiled spring balances the weight of the sweeper case or frame on the drive-wheels, causing the sweeper to run light and easy, while sufficient force is applied to the drive-wheels to provide the desired motive power.

Having thus described my invention, what I claim is—

1. The combination, in a carpet-sweeper, of the sweeper-case, a brush-shaft journaled within the case and extending from end to end thereof, brackets attached to the wall of the sweeper-case, a shaft journaled in said brackets and carrying a friction driving-wheel for supporting the sweeper-case above the floor to be traversed, a shaft carrying a friction-wheel held in direct frictional contact with the driving-wheel and belted to the brush-shaft, and a swinging, pushing, and pulling handle for causing the sweeper-case to freely traverse a floor, substantially as described.

2. The combination, in a carpet-sweeper, of a sweeper-case for traversing a floor, a brush-shaft journaled longitudinally within the casing, brackets connected with the wall of the casing, a shaft carried by the brackets and provided with a friction driving-wheel for supporting the casing above the floor to be traversed, a shaft carrying a friction driven wheel operated by the driving-wheel, and belted to the brush-shaft, a spring for automatically keeping the friction driven wheel in yielding contact with the driving-wheel, and a pushing and pulling handle for causing the sweeper-case to freely traverse the floor, substantially as described.

3. The combination, with the brush-shaft of a carpet-sweeper, of a friction driving-

wheel, a friction-wheel driven thereby, a belt-connection between the axis of the driven wheel and the brush-shaft, and a spring on the axis of the driving-wheels for relieving the tension of the belt-connection, substantially as described.

4. The combination of the brush-shaft of a carpet-sweeper, friction driving devices, and a belt-connection actuated by the friction devices to actuate the brush-shaft, with a spring and a propelling-handle acting thereon, whereby the tension of the belt-connection is controlled by the propelling-handle of the sweep-er, substantially as described.

5. The combination, with the brush-shaft of a carpet-sweeper and friction-wheels, of a belt-connection with the brush-shaft, a rising and falling handle, and a spring whereby the falling movement of the handle places the belt-connection under tension and the rising movement relieves the tension of the belt, substantially as described.

6. The combination, with the brush-shaft of a carpet-sweeper, of a friction driving-wheel mounted on an axis supported by the sweeper-case, a friction driven wheel, a belt connecting the axis of the friction driven wheel with the brush-shaft, a spring coiled on the axis of the driving-wheel, a swinging handle connected with the spring, and means whereby the spring, through the movements of the handle, controls the tension of the belt-connection, substantially as described.

7. The combination, with the brush-shaft of a carpet-sweeper, of a friction driving-wheel mounted on an axis to travel on the floor, a friction driven wheel in direct contact with the driving-wheel, a belt-connection between the axis of the driven wheel and the brush-shaft, a spring on the axis of the driving-wheel, a handle mounted on the axis of the driving-wheel and connected with the spring, and means whereby the movements of the handle, through the spring, control the tension of the belt-connection, substantially as described.

8. The combination, with the brush-shaft of a carpet-sweeper, friction-wheels, and a belt-connection driven by the friction-wheels, of a swinging handle, and a spring connected therewith for automatically elevating the handle, and simultaneously therewith relieving the tension of the belt-connection, substantially as described.

9. The combination, with the case or frame of a carpet-sweeper, of brackets attached thereto, an axle in the brackets carrying friction drive-wheels, arms or hangers carrying a shaft provided with driven friction-wheels in direct contact with the driving-wheels, a pushing and pulling handle hung on the shaft of the driving-wheels, and a belt-connection between the brush-shaft and the shaft of the driven wheel, substantially as described.

10. The combination, with the case or frame and the brush-shaft of a carpet-sweeper, of

brackets, an axle loose in the brackets, drive-wheels on the axle, arms or hangers rigid on the axle, a shaft mounted in said arms or hangers and carrying driven wheels, a spring coiled on and attached to the axle, and a swinging handle connected with the spring, substantially as described.

11. The combination, with the case or frame and the brush-shaft of a carpet-sweeper, of brackets having a lateral abutment, an axle carrying friction drive-wheels, a spring coiled on the axle, and a handle swinging on the axle and connected with the coiled spring, substantially as described.

12. The combination, with the case or frame and the brush-shaft of a carpet-sweeper, of an axle supported in bearings on the case and carrying friction drive-wheels, upwardly-extending arms or hangers, each provided with an inclined slot in its upper portion, a shaft carrying friction driven wheels journaled in the inclined slots, and a belt-connection between the brush-shaft and the shaft of the driven wheels, substantially as described.

13. The combination, with the case or frame and the brush-shaft of a carpet-sweeper, of an axle loosely supported in bearings on the case and loosely carrying friction drive-wheels, arms or hangers rigid on the axle, a shaft journaled in said arms or hangers, and provided with friction-wheels, a coiled spring on the axle of the drive-wheels, and a belt-connection between the brush-shaft and the shaft of the drive-wheels, said spring acting to control the tension of the belt-connection, substantially as described.

14. The combination, with a carpet-sweeper having its shaft revolved by a belted connection with driving devices, of a spring and a pushing and pulling handle, for keeping the belt under tension while the sweeper is being manipulated, and automatically relieving the tension of the belt when the sweeper is not in use, substantially as described.

15. The combination, with the carpet-sweeper case or frame and its brush-shaft, of driving-wheels mounted outside the case or frame, a handle, and a spring acting through the handle to balance the weight of the sweeper case or frame on the drive-wheels, substantially as described.

16. The combination, with a carpet-sweeper having a revolving brush, of a friction drive-wheel to travel on the floor, a friction driven wheel in direct contact with the drive-wheel, a driving-belt connecting the axis of the driven wheel with the brush-shaft, and a spring acting to tighten or place the driving-belt under tension, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER J. DREW.

Witnesses:

L. S. PROVIN,
ESTELLE H. PROVIN.