(Model.)

W. T. JOHNSTON.

CARPET SWEEPER.

No. 354,908. Patented Dec. 28, 1886.

Fig. 1.

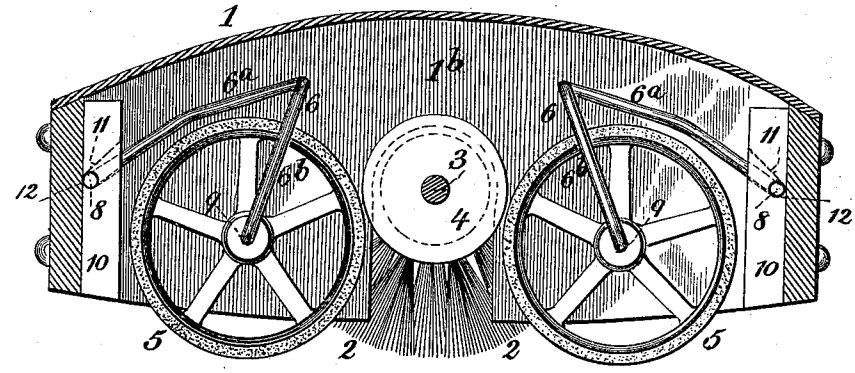


Fig. 2.

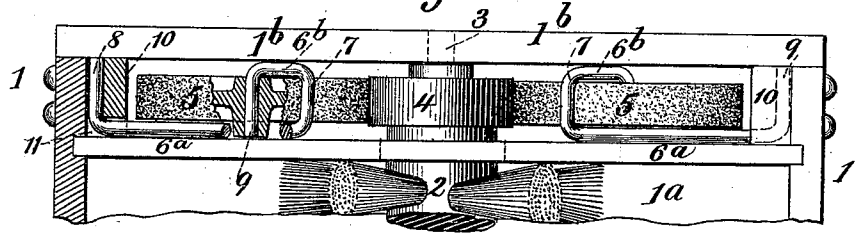


Fig. 3.

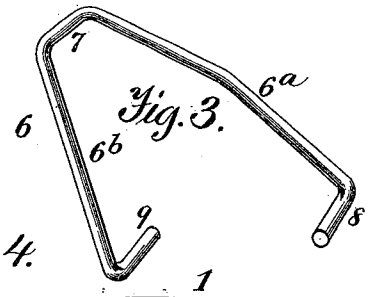
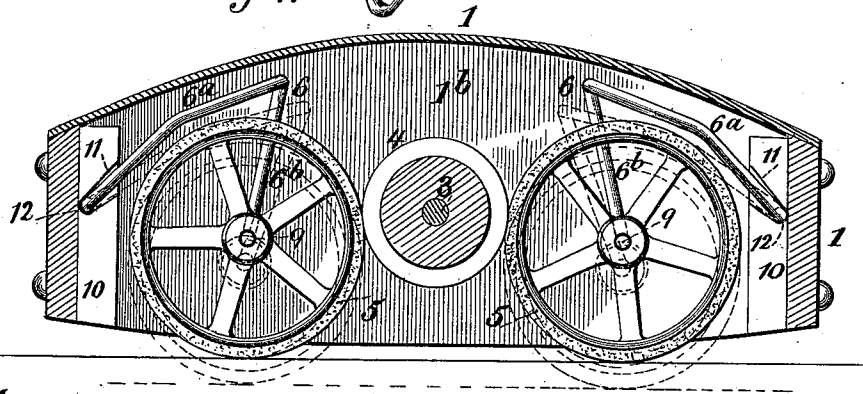


Fig. 4.



Witnesses.
A. Ruppert.
Robert Everett.

Inventor.
William T. Johnston.
By James L. Norris.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM T. JOHNSTON, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO THE BISSELL CARPET SWEEPER COMPANY, OF SAME PLACE.

CARPET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 354,908, dated December 28, 1886.

Application filed October 31, 1885. Serial No. 181,510. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM T. JOHNSTON, 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.

My invention relates to carpet-sweepers; and the object thereof is to provide novel means for journaling the drive-wheels, whereby a downward movement of the case will cause said wheels to enter the case, thereby bringing the brush into closer contact with the carpet, and at the same time exert an increased elastic pressure upon the driven pulley of the brush-shaft.

A further object of the invention is to provide novel supports for the driving-wheels of the sweeper-casing.

My invention consists in the several novel features of construction and combinations of parts, hereinafter fully set forth, and definitely pointed out in the claims following this specification.

Referring to the drawings forming part of this application, Figure 1 is an end elevation of a sweeper-case with the end wall removed. Fig. 2 is a plan view of the same, the top or upper wall of the casing being removed. Fig. 3 is a perspective view of one of the wheel-supports removed from the casing. Fig. 4 is an end elevation of the sweeper-case, showing the wheel-supports in place, and indicating the manner in which they operate to lower the brush-shaft and increase the frictional bearing thereon.

In the said drawings, the reference-numeral 1 designates a sweeper-casing of any known construction, having a brush, 2, provided with a shaft, 3, carrying a brush-pulley, 4, the shaft being journaled in suitable supports in the end walls of the casing. Upon one or both ends of the casing are placed driving and supporting wheels 5, having contact with the brush-pulley 4. Each of these wheels is carried by a separate and independent support, 6, (shown in detail in Fig. 3,) and consisting of a single piece of wire bent to form two arms, 6^a and 6^b, forming an angle with each other and lying in parallel planes, said arms being connected by a portion, 7, having a length about equal to or a little greater than the width of the wheel. Upon the extremity of one arm, 6^a, is formed a pivotal bearing, 8, and upon the end of the other arm, 6^b, is formed a journal, 9, each being bent inward or toward the arm carrying the other bearing, and being parallel with each other.

Upon the end of the sweeper-casing in the angles formed by the end and the side walls are attached blocks 10, each having a slot or notch, 11, formed in its external face, said notch terminating in a bearing-aperture, 12, which receives the pivotal bearing 8, and slightly diverging from that point toward the outer edge of the block in which it is formed. The construction and arrangement of these parts are preferably such that the pivotal bearings 8 will, when in place, be either in the same horizontal plane or a little above the axis of the brush-shaft 3.

When the supports are engaged with the blocks 10 and the driving-wheels mounted on their journals 9, it will be seen that the arms 6^a will have a limited movement in the arc of a circle the center of which is the axis of the bearing 8, said movement being limited by the walls of the divergent slot 11. It is also evident that as the wheels swing upward, or rise into the case, this movement will cause the journals 9 to approach the brush-shaft 3, as represented in Fig. 4. It will be seen that by this construction the supporting device 6 has a bearing upon both sides of the driving-wheel, the arm 6^a having a lateral support against the partition 1^a and the arm 6^b against the end wall, 1^b, of the casing, whereby the tendency of the wheels to dip or bend to one side is effectually prevented.

The arms of the support 6 are of such material and construction as to have a degree of elasticity. If, therefore, a downward pressure is given to the casing when the parts are in the position shown in Fig. 4, the wheels 5 will enter the casing more or less in proportion to the degree of pressure applied, and will in a corresponding degree tend to approach the pulley 4 upon the brush-shaft, the arm 6^b of each wheel-support yielding as the wheels rise into the case, and exerting an increased elastic

pressure of the wheels 5 upon the pulley 4 until the arm 6ª impinges upon the upper wall of the notch 11 in the block 10. By the construction described the usual action of the supports 6 is to withdraw the drive-wheels from contact with the brush-pulley, save when the weight of the sweeper is supported upon said wheels, whereby sufficient contact is given to render the sweeper operative. As downward pressure is applied, the brush is caused to approach the floor, and at the same time the drive-wheels enter the casing and approach or tend to approach the brush-shaft, thereby giving the necessary increase of frictional contact required to operate the brush. By this construction I not only secure all the advantages of a housing which incloses the wheel and supports both ends of the wheel-journal, but I also secure the additional advantage of locating the elasticity of the support in both arms thereof, and particularly in the arm carrying the journal. I am, moreover, able to provide a support having great simplicity, strength, and efficiency, and which can be produced at comparatively little expense.

I do not wish to be understood as broadly claiming a carpet-sweeper casing provided with springs carrying drive-wheels, whereby downward pressure on the casing brings the brush into closer contact with the carpet, and at the same time exerts an increased elastic pressure upon the driven pulley of the brush-shaft, as such is covered by Letters Patent No. 233,731, issued to A. D. Plumb, October 19, 1880.

What I claim is—

1. In a carpet-sweeper, the combination, with the casing and its brush-shaft having bearing therein, of supports for the driving-wheels, consisting each of a single integral piece of metal having two arms, the one carrying a pivotal bearing adapted to engage with the case and the other a journal to receive the wheel, and stops which limit the movement of the arm having the pivotal bearing, substantially as described.

2. In a carpet-sweeper, the combination, with the casing and its brush-shaft having bearing therein, of supports for the driving-wheels, consisting each of two arms arranged at an angle one to the other, said arms being united by a connecting portion crossing the wheel, whereby the arms are located in vertical planes lying upon opposite sides of the wheel, the one arm carrying a bearing engaging with the case and the other a journal for carrying the wheel, substantially as described.

3. In a carpet-sweeper, the combination, with the casing, of blocks having apertures which communicate at their outer ends with divergent notches, wheel-supports having pivotal bearings engaging with said blocks and provided with arms, one of which carries said pivotal bearings and extends from said notch above and upon one side of the wheel, and the other carrying the journal-bearing and lying upon the other side of the wheel, and a pulley on the brush-shaft, with which said wheels engage, substantially as described.

4. In a carpet-sweeper, a wheel-support consisting of a single integral piece of metal bent between its ends to cross the wheel and bring one part upon one side of the wheel and the other upon the other side thereof, said support being provided with bearings at its ends, bent inward or toward the wheel and parallel with each other, substantially as described.

5. In a carpet-sweeper, the combination, with the casing and its brush-shaft having bearing therein, of wheel-supports, each having an arm carrying a pivotal bearing which engages with the case, and an arm carrying a journal-bearing for the wheel, stops which limit the movement of the former arm, and a pulley on the brush-shaft, with which the wheels engage, the pivotal bearings of said supports being arranged in the casing in or above the horizontal plane of the axis of the brush-shaft, substantially as described.

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

WILLIAM T. JOHNSTON.

Witnesses:
EDWARD TAGGARD,
CHAS. B. JUDD.