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E. B. POGGENSEE

2,084,777

CARPET SWEEPER

Filed Sept. 12, 1935

FIG. 1.

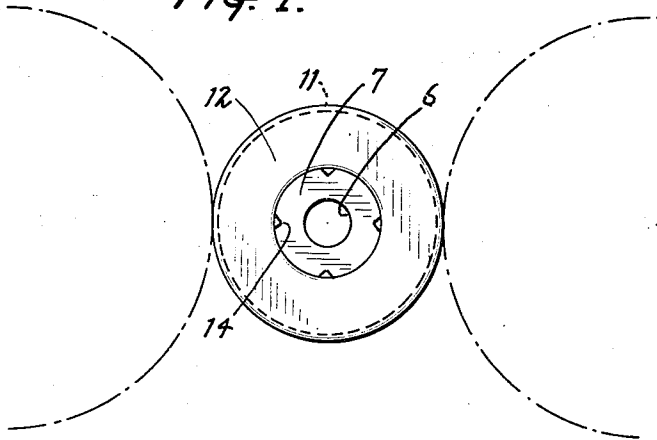


FIG. 2.

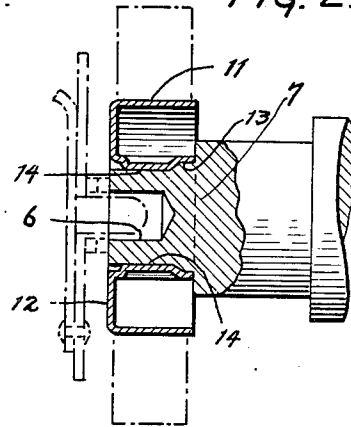


FIG. 3.

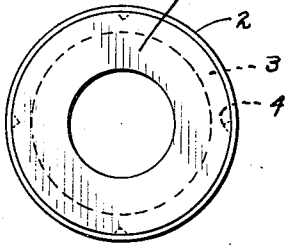


FIG. 4.

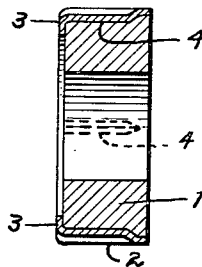


FIG. 5.

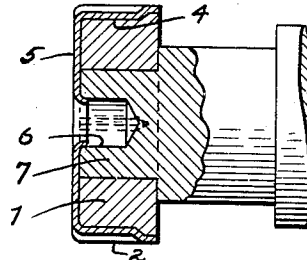


FIG. 6.

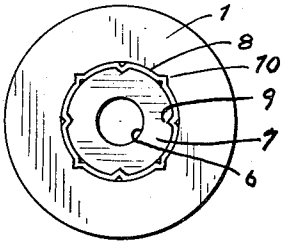


FIG. 7.

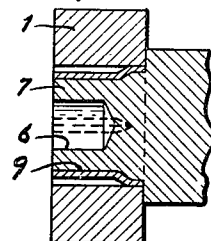


FIG. 8.

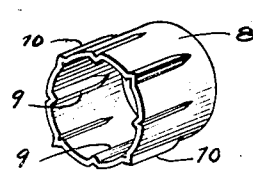


FIG. 9.

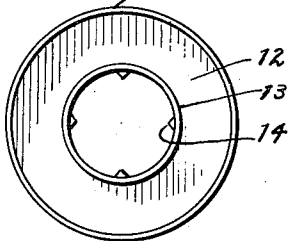
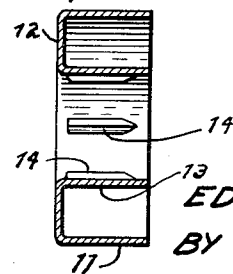


FIG. 10.



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UNITED STATES PATENT OFFICE

2,084,777

CARPET SWEEPER

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Application September 12, 1935, Serial No. 40,202

1 Claim. (Cl. 74—216)

This invention relates to carpet sweepers, and more particularly to the power wheels that rotate the brush used to collect the dust from the surface to be cleaned.

5 In the commercial carpet sweeper, the power wheel is customarily made of wood. This wooden wheel is attached to the wooden shaft of the brush by means of some form of viscous material. In this construction, the problems of manufacture are complex, the performance of the sweeper uncertain when in use, and its durability and life greatly restricted.

10 In assembling this type of carpet sweeper, the hub of the wooden power wheel is covered with viscous material and the wheel put on the shaft under pressure. In this operation two problems arise, namely, to insure an even spread of the viscous substance and to secure the wheel permanently and securely to the shaft, and, to supply sufficient pressure to affix the wheel to the shaft in operative position without cracking either the wheel or the shaft. These problems have not been met in former constructions, and as a consequence, when the sweeper is put to repeated use, there are frequent break-downs. Even though great care be exercised in the assembling and a rigid inspection at the factory is made thereafter, small surfaces are not covered by the viscous material and small cracks not detectible by the naked eye often exist which later necessitate replacement of the brush and power wheels.

25 In the carpet sweepers where perfection of joining the wheel to the shaft is achieved and where no breaks in either the wheel or the shaft have occurred, the problem of wear on the power wheel exists. In operation, the back-and-forth movement of the carpet sweeper and the resultant constant reverse action of the traction wheels against the power wheel cause an unevenness of wear on the rim of the power wheel resulting in a wheel that is untrue. When the rim of the power wheel becomes uneven, the shaft is, of course, thrown out of line and the bristles of the brush in turn wear unevenly, thus reducing its sweeping efficiency and rendering the device inoperative long before the balance of the mechanism has lost its usefulness.

30 It is an object of this invention to provide a power wheel for carpet sweepers, simple in construction and inexpensive to manufacture that requires a minimum of labor to affix to the brush shaft and when affixed produces a maximum of efficiency in the operation and in the durability of the entire device.

With these and other objects in view, reference is made to the accompanying sheet of drawing illustrating an embodiment of this invention with the understanding that minor detail changes may be made without departing from the scope thereof.

In the drawing:

Figure 1 is a view in side elevation of the improved power wheel in place between the traction wheels, shown in broken lines.

Figure 2 is a fragmentary view in front elevation with parts broken away showing the power wheel in section in place on the shaft, with the spring pressed bearing pin and the far traction wheel shown in broken lines.

Figure 3 is a view in side elevation of a wooden power wheel mounting a flanged metal rim.

Figure 4 is a view in transverse, vertical central section taken through the Figure 3.

Figure 5 is a detail view, similar to Figure 2, showing a power wheel similar to Figure 4 with the flange extended to engage within the bearing on the end of the shaft.

Figure 6 is a view in side elevation of a wooden wheel having a metallic holding sleeve in engagement with its hub and the end of the shaft.

Figure 7 is a view in transverse central, vertical section taken through Figure 6.

Figure 8 is a view in perspective of the holding sleeve shown in Figures 6 and 7.

Figure 9 is a detail view in elevation of the form shown in Figure 1 looking from the opposite side.

Figure 10 is a view in transverse, central vertical section of Figure 9.

The applicant has discovered that a wooden power wheel 1 provided with a metal rim 2 having an annular flange 3 forced over the exterior of the wheel and affixed to said wheel by spaced apart, radial wedge shaped keys 4, as shown in Figure 3, will overcome the unevenness caused by wear, but the possibility of the wheel becoming detached from the shaft still exists. The applicant has also found that if the annular flange 3 is extended to form a cover 5 for the outer surface of the wheel with its edge spun into the pin bearing 6 on the reduced portion of the wooden brush shaft 7, as shown in Figure 5, it will assist in securing the wheel in place. In both of these forms, the objection to wear on the rim of the power wheel and resultant wear to the bristles of the brush is eliminated, but the problems incident to affixing the wheel on the brush shaft by means of some viscous material are not overcome.

The applicant has discovered also that if the wooden wheel 1 is provided with a holding sleeve 8 having oppositely extending, radial, wedge shaped, spaced apart keys 9 and 10, as shown in Figure 6, fitted over the reduced end of the wooden brush shaft and received snugly by the body of the wooden wheel, a permanent jointure will be effected. The holding sleeve 8 is held in rigid engagement on the reduced shaft 7 by the keys 9, as shown in Figure 7, and the wheel 1 is held in rigid engagement on the holding sleeve by means of the keys 10, as shown in Figure 6. In this construction, the wooden power wheel is affixed to the shaft in a manner that prevents rotation of the wheel on the shaft and obviates the difficulties arising when viscous material is used as in the forms shown in Figures 3, 4 and 5. However, in this method, the power wheel presents the problems incident to wear on its wooden rim.

This invention contemplates the provision of a power wheel for the brush shaft of a carpet sweeper combining the improved features above described and shown in Figures 2 to 8, inclusive, by drawing a wheel from a metal disc to first form the rim 11 and extended flange 12 then form the holding sleeve 13 integral with the extended flange, as shown in Figures 9 and 10. A plurality of spaced apart keys 14 are then depressed in the wall of the holding sleeve 13, wedge shaped in cross section and spaced back from the free ends of the said sleeve, not only to allow the sleeve to be positioned over the end of the brush shaft 7, but upon application of power to force the wheel home upon the shaft and cause the wedge shaped keys to bite into

the wooden brush shaft to secure a metal wheel upon the wooden shaft which will not wear unevenly upon its periphery and which will not become detached from the brush shaft as a result of the operation of the carpet sweeper.

This embodiment of the invention, shown in Figures 1 and 2, provides a metal power wheel and means affixing the metal wheel upon the wooden brush shaft without danger of damage either to the shaft or the wheel and precludes the possibility of the wheel being insecurely attached during the process of assembling, or loosening on the brush shaft after long use by the operator, thus preventing loss of power. The rim of the power wheel being of metal obviates wear by the constant reverse action of the traction wheels while in use and eliminates the wear of the bristles of the brush caused when the brush shaft is out of line.

What I claim is:

In a carpet sweeper, the combination of a wooden sweeper brush shaft with a drawn metal power wheel having a flat rim and traction wheels bearing against and rotating said power wheel, said power wheel drawn from a disk of metal and having a flange extending from said rim to an integral holding sleeve extending parallel and in the same direction as said rim, and a plurality of spaced apart wedge shaped keys depressed in said holding sleeve, allowing the sleeve to be placed over the end of the brush shaft and forced thereon to cause the wedge shaped keys to secure the power wheel upon the wooden brush shaft and assure even wear on the power wheel when rotated by the traction wheels.

EDWARD B. POGGENSEE.