Nov. 14, 1939. J. M. KENYON 2,180,060

CARPET SWEEPER

Filed Feb. 23, 1938 2 Sheets-Sheet 1

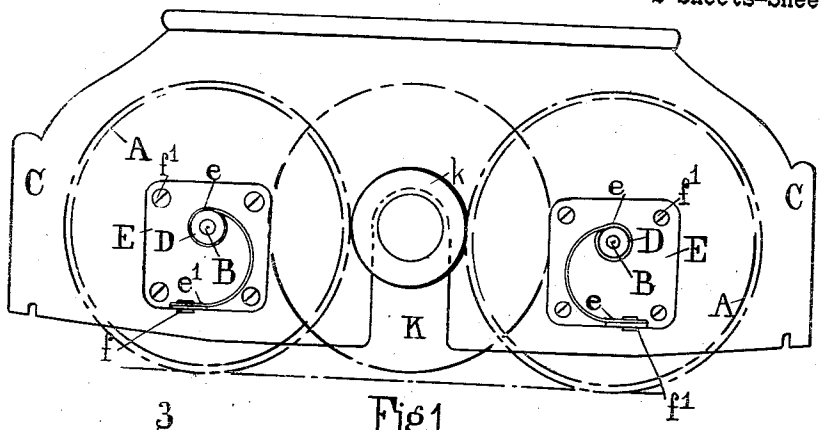


Fig.1.

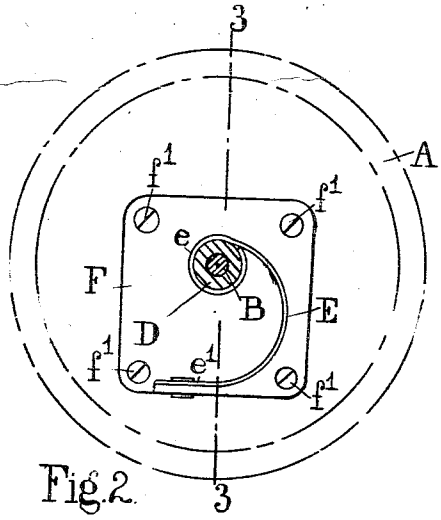


Fig.2.

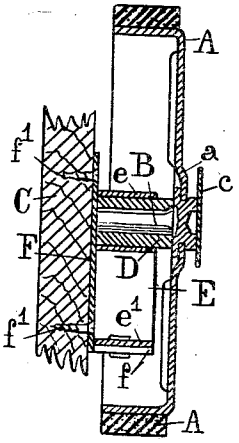


Fig.3.

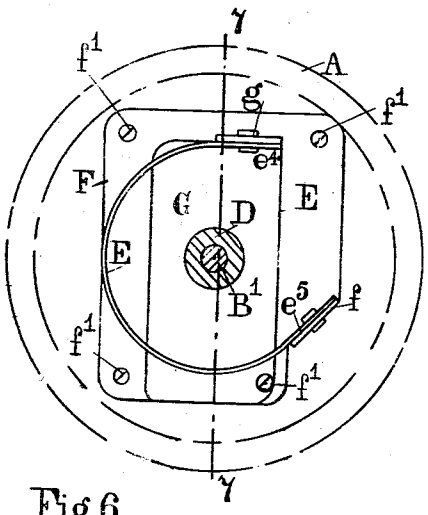


Fig.6.

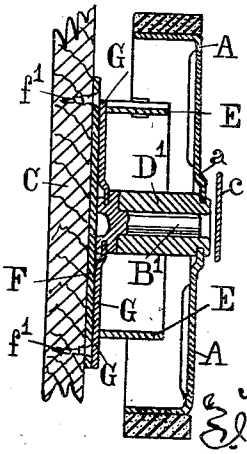


Fig.7.

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CARPET SWEEPER

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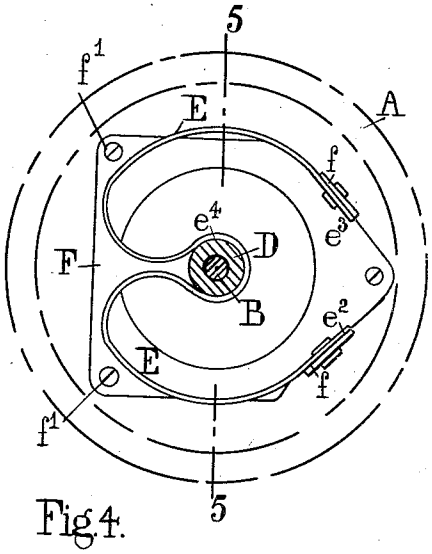


Fig.4.

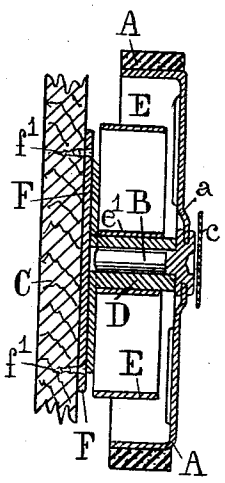


Fig.5.

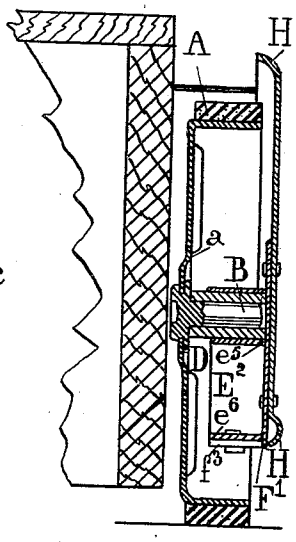


Fig.10.

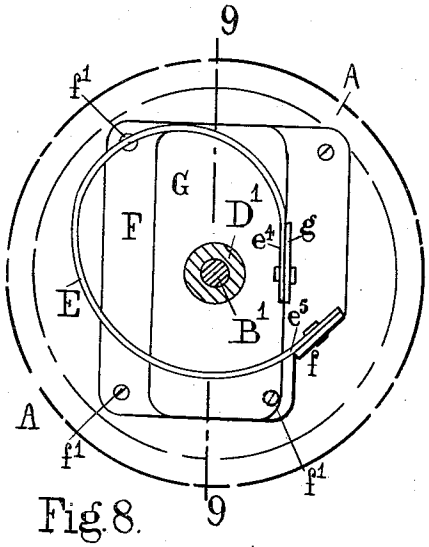


Fig.8.

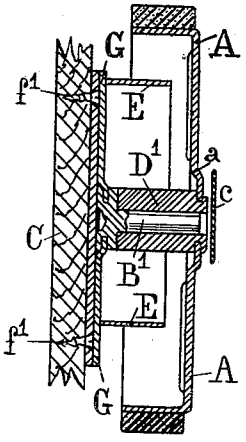


Fig.9.

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Patented Nov. 14, 1939 2,180,060

UNITED STATES PATENT OFFICE

2,180,060

CARPET SWEEPER

James Maxwell Kenyon, Accrington, England, assignor to Entwisle & Kenyon Limited, Accrington, England

Application February 23, 1938, Serial No. 192,011
In Great Britain March 18, 1937

1 Claim. (Cl. 15—41)

This invention relates to improvements in carpet sweepers of the type in which each wheel is mounted on a separate stub axle carried by a spring attached directly or indirectly to the sweeper casing whereby the wheel is resiliently mounted in relation to the casing, such stub axle being either hollow and having a pin affixed to the wheel rotating therein or solid and having a sleeve affixed to the wheel, rotating thereon.

The axles for the floor wheels of a carpet sweeper usually pass from end to end of the sweeper casing above the dust pans but it is hereby proposed to mount each wheel on a separate stub axle which is carried by, but does not project through the end of the casing, such stub axle being capable of limited movement in any direction in a vertical plane but being restrained from endwise movement.

This manner of mounting each wheel on a separate stub axle has the advantage that it avoids the use of axles passing through the casing from end to end thereby preventing the accumulation of hairs, cotton, fluffs, and the like on the axles and also permitting the dust pans easily and completely to be removed from the sweeper casing for the purpose of discharging the dirt and litter collected therein by the operation of the machine.

According to the present invention each wheel of the sweeper comprises a disc formed with inwardly extending flanges on its periphery which form a casing to enclose the stub axle and its supporting spring.

The invention will be described with reference to the accompanying drawings in which:

Fig. 1 is an end view of a carpet sweeper showing one form of the invention applied thereto, the wheels and brush being indicated in broken lines.

Fig. 2 is an end view of the bearing shown in Fig. 1 drawn to a larger scale.

Fig. 3 is a section on line **3—3** Fig. 2.

Fig. 4 is an end view of a modified form of bearing.

Fig. 5 is a section on line **5—5** Fig. 4.

Fig. 6 is an end view of another modification of the bearing.

Fig. 7 is a section on line **7—7** Fig. 6.

Fig. 8 is an end view of another modification of the bearing.

Fig. 9 is a section on line **9—9** Fig. 8.

Fig. 10 is a section of another modification of the bearing.

In the form of the invention shown in Figs. 1 to 3 the hub *a* of each wheel A is affixed to or formed integrally with a short axle B which projects inwardly from the hub *a* towards the end of the casing C of the machine. The short axle B rotates in a floating bearing D carried in a loop *e* at one end of a spring E the other end e^1 of which is affixed to a projection *f* on a plate F secured by screws f^1 or in any other suitable way to the end of the casing C. Instead of the end e^1 of the spring E being affixed to the plate F it may be secured directly to the end of the casing C. The axle B and wheel A are prevented from moving longitudinally away from the end of the casing C by the usual end iron or strap *c*.

In the form of the invention shown in Figs. 4 and 5 the hub *a* of each wheel A is affixed to or formed integrally with a short axle B which projects inwardly from the hub *a* towards the end of the casing C of the machine. The short axle B rotates in a floating bearing D carried in a central loop e^1 in a curved or bowed spring E, the ends e^2, e^3 of which are affixed to projections *f* on a plate F secured by screws f^1 or in any other suitable way to the end of the casing C. Instead of the ends e^2, e^3 being affixed to the plate F they may be secured directly to the end of the casing C. The axle B and wheel A are prevented from moving longitudinally away from the end of the casing C by the usual end iron or strap *c*.

Instead of the bearing D being supported at the centre of a single bowed or curved spring E it may be carried at the ends of two or more curved springs the other ends of which are anchored to the plate F or to the end of the casing C.

In the forms of the invention shown in Figs. 6 and 7 and in Figs. 8 and 9 the hub *a* of each wheel A is affixed to or formed integrally with a short bearing D^1 which projects inwardly from the hub *a* towards the end of the casing C. The short bearing D^1 is rotatably mounted on an axle B^1 projecting outwardly from a plate G connected by a spring E to a second plate F secured by screws f^1 or in any other suitable way to the end of the casing C, the spring being affixed at one end e^4 to a projection *g* on the plate G and at the other end e^5 to a projection *f* on the plate F. The projection *g* on the plate G may be at the top of the plate G as shown in Figs. 6 and 7, at the side thereof as shown in Figs. 8 and 9 or in any other convenient position. Instead of the end e^5 of the spring E being affixed to a plate F it may be secured directly to the end of the casing C. The wheel A and short bearing D^1 are

prevented from moving longitudinally away from the end of the casing C by the usual end iron or strap *c*.

Fig. 10 shows the invention applied to a carpet sweeper of the type having a metal wheel cover H which encloses the wheels A either wholly or partially. In the construction the hub *a* of each wheel A is affixed to or formed integrally with a short axle B which projects outwardly from the hub *a* towards the wheel cover H. The short axle B rotates in a floating bearing D carried in a loop e^5 at one end of a spring E^2, the other end e^6 of which is secured to a projection f^3 on a plate F^1 riveted or otherwise affixed to the inner surface of the wheel cover H, the springs E^2 being of similar shape to the spring E shown in Figs. 1 to 3. Alternatively the short axle B may be carried in a loop in the centre of a spring affixed at both ends to the plate F as shown in Figs. 4 and 5. Instead of the spring E^2 being affixed at one end or at both ends to the plate F it may be affixed directly to the wheel cover H.

In an alternative construction for carpet sweepers having wheel covers such as H the short axle may be carried by a plate connected by a spring to the plate F or to the wheel cover H and the bearing may be affixed to the hub of the wheel, such construction being analogous to that described with reference to Figs. 6 and 7 and Figs. 8 and 9.

In all the different forms of the invention hereinbefore described the floating bearing D or the floating axle B1 carried by the spring or springs E is normally arranged centrally in relation to the width of the rim of the wheel and length of the hub in the space within the rim so that when the wheel is in driving contact with the brush pulley the axes of the wheel A and brush K are parallel.

Moreover the spring E is curved or shaped so that a relative movement in any direction in a vertical plane can be obtained between the wheels A and the casing C when the wheels are in contact with the surface being cleaned and pressure is applied to the casing through the operating handle, and allow the necessary pressure to be applied by the rim of the wheels to the driving pulley *k* on the shaft of the brush K to drive the latter.

What I claim as my invention and desire to protect by Letters Patent is:

In a carpet sweeper of the type referred to, a wheel comprising a disc, inwardly extending flanges on the periphery of the disc, a stub axle member, a bearing member journalled thereon, one of said members being attached to the centre of the wheel, a spring by which the free end of the other of said members is supported, the other end of the spring being anchored to the casing of the sweeper to allow the wheel being resiliently mounted in relation thereto, the said flanges forming a casing which encloses the said members and the supporting spring.

JAMES M. KENYON.