Oct. 11, 1932. W. S. FINNELL 1,881,432

BRUSH SUPPORT FOR FLOOR MACHINES

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Fig. 1.

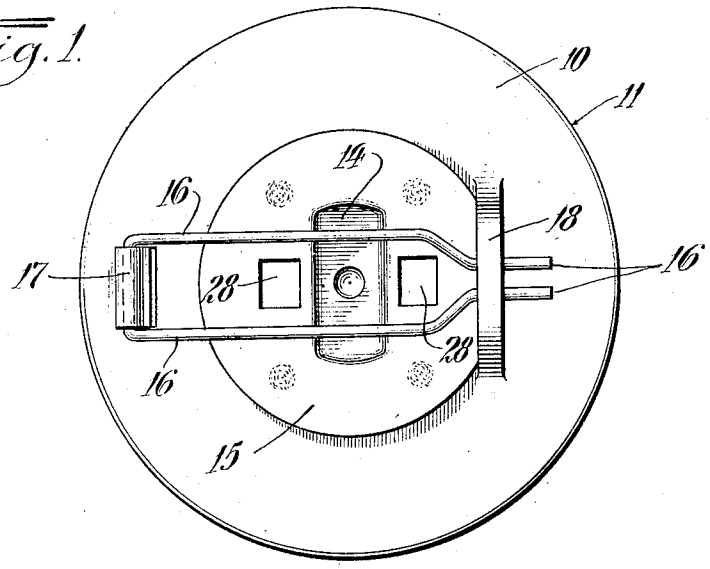
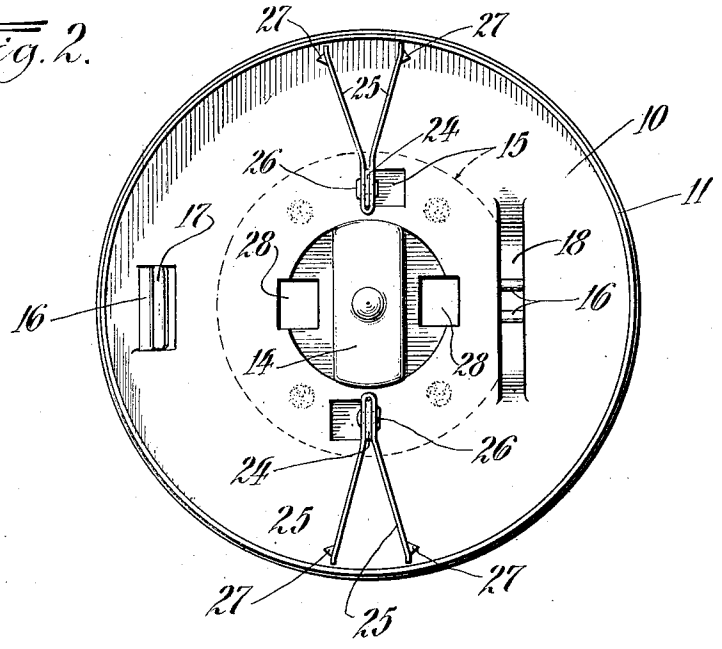


Fig. 2.



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Fig. 4.

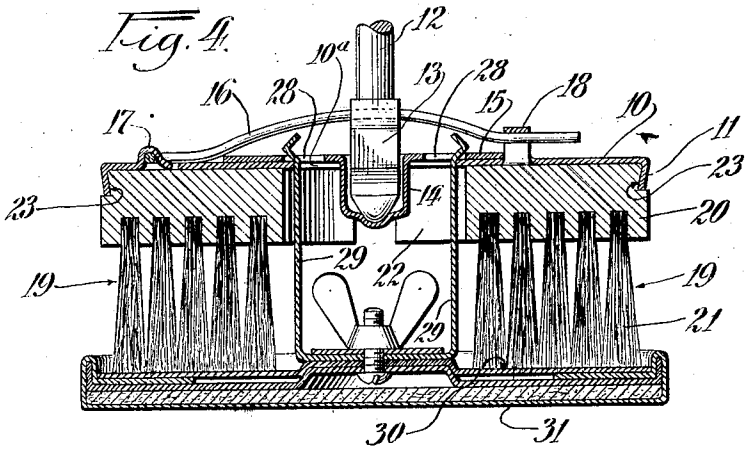


Fig. 3.

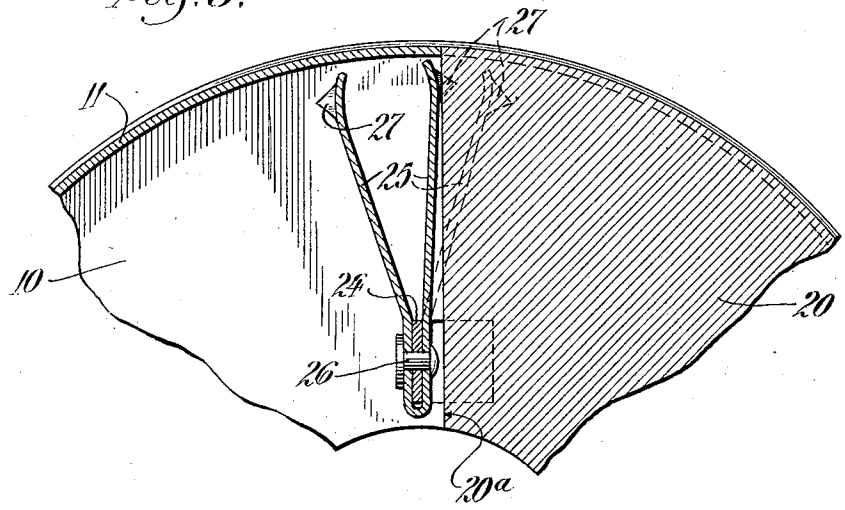
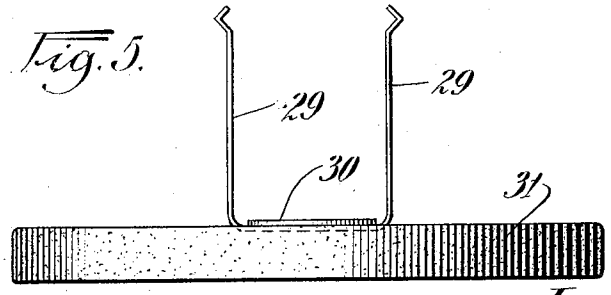


Fig. 5.



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UNITED STATES PATENT OFFICE

WALTER S. FINNELL, OF ELKHART, INDIANA

BRUSH SUPPORT FOR FLOOR MACHINES

Application filed October 18, 1928. Serial No. 313,302.

My invention relates generally to floor machines and has to do particularly with a novel brush-supporting structure for such machines.

One of the objects of my invention is to provide a simple, inexpensive, lightweight and durable brush support which is adapted to detachably carry a plurality of brushes, and which is arranged for detachable connection with a driving mechanism for rotation of the brushes in contact with the floor surface to be treated.

Another object is to provide novel means for securely holding the brushes in place on the brush support during operation, but which permits of ready attachment and detachment of the brushes.

A further object is to provide an improved brush support adapted to removably support a floor-treating device, in addition to the brushes, for conversion of the floor machine for sanding, waxing and polishing of the floor.

Other objects and advantages will become apparent as this description progresses and by reference to the drawings, wherein,—

Figure 1 is a top plan view of a brush support embodying my invention;

Fig. 2 is a bottom plan view of the support of Fig. 1;

Fig. 3 is an enlarged bottom plan view of a portion of the brush support of Fig. 2, showing a portion of a brush in place thereon and showing the relative positions of the yieldable brush-holding member when the brush is in place and when it is removed;

Fig. 4 is a vertical section of the assembled brush support, brushes and attachment; and

Fig. 5 is a separated elevational view of the attachment device which is shown applied to the brush structure of Fig. 4.

My invention is well adapted to a floor machine of a type employing driving mechanism with which the brush structure is associated for rotation of the brushes in contact with the floor surface, one form of such a machine being disclosed in my copending application, Serial No. 240,110, filed December 15, 1927, for floor machine. However, it is to be understood (and it will become obvious hereinafter) that my invention may have utility in forms of floor machines other than shown and described in the above-identified application.

With particular reference to the drawings, I employ a metal brush head or support (Figs. 1 and 2) having a circular base or body part 10 with an annular peripheral flange 11. This flange 11 tapers slightly inward (Fig. 4) toward the center of the base 10 for a purpose which will become obvious later. This brush support is adapted for attachment to a drive shaft 12 (Fig. 4) of a suitable driving mechanism (not shown) which may take the form of a motor-driven worm associated with a gear or gears arranged to rotate the drive shaft 12.

The drive shaft 12 supports and drives a flat-sided head 13 which has an octagonal shape with its upper edges diverging downwardly and its lower edges diverging upwardly. The base 10 of the brush support is provided with a centrally-disposed opening 10^a which receives a socket member 14 formed in a separate plate 15 which may be secured to the upper part of the base in any desired manner. Or, if desired, for the sake of cheapness, etc., this separate plate 15 may be dispensed with, in which event the base 10 of the support will be continuous and the socket 14 may be formed by depressing the central portion thereof to the shape illustrated. The socket 14 takes generally the shape of the drive head 13, but is of greater dimensions so that the head 13 fits loosely therein and such socket is shaped to provide for universal and wabble movements between the brush support and the driving mechanism to compensate for irregularities in the floor surface to be treated.

To interlock the brush support with the driving mechanism, I provide a U-shaped spring member 16 having the free ends of its legs bent inwardly toward each other as best shown in Fig. 1. The U-base of the member 16 is hingedly secured to the upper part of the base 10 by means of a lug 17 struck from such base and turned over upon the adjacent portion of the member 16 as clearly indicated in Fig. 4. The free ends of the spring

member 16 are confined against vertical displacement, and are limited in the spreading movement, by passing such ends under a retainer strip 18 struck upwardly from the base part 10. In attaching the brush support to the driving mechanism, it is only necessary to insert the lower end of the driving head 13 between the arms of the spring member 16 and force the head and support together, during which action the lower tapered surfaces of the driving head guidingly spread the yieldable spring arms apart, and when the head 13 is fully inserted in the socket 14, the upper tapered surfaces of the driving head permit the arms 16 to spring back together again above such head and normally hold it in place. In detaching the brush support from the driving mechanism, it is only necessary to pull the support outwardly away from the driving head, during which time the upper tapered surfaces of such head will spread the spring arms 16 apart and release such head in a manner which will be obvious from the drawings. This mode of connection, while it insures that the brush support will remain positively fixed to the driving mechanism during operations, permits of ready attachment and detachment of the parts.

The brush support is adapted to detachably carry a plurality of brushes 19 (preferably two) in a manner which will now be described. These brushes may be of a character adapted for scrubbing, polishing, or the like, purposes and they may take the usual form having a wooden bristle supporting part 20 and bristles 21. Each bristle support 20 takes the general shape of a half section of the brush support (Figs. 3 and 4) and it is provided along its straight edge with a central opening 22 providing for a central space between or through the brushes. The upper portion of the outer curved edge of each bristle support is provided with a continuous groove 23 having its side walls tapered complementally to the taper of the depending flange 11 of the brush support. The under side of the base 10 of the brush support is provided with depending lugs 24 struck therefrom, preferably, at the position indicated in Fig. 2. Each of these lugs 24 supports a U-shaped spring member 25 having its base part secured to the lugs 24 by a rivet, or other suitable fastening device, 26 and the free legs of these members are normally flared outwardly (Figs. 2 and 3). The ends of the legs of the spring devices 25 are provided with sharp V-shaped projections 27, preferably, struck therefrom, and these projections are adapted to piercingly engage the flat sides 20^a of the bristle supports 20 when the brushes are assembled in the brush support as shown in Fig. 3. When the brushes are inserted, as just described, the spring legs 25 are pressed inwardly under tension (Fig. 3) and they force the bristle supports outwardly into tight engagement with the flange 11. The shape of the flange 11 and groove 23 coupled with the gripping action of the spring arms normally insures that the brushes will remain in the desired position upon the support, and outward displacement of the same during operation is prevented. When it is desired to remove the brushes from the support, they are moved inwardly (compressing the spring legs 25) far enough to disengage the flange 11 and groove 23, permitting outward movement of the brush as will be well understood.

Brushes are used generally for scrubbing and polishing purposes only. It is desirable in many instances to sand and wax the floor surface, and my brush support structure contemplates provision for mounting an attachment for accomplishing these additional operations. To this end, the base plate 15 (or the central portion of the base 10, as the case may be) is provided at the opposite sides of the socket member 14 with, preferably, rectangular openings 28 which are adapted to receive (Fig. 4) the upstanding spring arms 29 of a member 30 arranged to support a floor treating element 31 (which may be sandpaper, or burlap material, etc. depending upon the particular treatment intended to be given the floor). With the spring arms 29 inserted through the openings 28 as shown in Fig. 4, the attachment device 30, 31 is cushioned by and against the brush bristles 21, and it is caused to rotate with the brush support. It will be noted that the free ends of the spring arms 29 have opposed V-shapes. In this manner, I provide for guidance of the arms 29 through the openings 28 in attaching or detaching the device, and for holding such device in place upon the brush support during operation. This arrangement also permits wabble adjusting movements of the device in all directions to compensate for irregularities in the floor surface being treated. The semi-circular openings 22 in the flat sides of the brush bristles supports provide an opening at the center of the brush structure which readily permits of the adaptation of attachment device and its spring arms 29 as above described.

While I have shown and described only one form of embodiment of my invention, it will be understood that various changes in arrangement of parts and details may be made therein without departing from the spirit and scope of my invention as defined by the claims which follow.

I claim:

1. A brush support for floor treating machines adapted to support a plurality of brushes and having a circular base part, a peripheral flange on said base part extending downwardly therefrom to engage the outer edge of said brushes, and a yieldable

means carried by said base part and extending along the opposite edges of two of said brushes, said means including elements detachably gripping the opposite edges of said two brushes.

2. In a floor machine, a support comprising a circular flat base and a peripheral flange, a plurality of brushes carried by said support, said peripheral flange extending downwardly from and inwardly of said support base, the outer surface of said respective brushes adjacent said flange being shaped to fit said flange for interlocking engagement between said flange and brushes, and gripping members carried by said support, said members each having a pair of yieldable arms engaging respectively the opposed inner surfaces of two of said brushes pressing the latter toward said flange for yieldingly holding said flange and brushes engaged.

3. In a floor machine, a brush support comprising a circular flat base and a depending peripheral flange, a plurality of brushes detachably carried by said support, said flange extending inwardly of said base and said brushes having on their outer part a groove shaped to fit said flange, a centrally-disposed drive element on said support, and opposed yieldable elements on said support positioned with said drive element therebetween, each of said elements having a pair of arms tending to spring away from each other and adapted to engage the inner adjacent surfaces of two of said brushes and press the latter toward said flange.

4. In a floor machine, a plurality of semi-circular brushes, a brush holder comprising a flat circular base and an inwardly converging part adapted to engage a depression in the outer semi-circular surface of each of said brushes and normally permit movement of the latter downwardly away from said holder only upon relative horizontal displacement of said part and brushes, and a pair of spring devices carried by said holder base, each of said devices including a pair of yielding arms tending to spring laterally away from each other, said arms engaging opposed vertical edge surfaces of separate brushes to yieldingly engage the same with said part.

5. In a floor machine, a plurality of brushes, a brush support comprising a flat circular base having a depending, inwardly-converging part adapted to engage the outer and complementally-shaped edge surface of said brushes and normally prevent movement of the latter downwardly away from said base except upon movement of said brushes laterally away from said engaged part, and a pair of U-shaped spring devices carried by said base, the legs of each device engaging an inner edge surface of separate of said brushes to yieldingly engage the same with said part.

6. A brush support for a floor machine adapted to carry a plurality of brushes which embodies a base part having a member adapted to interlockingly engage the outer surfaces of said brushes, a pair of diametrically located support elements on said base part, U-shaped spring members having their U-bases attached to said elements, respectively, with their free arms extending generally in opposite directions but flaring toward the inner surfaces of separate brushes, sharp projections on the arms of said members which piercingly engage the inner surfaces of separate brushes to yieldingly hold the brushes in engagement with said member and from outward displacement.

In testimony whereof, I have subscribed my name.

WALTER S. FINNELL.