June 26, 1928. 1,675,078

F. W. YUTZLER

FLOOR MACHINE

Filed Nov. 1, 1924

FIG. 1.

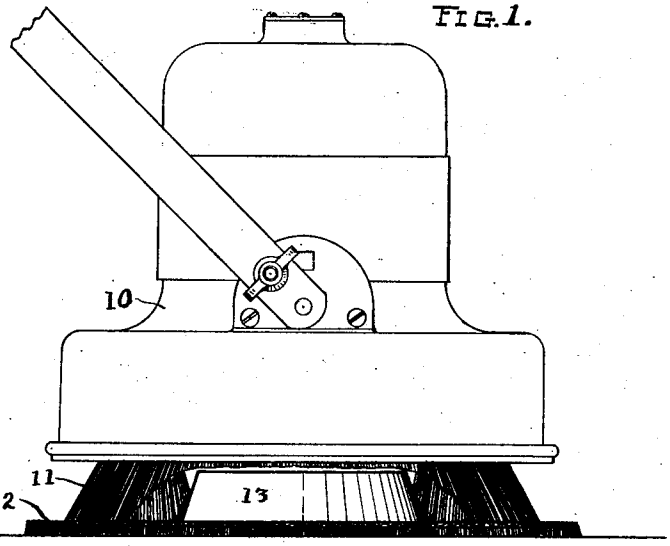


FIG. 2.

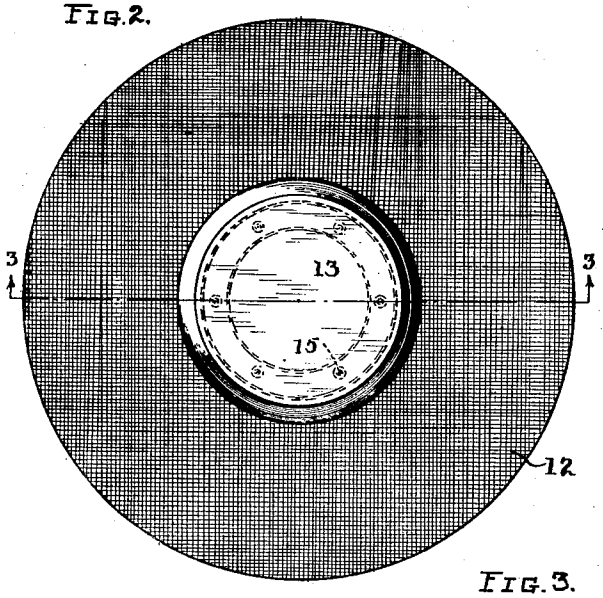


FIG. 4.

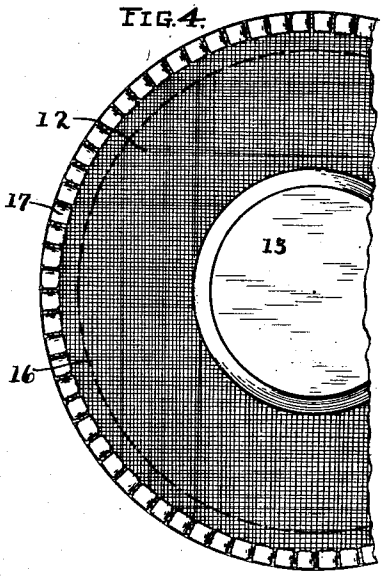
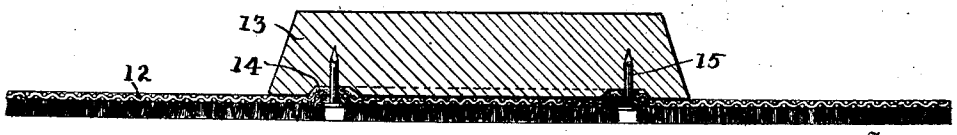


FIG. 3.



Inventor

Fred W. Yutzler

By Bucklew

Attorney

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UNITED STATES PATENT OFFICE.

FRED W. YUTZLER, OF ROME, NEW YORK, ASSIGNOR TO THE KENT COMPANY, INCORPORATED, OF ROME, NEW YORK, A CORPORATION OF NEW YORK.

FLOOR MACHINE.

Application filed November 1, 1924. Serial No. 747,158.

This invention relates to finishing and polishing machines and more particularly to pads for polishing or other finishing operations, adapted for use with a machine embodying an annular polishing brush which rotates on a vertical axis. It is one of the objects of the invention to provide a polishing pad, adapted for use with a machine of the type referred to, that will be capable of polishing a waxed floor or other surface without leaving any machine marks on the surface or, in other words, to produce a polished surface that will have a mirror-like finish without streaks or marks.

Another object of the invention is to provide a pad for the purposes stated that is simple and inexpensive to construct and also readily applicable to machines of the type referred to without requiring the use of a special fastening device and which will, nevertheless, be securely held in position.

Other objects of the invention and the features of novelty will be apparent from the following description, taken in connection with the accompanying drawings, of which:

Figure 1 is a side elevation of a floor polishing machine having my invention applied thereto;

Fig. 2 is a plan view of my improved polishing pad;

Fig. 3 is an enlarged section on the line 3—3 of Fig. 2; and

Fig. 4 is a fragmentary plan view, similar to Fig. 2, but showing a modification of the invention.

Referring to the drawings, 10 indicates a common form of polishing machine that is driven by an electric motor and comprises an annular brush 11 adapted for rough-polishing of waxed and other surfaces. The brush 11 is rotated about a vertical axis and the lower surface of the brush acts upon the surface to be polished and is used to uniformly distribute the wax or other polishing material.

My improved polishing pad comprises a piece of carpet, or other suitable fabric material, preferably, although not necessarily, of circular form, adapted to be placed under the brush 11, as shown in Fig. 1, and this pad is rotated by the engagement of the bristles of the brush 11 with the top surface of the pad, there being sufficient frictional engagement to cause the pad to rotate with the brush, without slipping. The brush 11 is in the form of an annulus and, in order to hold the pad 12 in concentric relation to the brush and to prevent it from being displaced, I secure to the upper side of the pad a block 13, preferably in the form of a frustum of a cone, which is adapted to be inserted into the central opening of the brush 11.

I provide a groove 14 in the lower side of the block 13 and secure the pad 12 to the block by a series of tacks or nails 15 which serve to embed a part of the pad 12 in the groove 14 and thus provide a secure fastening for the pad, to the block. This arrangement also insures that the tacks 15 will be sufficiently embedded to avoid the possibility of contact with the floor or surface to be polished, since any contact of the tacks 15 with the floor would produce scratches in the surface.

It will be noted from Fig. 1 that the pad 12 projects beyond the periphery of the brush 11 so that the peripheral portion of the pad is free of the weight of the machine 10 and, therefore, rests lightly on the floor. I have found by experience that this arrangement produces a smooth unmarked surface. Heretofore, polishing pads have been used in which all of the area of contact with the surface to be polished, is subjected to the weight of the machine and this results in marks and streaks being left which show the path of the machine during the polishing operation. Undoubtedly the central portion of the pad 11 would produce streaks in the polishing surface but the projecting portion of the pad 12, on account of only bearing lightly on the surface, obliterates any marks that are produced by the central portion of the pad.

The block 13 holds the pad in proper relation to the brush 11 and prevents the machine from being displaced relatively to the pad.

In the form of the invention shown in Fig. 4 I have indicated, by the line 16, the periphery of the brush 11 and I attach to the pad 12, outside of the line 16, and preferably at the extreme edge of the pad, a series of weights 17 which may be in the form of small blocks of metal attached to the pad by cement or rivets, or in any other suitable manner, and which serve to slightly increase the pressure of the peripheral portion of the pad against the surface to be polished. The

centrifugal forces acting on the weights 17, due to the rotation of the pad, tend to increase the pressure of the peripheral portion of the pad on the surface being polished, since the center of gravity of each of the blocks 17 is above the plane of attachment to the pad 12. In other respects the form of the invention illustrated in Fig. 4 is similar to that illustrated in Figs. 2 and 3.

While I have described my invention with particular reference to polishing pads, it is apparent that my novel method of driving the pad by frictional engagement of bristles with the top surface of the pad and the arrangement of the block 13 in the central opening in the brush are applicable to other types of surface-finishing devices for use with machines of the kind referred to and I, therefore, intend that the term "polishing pad", as used in the claims, shall include such other surfacing devices.

Having thus described my invention, what I claim is:

1. In apparatus of the class described, the combination with a machine having a member rotating on a vertical axis and having a central opening, of a polishing pad separate from said member and loosely arranged between said member and the surface to be polished and having a block secured on its upper side which is loosely arranged in the central opening in said member to retain the pad in its operating relation to said member.

2. In apparatus of the class described, the combination with a machine having a member rotating on a vertical axis and on which the weight of the machine is carried, of a flexible polishing pad separable from said member and having a centrally arranged block secured to its upper side engaging with said member so as to hold the pad in coaxial relation with said member and cause the pad to be rotated thereby, the central portion of said pad being pressed against the surface to be polished by the weight of said machine and said block, and said pad having an annular peripheral portion which is free of the weight of said machine.

3. In apparatus of the class described, the combination with a machine having a member rotating on a vertical axis and having a central opening, of a polishing pad separate from said member and loosely arranged between said member and the surface to be polished and of such size as to project substantially beyond the periphery of said member, and a block secured to said pad and loosely arranged in the central opening in said member to retain the pad in its operating relation to said member.

4. In apparatus of the class described, the combination with a machine having a brush rotating on a vertical axis and having a central opening, of a polishing pad placed beneath said brush and rotated thereby, said pad projecting substantially beyond the periphery of said brush so that the marginal portions of the pad will only lightly contact with the surface to be polished, and a block secured on the upper side of said pad and arranged in the central opening in said brush to retain the pad in its operating relation to said brush.

5. As a new article of manufacture, a polishing pad made of a disk of flexible fabric material having on one side a block substantially smaller in size than said pad and provided with a recess in its side adjacent said pad and the pad being secured to said block by means whereby the fabric is forced into said recess and which is arranged entirely away from the active surface of the pad.

6. As a new article of manufacture, a polishing pad made of a disk of flexible fabric material having secured to one side a block, and said pad having a series of weights adjacent its periphery for the purpose set forth.

7. In apparatus of the class described, the combination of a machine having a disk brush rotatably mounted on a vertical axis therein, said brush having a central opening therein, a disk arranged between said brush and the surface to be operated upon and driven by the frictional engagement of said brush with the upper surface of the disk, and a block secured on the upper surface of said disk and positioned in the central opening in said brush to prevent displacement of the pad relatively to the brush.

8. In apparatus of the class described, the combination of a machine having a rotatable member on which the weight of the machine is carried, a flexible polishing pad of fabric material loosely arranged between said member and the surface to be operated upon and of substantially larger diameter than said member whereby the peripheral portion of said pad will not be pressed against said surface by the weight of the machine, and means secured to the central part of said pad and loosely engaging said member for the purpose of preventing lateral displacement of the pad when operating.

In testimony whereof I affix my signature.

FRED W. YUTZLER.