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2 Sheets-Sheet 1

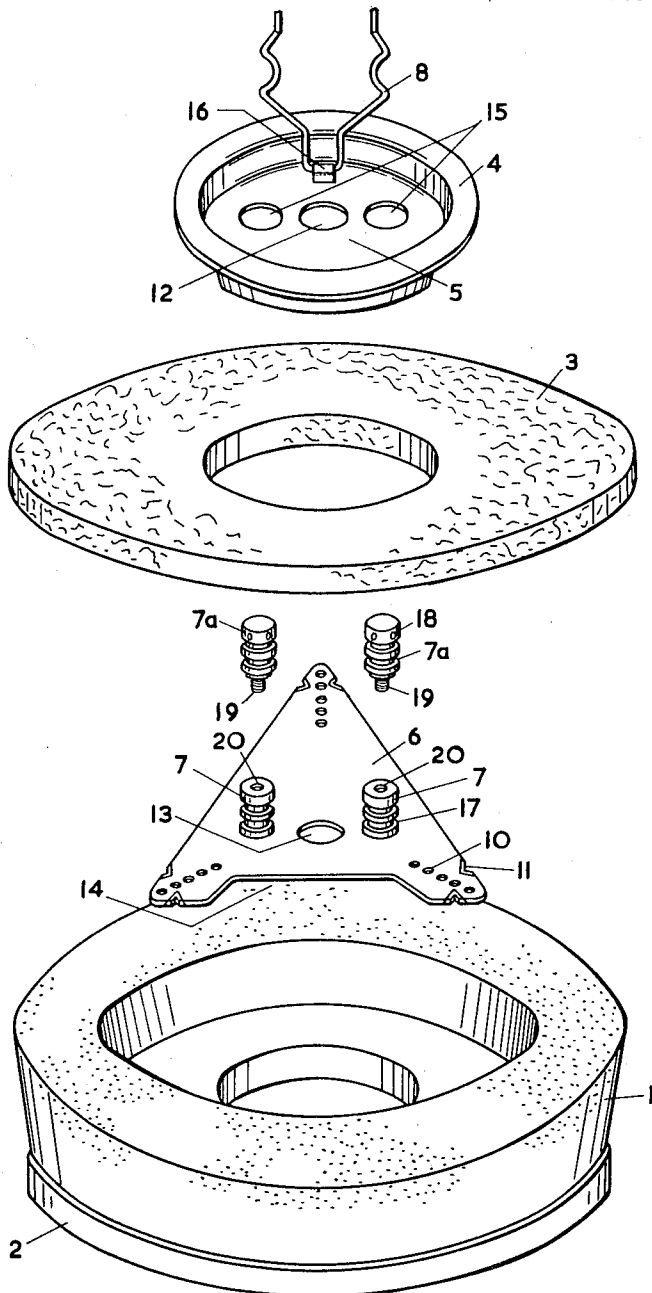


FIG. 1.

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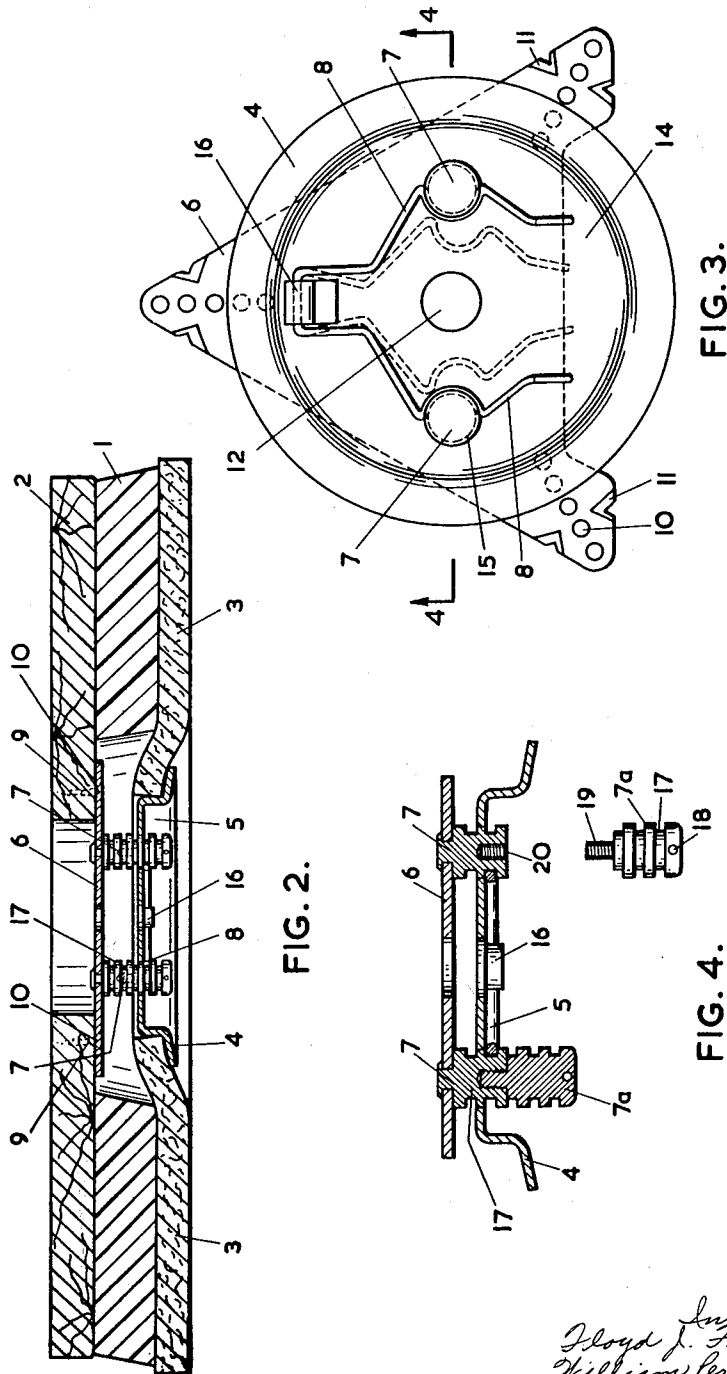
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ADJUSTABLE FLOOR PAD HOLDER

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4 Claims. (Cl. 15—230)

This invention relates generally to floor treating apparatus. More specifically the invention is concerned with a holder for fastening floor pads onto conventional floor treating devices.

Since the advent of floor treating devices, a variety of pads have been developed for the scrubbing, polishing, and buffing of different types of floors, such as tile, wood, or terrazzo. These pads are made in suitable shapes and sizes, and of various materials, for use with the many treating devices currently on the market. Previously these pads were merely centered under the machine brush and the frictional engagement between the pad and the bristles was sufficient to drive the pads. This method was shown to be far from satisfactory for quick and efficient operation since careful centering was required to prevent the pad from slipping, and upon tilting or lifting of the machine the pad was easily displaced and required readjusting into cleaning position.

For this reason, pad holders or adapters were developed which held the pad rigidly to the brush and which provided easy removal and replacement of the pad for cleaning or changing. One such pad holder which is now in common use is illustrated and described in United States Patent 2,995,765.

Pad holders of the type shown in Patent 2,995,765 do possess a number of weaknesses and disadvantages. For example, the fastener plate of such a pad holder is attached to the base of the brush by a plurality of screws each provided with cylindrical spacers or shims. These spacers are provided so that the fastener plate may be placed the desired distance from the base of the brush depending upon bristle length and pad thickness. This distance varies with different floor treating devices. Also in many applications a plurality of pads, or alternatively pads of varying thickness are required. In order to adjust this distance in pad holders of the type of Patent 2,995,765 the screws must be removed and new spacers and often screws provided. This awkward and time-consuming means of adjusting the distance between the base plate of the brush and the fastener plate of the pad holder is also unsatisfactory since the greater part of the driving force applied to the pad and holder by the base of the brush is transferred through these screws as well as the spacers used in the construction. In operation, the strain borne by the screws and spacers tends to weaken the structure and pull the screws from the wooden brush base. In addition, the frequent use of the screws to change the pads eventually ruins the screw holes in the brush base and new holes are required. Eventually, through use and wear the brush base is unable to firmly hold the screws which are necessary to secure the fastener plate thereto. Pad holders of the type shown in Patent 2,995,765 must also be provided with at least two sizes of base plate, the selection of one of which will depend upon the particular floor treating device to be used. Brush sizes and bases are not standardized. The seller must stock the different sizes for users with single machines, or if the user wishes to switch the pad holder from one machine to another he must buy several base plates.

It has also been found that the plastic dish-shaped lock plate utilized in Patent 2,995,765 often breaks or

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even melts and deforms under hard usage. This requires that the lock plate be replaced at frequent intervals. The turn buttons which hold the lock plate onto the fastener plate of 2,995,765 also break very easily under the strain of heavy loads or when they contact the floor, as occasionally happens. The small area of engagement between the turn buttons and the dish-shaped lock plate does not provide the firm fastening which is necessary in these pad holders because of the forces developed due to their rotation under pressure.

It is apparent that a need has arisen for a stronger, simpler, quickly adjustable floor pad holder which may be used with the floor treating devices now on the market. It is a main object of this invention to overcome the disadvantages of the prior art and fill this need.

According to the present invention an adjustable holding unit for use with a floor treating device includes a normally fixed fastener plate adapted for connection adjacent a brush base of said device, an adjustable locking plate, a resilient locking element adapted for connection thereto, said element being movable from a free position to a locked position, means adapted for connection to said fastener plate for co-operation with said locking element to maintain said unit in locked operating position including means for adjusting the spacing of said locking plate relative to said fastener plate.

In the drawings:

FIGURE 1 is an exploded view of the present invention with a fibrous pad shown in position;

FIGURE 2 is a cross-sectional view of the present invention with a pad attached;

FIGURE 3 is a top view of the present invention; and

FIGURE 4 is an enlarged cross-sectional view similar to FIGURE 2 and illustrating the drive posts in more detail.

Referring now to the drawings, the bristles 1 and backing 2 form a conventional brush adapted to be mounted for rotation on a standard floor treating device (not shown). The floor pad 3 is held in place over the bristles 1 of the brush by the dish-shaped lock plate 4. The central depression 5 of lock plate 4 is removably held on fastener plate 6 by means of drive posts 7 and spring clamp 8, the fastener plate 6 being rigidly attached to the base of the brush 2 by means of screws 9.

The fastener plate 6 is flush against the base 2, there being no shims or washers placed around the screws.

The invention also provides that a cushioning member or bushing may be disposed intermediate the fastening plate and the brush base. This would have the effect of inhibiting vibratory noise by the avoidance of direct surface-to-surface contact with the plate and the base. The provision of the cushioning member or bushing is of course an optional feature only. The fastener plate 6 is provided with a plurality of screw holes 10 to suit the various sizes of floor maintenance machines. Thus the present invention may be adjusted by moving the locking plate relative to the fastener plate, whereas in previous holders, the fastener plate is moved relative to the base plate.

The outer extremities of fastener plate 6 are notched as shown at 11 such that if the radius of the outer extremities is too large to fit the opening in the centre of brush 1, the tips of the plate may be easily snapped off with the aid, for example, of a pair of pliers. Fastener plate 6 is also provided with a centre hole 13 which is in axial alignment with a centre hole 12 of the lock plate 4, the combination of the two holes providing a channel for the dispensing of liquids. The fastener plate 6 is shaped with recess 14 so that easy access is provided to the mounting and releasing mechanism of the brush.

Lock plate 4, in addition to being provided with centre hole 12, is also provided with two holes 15 for the reception of drive posts 7. Spring clamp 3 is pivotally mounted upon lock plate 4 by means of hinge 16. As shown in dotted lines in FIGURE 3, lock spring 8 is disengaged from drive posts 7 by inward pressure upon the ends remote from the hinge.

The utilization of one spring clamp to hold the lock plate relative to the fastener plate allows for simple and quick adjustment or removal. However, if it were so desired a plurality of locking clamps could be provided in the same manner.

The drive posts 7 are rigidly mounted to fastener plate 6, and have peripheral grooves 17 which are dimensioned to receive spring clamp 8.

For efficient operation of the invention the drive posts 7 should be rigidly mounted on the fastener plate 6. However, the posts could also be made removable and need not necessarily be permanently and rigidly secured to the plate. It would be sufficient for efficient operation that the drive posts are rigid during actual operation of the invention.

The drive posts 7 comprise two portions (as illustrated in FIGURES 1 and 4), one being rigidly secured to fastener plate 6 and a second portion 7A which is threaded at one end 19 and may be received by a corresponding threaded hole 20 in the main portion of the drive posts. The portion 7A of the drive post is also peripherally grooved for the reception of spring clamp 8 and has channels 18 drilled diametrically in the post so that these drive post extensions 7A may be tightened onto main drive post 7, by use of a small nail, or the like.

In use the fastener plate 6 is rigidly fastened to brush base 2 by means of screws 9 passed through holes 10 of the fastener plate. As noted above, the fastener plate is adaptable to many different types of floor treating devices since it carries a plurality of holes 10 and is notched at 11 so that the outer corners may be snapped off if required. The floor pad 3 which it is desired to use is then placed over the bristles 1 of the brush and the dish-shaped lock plate 4 is placed over the pad. Depending on the length of the bristles 1 and thickness of the pad 3, the portions 7A of the drive posts are either removed or fastened to the main drive posts 7 (which are rigidly attached to fastener plate 6). The dish-shaped lock plate is pushed towards fastener plate 6 tightening the pad until the pad is held firmly in position. Lock spring 8 is then engaged in the appropriate groove 17 of the drive posts. In this embodiment there

is a total of five peripheral grooves provided which allows ample adjustability, although more or fewer could be provided. It should be noted here that the drive posts 7 are of large diameter and are rigidly mounted on fastener plate 6 to take any excess strain which may develop in the rotation of the brush and pad. The pad 3 may be quickly changed by merely releasing lock spring 8, removing the dish-shaped lock plate 4, and placing a new pad in position. The dish-shaped lock plate 4 is made from a solid material, preferably a metal, so that there is no deformation or breaking which is a problem with the soft, thin plastic type of lock plate.

Changes may of course be made to the embodiments of the invention herein described without departing from the spirit of the invention.

The new pad holder assembly presented above is believed to fill a definite need and will benefit the public at large.

We claim:

1. An adjustable pad holding unit for use with a floor treating device, said unit including a fastener plate adapted for attachment to a brush base of said device, a plurality of driving posts extending outwardly from said fastener plate, said driving posts being grooved at intervals along their length, an apertured locking plate adapted to fit over said driving posts, and resilient means associated with said locking plate and adapted to detachably engage the grooves of said driving posts, whereby the locking plate may be engaged to said posts at a variety of positions and adjustably spaced from said fastener plate.

2. An adjustable holding unit as defined in claim 1, including extensions for said driving posts, said extensions being grooved at intervals.

3. An adjustable holding unit as defined in claim 1, in which said fastener plate is generally triangular in shape and provided with weakened corner areas whereby said plate may be readily reduced in size.

4. An adjustable holding unit as defined in claim 1, in which liquid dispensing apertures are formed in axial alignment in said locking and fastener plates.

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