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FLOOR SANDING EDGER

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FIG. 1

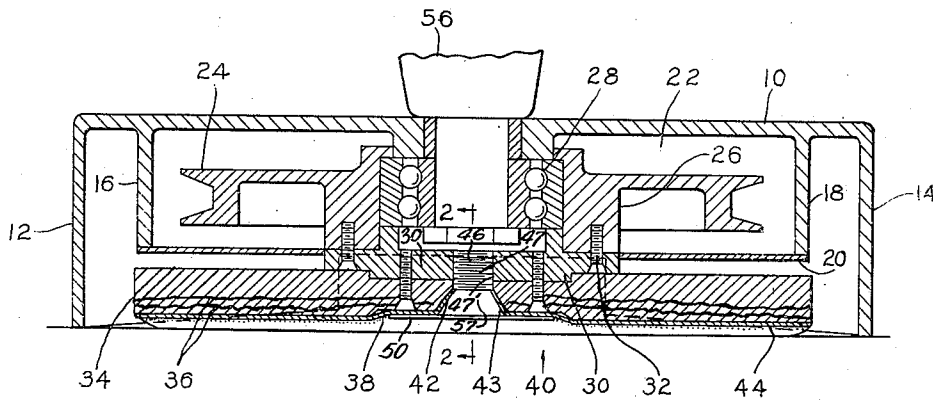


FIG. 2

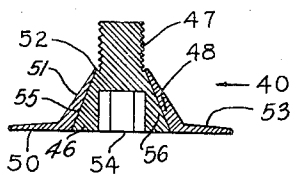
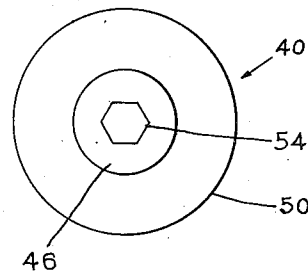


FIG. 3



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FLOOR SANDING EDGER

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Application October 9, 1946, Serial No. 702,229

1 Claim. (Cl. 51—197)

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My invention relates to an improvement in the floor sanding edger set forth in my application, Serial No. 671,752, filed on May 23, 1946, and which is provided with an edger construction employing a flexible disk of reinforced rubber which enables the edger to operate fully up to the baseboard mouldings, room corners, and elsewhere, said improvement being in the means of attaching the sandpaper disk.

In the use of sanding devices, as heretofore practiced, the surface of the floor which had become defective or unsatisfactory either from warping of the boards to make that surface uneven or from damage to the finish of the surface, is removed by a floor sanding operation. This operation, whether by a standard sanding machine or a sanding edger, embodies the application of a rapidly moving sheet of sandpaper to the surface to be reconditioned, and in the case of sanding edgers the sandpaper is applied for that purpose to a rotating disk.

The floor sanding disk of this invention is especially adapted to be employed as a sanding edger and the sanding disk is capable of operating fully up to the baseboard moulding, the room corners, and elsewhere.

It has been found that in using the floor sanding edger set forth in my application, Serial No. 671,752, filed May 23, 1946, there is a constant tendency for the bolt having its head engaging the grits of the rotating sandpaper both to wear the head and to tighten up. Since the sandpaper has to be frequently changed, this tightening produces a quite serious condition. Even when the fastening bolt does have a wrench socket it is found at times that it is almost impossible to move the bolt and loosen the sandpaper to get it out and to make the change. Furthermore, the loosening of the flaring face of the bolt head which contacts the sandpaper grits directly, tends to seriously wear that surface and finally render the bolt inoperative.

I have discovered a simple and effective means to remedy the difficulty of the bolt carried by the disk being tightened by usual or any unusual forces or stresses transmitted to the disk of the floor sanding edger when it is sanding a defective floor.

A threaded bolt assembly of simple and efficient design provided with a first element capable of being moved relatively to a second portion is employed for securing the sandpaper disk to the rubber pad. When the disk is rotated with the pad and sandpaper disk on its face under ordinary operating conditions, the first element of

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the fastening bolt assembly which contacts the grit surface of the sandpaper will remain in fixed position against that surface, and if it rotates at all, will rotate on the second element, thereby preventing any excessive tightening. And since the second element of the fastening assembly contacts only the metal of the first element, it will not tighten to an undesired degree, and it can be readily loosened for changing sandpaper disks.

It is the principal object of my invention, therefore, to provide means for attaching the sandpaper disk to the sanding disk of a floor sander or floor sanding edger; such that the attaching means will not be so tightened as to be difficult or impossible of removing, and such that the grit of the sandpaper itself will not tear or wear the contacting face of the sandpaper disk.

It is an object of my invention to provide a means of securing sandpaper to a sanding disk of a floor sanding edger and the securing means, comprising two elements adapted to be moved relatively to each other to prevent undue tightening of the fastening bolt and wear of the inner surface thereof against the grit surface of the sandpaper.

It is another object of my invention to provide in a floor sanding edger an attaching means for a sanding disk which normally maintains the sandpaper in operative relationship relative to the sanding disk and the floor, but which prevents binding between the attaching means and the sanding disk, thus reducing or substantially eliminating the tightening.

It is still another object of my invention to provide an efficient, yet simple holding means, for maintaining the sandpaper in its proper operative condition under all circumstances on the sanding disk of a floor sanding edger.

Other and further objects will appear from the detailed description of the device.

Fig. 1 is a sectional view of the floor sanding device disclosing the sanding disk secured to a rotating member.

Fig. 2 is a sectional view of the securing means which maintains the sandpaper in operative relationship with the sanding disk.

Fig. 3 is a plan view of the novel holding means.

Referring in detail to the drawings, a base member 10 has depending flanges 12 and 14 at its opposed sides. There are flange members 16 and 18 depending from the base 10 which are shorter in length than flanges 12 and 14, being spaced inwardly of the flanges 12 and 14. There are flange members (not shown) at both ends

of the base uniting the side flanges 12 and 14 with each other. There are also flanges at both ends of the device for uniting the flanges 16 and 18 to each other. A plate 20 is secured throughout its extent upon the bottom edges of flanges 16, 18 and the end flanges (not shown). The plate 20 is thereby secured in air-tight relationship by appropriate means to the bottom edges of the flanges 16 and 18 and the end flanges (not shown), forming a sealed chamber 22. This chamber 22 houses a large V-pulley 24 having a hub 26, which is removably held upon anti-friction bearings 28 by means of a plate 30 held upon the hub 26 by means of screws 32. The hub 26 has removably secured thereto a sanding edger disk 34 as shown in Fig. 1 of the drawing.

The sanding disk 34 comprises a body portion of rubber having reinforcing non-stretchable layers of materials, such as canvas 36 vulcanized into said body portion. These reinforcing strips 36 are to prevent the disk 34 from stretching when the disk 34 is being rotated for sanding a floor.

The body of the disk 34 is dished or convexed downwardly toward the surface of the floor which is to be engaged by the disk. There is a recess or depressed annular portion 38 in the under-side of the central portion of the disk body and is adapted to receive the broad head of the threaded bolt assembly 40. A threaded shank 47 passes through an opening 42 in the central portion of the disk 34 having a frusto-cone-shaped wall 43. The shank 47 is secured in a threaded opening 47' in the plate 30 and which holds upon the face of the disk opposed to the surface of the floor, a suitable sheet of sandpaper 44, thus replaceably secured to the outer face of the sanding disk or pad 34. The sandpaper sheet 44 will, of course, be held firmly in contact with the floor surface between it and the lower surface of the sanding pad during operation of the machine.

The threaded bolt assembly 40 comprises a substantially solid frusto-cone-shaped member 46 having a threaded shank 47 at its upper end which is adapted to be passed through the center of the sanding disk and screwed into the plate 30 as indicated at 46'. A second member 48 is provided with an annular flange 50 and has an external frusto-cone-shaped surface 51 which continues in a surface 53 on the upper side of the annular flange 50. The combined frusto-cone-shaped surface 48 and the annular surface 53 engage the sandpaper sheet 44 and hold it against the frusto-cone-shaped wall 43 and within the depressed annular portion 38, as clearly shown in Fig. 1. The member 48 is hollow and also has a frusto-cone-shaped inner surface 53. The solid frusto-cone-shaped member 46 has a frusto-cone-shaped surface 55 engageable when the parts are assembled with a correspondingly shaped and proportioned inner frusto-cone-shaped surface 56 of the member 48, all as shown in Fig. 2. The solid member 46 is provided with a wrench socket 54 through which by use of a socket wrench, the entire threaded bolt assembly 40 may be secured to the plate 30 with the abrasive sheet 44 fixedly held, as above described, but with the contacting surfaces of members 46 and 48 capable of relative movement, which, however, cannot tighten with a binding or immovable effect.

A hand knob 56 is secured to the base member 10 which may be grasped by the hand of a user of this device and the device tipped forward, as

shown in Fig. 1, so that the front edge of the sanding disk 34 may engage the surface of the floor for sanding the same. A source of power, not shown, is adapted to actuate the pulley 24 for rotating the sanding disk 34.

When the sanding disk is being operated and the same is in contact with the floor and customary strains or stresses are imparted to the sanding disk 34, the sanding disk 34 and/or sandpaper 44 will impart the stress or strain to the movably mounted member 48 and the member 48 will move relatively to the movement of the sanding disk 34, sandpaper 44, and member 46, and the relative movement of the member 48 with respect to the sandpaper and sanding disk prevents tightening damage to the fastening means.

When the sanding disk 34 is being rotated for sanding a defective floor, it will have a centrifugal action. Under normal operating conditions, the sandpaper 44 is maintained in operative position between sanding disk 34 and the floor, and the sanding disk 34, sandpaper 44, and the threaded bolt assembly 40, all rotate as one unit. As before stated, where some unusual force or strain is imparted to the rotating disk 34, the hollow cone member 48 does not move as a unit with the sanding disk, but has a relative movement thereto, and as a result the sandpaper will not be damaged or torn at the point where the annular flange 50 of the hollow cone 48 maintains the sandpaper 44 in an engagement with the sanding disk 34.

I claim:

35 In a surface finishing device embodying a hub, a supporting disk secured to said hub, said disk having a relatively shallow central depression and a central aperture, a sheet of abrasive paper adapted to be positioned on the outer surface of the disk, of means for frictionally securing said sheet to said disk comprising an annular member having a frusto-cone shaped central depression for passage through the paper and entry into the aperture in said disk, said central portion being 40 surrounded by a flat annular flange for holding a central portion of the paper within the shallow depressed portion of the disk, and a securing member having a threaded shank adapted to be secured in the hub, said securing member having 45 a frusto-cone shaped head for closely engaging in a metal-to-metal contact substantially the entire interior surface of the frusto-cone shaped central depression of the annular member to substantially seal the same against entry of foreign 50 matter and provide relative movement between said members.

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