

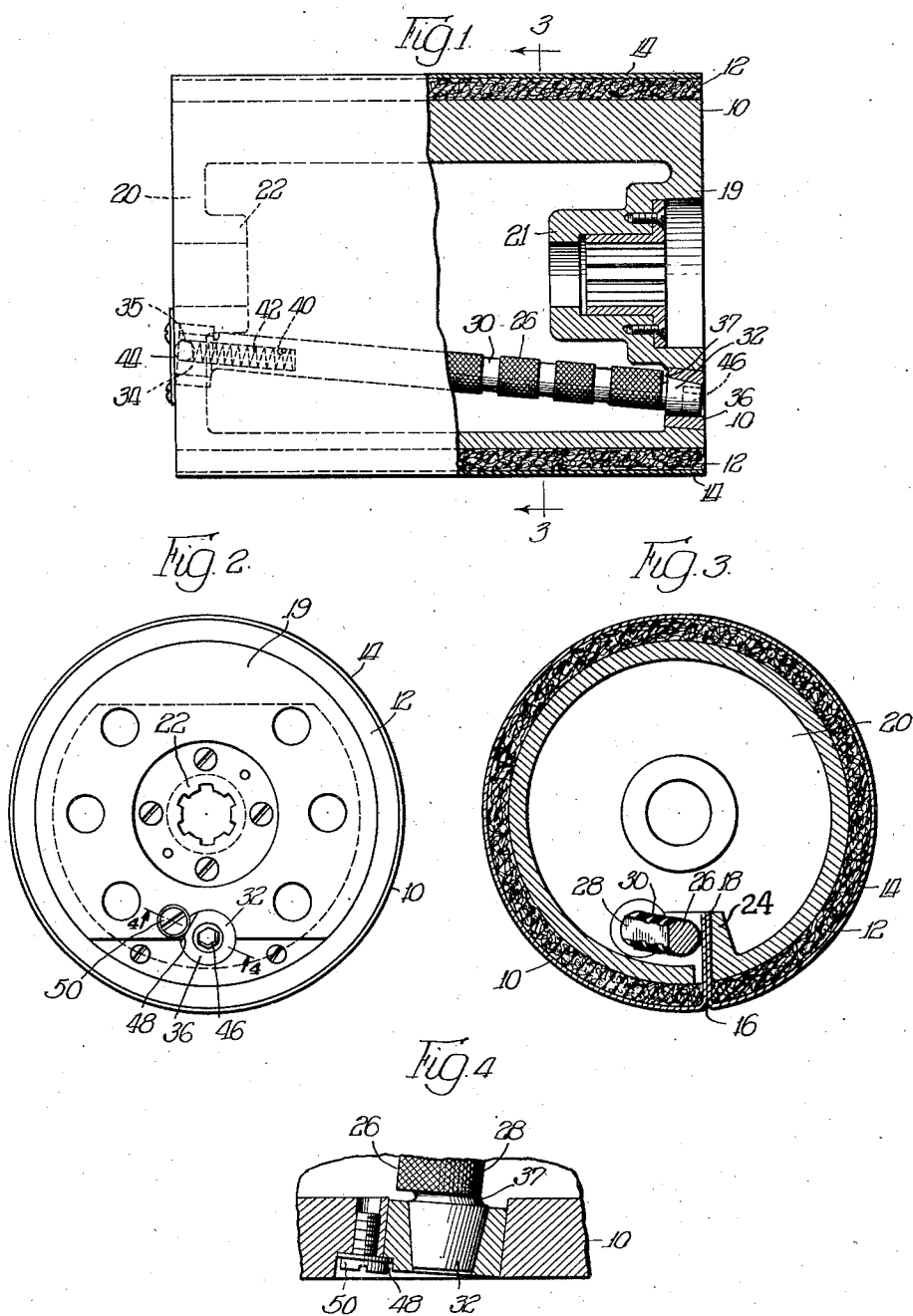
Feb. 10, 1948.

F. J. KOENIG

2,435,685

FLOOR SANDING MACHINE

Filed Dec. 29, 1945



INVENTOR.

Frank J. Koenig

UNITED STATES PATENT OFFICE

2,435,685

FLOOR SANDING MACHINE

Frank J. Koenig, Chicago, Ill., assignor to Skilsaw, Inc., Chicago, Ill., a corporation of Delaware

Application December 29, 1945, Serial No. 637,913

5 Claims. (Cl. 51—194)

1

The present invention relates to improvements in floor sanding machines and more particularly to the sanding drums used therewith.

Sanding drums are usually made from castings having a covering of felt, rubber or other resilient material to serve as a backing for a sheet of abrasive material folded over the drum and having its ends tucked into one or more slots in the drum surface. These sheet ends are locked or clamped in place within the interior of the drum so that the sheet will not loosen nor slip while performing work.

If the sheet loosens or slips or becomes torn or cut by the clamping device it may be ripped from the drum, torn into many pieces and clog up the dust exhaust mechanism requiring a work stoppage while the machine is taken apart, cleaned out and re-assembled.

Under the high speed of the drum, which may approximate 4000 R. P. M. free speed, the consequent vibration and the braking action from the floor surface during work, the present clamping devices tend to loosen occasionally or, when tightened sufficient tend to bite through the sheet ends causing the undesired results.

One object of the present invention is to provide a floor sanding drum having a clamping device for abrasive material that will not tear the same nor loosen under vibration and braking action in work.

Another object is to provide a floor sanding drum having an abrasive sheet clamping device that can be moved toward or away from its clamping position only through a predetermined effort.

A further object is to provide a floor sanding drum having an abrasive sheet clamping device that is easily assembled within the drum, is sturdy, and will require little maintenance or repair.

Other objects will be apparent from an understanding of the following description and drawings wherein one embodiment of the invention is set forth and explained for purposes of exemplification.

In the drawings:

Fig. 1 is a view in side elevation of my improved sanding drum with a portion of the drum broken away to show the interior mechanism.

Fig. 2 is a view in end elevation of the same.

Fig. 3 is a view in section of the drum taken on line 3—3 of Fig. 1.

Fig. 4 is an enlarged view taken on line 4—4 of Fig. 2.

With reference to the drawings it will be seen that the drum may be of a customary type in-

2

cluding a cylindrical portion 10 covered by a resilient material 12 such as felt, rubber or the like serving as a backing member for a sheet 14 of abrasive material. Preferably the drum surface is slotted longitudinally to form a throat 16 to receive the opposed ends 18 of the abrasive sheet therein. For smoothness of operation and better quality sanding the slot 16 may be at an angle to the axis of the drum as shown in Fig. 3. At its ends the drum may be closed by end members 19 and 20 with hub members 21 and 22 for mounting over a driven shaft (not shown).

The clamping means for the sheet ends 18 within the slot or throat 16 may include the formation of an inwardly turned flange 24 along one edge of the slot for abutment against one face of an end 18. An eccentric rod or bar 26 is suitably journaled in the drum end members 19 and 20 respectively for rotation into clamping action against the sheet ends 18 and the abutting flange 24 to hold them in place. Similarly a rotation of bar 26 in an opposite direction will permit the sheet ends 18 to be removed from or inserted into the throat and between the bar 26 and its cooperating flange 24. To provide ample clearance between flange 24 and bar 26 for ease of changing abrasive material, bar 26 may be formed with a flattened portion 28. Oppositely disposed to the flattened portion 28 the rod 26 may have its maximum clamping eccentricity for a maximum lock on the sheet ends 18. The surface of bar 26 may be knurled to grip the sheet ends and pull them into the slot and tightly to the drum surface on clamping the same. It has been found that a completely knurled bar tends to cut the sheet ends and permit the material to tear loose. Preferably the knurled surface has relieved portions 30 at intervals along its surface to remedy this tendency.

At one end the bar 26 is formed with a tapered journal 32. At its other end a journal 34 may be formed of a normal cylindrical shape but in axial alignment with journal 32. An open ended bushing 35 receives the journal 34 and is seated in a suitable opening in the end member 20. A bushing member 35 is inserted in a suitable opening in the end member 19 and has a bushing tapered to correspond to and receive the tapered journal 32 in a normally binding or wedging relationship. The bar 26 may be relieved or undercut rearwardly of the journal 32 as at 37 to space the main body portion of the bar from contact with the bushing 32 and thus assure as perfect a wedging or binding action between the journal 35 and bushing as possible.

To assure a binding action between these parts the rod 26 may be yieldingly urged toward the bushing 36. As shown this may be achieved by forming a recess 40 within the journal 34 which may extend into the main body portion of eccentric rod 26. A spring member 42 is shown inserted therein to be seated at one end against the bottom of the recess and at the other end to bear under compression against a plate 44 covering the opening for the bushing 35. Plate 44 also holds bushing 35 in its seat.

The mechanism described when tightened assures a binding grip on the sheet ends 18 regardless of vibration and the pull on the abrasive material when in work. The clamping rod will not loosen from its clamped position without a predetermined effort on the part of an operator or other person desiring to replace a worn abrasive sheet.

Various means for rotating the rod for clamping or replacement of abrasive sheet material may be used. For simplicity the means shown includes a hexagonal recess 46 formed in the end of the tapered journal 32 which may be formed as shown in the shape of a truncated cone. Tapered bushing 36 is similarly truncated and open at its outer end to permit accessibility to the hexagonal recess 46 of a suitable wrench (not shown) that will positively assure an operable rotation of rod 26. If tightly wedged, the pressure on the tapered journal portion of the rod 26 through the wrench permits movement of the rod inwardly against the action of spring 42 to loosen the binding relation.

The effect of the binding relation is such that unless locked in place, bushing 36 may turn with journal 32 when a wrench is used on the recess 46. As one means of locking the bushing against rotation a shoulder 48 may be formed on bushing 36 as shown in Fig. 2 and a bolt 50 inserted through the drum end adjacent the bushing to overlie the shoulder 48 and bear against the upraised abutment thus formed. This bolt also serves to hold bushing 36 in its opening against the spring pressure.

It will be understood that the invention may be incorporated into various other embodiments by those skilled in the art without departing from the spirit and scope of the invention.

I claim:

1. The combination with a sanding drum having an abrasive sheet end receiving slot in the surface thereof and an eccentric clamping bar journaled in said drum for holding said sheet clamped to said drum against a flange adjacent said slot, of means for preventing said bar from rotating from a clamped position except upon a predetermined effort, said means including a tapered journal on one end of said bar, a correspondingly tapered bushing mounted on said drum for receiving said tapered journal and movable into a binding relation therebetween and means mounted on said bar and cooperating with said drum for urging said journal toward a binding relation with said bushing.

2. The combination with a sanding drum having an abrasive sheet end receiving slot in the surface thereof and an eccentric clamping bar journaled in said drum for holding said sheet clamped to said drum against a flange adjacent said slot,

of means for preventing said bar from rotating from a clamped position except upon predetermined effort, said means including a tapered journal on one end of said bar, a correspondingly tapered bushing mounted on said drum for receiving said tapered journal and tending to form a binding relation therebetween, means mounted on said bar and cooperating with said drum yieldingly urging said journal into a binding relation with said bushing and means cooperating with said bar for positively rotating the same at will against any binding relation.

3. The combination with a sanding drum having an abrasive sheet end receiving slot in the surface thereof and an eccentric clamping bar journaled in said drum for holding said sheet clamped against a flanged portion adjacent said slot, of means for preventing said bar from rotating from a clamped position except upon a predetermined effort, said means including a tapered journal on one end of said bar, a correspondingly tapered bushing mounted on said drum for receiving said tapered bushing, spring means mounted on said bar and cooperating with said drum to urge said tapered journal and said bushing into a binding relationship, and means cooperating with said bar for positively rotating the same into or out of clamping position against any binding relation between said journal and said bushing.

4. The combination with a sanding drum having an abrasive sheet end receiving slot in the surface thereof and an eccentric clamping bar journaled in said drum for holding said sheet clamped to said drum against a flange adjacent said slot, of means for preventing said bar from rotating from a clamped position except upon a predetermined effort, said means including a tapered journal on one end of said bar, and a correspondingly tapered bushing mounted on said drum for receiving said tapered journal, said journal being movable into a binding relation with said bushing.

5. The combination with a sanding drum having an abrasive sheet end receiving slot in the surface thereof and an eccentric clamping bar journaled in said drum for holding said sheet clamped to said drum against a flange adjacent said slot, of means for preventing said bar from rotating from a clamped position except upon a predetermined effort, said means including a tapered journal on one end of said bar, a correspondingly tapered bushing mounted on said drum for receiving said tapered journal, said journal and said bushing being unobstructed for movement into a binding relationship therebetween, and means mounted on said bar and cooperating with said drum for continuously urging said journal toward a binding relationship with said bushing.

FRANK J. KOENIG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
220,993	Seelye	Oct. 28, 1879
1,975,630	Boettcher	Oct. 2, 1934