Jan. 13, 1970 J. S. McCAY 3,488,889

PORTABLE COMBINATION FLATTENED CYLINDRICAL SANDER-GRINDER

Filed Jan. 23, 1968 2 Sheets-Sheet 1

FIG. 1.

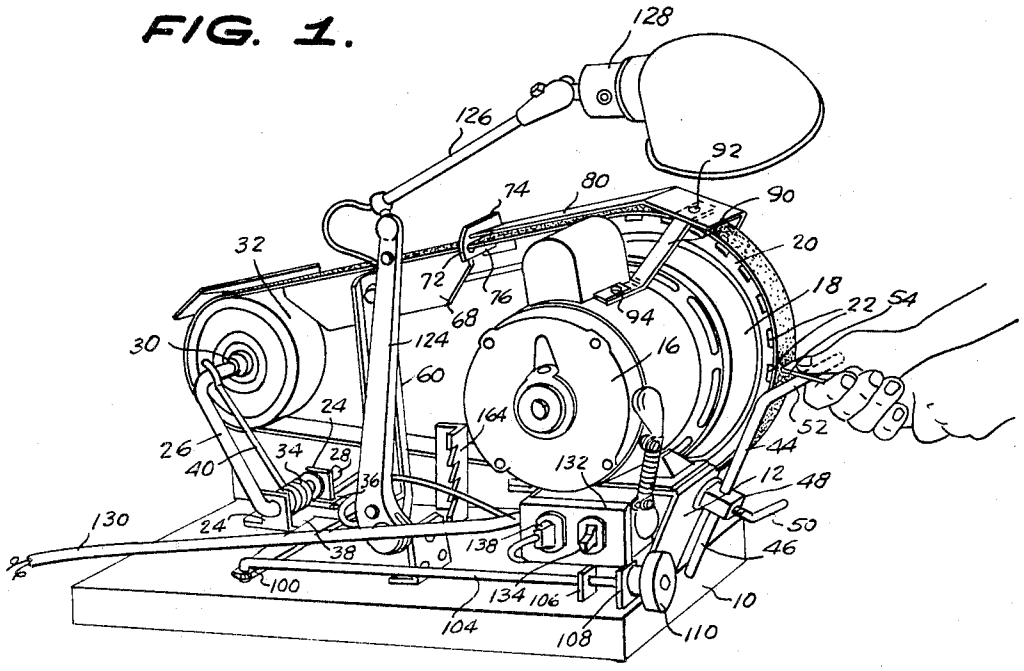
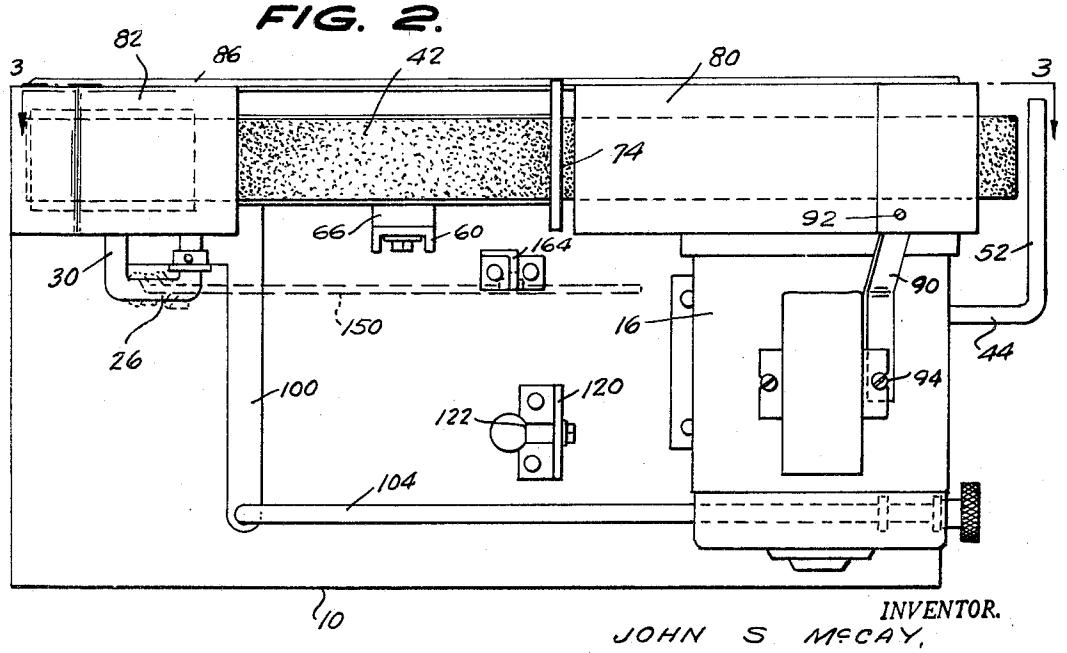


FIG. 2.



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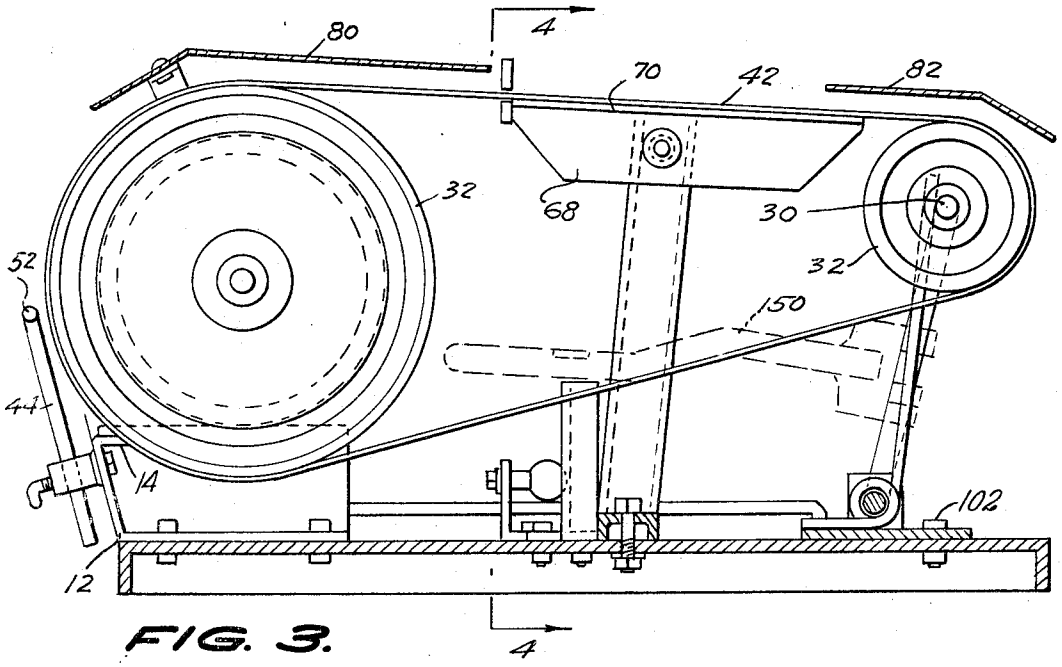


FIG. 3.

FIG. 5.

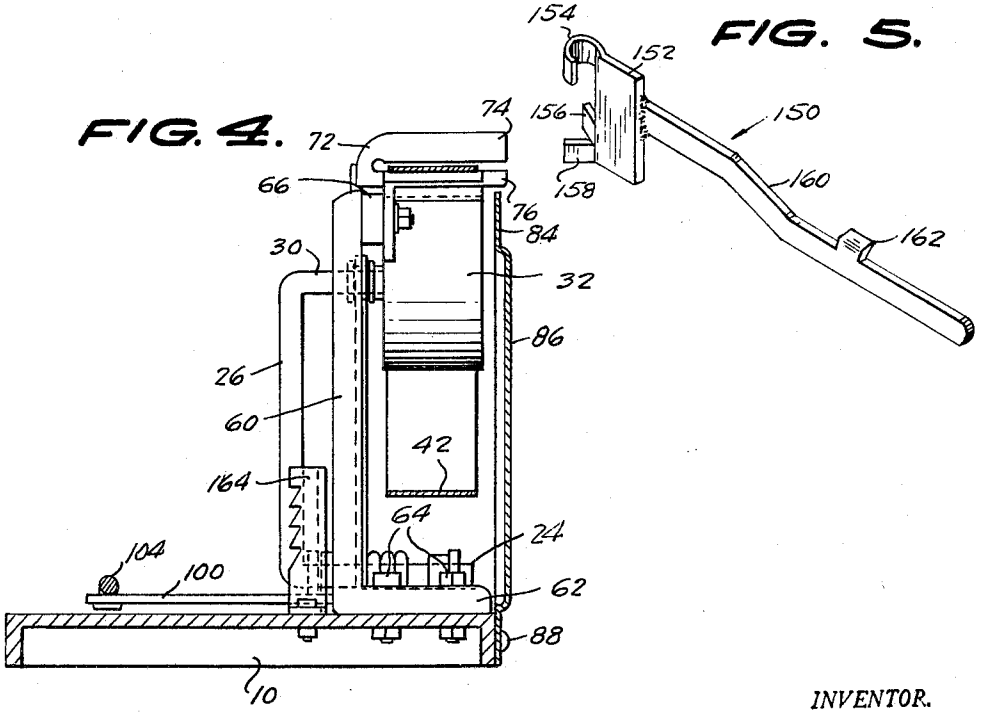


FIG. 4.

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PORTABLE COMBINATION FLATTENED CYLINDRICAL SANDER-GRINDER

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U.S. Cl. 51—135 6 Claims

ABSTRACT OF THE DISCLOSURE

A portable sander-grinder including a fixed drive wheel; a driven wheel movable toward and from said drive wheel; means biasing said driven wheel away from said drive wheel; an abrasive belt passing around both wheels; means for transverse angular adjustment of the axis of the driven wheel relative to the axis of the drive wheel; a work support adjacent said drive wheel and a work support under said belt between said drive wheel and said driven wheel.

It is an object of this invention to provide a portable belt-type abrasive device which will be extremely compact and will permit presentation of the work either against a cylindrical, moving, abrasive surface or against a flat, moving, abrasive surface.

It is a further object of this invention to provide a machine of the type aforesaid in which one belt may be removed and replaced with another belt without physical alteration of the machine.

It is a further object of this invention to provide a machine as aforesaid in which each of the work portions of the abrasive surface is equipped with an easily adjustable tool holder.

It is a further object of this invention to provide a machine as aforesaid in which, by means of a simple adjustment, any belt can be brought into true running alignment between the driving and driven pulleys.

The above and other objects will be made clear from the following detailed description taken in connection with the annexed drawings, in which:

FIGURE 1 is a perspective view of the machine as a whole;

FIGURE 2 is a top plan view of FIGURE 1, with the light holder omitted;

FIGURE 3 is a view partially in section taken on the line 3—3 of FIGURE 2;

FIGURE 4 is a view partially in section taken on the line 4—4 of FIGURE 3; and

FIGURE 5 is a perspective view of a handle useable in changing belts.

On a belt-type machine, such as is the subject of this application, the only difference between sanding and grinding is the nature of the abrasive affixed to the belt. Generally speaking, sanding belts are used on wood while grinding belts are used on metal but so far as the machine is concerned, whether it be used as a sander on wood or a grinder on metal is completely immaterial. Therefore, as used herein, the word "sander" shall include "grinder" and vice-versa.

Referring now to FIGURE 1, the machine is set up on a portable base member **10**, to which is secured a bracket **12** having a horizontal arm **14** spaced above the base **10** and acting as a support for a motor **16**. A drive pulley **18** is mounted directly on the motor shaft and has a rim **20** provided with ventilating apertures **22**.

At the rear end of the machine a pair of brackets **24** are secured to the base **10** and serve as a mounting for a U-shaped member **26**. A lower horizontal leg **28** of the U-shaped member **26** is pivotally supported in the brackets **24** while an upper parallel leg **30** forms the axle for a driven pulley **32**.

A spring **34** is coiled around the leg **28** and has one end **36** bearing on a plate **38** of which the brackets **24** are integral tongues. The opposite end **40** of the spring **34** bears against the leg **30** in such a direction as to bias the pulley **32** away from the drive pulley **18**.

An abrasive belt **42** passes around both the pulleys **20** and **32** and is driven thereby. If it is desired to do a grinding job on the belt **42** as it passes around the pulley **20**, use is made of a tool holder **44** which is an L-shaped member having one leg **46** passing through a block **48** secured to the bracket **12**. An L-headed set screw **50** is threaded into the block **48** and secures the member **44** in any desired position. In FIGURE 1, the member **44** is shown as having its upper L-head **52** swung parallel to and spaced from the belt **42** as it passes over the drive pulley **20** which permits presentation of a work piece **54** to the belt, as shown in FIGURE 1.

To form a work support and work stop in the flat portion of the belt **42**, the following is provided: a channel iron **60** is bent at its lower end to provide a horizontal leg **62** which is bolted at **64** (FIGURES 3 and 4) to the base **10**. At its upper end the channel **60** is bolted through a spacing washer **66** (FIGURE 2) to a work support **68** which has a laterally projecting work supporting portion **70** underlying the belt **42**. To one end of the portion **70** there is welded a work stop **72** which is a U-shaped member having one leg **74** overlying the belt **42** with a lower leg **76** underlying the belt. When a work piece is pressed against the belt **42** within the area of the backing plate **70**, the leg **74** serves as a stop to prevent the work being drawn with the belt into the casing member **80**.

A similar casing member **82** guards the top portion of the pulley **30**. Guards **80** and **82** are integral parts of a back guard **84** which, as shown in FIGURE 4, overlies most of one side of the machine and is rigidified by strengthening ribs **86**. The guard as a whole is bolted at spaced points **88** in the frame **10**. A strengthening strip **90** is riveted at one end **92** to the portion **80** and is bolted at the other end **94** to the frame of the motor **16**. Member **90** is lightly riveted at **92** to the guard **80** so as to permit a slight pivoting of the member **90**. The bolt **94**, securing the member **90** to the motor **16**, engages an open slot in the member **90** while the bolts **88**, securing the member **84** to the frame **10**, are similarly engaged in open slots. When it is desired to change a belt, bolts **88** and **94** simply are loosened so the entire member **84** with guards **80** and **82** may be quickly disengaged from the machine so as to permit replacement of the belt.

In replacing the belt, the member **26** is drawn back against the spring **40** so as to relieve tension on the belt and permit easy removal and replacement. While this can be done simply by grasping and pulling on the member **26**, in many cases the task will be simplified by the use of the handle **150** shown in FIGURE 5. The handle **150** is made up of a plate **152** having an upper tongue **154** bent into hook formation and a pair of tongues **156** and **158** which are oppositely bent out of the plate **152** to form a trough opposing the hook **154**. An elongated handle **160** is welded to the plate **152** and has, near its free end, a bent lug **162** for engagement with a ratchet **164** secured to the base **10**. The hook **154** and trough **156–158** are engaged with the leg **26**, as shown in FIGURE 2. Downward pressure on the handle **160** draws the leg **26** toward the driving pulley **18** to release tension on the belt **42**. The lug **162** then is engaged with the ratchet **164** to hold the handle **160** down. When the belt **42** is replaced, the lug **162** is disengaged, and tension on the belt is restored. If desired, the plate **152**, without the lugs **154–158** may be permanently welded to the leg **26**.

It is doubtful whether any two belts, even of the same type, size and manufacture, will run precisely the same on any given pair of pulleys. For this reason, means are provided for easy adjustment to bring the belt into true running condition, that is, so that the belt will run smoothly without lateral deviations. To do this, the following mechanism is provided.

An arm **100** is welded to the plate **38** on which the brackets **24** are mounted. The plate **38** is secured to the base **10** by means of a single bolt **102** and is, therefore, pivotal. At its free end, the member **100** is pivotally engaged by a rod **104** which passes freely through bearing members **106** and **108** welded to the base **10** and has threaded engagement with knurled knob **110** secured to the opposite end of the rod **104** and, when turned, moves the rod **104** axially backward and forward with resultant pivoting, by means of the member **100**, of the plate **38**. This serves to provide an angular adjustment of the axis of the pulley **32** so that almost instantaneously any newly applied belt can be brought into proper running condition.

Bracket **120** is welded to the base **10** and by means of a stud **122** is pivoted to an arm **124** which, at its opposite end, is pivoted to an arm **126** which in turn is pivoted to a light fixture **128**. This provides universal adjustability for the light **128** relative to work presented either to the tool holder **52** or to the work support **70**. A cable **130** is used to plug the machine into a suitable outlet and the cable enters a junction box **132** which is provided with an on-off switch **134** for starting and stopping the motor **16** and is also provided with an ordinary plug-in socket **136** to receive a plug **138** which connects the lamp **128** to the power supply. Preferably, the junction box is arranged so that if the plug **138** is in place, as shown in FIGURE 1, the lamp will go on when the machine is plugged in. This is a feature of safety and convenience and serves as a positive indication that the motor is ready to operate.

While certain structural details have been disclosed and discussed in connection with this application, it is very clear that numerous structural changes will suggest themselves to those skilled in the art. For this reason, it is not intended to limit this invention to the precise details disclosed herein but only as set forth in the subjoined claims.

What is claimed is:

1. In a belt-type sander having a driving pulley and a driven pulley with the drive pulley journaled on a fixed base and the driven pulley on a mounting such that its axle is pivoted to swing about an axis parallel to said base and also pivoted to turn about an axis normal to said base, the improvement comprising a rod slidably mounted relative to said base, said rod having one end pivotally engaging said driven pulley mounting and its opposite end threaded into a turnable handle whereby turning said handle will shift said rod axially to adjust said mounting about said vertical axis.

2. A belt-type sander as set forth in claim **1**, including resilient means on said mounting for biasing said driven pulley away from said driving pulley.

3. A belt-type sander as set forth in claim **2**, in which said resilient means comprises a coiled spring having its coil anchored on said mounting with one end bearing on said mounting and the other end bearing on said driven pulley axle.

4. A belt-type sander as set forth in claim **2**, including a handle mountable on said mounting to oppose said biasing means whereby to relieve tension on a sander belt.

5. A belt-type sander as set forth in claim **4**, including means to retain said handle in belt tension relieving condition.

6. A belt-type sander as set forth in claim **1**, including a single guard plate covering one side of said pulleys and the top of said pulleys while exposing a portion of a sanding belt running flat between said pulleys and exposing another portion of said belt on the surface of said drive pulley.

References Cited

UNITED STATES PATENTS

2,893,176	7/1959	Bruck	51—170.4
3,312,116	4/1967	Blevins	51—170.4 X

FOREIGN PATENTS

555,382	4/1958	Canada.

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U.S. Cl. X.R.

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