BELT GRINDING AND POLISHING DEVICE

Fig-1

Fig-2

INVENTOR.
Arthur N. Emmons

BY
Bodell & Thompson
attorneys
INVENTOR.

Arthur N. Emmons

BY

Botello & Thompson

attorneys
This invention relates to abrasive belt grinding apparatus, and more particularly to a backstand structure.

The manufacture and construction of abrasive belts has advanced to the point where such belts are presently used for performing grinding and polishing operations that heretofore were performed by other means, such as stones, dressed wheels, and the like.

To a great extent, abrasive belts are used on machines consisting of an arbor journalled in the machine and operatively connected to a motive power, and a backstand consisting of a suitable supporting arrangement on which an idler pulley is journalled. These machines are relatively expensive, the cost of the same being prohibitive for small shops that occasionally have grinding and buffing operations which can be conveniently and economically performed on such machines.

This invention has as an object, an abrasive belt grinding mechanism in the nature of a backstand embodying a particularly simple structure which is economical to manufacture and which retails at a price which is only a fraction of the cost of abrasive belt grinding machines, and which may be conveniently mounted upon a work bench, or the like, in juxtaposition to an ordinary bench grinder, the latter furnishing the motive power for the device and serving as the arbor, or lower pulley, of the abrading belt mechanism, the arrangement being such that the backstand structure does not in any way interfere with the regular and ordinary use of the bench grinder as such, all whereby a small shop, garage, or the like, can acquire the backstand structure at a very low cost and which, in conjunction with an ordinary bench grinder, provides an efficient belt grinding mechanism.

The invention further contemplates a device of the type referred to in which a driving pulley is journalled in the base portion of the device to be belt driven by any suitable motor.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a front, elevational view of the backstand device embodying my invention illustrated in combination with a bench grinder.

Figure 2 is a side elevational view of the backstand device shown in Figure 1.
the base. The bracket 28 is positioned under action of spring 34 by an adjustable stud 36 threaded into a projection 31 of the bracket and engaging a stop 38 mounted in plate 29.

The shaft 27 is mounted in a block 40 arranged in a rectangular slot formed in the forwardly extending portion of the bracket 28, the slot opening downwardly, and the block being pivotally mounted therein on a pin 41. The shaft 27 is secured in the block 40 as by means of a set screw 42, see Figure 3. The purpose of so pivotally mounting the block and the shaft 27 carried thereby, is to adjust the axis of the pulley 16 in order to make the abrasive belt 44 track properly. This pivotal movement is brought about by manipulating a screw 45 threading through the bottom wall of the slot and engaging the block 40. The bracket 28 is formed with a forwardly extending portion 46 which serves as a handle to conveniently move the idler pulley assembly downwardly toward the base against the action of spring 34 for convenience in changing abrasive belts.

The backstand apparatus is securely mounted on the bench 50 in juxtaposition to a conventional bench grinder 51 so that the upper idler pulley 16 is positioned above and in alignment with a pulley 52 mounted upon the base of the bench grinder. This pulley may be of any suitable structure and if desired, the conventional emery stone used on such grinders can serve as a pulley. If desired, the arm 17—18 can be swung to horizontal position by loosening the cap screws 24.

In Figures 5 and 6, the base member 10 is formed with a forwardly and upwardly extending portion 54 in which a shaft 55 is journaled and on one end of which a driving pulley 55 may be mounted, and on the opposite end a belt pulley 57 which preferably is formed of hard felt, rubber, canvas, or the like, to present a slightly yielding surface. With this arrangement, the shaft may be belt driven by a motor mounted on the bench to the rear of the base 10. Deburring, polishing, and like grinding operations, may be performed on the contact roll 57, and irregular surfaces may be treated on the belt above the contact roll.

It will be observed that the structure described is particularly simple and economical to manufacture. The channel shaped arm 17—18 affords a particularly rigid support for the upper idle pulley, and the elongated slot 30, formed in the bottom wall 17 thereof, permits the use of abrasive belts over a wide range of length.

The device, as illustrated in Figures 1 to 4, effectively converts an ordinary bench grinder into an abrasive belt mechanism without in any way interfering with the usual operation of the grinder. The structure, Figures 5 and 6, with the lower pulley arbor journaled in the base member, is advantageous where it is desired to use the machine continuously on production work. When the structure is employed in conjunction with the bench grinder, one may be placed in juxtaposition to each end of the grinder.

To use the structure shown in Figure 1 on the right hand end of the grinder 51, the block 40 is reversed to position the pulley 16 on the left side of the bracket 28, and the pivot pin 41 is positioned in a hole 56 for this purpose, and the adjusting screw 45 transferred to the threaded aperture 59, see Figure 3. Preferably, the upper pulley 16 is partially enclosed by an arcuate guard 55 secured to the bracket 28 as by screws 46. A plate 52 is positioned intermediate the upper pulley 16 and the lower pulley and arranged to engage the rear side of the forward run of the belt 44. The plate is formed with a rearwardly extending shank 53 provided with an elongated slot 54 to receive a fastening screw 65.

What I claim is:

An abrasive belt grinding and polishing device comprising a base member adapted to be mounted on a bench and having an upwardly extending portion, an arm member of channel formation with the sides thereof terminating in spaced apart disks overlapping said upstanding portion of the base, and means cooperating to secure the arm to said base member, the wall intermediate the sides of said arm being formed with an elongated slot, a plate mounted on the arm, fastening means extending through said slot and being cooperating to secure the plate to the arm, a bracket pivotally mounted upon said plate on an axis extending transversely of the arm, an abrasive belt pulley journaled on the bracket, and means yieldingly urging the bracket about said axis to move said pulley in a direction away from the base.

ARTHUR N. EMMONS.

REFERENCES CITED

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

<table>
<thead>
<tr>
<th>UNITED STATES PATENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>681,636</td>
</tr>
<tr>
<td>747,699</td>
</tr>
<tr>
<td>1,133,479</td>
</tr>
<tr>
<td>2,008,808</td>
</tr>
<tr>
<td>2,313,254</td>
</tr>
</tbody>
</table>