UNITED STATES PATENT OFFICE

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ROUTER ATTACHMENT FOR WOODWORKING MACHINES

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This invention relates to wood-working machines, and is for an attachment applicable to such machines by means of which routers, or other wood-working tools which must be operated at a high speed can be used on wood-working machines normally operating at a lower speed.

Routers in order to do satisfactory work, must be driven at a speed very much in excess of the speed required for the ordinary rip or cross cut saw. According to the present invention there is provided an attachment applicable to wood-sawing machines by means of which a router or similar tool having a much higher operating speed can be used. The attachment is especially designed for use with wood-working machines of the type wherein the saw is carried directly on the motor shaft and wherein the saw and motor are located above the saw table and are reciprocable across the saw table.

The present invention is especially designed for use with a wood-sawing unit of the type disclosed in my copending application.

The invention may be readily understood by reference to the accompanying drawings showing one particular embodiment of my invention, and in which:

Figure 1 is a top plan view of the attachment applied to a motor;

Figure 2 is a side elevation;

Figure 3 is a view partly in section and partly in elevation showing a portion of a driving motor with the attachment applied thereto;

Figure 4 is an end view of the outer end of the attachment; and

Figure 5 is a similar view of the other end of the attachment.

In the drawings, 2 designates a motor which drives a shaft 3. The motor 2 is preferably carried on a wood-working machine of the type disclosed in my said application, and the shaft 3 is ordinarily provided with a saw wheel. In place of a saw wheel a friction wheel 4 is mounted on the shaft 3. Inasmuch as the saw wheel and the disk 4 are interchangeable on the shaft 3, the attachment can be readily used in place of the saw when desired.

The motor 2 is provided with a lug 5 on the top thereof. This lug is ordinarily used to support a removable guard for the saw wheel. According to the present invention a bracket 6 is secured to the lug 5 by means of bolts 7 in place of the removable guard. The bracket 6 is provided with a sleeve portion 8, the sleeve portion preferably being cast integrally with the bracket. Set into the sleeve 8 is a bushing 9 having an eccentric opening 10 therein through which passes a shaft 11. Set in the bushing at each end thereof are anti-friction bearings 12 for the shaft 11. The central portion of the sleeve 8 at the bottom thereof is slotted at 13 and the bushing 9 is similarly slotted at 14. On the shaft 11 in the slot in the bushing is a small wheel 15 adapted to bear against the surface of the friction disk 4, the arrangement being such that when the disk 4 is rotated the shaft 11 is rotated at a much higher speed, the diameter of the disk 4 being much greater than the diameter of the wheel 15.

At the inner end of the bushing and secured thereto by means of screws 16 is a cap plate 17 that covers the bearing and which has a flange 18 around a portion of its periphery, as best shown in Figure 3, the flange 18 lying against the end of the sleeve 8.

Supported in lugs 19 integral with the sleeve 8 and at one side thereof is a lever 20 having a lug 21 on the upper end thereof. On the lower end of the lever, below its pivot 22 is a thumb screw 23 having its inner end bearing against the sleeve. As shown in Figure 1, the portion 21 of the lever projectors over the flange 18 on the cap 17. By turning the thumb screw 23 the lug 21 of the lever can be tightly pressed against the flange 18 to frictionally hold the bushing 9 and the cap 17 carried on the bushing against rotation in the sleeve 8. For further holding the bushing against rotation a set screw 24 is provided. By reason of the fact that the shaft 11 is eccentrically mounted in the bushing 9, rotation of the bushing 9 will

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cause the wheel 15 to move upward or away from the disk 4. Therefore, by rotating the bushing through a limited arc when necessary the wheel 15 may always be caused to bear against the disk 4 with sufficient pressure to drive the shaft 11, and as wear develops in the disk 4 it can be compensated for by adjusting the bushing 9.

To adjust the bushing 9 the set screw 24 is retracted and the thumb screw 23 loosened. The lever 20 may then be rocked to move the lug 21 out of clamping relation with the flange 18 of the cap 17. The bushing 9 which has a tight fit in the sleeve 8 may then be rotated a slight extent after which it is again clamped against rotation.

Carried on the front end of the bushing 9 and secured thereto by means of screws 25 is a sleeve 26 that surrounds a chuck 11 on the front end of the spindle 11. The sleeve 26 provides an extension by means of which the bushing 9 may be rotated.

Devices thus constructed can be quickly applied to or removed from a wood-working machine. By reason of the much higher speed of rotation for the shaft 11 relatively to the shaft 3, a router or other tool which must be operated at high speed can be successfully employed. The shaft 11, being carried in anti-friction bearings, can run at high speed and with a minimum of vibration. Adjustment for wear in the friction wheel 4 can be quickly and easily made when necessary. The entire structure can be easily manufactured, and the device provides a valuable attachment for very materially increasing the amount and kind of work which can be done on wood sawing machines and particularly wood sawing machines of the lighter or portable type wherein the saw operates over the saw table rather than through the saw table.

I claim:

1. The combination with a motor having a shaft and having a lug thereon, of a friction wheel on the shaft, a bracket on the lug, a sleeve in said sleeve, a spindle eccentrically mounted in the bushing, said bushing and sleeve having a transverse slot therein intermediate the ends thereof into which the periphery of said friction wheel projects, a driving wheel on the shaft adapted to engage the friction wheel, and means for adjustably holding the bushing against rotation in the sleeve, said means including a flanged plate at one end of the bushing, and a clamping lever on the sleeve, and means for holding the clamping lever in frictional engagement with said flanged plate.

2. A router attachment for woodworking machines comprising a bracket having a sleeve portion thereon, which sleeve is provided with a transverse slot intermediate the ends thereof, a bushing passing through the sleeve, said bushing having a slot therein which registers with the slot in the sleeve, said slotted bushing being embraced in the sleeve, a spindle eccentrically mounted in the bushing having a driving wheel thereon in the slot in the bushing, a tool holder at one end of the spindle, the bushing being rotatable in the sleeve whereby the position of the spindle may be adjusted by rotation of the bushing, and means for securing the bushing in any position to which it is adjusted.

3. The combination with a motor having a shaft and having a lug thereon, of a friction wheel on the shaft, and a bracket on the lug, said bracket having a sleeve portion thereon, which sleeve is provided with a transverse slot intermediate the ends thereof, a bushing rotatably received within the sleeve, said bushing having a transverse slot therein registering with the slot in the sleeve, said slotted bushing being embraced in the sleeve, a spindle eccentrically mounted in the bushing, said bracket overhanging the motor shaft, a friction wheel on the motor shaft projecting into the slot in the sleeve, and a driving surface on the spindle exposed to the friction wheel by the slot in the bushing, and against which the periphery of the friction wheel bears, rotation of the bushing serving to move the spindle toward or away from the surface of the friction wheel whereby compensation for wear may be made, and means cooperating with the bushing for holding it against free rotation in the sleeve whereby the spindle may be maintained in adjusted position.

4. A router attachment for woodworking machines comprising a bracket having a sleeve portion thereon, a rotatable bushing in the bracket, a spindle eccentrically mounted in the bushing, an anti-friction bearing for said spindle at each end of the bushing, a tool holder on the spindle, the sleeve portion of the bracket having a transverse slot therein intermediate the ends thereof, the bushing within the sleeve having a transverse slot registering with the slot in the sleeve, said slotted bushing being embraced in the sleeve, a driving wheel on the spindle received in the slot in the bushing, said driving wheel on the spindle being adapted for cooperation with a friction drive, the spindle being movable toward or away from the friction drive upon rotation of the bushing within the sleeve, and means cooperating with the sleeve and bushing for locking the bushing against rotation in any position to which it is moved.

In testimony whereof I have hereunto set my hand.

CLINTON G. WILDERSON.