Feb. 12, 1929. 1,701,912

R. E. DE WALT

WOODWORKING MACHINERY

Filed Sept. 17, 1925 3 Sheets-Sheet 1

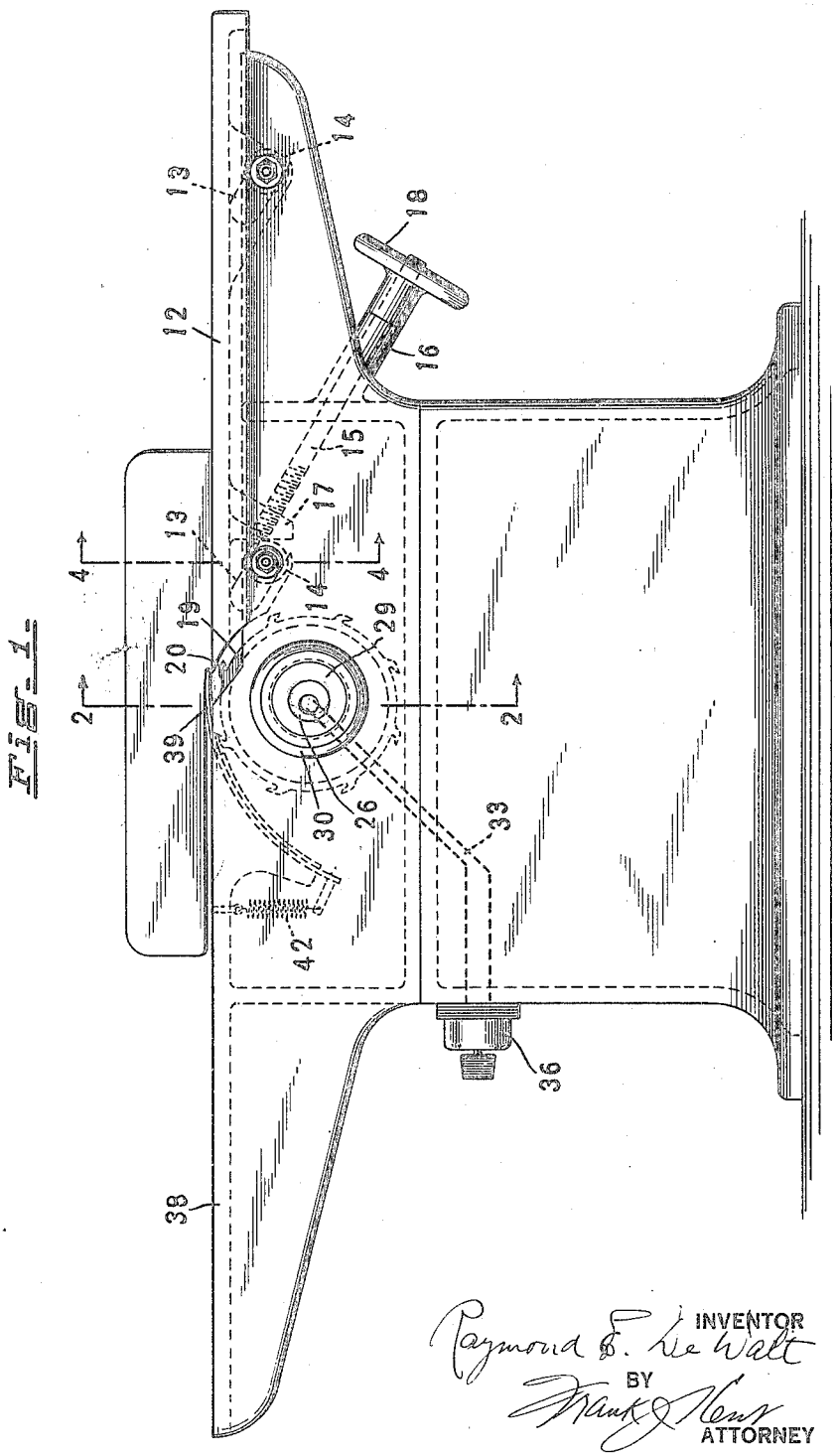


Fig. 1.

Raymond E. De Walt INVENTOR

BY

ATTORNEY

Feb. 12, 1929. 1,701,912

R. E. DE WALT

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Filed Sept. 17, 1925 3 Sheets-Sheet 2

Fig. 6.

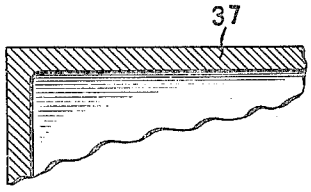


Fig. 5.

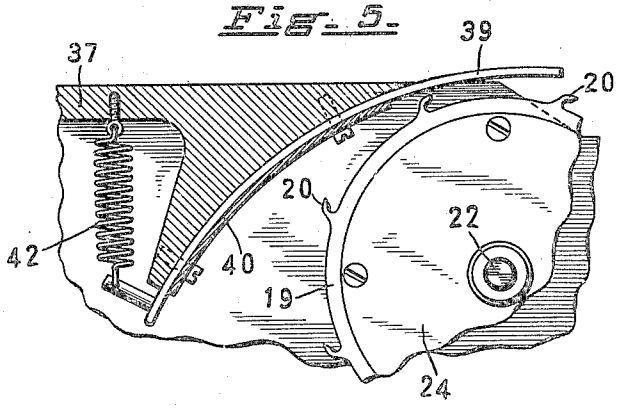


Fig. 4.

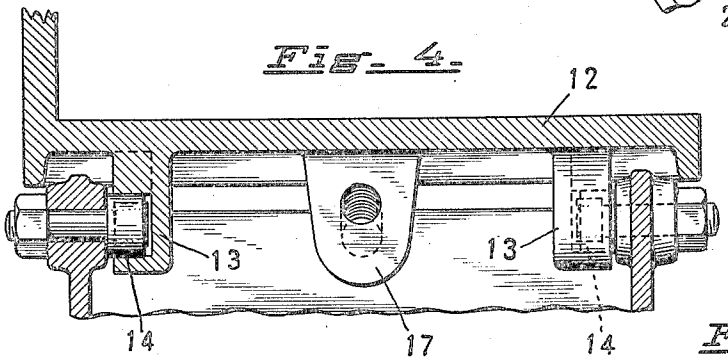


Fig. 3.

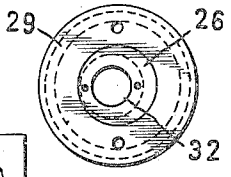


Fig. 2.

INVENTOR
Raymond E. DeWalt
BY
Frank J. Hunt
ATTORNEY

Feb. 12, 1929. 1,701,912

R. E. DE WALT

WOODWORKING MACHINERY

Filed Sept. 17, 1925 3 Sheets-Sheet 3

Fig. 10.

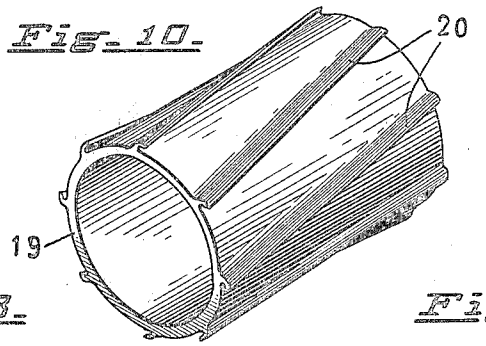


Fig. 11.

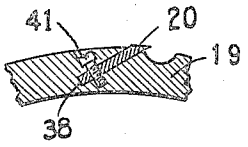


Fig. 8.

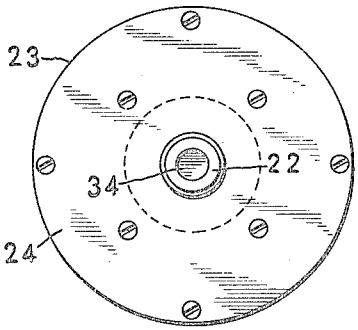


Fig. 9.

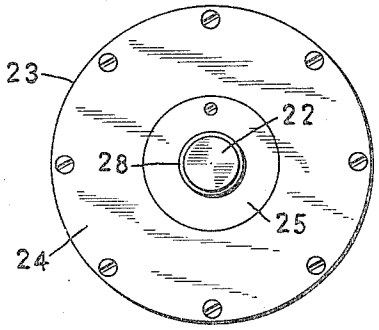
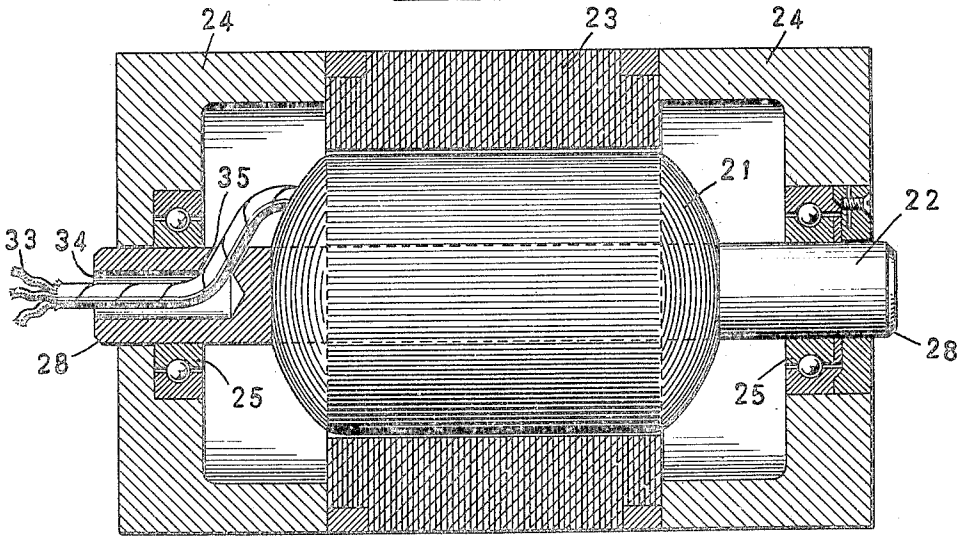


Fig. 7.



Raymond E. De Walt INVENTOR

BY

Frank J. Coes ATTORNEY

Patented Feb. 12, 1929. 1,701,912

UNITED STATES PATENT OFFICE.

RAYMOND E. DE WALT, OF LEOLA, PENNSYLVANIA.

WOODWORKING MACHINERY.

Application filed September 17, 1925. Serial No. 56,822.

This invention relates to woodworking machinery in the nature of jointer or hand planers.

The objects of the invention are to simplify and improve machines of this general class particularly as regards the drive, the cutter design, the adjustment for different cuts and the guarding of the cutter.

These and other desirable objects are attained in the structure herein disclosed by a form of electric drive in which the usual relation of stationary field and rotary armature is reversed and the armature is held stationary while the field rotates about the same and carries a cutter in the form of a surrounding cylindrical shell; the feed table is adjustable on inclined ways and a retractible guard is spring pressed over the top of the cutter.

Various other novel features of the invention, including certain new combinations and relations of parts, will appear in the course of the following specification.

The drawings accompanying and forming part of this specification illustrate the invention embodied in one of its practical commercial forms, but it should be understood that the structure may vary without departure from the broad spirit and scope of the invention as hereinafter defined and claimed.

Figure 1 is a side elevation of a planer constructed in accordance with and embodying features of the invention.

Figure 2 is a cross sectional view on an enlarged scale of the cutter and motor assembly taken on substantially the plane of line 2—2 of Figure 1.

Figure 3 is a detail end view of one of the eccentrically adjustable armature holding motor supports.

Figure 4 is a cross sectional view as on the line 4—4 of Figure 1 of the inclined table adjusting means.

Figure 5 is a broken part sectional detail of the retreating cutter guard.

Figure 6 is a broken cross sectional detail of the flat support for the finished work.

Figure 7 is a further enlarged, longitudinal sectional view of the motor.

Figures 8 and 9 are end views of the motor on a reduced scale.

Figure 10 is a perspective view of the cylindrical cutter.

Figure 11 is a sectional detail of one of the blades of the cutter.

In the machine illustrated the work is fed to the cutter over a feed table 12 which has a compound adjustment vertically and also toward and away from the cutter by being provided with inclined ways 13 on its under side riding over rollers 14 mounted on the frame, the adjustment being effected by a screw 15 journaled in a bearing 16 on an axis parallel to the inclined ways, this screw shaft having a screw engagement at its inner end with a lug 17 dependent from the table and provided at its outer end with a hand wheel 18.

The cutter consists in the illustration of a cylindrical shell 19 having inclined ribs 20 on the periphery of the same edge as cutter blades faced toward the feed table.

The mounting and driving of the cutter is effected by an electric motor, consisting as shown in Figures 2 and 7 of an armature 21 having a shaft 22 which is fixedly held in the frame and a field structure 23 having end frames 24 journaled at 25 on the stationary armature shaft, said rotating field constituting a mandrel over which the cutter is engaged and fixedly held by a key or other suitable securing means.

The motor is adjustably mounted in position with its axis transversely of the line of feed by means of supporting bushings 26 having beveled seats 27 at their inner ends engaging the beveled end portions 28 of the armature shaft. These bushings are rotatably engaged in the screw collars 29 which are mounted in screw seats 30 in the frame. Flanges 31 at the inner ends of the bushings bear against the inner ends of the screw collars from which it will be observed that tightening the screw collars in their seats will serve to carry the supporting bushings into endwise clamping engagement with the armature shaft. By adjusting one or both of said screw collars the motor may be quickly clamped in place or be released or be shifted longitudinally of its axis one way or the other to center the cutter with respect to the work.

Further adjustments of the cutter vertically and longitudinally of the line of feed are provided for in the illustration by locating the bevel seats 27 for the ends of the armature shaft eccentrically in the bushings 26, as shown in Figures 1 and 3, so that by turning said bushings in their screw collars, the armature shaft and hence the entire motor and cutter unit may be raised or lowered and

at the same time be advanced one way or the other in the line of feed. This special mounting for the motor thus provides for practically universal adjustments of the cutter, sufficient to answer all requirements and to compensate for wear of the parts, the grinding of the cutter blades, etc.

The eccentric motor supporting bushings are shown as of tubular construction with longitudinal passages 32 therethrough and through one of these bushings, that at the left in Figure 2, the wiring 33 for the motor is extended. The adjoining end of the motor shaft is shown in Figure 7 formed with a bore 34 receiving such wiring, this bore terminating in a channel 35 opening to the inside of the field structure through which the conductor wires pass to the armature windings. In a motor of the induction type, such as illustrated, this is all the wiring that is required, no brushes or sliding contacts being necessary. This wiring is shown in Figure 1 as connected with a suitable control switch 36 and the wiring is preferably of a flexible nature to allow for the desired adjustments of the motor.

From the feed table the stock passes over the cutter to a receiving table 37. Beneath the forward edge of this table a guard for the cutter is mounted shown in the form of a series of arcuate fingers 39 separately sliding in a curved guide 40 and extending upwardly toward the cutter. These guard fingers are shown provided with springs 42 for thrusting them upwardly into the position shown in Figures 1 and 5, with the fingers overstanding the top of the cutter. It will be seen that the work as it advances to the cutter will force back one or more of the guard fingers, depending on the width of the work, causing them to retreat beneath the receiving table and that as soon as the work clears the repressed fingers they will spring back into position guarding the cutter.

The adjustability of the motor-cutter unit in conjunction with the adjustability of the feed table enables these parts to be set to meet practically any requirements. The entire motor unit is readily removable from and replaceable in the machine and the cutter which is mounted on the field of the motor may be sharpened while in position thereon and so without disturbing the centering of the parts.

In the detail view of the cutter, Figure 11, the cutter bars 20 are shown as separate blades seated in slots 38 in the cutter shell and detachably held therein by fastening screws 41.

What is claimed is:

In a machine of the class described, an electric motor comprising an armature having a shaft and a surrounding field structure journaled on said shaft, said shaft having frusto-conical ends, bushings having seats for the ends of said shaft and provided with end flanges, said seats being eccentric with respect to the axes of said bushings, screw sleeves on said bushings and supporting the same, said screw sleeves bearing against the end flanges of said bushings, and fixed screw seats for said sleeves whereby screwing up the sleeves simultaneously clamps the bushing in rotatably adjusted position within the sleeves and clamps the shaft against rotation.

In testimony whereof I affix my signature.

RAYMOND E. DE WALT.