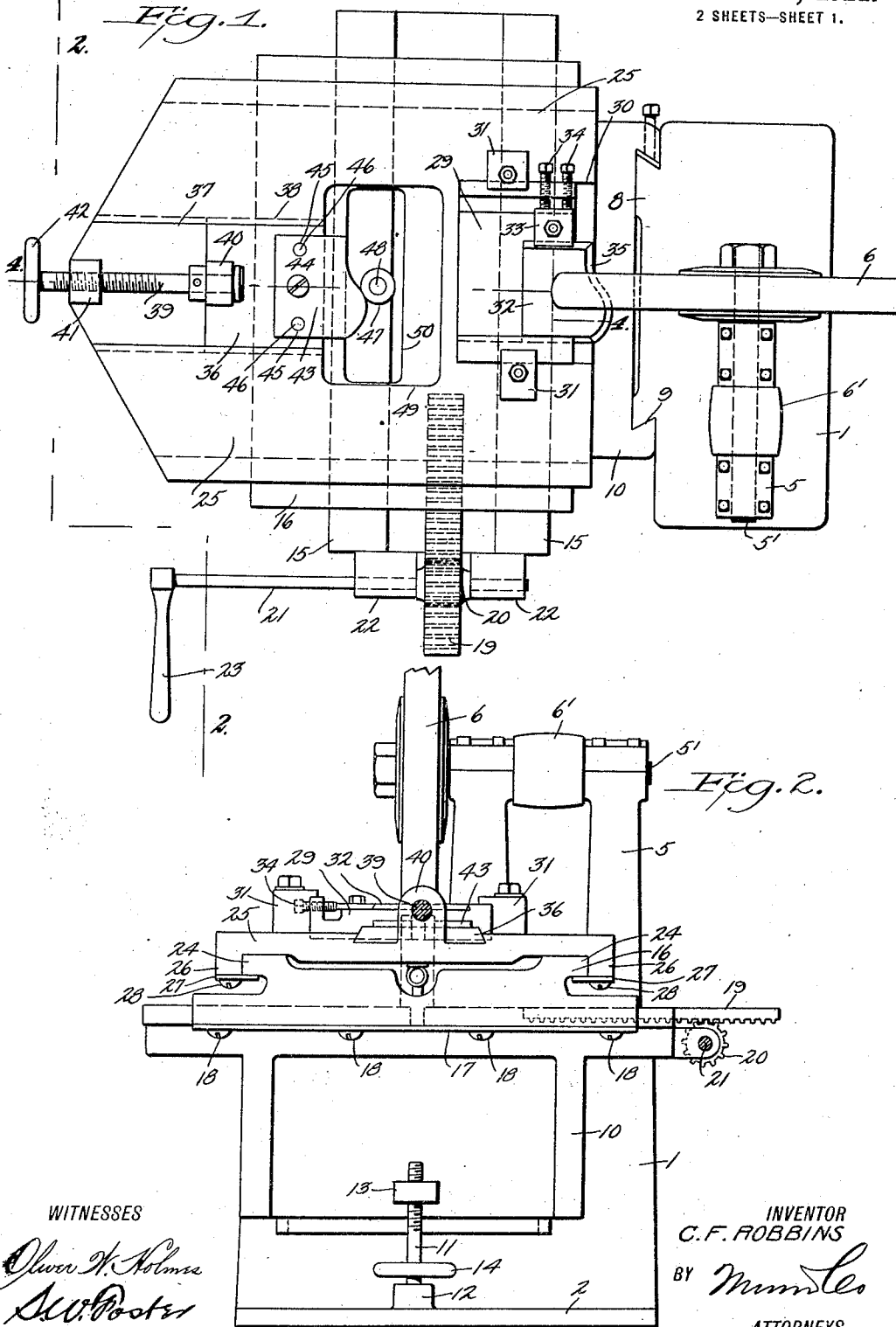


C. F. ROBBINS.
CUTTER BLADE GRINDER.
APPLICATION FILED MAR. 18, 1920.

1,395,145.

Patented Oct. 25, 1921.

2 SHEETS—SHEET 1.



WITNESSES

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Fig. 3.

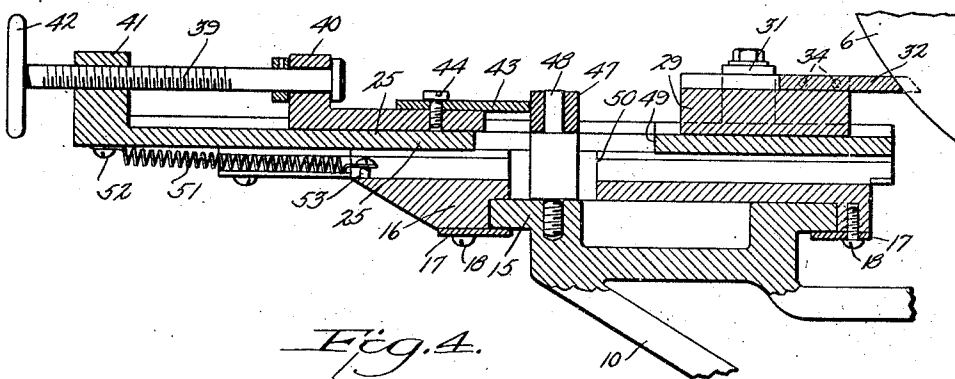
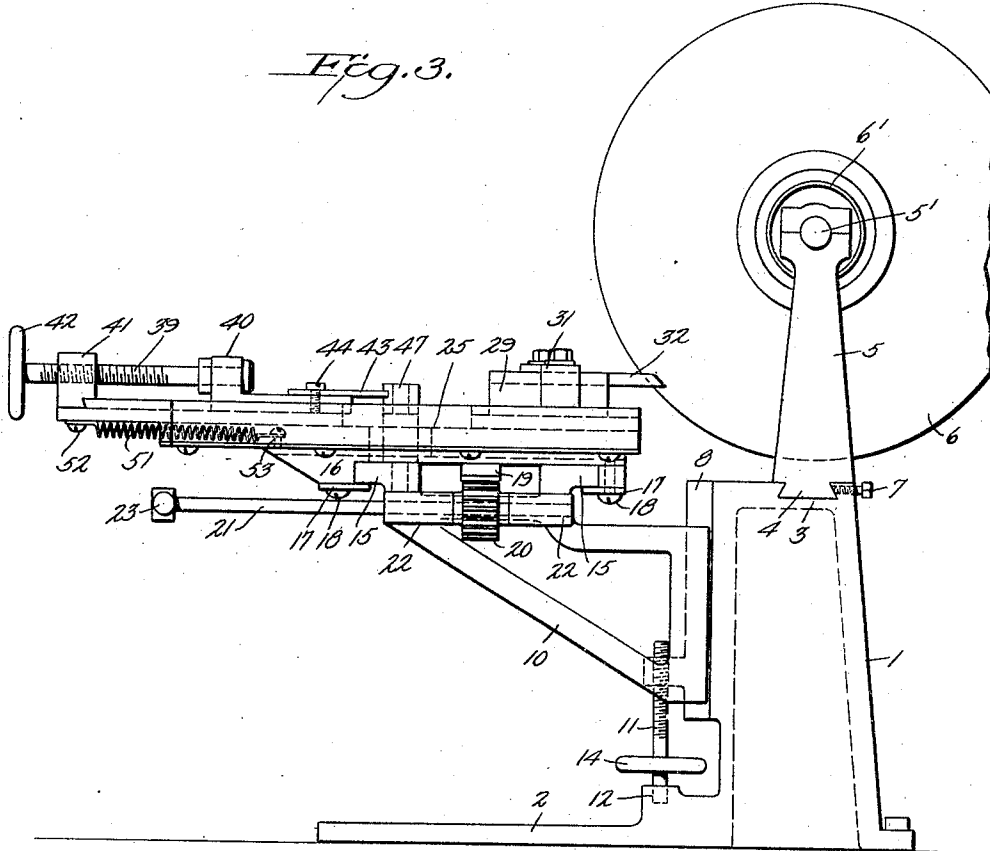


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES FRANCIS ROBBINS, OF KEENE, NEW HAMPSHIRE.

CUTTER-BLADE GRINDER.

1,395,145.

Specification of Letters Patent.

Patented Oct. 25, 1921.

Application filed March 18, 1920. Serial No. 366,738.

To all whom it may concern:

Be it known that I, CHARLES F. ROBBINS, a citizen of the United States, and a resident of Keene, in the county of Cheshire and State of New Hampshire, have invented a new and Improved Cutter-Blade Grinder, of which the following is a full, clear, and exact description.

This invention relates to improvements in cutter blade grinders, an object of the invention being to provide a machine which is especially designed for grinding cutter blades of irregular shape, such as are used in the wood work in art, and where the cutters must be of an exact shape and ground repeatedly without altering the shape.

A further object is to provide a machine which will grind blades of reverse shape; that is, blades which are designed for use as right and left cutters.

A further object is to provide a machine employing improved mounting and operating means for a blade and a pattern whereby the grinding of the blade is in exact accordance with the shape of the pattern.

With these and other objects in view the invention consists in certain novel features of construction, and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a top plan view illustrating my improvements;

Fig. 2 is a view in section on the line 2—2 of Fig. 1;

Fig. 3 is a view in side elevation; and

Fig. 4 is a fragmentary view on an enlarged scale in longitudinal section on the line 4—4 of Fig. 1.

1 represents a relatively wide standard which is preferably an integral part of a base plate 2 and is provided in its upper face with a dove-tailed groove 3 receiving a dove-tailed tenon 4 on the lower end of a bracket 5. This bracket 5 provides rotary mounting for a shaft 5' on which an emery or other grinding wheel 6 is secured and a pulley 6' is fixed to the shaft 5' and this pulley may receive motion from any desired source. By reason of the construction above described, the bracket 5 is capable of lateral adjustment to properly position the grinding wheel 6 and a set screw 7 is provided to jam against the tenon 4 and lock the bracket 5 at any position of adjustment.

The standard 1 is provided on its front

face with a relatively wide dove-tailed tenon 8 fitting a dove-tailed groove 9 in a supporting bracket 10. This bracket 10 is vertically adjusted by means of a screw 11, the latter having a thrust bearing 12 in the base 2 and having screw threaded engagement with an internally threaded perforated lug 13 integral with the bracket 10 and a hand wheel 14 is provided on the screw 11 to turn the same.

The bracket 10 at its upper portion is made with a pair of supporting rails 15 on which a transversely movable platform 16 is mounted. This platform 16 is grooved or recessed in its under face to fit the rails 15 and is provided with strips 17 projecting under the rails 15 and secured by means of screws 18 so that while the platform 16 is permitted a lateral movement, it is held against movement in other directions. A toothed rack 19 is fixed to the platform 16 and projects laterally therefrom. A pinion 20 meshes with the rack 19 and is secured to a shaft 21 supported in suitable bearings 22 on the bracket 10, so that when the shaft 21 is turned, the rack 19 and the pinion 20 will impart a lateral movement to the platform 16. While, of course, this shaft 21 may be turned by various devices, I have illustrated for the purpose a crank handle 23 on the free end of the shaft.

The platform 16 supports a longitudinally movable feed table 25 and is made at its upper portion with laterally projecting flanges 24 against the outer edges of which depending flanges 26 on the table 25 move and hold the table against lateral displacement. Strips 27 are secured to the lower edges of the flanges 26 and project under the flanges 24 of the platform 16 and are secured by screws 28 to prevent upward accidental movement of the feed table.

A blade supporting block 29 is supported in the recessed forward end of the feed table 25 and is secured against movement by means of clamps 31 or other desired securing devices. A blade 32 is secured to the block 31 in any approved manner and I have illustrated for the purpose a clamping block 33 adjusted laterally by means of set screws 34 mounted in the block 29, but it is obvious that any desired form of blade securing means can be employed to hold the blade in such position that its cutting edge 35 will be presented to the grinding wheel 6 as clearly shown in Figs. 1, 3 and 4.

A pattern supporting block 36 is movably

mounted in the longitudinally grooved or recessed upper face and rear portion of the feed table 25 and may have dove-tailed or beveled engagement with the walls of said recess as indicated at 38 to guide the block in its longitudinal movement. An adjusting screw 39 has at one end a swivel connection, as indicated at 40, with the block 36 and this screw has screw threaded engagement with an internally screw threaded lug 41 on the table 25 and is provided at its free end with a hand wheel 42 to turn the same to adjust the block 36 longitudinally of the table.

15 A pattern 43 is secured to the block 36 by means of a screw 44 and is provided with a pair of openings 45 to receive dowel pins 46 on the block 36 so as to hold the pattern against pivotal movement on the screw and to allow the pattern to be reversed and held with either face uppermost. The forward edge of the pattern 43 engages a roller 47 on a vertical stud 48, the latter fixed to one of the rails 15.

25 The table 25 and the platform 16 are made with openings 49 and 50 respectively to receive the roller 47 and to permit of all operative movements of the machine. A coiled spring 51 is secured at its rear end to the table 25, as shown at 52, and at its forward end is secured by a screw 53 with the platform 16 and this spring 51 exerts a longitudinal pull on the feed table 25 holding the pattern 43 against the roller 47 and the blade 32 against the grinding wheel 6.

35 It is, of course, to be understood that the pattern 43 will have a shape corresponding to the shape of the blade to be cut so that the blade will be ground by the wheel 6 in exact accordance with the shape or contour of the edge of the pattern.

40 The operation is as follows: The spring 51 holds the pattern against the roller 47 and the blade 32 against the grinding wheel 6, thus exerting a longitudinal pressure on the feed table to cause it to move longitudinally on the platform 16. The platform 16 is moved transversely by means of the crank handle 23, shaft 21, pinion 20, and rack 19, and this transverse movement is manually controlled as may be desired.

50 With my improved machine the blades can be accurately ground and the desired shape maintained and I have provided for adjustments of the parts to accommodate

different sizes of blades and also to permit blades to be ground, both rights and lefts in accordance with the pattern, the blades and the pattern being simply reversed to give a reversal of form to the cutting edge. 60

Various slight changes might be made in the general form and arrangement of parts described without departing from the invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims. 65

I claim:

1. A machine of the character stated, comprising a support, a grinding element carried by the support, a vertically adjustable platform associated with the support and movable transversely thereof, a feed table slidable longitudinally on the platform, blade carrying means on the table, pattern carrying means on the table in longitudinal alinement with the blade carrying means, a spring exerting pressure on the table and tending to hold the blade in working contact with the grinding element, said blade carrying means and pattern carrying means being independently adjustable longitudinally of the table, and means engageable with the pattern compelling simultaneous longitudinal movement of both of said means when the table is moved transversely of the platform. 70 75 80 85

2. A machine of the character described, comprising a support, a standard on the support, a grinding wheel on the standard, a vertically movable bracket slidably connected to the standard, a screw engaging the bracket and having a thrust bearing in the support, a hand wheel on the screw for adjusting the bracket vertically, a transversely movable platform on the bracket, a rack on the platform, a pinion supported on the bracket and engaging the rack and imparting transverse movement to the rack and the platform, an operating shaft connected with the pinion, a table having longitudinal movement on the platform, pattern and blade holding blocks adjustably secured on the table, said table and platform having openings therein, a stud fixed to the bracket and projecting into said openings, a pattern engaging roller on said stud, and a spring exerting longitudinal pressure on the table. 90 95 100 105

CHARLES FRANCIS ROBBINS.