Oct. 6, 1931. L. F. NENNINGER 1,825,753

TRUING MECHANISM

Filed Feb. 17, 1926 2 Sheets-Sheet 1

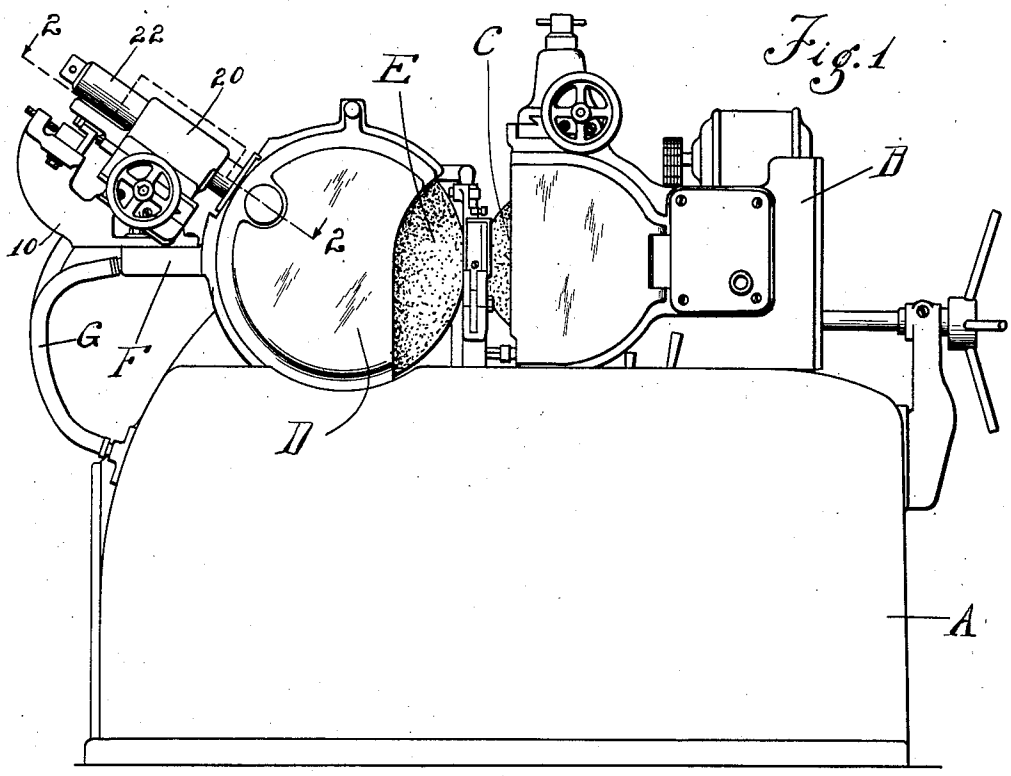


Fig. 1

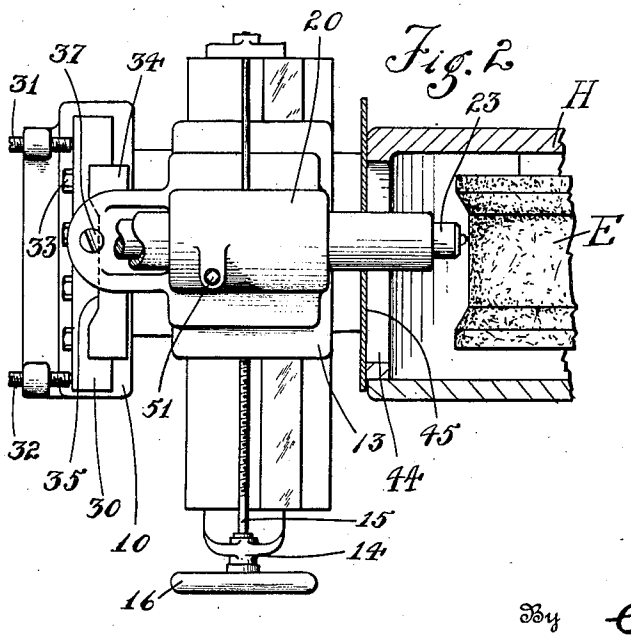


Fig. 2

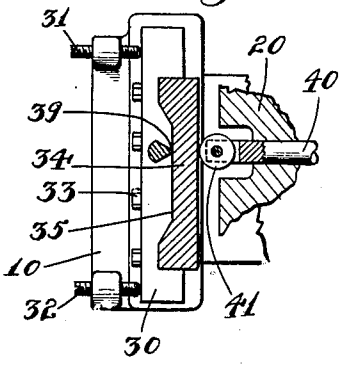


Fig. 5

Inventor

L. F. Nenninger

By H K Parsons

Attorney

Oct. 6, 1931. L. F. NENNINGER 1,825,753

TRUING MECHANISM

Filed Feb. 17, 1926 2 Sheets-Sheet 2

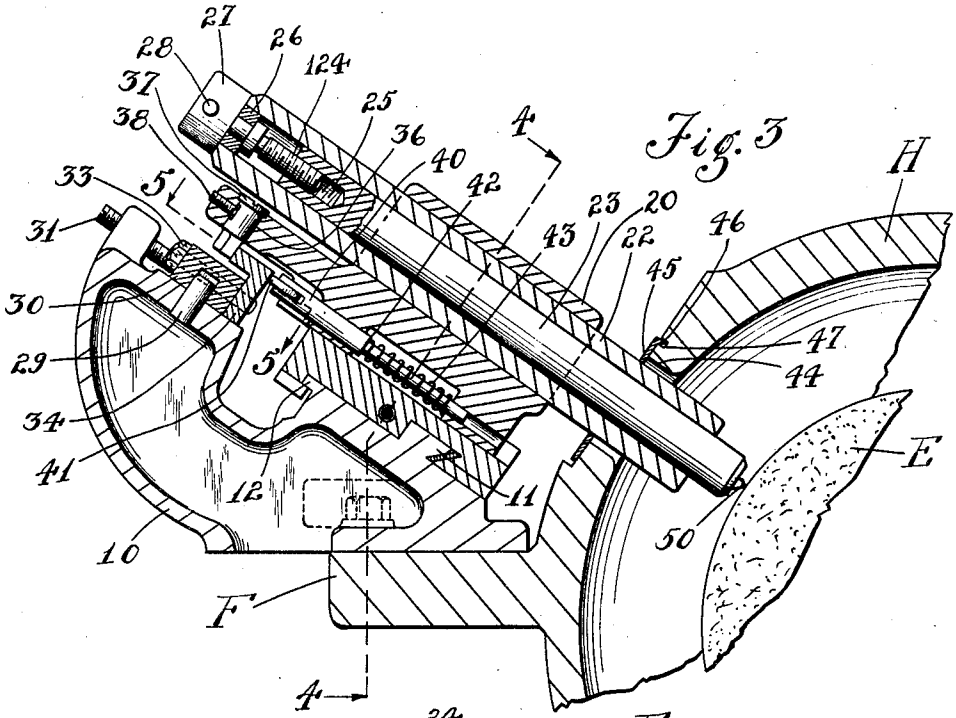


Fig. 3

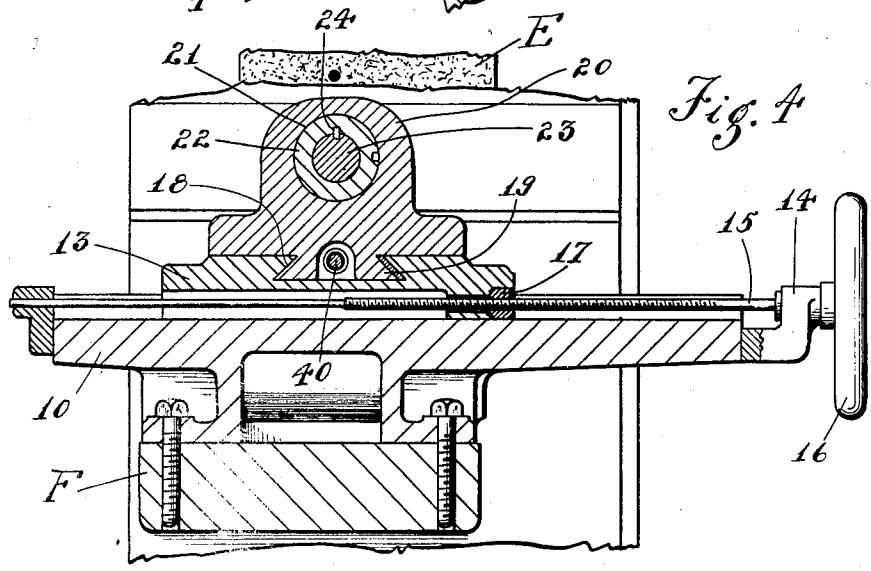


Fig. 4

Inventor

L. F. Nenninger

By H K Parsons

Attorney

Patented Oct. 6, 1931 1,825,753

UNITED STATES PATENT OFFICE

LESTER F. NENNINGER, OF CINCINNATI, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CINCINNATI GRINDERS INCORPORATED, OF CINCINNATI, OHIO, A CORPORATION OF OHIO

TRUING MECHANISM

Application filed February 17, 1926. Serial No. 88,960.

This invention relates to improvements in grinding machinery and more particularly to a truing fixture for use in connection therewith.

One of the most important forms of grinding machinery of the present day is what is known as the "centerless grinder" which broadly considered comprises opposed grinding and regulating wheels and an intermediate workrest. This machine is used both for thru feed grinding and for form grinding of workpieces of cylindrical form in cross-section. The present truing mechanism is particularly designed for use in connection with centerless grinding machinery although capable of application to ordinay single wheel grinders or the like.

An object of the present invention is the provision of a simple and compact truing mechanism which may be readily applied to a grinding machine and which will efficiently produce on the grinding face of the wheel the desired transverse configuration.

A further object of the invention is the provision of a mechanism which may be readily modified to vary the surface configuration produced thereby.

Another object of the invention is the provision of an improved template-supporting means whereby the angular relationship of the transverse configuration may be varied as desired with regards to the axis of rotation of the grinding member.

Other objects of the invention include improvements in manner of adjustment and securing of the several parts and a general structural simplification and should be readily apparent by reference to the following specification taken in connection with the accompanying drawings. It will be understood that any modifications in the specific details illustrated within the scope of the appended claim may be made without departing from or exceeding the spirit of the invention.

Figure 1 is a front view of a centerless grinder with the improved truing mechanism applied thereto.

Figure 2 is a view partly in plan and partly in section taken on the line 2—2 of Figure 1.

Figure 3 is a vertical section.

Figure 4 is a fragmentary section on the line 4—4 of Figure 3, and

Figure 5 is a vertical section on the line 5—5 of Figure 3.

In the drawings in which similar characters of reference are employed to denote corresponding parts thruout the several views the letter "A" designates the base of a conventional centerless grinder having the slide or carriage "B" supporting the regulating wheel "C". The base is further provided with the support and housing "D" for the grinding wheel "E", having a bracket "F" on which the truing mechanism for wheel "E" is located. This mechanism includes a base 10 mounted on bracket "F" and having the transverse guides 11 and 12 for the carriage 13. Lug 14 on member 10 rotatably supports feed screw 15 having the hand wheel 16. This screw is engaged in adjusting nut 17 set into carriage 13 to control the transverse reciprocation thereof. The carriage is in turn provided with the dovetail slot 18 for the guides 19 of slide 20. This slide is provided with the bore 21 to receive the sleeve or bushing 22, said parts being suitably secured together against accidental longitudinal or rotative movement as by clamp 51.

Within bushing 22 is the truing tool holder 23 keyed as at 24 for longitudinal sliding but held against rotative movement. This axial shifting of the holder is to compensate for the wearing away of the surface of the grinding wheel during grinding and truing operations. A suitable means for effecting such adjustment is illustrated and consists of the screw 124 threaded into the socket 25 in the outer end of spindle 23. This screw is swiveled in block 26 secured in the outer end of the bushing 22 and is provided on its outer projecting end with head 27 having handle portion 28 to facilitate rotation thereof.

It will thus be noted that the slide has an in and out movement as an entirety and the tool spindle a movement relative to the slide. The movement of the spindle is intended to compensate for wear of the wheel while

movement of the slide is to produce desired configuration on the surface of the abrasive wheel "E". The movement of the slide is preferably controlled by suitable template mechanism such as illustrated. The base portion 10 of the device is formed with a pivot stud 29 on which is swiveled block 30 adapted to be secured in adjusted position about the fulcrum by suitably loosening and tightening of the pair of screws 31—32 in upstanding lugs on base 10 adjacent the block 30. The block 30 may be placed in a position parallel with the axis of the wheel to be trued or at any desired angle thereto. Removably secured to the block as by bolts 33 is the template portion 34 illustrated as an angular member having the contoured surface 35 corresponding in outline to the cross-sectional contour which it is desired to reproduce on the opposite portion of the grinding wheel.

In order that the truing tool may follow the shape of the template most accurately, slide 20 is provided with aperture 36 for follower member 37 locked in position by set screw 38 and having the knife edge contact portion 39 adapted to ride on the contour face 35 of the template. To retain the slide contact 39 in close engagement with face 35 of the template, plunger 40 is movably supported in slide 20 and has contact roller 41 bearing against the template in opposition to contact 39. Member 40 is provided with shoulder 42 while interposed between shoulder 42 and a portion of slide 20 is expansion spring 43 outwardly urging the plunger in the direction of the follower.

It is to be understood in grinding operations use is ordinarily made of a suitable coolant supplied as thru the pipe "G" shown in Figure 1. To prevent undue amount of this coolant being thrown off by centrifugal action when the machine is in use, a wheel housing "H" is ordinarily provided. This housing is shown as formed with the slot 44 thru which the truing spindle 23 and bushing 22 extend, while encircling bushing 22 is cover plate 45 having a bent portion 46 slidable in kerf 47 of the housing. The interengagement of the flange 46 thus formed on the shield 45 with the walls of the kerf or slot 47 in member H retain the parts in interlocking engagement accentuated by the weight of member 45 resting on the slide way or face formed therefor on the member H. As the bushing 22 projects inward through a suitable aperture in the member 45 the shield is laterally reciprocated therewith. In this way the aperture thru which the truing tool operates is sealed against egress of the coolant.

In the use of this mechanism the member 124 is rotated, moving spindle 23 inward until the diamond or truing point 50 is in proper engagement with the surface of the stone as shown in Figure 2. If the movement of the tool is insufficient, clamp 51 may be loosened and bushing 22 and the tool spindle inwardly shifted as an entirety, and the fine adjustment of the parts subsequently completed by use of adjusting screw 24. The template of proper contour is secured to block 30 and screws 31—32 are adjusted to bring the block and template in proper relationship to the stone surface. Rotation of hand wheel 16 and consequent actuation of adjusting screw 15 serves to impart a back and forth movement to carriage 13 causing the truing tool to traverse the operative face of the grinding wheel while moving in and out in accordance with the interengagement of knife edge 39 of the follower and contoured edge 35 of the template. Slight inward adjustments of the tool spindle may be made relative to the bushing during the truing operation to compensate for material removed from the grinding wheel.

Particular attention is invited to the fact that the pivot 29 is laterally off-set with respect to slide 13 and substantially in the plane thereof so that the angularly adjustable block 30 is correspondingly located. Further to the fact that the templet member 34 is in the form of an angle plate secured to the inner face of said block and projecting upward thereabove for proper engagement with the fixed follower 39 on the truing device and the resiliently pressed roller or plunger 41 and that the templet block provides a plain or non-contoured inner face for continuous movement therealong of the resiliently actuated follower on the one side together with an opposed contoured face on the opposite side for engagement by the fixed follower.

Also, that the rearward or reverse extension of the templet member is such that its contoured portion overlies the pivoted member in spaced relation to the supporting block so that the fixed follower itself passes across the center of pivotance during its traverse movement. The projection of the templet above the block is such as to insure ready clearance of the fixed follower member while its extension in overlying relation to the pivot and substantially to the center of pivotance or angular adjustment of the templet serves to minimize the in and out movement of the truing device at its central position for various angular adjustments of the templet.

I claim:

A mechanism of the character described including a base or support, a carriage transversely shiftable thereon, a slide mounted on the carriage for in and out movement relative to carriage and base, means for imparting in and out movement to the slide during transverse movement of the carriage, said means including a template carried by the base, a follower carried by the slide for engagement with the template and a spring-pressed plunger carried by the slide and en-

gaging the template in opposition to the contact for retaining the parts in operative relation, a tool-holding sleeve adjustably mounted on the slide, a truing tool carried thereby for adjustment therewith and relative thereto, and a shield member carried by said support and encircling the sleeve, said shield being transversely shiftable with the sleeve on movement of the carriage.

LESTER F. NENNINGER.