T. LUND.

GRINDING MACHINE.

APPLICATION FILED DEC. 5, 1916.

1,273,892. Patented July 30, 1918.

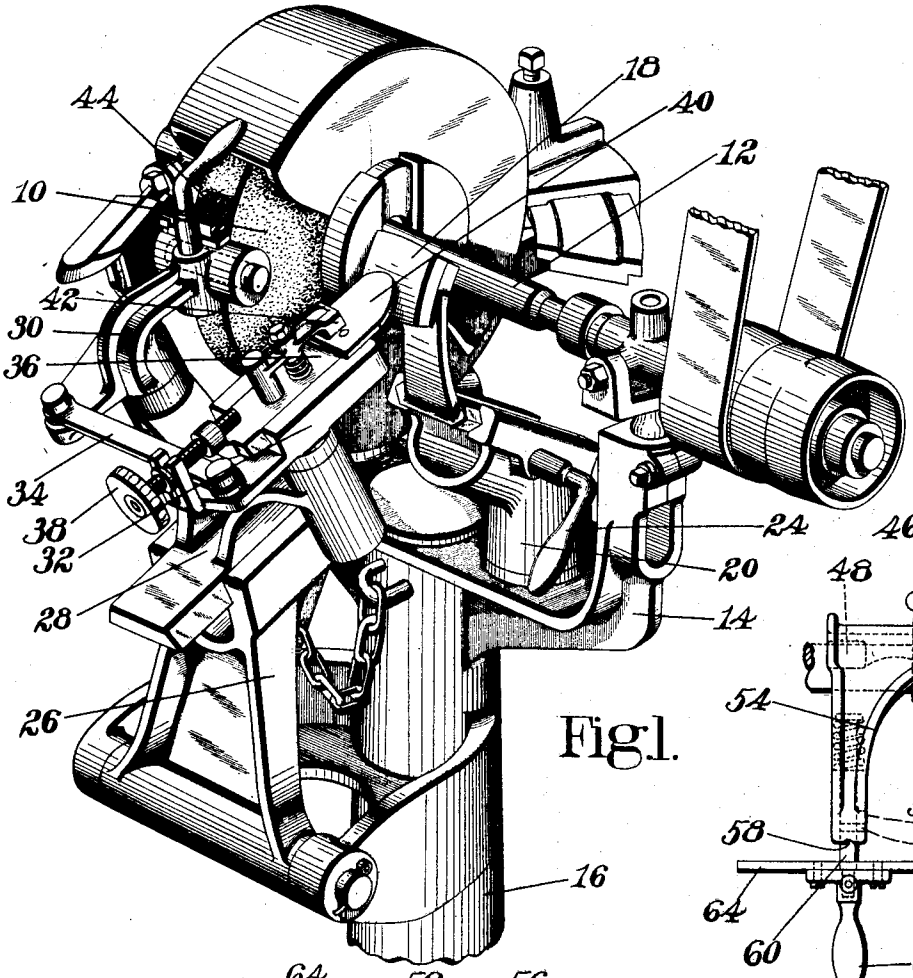


Fig. 1.

Fig. 3.

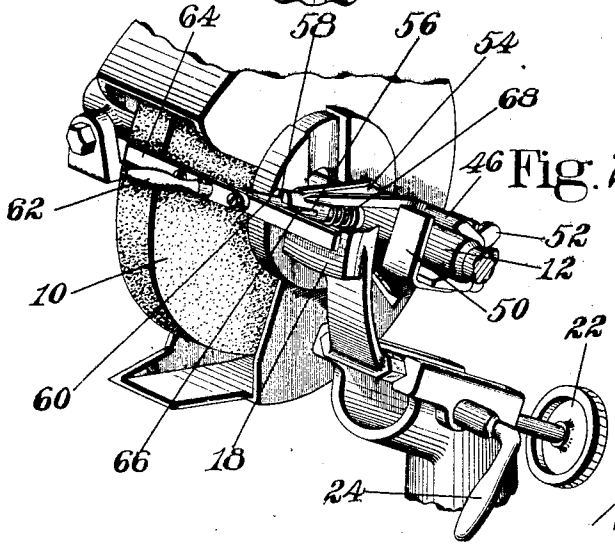


Fig. 2.

INVENTOR.

Thomas Lund

By his Attorney.

Nelson W. Howard

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS LUND, OF BEVERLY, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

GRINDING-MACHINE.

1,273,892. Specification of Letters Patent. **Patented July 30, 1918.**

Application filed December 5, 1916. Serial No. 135,188.

To all whom it may concern:

Be it known that I, THOMAS LUND, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Grinding-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to grinding machines and particularly to that type of grinding machine in which a former and templet are operatively related to determine the movements of the blade to be ground relative to the grinding wheel.

A machine of this type is shown in the patent to Glidden *et al.* No. 543,647. In such machines the former, which is intended to represent the portion of the grinding element to which a knife blade to be ground is presented, is commonly adjustable radially of the grinding element, so that as the grinding wheel is worn away by use, the former may be correspondingly adjusted. It is essential to the accurate operation of machines of this type that this adjustment be correctly made. Heretofore, however, the accuracy of the adjustment has depended on the skill of the user and frequently it has not been well done. It is also necessary that the templet and blade be inserted in their holders so that they project beyond the pivot points thereof by approximately like amounts. Otherwise, a line drawn between the contact points of the blade and templet will not be parallel to the line between their pivot points with the result that the movements of the blade will not accurately duplicate those of the templet.

The object of this invention is to improve the construction of a machine of the type specified and to devise an attachment which shall aid in effecting the desired adjustments.

The scope of the invention may be determined from the appended claims while one particular embodiment thereof will be described in the following specification taken in connection with the accompanying drawings, in which,—

Figure 1 is a perspective view of a grinding machine showing certain features of the invention; and

Fig. 2 is a perspective view of a portion of said machine showing my novel attachment applied thereto.

Fig. 3 is a detail in top plan view of the attachment and a portion of the supporting shaft.

A disk-shaped grinding element 10 is mounted upon a shaft 12 which is journaled in the bracket 14, said bracket 14 being mounted upon the standard 16. The former 18 is adjustably mounted upon the bracket 14 by means of a sliding connection with its post 20 and, after having been adjusted to the desired position by means of the hand screw 22, may be clamped in this position by the clamping lever 24. A carriage 26 is pivotally connected to the standard 16 upon an axis parallel to the axis of the grinding element and has adjustably mounted at its upper end a two-arm bracket 28 in which the blade holder 30 and the templet holder 32 are pivoted. The latter members are connected for simultaneous movement by a link 34 and the templet holder is provided with a slide 36 which is adjustable by means of a hand screw 38. This slide is provided with pins entering holes in the templet 40 which is clamped to the slide by a spring-pressed arm 42. By means of this novel construction, it is possible to adjust the position of the templet to correspond with the position of the blade 44 in the knife holder 30. It is obviously unnecessary that they extend beyond their pivot points by exactly the same amount for the reason that it may be desired to grind away a considerable portion of the blade 44.

An attachment is then provided to be utilized for the purpose specified and will be seen to consist of two hook-shaped members 46 and 48 which are connected together and each of which is provided with a V-shaped bearing surface adapted to enable the said supporting hooks to be centered upon the shaft 12. A clamp 50 comprising a thumb screw 52 may be utilized, if desired, for holding the attachment upon the shaft. Attached to and here shown as formed integrally with the hook-shaped supporting members is an arm 54 perpen-

dicular to the line between the two points of support. This arm is provided at its outer end with a deep slot 56 and a shallow slot 58 at an angle to the slot 56. Slidably connected with this arm and here shown as mounted in a bore in said arm is a rod 60 provided at its outer end with a handle 62 and carrying a bar 64 perpendicular to the rod and hence parallel to the line connecting the points of support and hence to the shaft 12. A pin 66 upon the rod 60 is adapted to enter either of the slots 56 and 58 and is held in one of said slots by a spring 68 interposed between an abutment on the rod and the arm 54.

When the attachment is being brought into position on the shaft 12, the bar 64 will preferably be rotated until the projection 66 enters the slot 58 so that it will not interfere with the application of the attachment. The latter may then be held upon the shaft 12 by hand or may be secured thereto by means of the clamp 50 whereupon the rod 60 will be rotated until the projection enters the deep slot 66 thus allowing the spring 68 to hold the bar 64 against the grinding wheel 10 and the former 18. As thus applied, the bar 64 is only movable into positions which are parallel with the shaft 12 and may thus be used to quickly and accurately determine the desired adjustment of the former 18. This done and the templet 40 and blade 44 having been clamped upon the carriage 26, the carriage will be brought forward to enable the templet 40 to be correctly adjusted either with the aid of the bar 64 or by reference to the already adjusted former 18.

While I have herein described the preferred embodiment of my invention, I conceive that various modifications therefor will appear to one skilled in the art and, accordingly, I do not wish to be limited to the exact arrangement shown and described but seek to cover in the appended claims all those modifications and arrangements which come within the true scope and spirit of the invention.

Having fully described my invention what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a machine of the type described, the combination with a support, a rotary grinding element mounted thereon, and a former adjustably mounted upon said support and movable radially of said grinding element, of a member attached to said support and relatively fixed in direction but adjustable in position, adapted to be brought into operative relation to said grinding member and said former to determine the adjustment of said former.

2. In a machine of the type described, the combination with a support, a rotary grinding element mounted thereon, and a former adjustably mounted on said support and movable radially of the grinding element, of a gage member adapted to be detachably connected to the shaft of said grinding member and movable parallel to said shaft to aid in determining the proper position of said former.

3. In a machine of the type described, the combination with a support, a rotary grinding element mounted on a shaft journaled in said support, and a former adjustably mounted on said support for movement radially of the grinding element, of a gage for determining the desired position of said former comprising a hook-shaped member adapted to be engaged with the shaft and having an arm perpendicular thereto, a rod slidably connected with said arm and a bar attached to said rod and perpendicular thereto.

4. In a machine of the type described, a support, a rotary grinding element whose shaft is journaled in said support, a former adjustably mounted on the support and movable radially of the grinding element, a carriage pivotally mounted for movement toward and away from the grinding element, a knife holder and a templet holder pivotally mounted upon said carriage and connected for simultaneous movement, an adjustable gage supported parallel to said shaft, a knife in said knife holder, a templet in said templet holder, and means for adjusting the relative positions of said templet and said knife in accordance with the indication of said gage.

5. In a machine of the type described, a rotary grinding element, a former representing a portion of the grinding surface of said element, simultaneously movable knife and templet holders adapted to be brought into operative relation with the grinding element and said former respectively, a gage adjustably mounted on and arranged to be maintained parallel to said shaft, means for adjusting said former in accordance with the indication of the gage, and means for adjusting the relative positions of said templet holder and said knife holder to accord with the indication of the same gage whereby movement of the templet against said former will cause the knife to be ground so as to duplicate the templet.

6. An attachment for a grinding machine comprising a member having spaced points of support, and a gage member adjustably connected to said support member in a predetermined direction relative to the line connecting said points of support and movable to a plurality of parallel positions.

7. An attachment for a grinding machine having two points of support and provided with an arm at an angle to the line connecting said points of support, a gage member mounted upon a rod, said rod being operatively related to said arm, and a pin and

slot connection between said rod and said arm.

8. An attachment for a grinding machine comprising connected hook-shaped supporting members, an arm connected to said members at an angle to the line between the hooks, said arm being provided with slots at an angle with one another, a gage member mounted upon a rod, said rod being slidably connected with said arm and spring-pressed toward said supporting hooks, and a projection upon said rod adapted to engage one or the other of said slots.

9. An attachment for a grinding machine comprising a supporting arm provided with a plurality of slots at an angle to one another, one of said slots being deeper than the other, a gage member mounted upon a rod slidably connected with said arm provided with a projection adapted to enter either one or the other of said slots, and a spring interposed between said rod and said arm urging the projection into the slots whereby the gage member may be adjusted by movement in the deeper of said slots or moved into inoperative position and retained there by allowing the projection to enter the shallow slot.

10. A gage member for a grinding machine having a support provided with a V-shaped groove whereby said support may be centered upon the shaft of the grinding machine, and a gage member adjustably connected to said arm and movable to a plurality of parallel positions determined by the position of the support upon the grinding shaft.

11. An attachment for a grinding machine comprising a support consisting of a plurality of hook-shaped members each of which is provided with a V-shaped groove adapted to center the support on the shaft of a grinding machine, a clamp for retaining said support on the shaft, an arm attached to said hook-shaped members and extending substantially perpendicular thereto, and a gage member mounted upon a rod slidably connected with said arm and spring-pressed toward said support whereby said gage member may assume a plurality of parallel positions substantially parallel with the shaft on which the attachment is mounted.

12. In a machine of the type described, a support, a rotary grinding element journaled in said support, a former mounted upon the support to represent the contour of a portion of the grinding element, a knife holder and a templet holder connected and arranged for simultaneous pivotal movement and movably mounted upon said support so that they may be brought into operative relation with the grinding member and said former respectively, and means simultaneously coöperating with both said knife holder and said templet holder for determining their adjustment.

In testimony whereof I have signed my name to this specification.

THOMAS LUND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."