



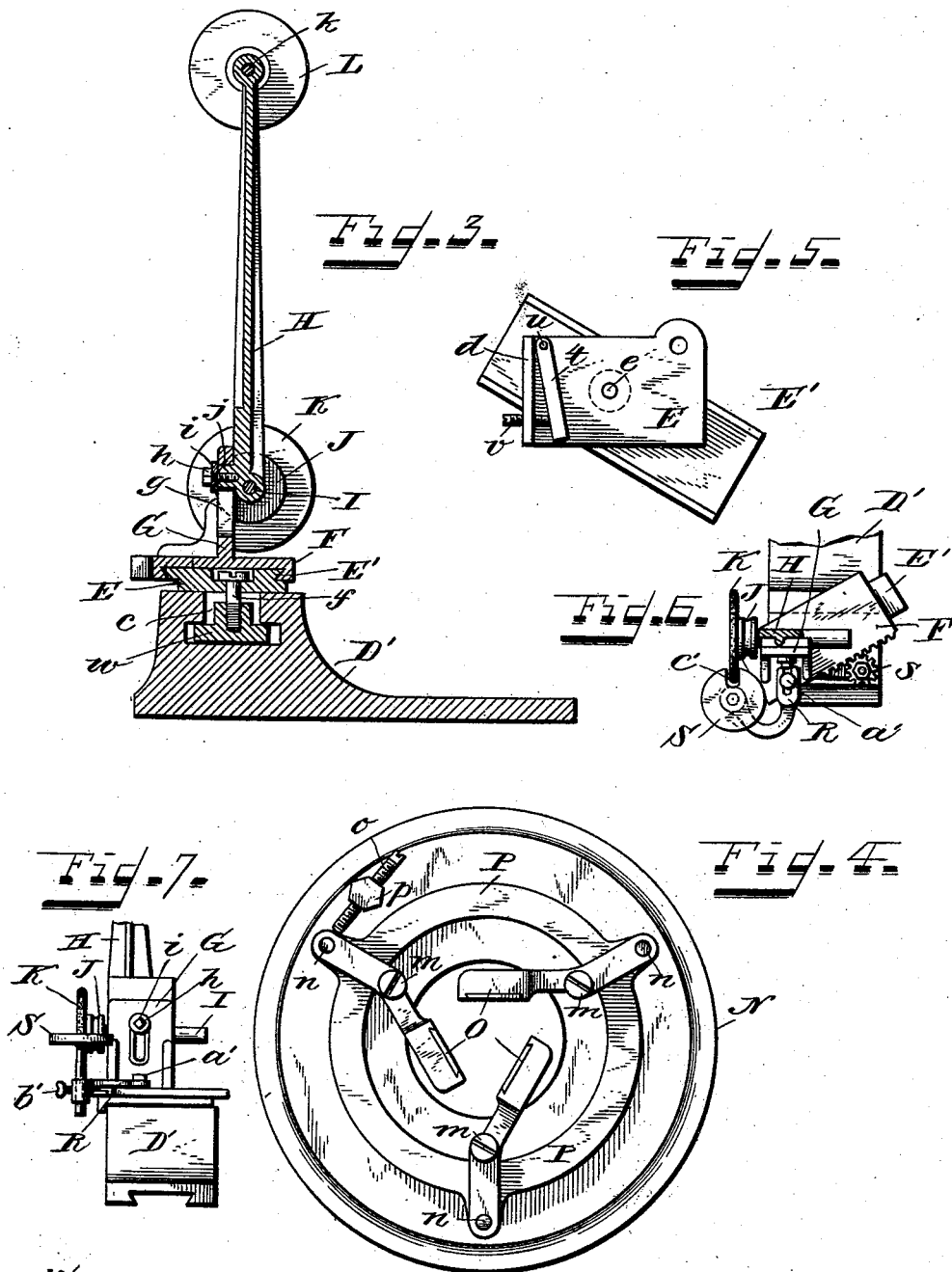
(No Model.)

2 Sheets—Sheet 2.

G. A. & O. W. MUELLER.  
GRINDING ATTACHMENT FOR LATHES.

No. 477,911.

Patented June 28, 1892.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## GRINDING ATTACHMENT FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 477,911, dated June 28, 1892.

Application filed February 1, 1892. Serial No. 419,976. (No model.)

To all whom it may concern:

Be it known that we, GEORGE A. MUELLER and OSCAR W. MUELLER, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have jointly invented certain new and useful Improvements in Grinding Attachments for Lathes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to that class of attachments which may be applied to lathes having spindles of varying diameters and operated by the lathe to grind the centers and render them true and for sharpening purposes generally; and it has for its object the improved construction of such attachments.

The novelty of our invention will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1, Sheet 1, is a front elevation of so much of a lathe as is necessary to show the application in front elevation of our improved attachment. Fig. 2, Sheet 1, is a plan view on the dotted line  $yy$  of Fig. 1. Fig. 3, Sheet 2, is an enlarged section through the dotted lines  $xx$  of Fig. 1, looking to the left. Fig. 4, Sheet 2, is an enlarged rear elevation of the chuck-pulley. Fig. 5, Sheet 2, is a bottom plan view of the base of the attachment. Fig. 6, Sheet 2, is a plan view in detail of the sharpening-rest. Fig. 7, Sheet 2, is a front elevation of Fig. 6.

The same letters of reference are used to indicate identical parts in all the figures.

A represents the bed of any metal lathe; B, the cone-pulley for the live-spindle; C, the live-spindle, and D D' the slide-rest with operating-handles  $a b$ , the parts being of the usual or any suitable construction. The transverse sliding member, D' of the slide-rest has in its top the usual T-slot  $c$ , Fig. 3, for attaching the tool-post. (Not shown.) To this member D' is secured the center-grinding attachment in the following manner: The base E of the attachment is a substantially rectangular plate having a downwardly-ex-

tending flange  $d$  at one side, and secured upon 50 or formed integral with its upper side is a beveled slideway E' at an angle of about thirty degrees with the axis of the live-spindle. There is a central hole  $e$  through way E' and base E for the passage of a screw or 55 bolt  $f$ , whose head is recessed or countersunk in way E' and which screws into an anchor-block  $w$ , confined in the slot  $c$  of the member D'.

In applying the base E to the member D' 60 the flange  $d$  fits against the edge of the member to afford a gage to insure the proper angling of the slideway E', and the tightening up of the screw or bolt  $f$  locks the base to the member D'. 65

Fitted so as to slide upon the plate E' is a support composed of a bottom plate F, recessed on its under side to fit the way E' and carrying an upright G, having through it a vertical slot  $g$ , Figs. 1 and 3, to which is ad- 70 justably bolted, through said slot by means of a screw  $h$  and washer  $i$ , a post H, having a flat-sided projection  $j$ , fitted snugly in the slot  $g$  to permit only a vertical adjustment between the post H and the support G, as will be readily understood. 75

Upon a spindle I, journaled in the lower end of the post H and parallel with the axis of the lathe-spindle, is a small grooved pulley J and an emery or other grinding wheel 80 K, while upon the upper end of the post is secured a rod or shaft  $k$ , parallel with the spindle I, upon which is journaled a sleeve  $l$ , carrying a grooved pulley L directly over and belted to the pulley J, and a small grooved 85 pulley M, directly over and belted to a grooved chuck-pulley N, fast upon the projecting end of the live-spindle C. This chuck-pulley, with an enlarged central opening, as seen in Fig. 4, has upon one side, preferably 90 the rear, three chuck-jaws O, pivoted to the pulley, as at  $m$ , and having their rear projecting ends pivoted, as at  $n$ , to projections from a ring P, which is rotated or turned in one direction to clamp the jaws upon the spindle C 95 by means of a set-screw  $o$ , engaging a block  $p$ , fast upon the pulley and bearing against a projection on the ring. In this way the

pulley N can be clamped to spindles of varying diameters, as will be readily understood.

The operation of the attachment is as follows: The center Q to be ground is inserted into the spindle C, and the post H is adjusted to bring the axis of the center in line with the axis of the spindle I, as seen in Fig. 1. Then by setting the grinder by means of the handles *b a* to the position shown in Fig. 2 and reciprocating the support G upon the fixed way E' the grinder is reciprocated across the cone of the center in a plane coincident with the axis of the live-spindle and pressure is exerted by the handle *b* to regulate the cut, as will be readily understood. To readily cause this reciprocation of the grinder, a rack *r*, Figs. 1 and 2, is formed upon the front edge of the plate F, with which engages a pinion *s*, journaled upon a stud fast upon the plate E and provided with an operating handle or wrench, as shown by the dotted lines in Fig. 2. By the above construction no taking up or slacking of the belts that connect the pulleys for driving the grinder is required, for the axis of the lathe-spindle C and of the spindle I are always in the same horizontal plane, no matter whether the slide-rest D be higher or lower, the adjustment in that respect being effected by the screw *h*.

In order to change the angle of grinding, an adjustable gage *t*, Fig. 5, is fitted within the flange *d*, which, pivoted, as at *u*, is adjusted by a set-screw *v*, inserted through and engaging the flange *d* and bearing against the gage, as shown.

For rendering the above-described attachment convenient for sharpening tools of any character, we provide a slotted bracket-arm R, Figs. 6 and 7, secured by a bolt *a'* to the piece F and adjustable thereon and having a vertical bore through its end, in which is secured by a thumb-screw *b'* the leg of a slotted table or rest S, having a slot *c'* for the passage of the grinding-wheel.

The tool or article to be ground or sharpened is held upon the table S in the desired contact with the grinding-wheel.

Having thus described our invention, we claim—

1. In a grinding attachment for lathes, the combination of a detachable chuck-pulley on the live-spindle, a support mounted to reciprocate upon the slide-rest in grinding relation to the lathe-center, and a grinding-wheel journaled on said support and driven by the pulley on the live-spindle, substantially as described.

2. In a grinding attachment for lathes, the combination of a detachable chuck-pulley on the live-spindle, a grinding-wheel journaled on a support movable in grinding relation to the lathe-center and driven by the pulley on the live-spindle, and a guide upon the slide-

rest, on which guide the support is reciprocated, substantially as described.

3. In a grinding attachment for lathes, the combination of a detachable chuck-pulley on the live-spindle, a grinding-wheel journaled upon a support movable in grinding relation to the lathe-center, two pulleys movable with said support, driven by the pulley on the live-spindle and driving the grinding-wheel, and a guide upon the slide-rest, upon which the support for the grinding-wheel is reciprocated, substantially as described.

4. In a grinding attachment for lathes, the combination of a detachable chuck-pulley on the live-spindle, two pulleys carried upon a post and driven by said pulley, a grinding-wheel journaled on said post and driven by one of the post-pulleys, an adjustable support for said post, and a fixed guide fast to the slide-rest and upon which said support is reciprocated, substantially as described.

5. In a grinding attachment for lathes, the combination of a detachable chuck-pulley on the live-spindle, two pulleys carried upon a post and driven by said chuck-pulley, a grinding-wheel journaled on said post and driven by one of the post-pulleys, an adjustable support for said post, a fixed guide fast to the slide-rest and upon which said support is reciprocated, and a rack and pinion for reciprocating said support, substantially as described.

6. In a grinding attachment for lathes, the combination of a grinding-wheel supported and capable of reciprocating motion on the slide-rest, a detachable chuck-pulley on the live-spindle, and driving connections between the grinding-wheel and chuck-pulley.

7. In a grinding attachment for lathes, the combination of a pulley on the live-spindle, a grinding-wheel supported on the slide-rest and capable of reciprocating motion at an angle to the axis of the live-spindle and with the grinding-line in a plane coincident therewith, and driving connections between said pulley and grinding-wheel.

8. In a grinding attachment of the character described, the base-plate E, carrying the guide E' and provided with the adjustable gage *t*, substantially as described.

9. In a grinding attachment of the character described, the reciprocating support F G, provided with the vertical slot *g*, and the grinding-wheel and pulley-carrying post H, adjustably secured to the support G through the slot *g*, substantially as described.

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