Oct. 14, 1930. A. F. GRONWALD 1,778,494

UNIVERSAL ATTACHMENT FOR LATHES

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Fig. 1

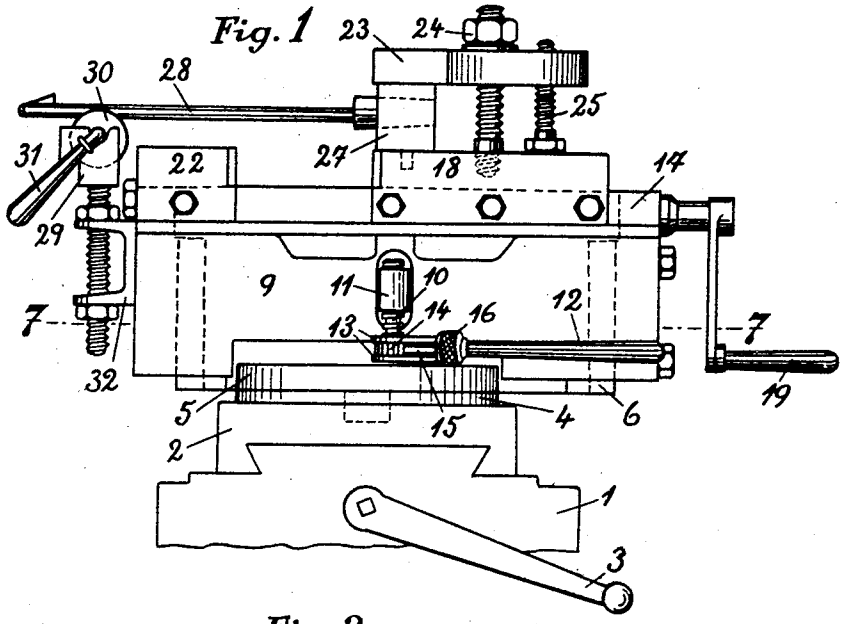


Fig. 2

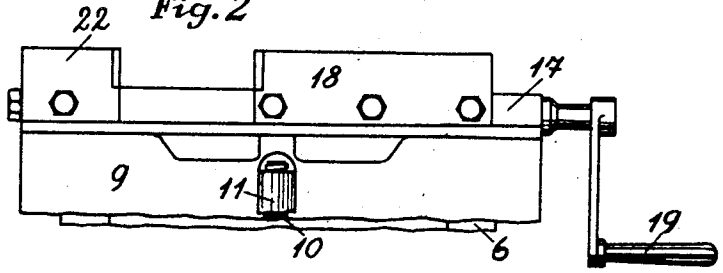
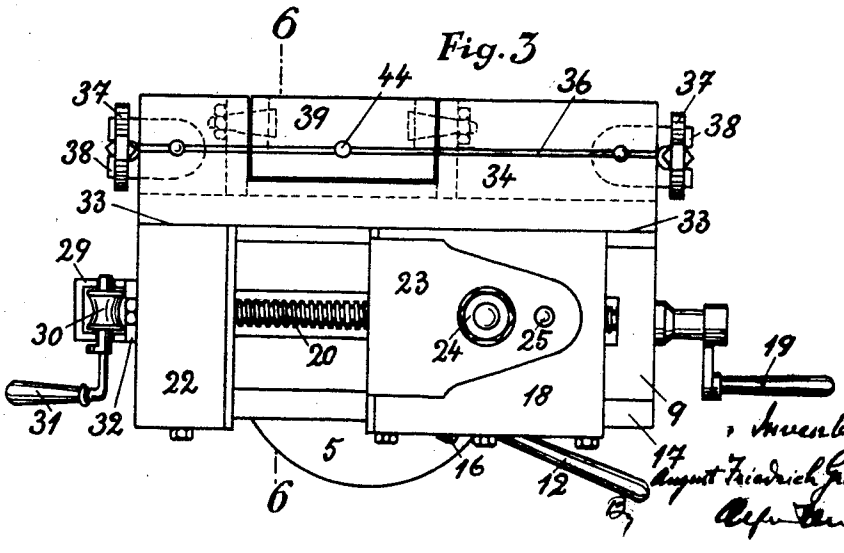


Fig. 3



, Inventor.
August Friedrich Gronwald

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Fig. 4

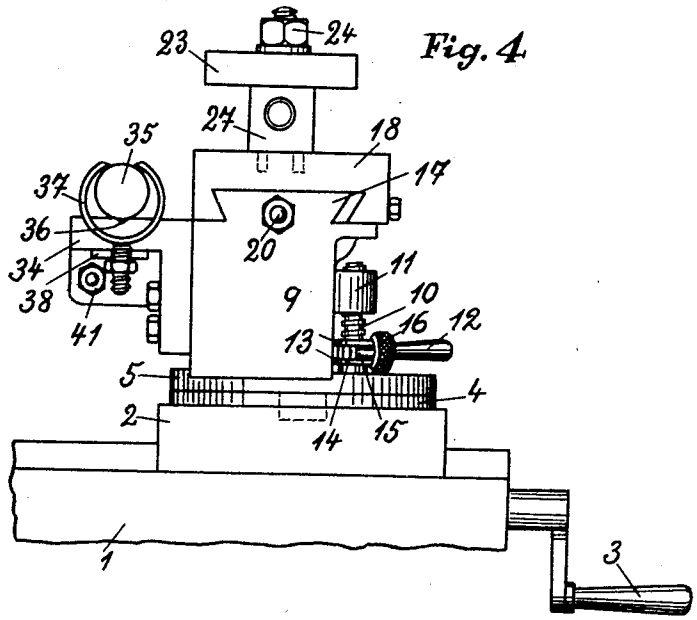


Fig. 5

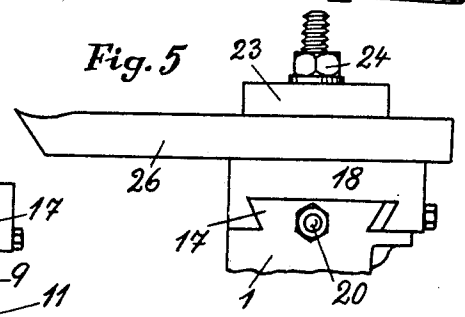


Fig. 6

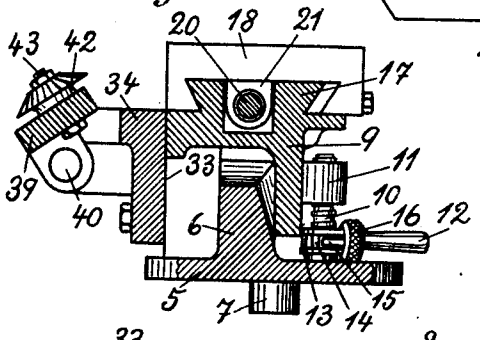
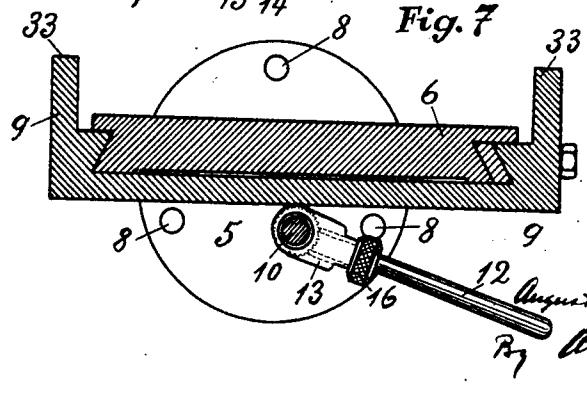


Fig. 7



Inventor:
August Friedrich Gronwald,
By
Atty.

Patented Oct. 14, 1930 1,778,494

UNITED STATES PATENT OFFICE

AUGUST FRIEDRICH GRONWALD, OF ZINTEN, GERMANY

UNIVERSAL ATTACHMENT FOR LATHES

Application filed January 16, 1929, Serial No. 332,818, and in Germany March 24, 1927.

My invention relates to an universal attachment for lathes, it is of a simple construction, can be attached to all lathes of usual build, and permits the lathe to be used as an universal machine tool for many purposes for which hitherto special machine tools were a necessity. Further, the attachment enables in most instances the changing of tools without removing the work-piece.

The nature of my invention and its distinguishing features and advantages will clearly appear as the description proceeds.

Reference is to be had to the accompanying drawings forming a part of this specification, it being understood that the drawings are merely illustrative of one example of the invention.

Figure 1 is a front view of the attachment embodying my invention.

Figure 2 is a partial front view showing the use of the attachment for a special purpose.

Figure 3 is a plan view.

Figure 4 is a side view.

Figure 5 is a partial side view showing the use of the attachment for a special purpose.

Figure 6 is a vertical section of the attachment on line 6—6 of Figure 3.

Figure 7 is a horizontal section on line 7—7 of Figure 1.

Similar numbers refer to similar parts throughout the several views.

In the drawings: 1 is a lathe carriage mounted in the usual way on the bed of the lathe, 2 is a slide movable transversely of the bed by means of crank 3. On this slide 2 and united with it is a base 4 for mounting, turning and fixing the attachment. All these parts being common to lathes in general use.

Numeral 5 represents a base plate or socle located on the vertical guide way 6, it revolves in the usual way on base 4 by means of pin 7 fastened to its bottom side and can be fixed on base 4 in any position desired by means of screw holes 8.

On guide way 6 is slide 9 vertically movable. The elevation is performed by means of the threaded spindle 10 revolvably fastened to the base plate or socle 5 having threaded engagement with the bore of nut 11 securely fastened on slide 9. The threaded spindle 10 is worked by means of handle 12.

Two plates numbered 13 connect the handle 12 with the threaded spindle 10, they are provided with bore holes through which the shaft of spindle 10 passes and revolve freely around spindle 10 above and below the ratchet wheel 14 which is securely fixed to the shaft of spindle 10. Between the two plates 13 two ratchets or detents 15 are placed on hinges. They are operated through nut 16. According to the direction nut 16 is turned, one or the other of the ratchets or detents 15 is put into action and grips into the teeth of the ratchet wheel 14. Slide 9 can then, according to the way nut 16 is set, be raised or lowered by moving handle 12.

For slide 18 a horizontal guide way 17 is provided on the surface of slide 9. The adjustment of slide 18 is performed by means of crank 19 which turns the threaded spindle 20 having threaded engagement with nut 21 located on the bottom side of slide 18. If slide 18 is not required it can be dismounted together with threaded spindle 20 and crank 19.

If the attachment is to be used as a vise for holding work-pieces on which work is to be performed with milling or grinding tools placed between the stocks of the lathe, slide 18 serves as the movable vise jaw, as illustrated in Figure 2, and as fixed vise jaw serves part 22 placed from the other end on to horizontal guide 17 and fastened there in the usual way.

Tools can be fastened on to slide 18 by means of clamp plate 23 in connection with clamp nut 24. For adjusting the horizontal position screw 25 is provided. In this way, for instance, a turning tool can be fastened as shown in Figure 5, and the elevation required for the edge of tool 26 in regard to the work-piece can be adjusted by operating handle 12. Cranks 3 and 19 serve to regulate the advance.

The numeral 27 indicates a block which can also be secured to slide 18 by means of clamp plate 23. For greater security two pins are mounted on its underside adapted to enter bore-holes on slide 18. Block 27

serves as tool holder for rod shaped tools such as drills, broaches, etc. For this purpose it is provided with a conical bore for the reception of the tool.

In Figure 1 it is clearly shown how block 27 can be used to hold a grooving tool 28, a rod with a projecting blade on its end. According to the groove required, the breadth of the blade is chosen. Grooving tool 28 is put into motion by means of crank 19 and supported during its activity by idler 30 revolving on an eccentrical axle in bearings provided by support 29. By means of handle 31 the idler 30 is raised when the grooving tool 28 acts on the work-piece, and lowered on the return movement of the tool. The idler support or holder 29 is mounted on frame 32 and can be adjusted in regard to height. Frame 32 is fastened to slide 9, it can be removed.

On the back of slide 9, on its side surface 33, the detachable table 34 is mounted. As shown in Figure 3 without work-piece and in Figure 4 with work-piece 35, this table serves principally for holding long work-pieces such as shafts, axles, spindles, into which a groove is to be cut or on which other work is to be performed. To secure a safe position for round work-pieces on table 34 its surface is provided with a longitudinal groove 36. The hoops 37 on both ends of the table hold the work-piece securely when screwed together with plates 38 fastened to the lower side of the table. To admit grooves to be cut without hindrance, the hoops are open on the top.

Numeral 39 indicates a swinging part of table 34 secured in the position desired by means of cones 40 and screws 41. This swinging part 39 is principally designed for holding such work-pieces which must be placed in an inclined position when worked on. It is clearly shown in Figure 6 that in this way, for instance, bevel wheel 42 can be fastened to the swinging part 39 by means of screw 43 passing through bore 44 in part 39. A horizontally acting tool can then be used on the workng face of the bevel wheel 42. It is only necessary to turn the bevel wheel when work on one tooth is finished until the next tooth is in the proper position. Part 39 can be swung so far that it stands vertically to the surface of table 34. Spur wheels can then be fastened to it and worked on by horizontally acting tools. Spur wheels can also be worked on by placing them on a shaft and fastening the shaft on table 34 as illustrated with shaft 35 in Figure 4.

Besides the examples described and illustrated the attachment can be used in many other ways should circumstances demand it.

I would state in conclusion that while the illustrated examples constitute a practical embodiment of my invention, I do not limit myself strictly to the exact details herein illustrated, since, manifestly, the same can be considerably varied without departing from the spirit of the invention.

What I claim is:

1. In a lathe, the combination of a lathe carriage having a base whereon a lathe attachment may be mounted, with an attachment consisting of a vertical guide piece having a base plate or socle adapted for being placed on and secured to the base of the lathe carriage, a slide vertically adjustable on the guide piece, a second slide above said first slide horizontally adjustable on said first slide and having means for holding tools and work-pieces.

2. In a lathe, the combination of a lathe carriage having a base whereon a lathe attachment may be mounted, with an attachment consisting of a vertical guide piece having a base plate or socle adapted for being placed on and secured to the base of the lathe carriage, a slide vertically adjustable on the guide piece, a nut upon said slide, a ratchet key turning a threaded spindle revolvably fastened to the base plate or socle of the vertical guide piece and having threaded engagement with said nut in the vertical slide and a second slide above said first slide horizontally adjustable on said first slide.

In testimony whereof I affix my signature.

AUGUST FRIEDRICH GRONWALD.