

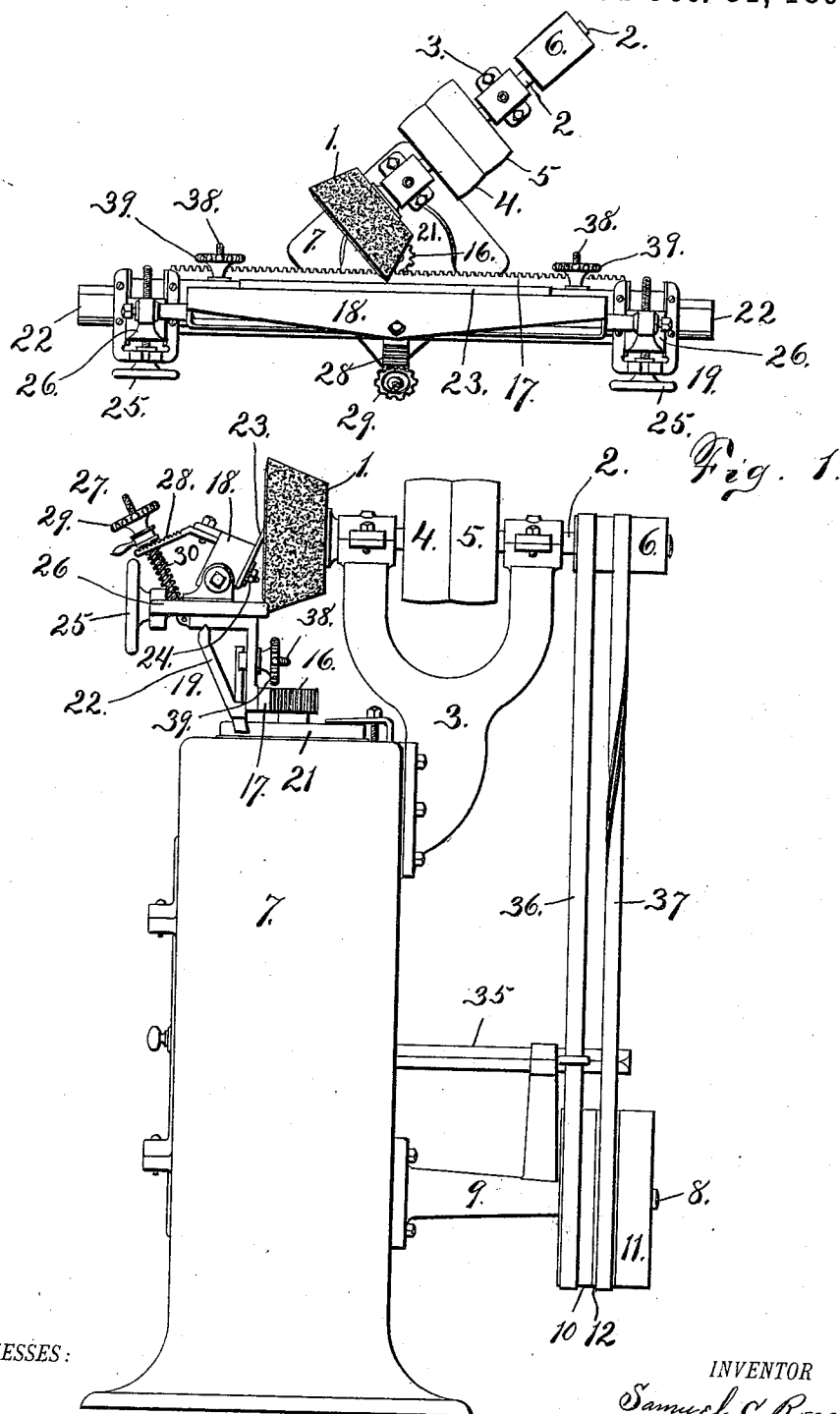
(No Model.)

S. C. ROGERS.
KNIFE GRINDER.

2 Sheets—Sheet 1.

No. 507,634.

Patented Oct. 31, 1893.



WITNESSES:

Charles Knochtel.
W. T. Miller

Fig. 2.

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Samuel C. Rogers.

BY

Otto E. Hodelick.

ATTORNEY

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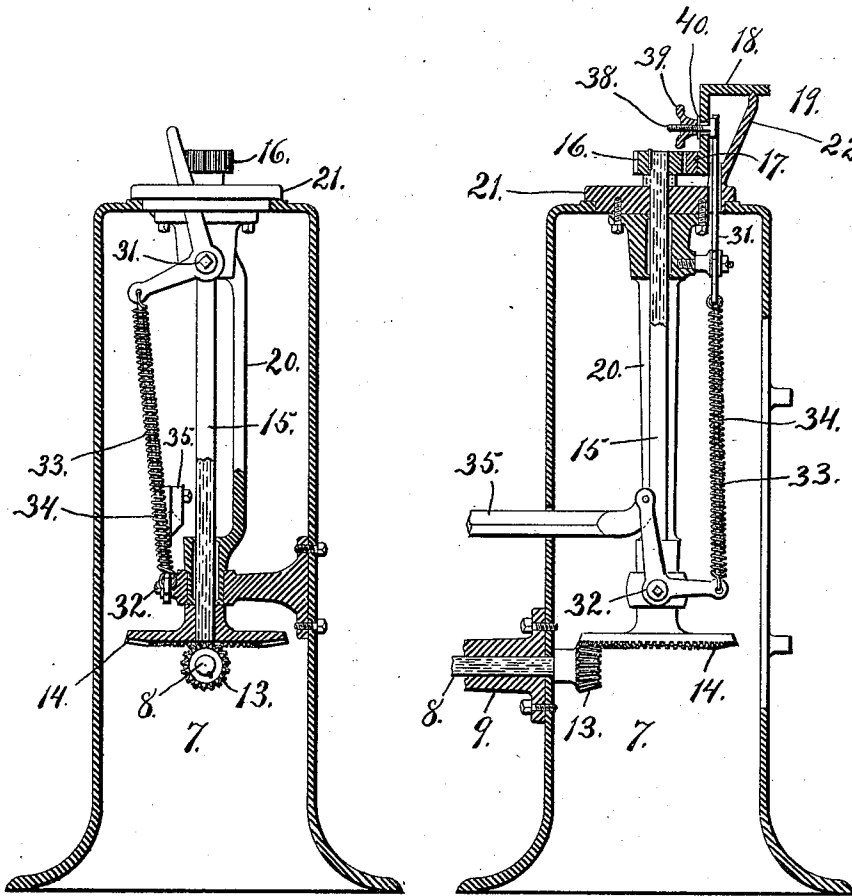


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

SAMUEL C. ROGERS, OF BUFFALO, NEW YORK.

KNIFE-GRINDER.

SPECIFICATION forming part of Letters Patent No. 507,634, dated October 31, 1893.

Application filed August 31, 1892. Serial No. 444,697. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL C. ROGERS, a subject of the Queen of Great Britain, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Knife-Grinders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in knife-grinders and more particularly to that class of knife-grinders in which a knife blade may be ground with a concaved beveled edge. Its object is to provide a knife-grinder as above referred to in which the concaved or grooved edge given to the blade may be varied. This is effected by the adjustment of the bed-plate in which the knife is held.

It consists in the novel and peculiar arrangement of parts and details of construction all of which will be hereinafter first fully described and then pointed out in the claim.

In the drawings already referred to which serve to illustrate my said invention more fully, Figure 1 is a top plan view of my improved grinder. Fig 2 is a side elevation of the same, and Figs. 3, and 4 are views of the standard of my improved knife-grinder, taken in section so as to show interior construction.

Referring to the drawings, 1 is the grinding-wheel (preferably made of emery), which is rigidly mounted upon the shaft 2. Centrally mounted upon the shaft 2, and between the arms of the bracket 3, are the rigid and loose pulleys 4 and 5, respectively, and at the outer end of the shaft 2, is rigidly mounted the broad pulley or drum 6.

7 is the standard or casing of the grinder and has mounted near its lower end the shaft 8, which projects through the casing and rests in the sleeve 9. This shaft 8, has mounted at its outer end the two loose pulleys 10 and 11, and tight pulley 12, and has secured to its inner end the pinion 13, which engages with the gear 14, mounted on the central-vertical shaft 15. (See Figs. 3 and 4.) At the upper end of this shaft 15 is rigidly mounted

the pinion 16, which engages with a rack bar 17, arranged upon a reciprocating frame 18, which rests upon the bed plate 19. The bed plate 19, consists of the depending bracket 20, in which the vertical shaft 15, is mounted, the annular plate 21, which rests in the top of the standard 7, and the projecting frame or track 22, upon which the reciprocating frame 18 travels.

When it is desired to grind a knife blade with my improved grinder, the blade 23 (see Fig. 2), is bolted to the reciprocating frame 18, by the bolts 24, with its edge facing the wheel 1. The entire bed-plate is then revolved within the standard so as to present that portion of the blade to be ground to the periphery of the wheel 1, (as seen in Fig. 1.) By this means a concaved beveled edge is given to the edge of the blade the radius of which concaved surface may be varied by changing the angle at which the blade is held while being ground. The position of the blade is adjusted to and from the wheel 1, by the hand wheels 25, which are threaded into the slides 26, arranged upon the reciprocating frame 18, and upon which the knife carrying frame is pivoted. The incline given to the blade 23, is regulated by the spring-pressed adjustment 27, consisting of the projecting arm 28, hand wheel 29, and spiral spring 30. (By this arrangement I am enabled to vary the breadth of the bevel given to the edge of the blade.)

31 and 32, are two bell-crank levers pivoted to the depending bracket 20, the upper bell crank lever 31, having one of its arms projecting through the standard and resting between the bed plate and reciprocating frame (see Fig. 4) and its other arm connected to one of the arms of the bell crank lever 32, by the spiral spring 33, which is stiffened by a rod 34, passing through it, the remaining arm of the bell crank lever 32, being pivoted to the reciprocating lever 35, which alternately throws the belts 36 and 37, upon the tight pulley 12, as power is applied to the pulley 4, and transmitted through my improved grinder as just described, the pulley 10, operating the shaft 8, which in turn is connected to the vertical shaft 15, and pinion 16, which engages with the rack bar 17, causing it to travel in one direction. The rack bar and its recip-

rocating frame will continue to travel in this direction until turned by one of its adjustable bolts 38. (These bolts 38, are adjustably secured in place by the thumb nuts 39, and rest in elongated openings 40, arranged in the frame 18.) As one of the bolt-heads 38, comes in contact with the projecting arm of the bell crank lever 31, it turns the bell crank lever 31, sufficiently to turn the bell crank lever 32, to which it is connected and cause it to operate the reciprocating lever 35, and (assuming that the cross belt 37, has just been operating), the belt 37, is drawn upon the loose pulley 11, and the belt 36, is drawn from the loose pulley 10, upon the rigid pulley 12, thus causing the shaft 3, and its connections to revolve in the opposite direction. There being a bolt 38, arranged at each end of the reciprocating frame 18, the bell crank lever 31, is alternately turned from one direction to the other thus making the operation of my improved grinder entirely automatic after the blade has been placed in position.

It will be seen that by placing the reciprocating frame 18, containing the blade 23, in the position shown in Fig. 2, a flat or plain bevel may be obtained, and as it is turned upon its annular plate 21, the bevel becomes concaved the radius of which is va-

ried according to the angle at which the frame 18, is placed. It will also be seen that the angle at which the blade is held in the frame can be varied by adjusting the spring pressed adjustment 27, thus regulating the breadth of the bevel. The spiral spring 33, connecting the bell crank levers 31 and 32 might be dispensed with and substituted by a rod connected by universal joints but the arrangement shown is preferred.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The herein described knife-grinder consisting essentially of the wheel 1, mounted upon the shaft 2, said shaft being connected to and operating the reciprocating frame 18, the spring pressed adjustment 27, for regulating the breadth of the bevel given to the blade and the pivoted frame 19, for varying the radius given to the bevel when being ground, substantially as shown.

In testimony that I claim the foregoing as my invention I have hereto set my hand in the presence of two subscribing witnesses.

SAMUEL C. ROGERS.

Attest:

OTTO E. HODDICK,
W. T. MILLER.