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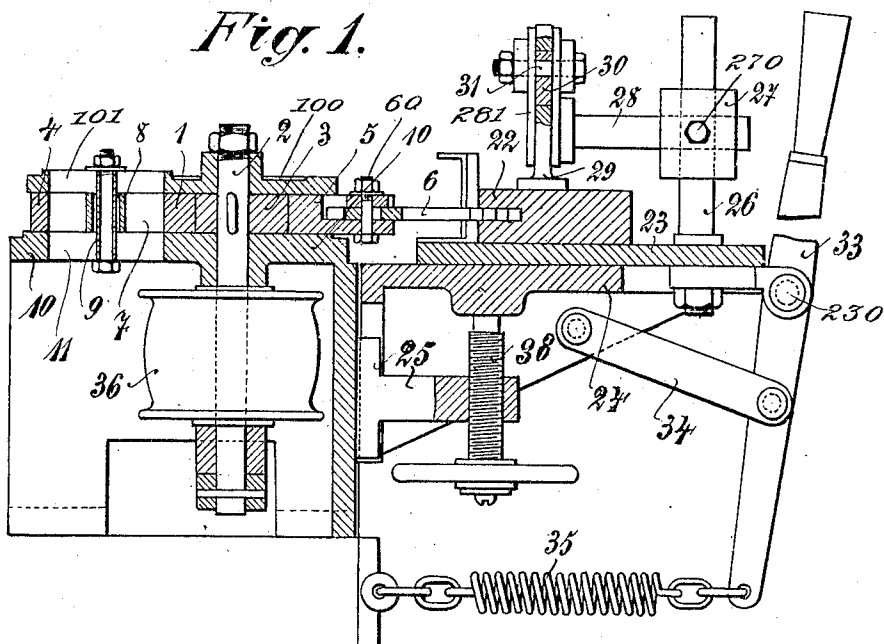
PATENTED FEB. 5, 1907.

P. BONTENAKELS.  
GROOVE CUTTING MACHINE.

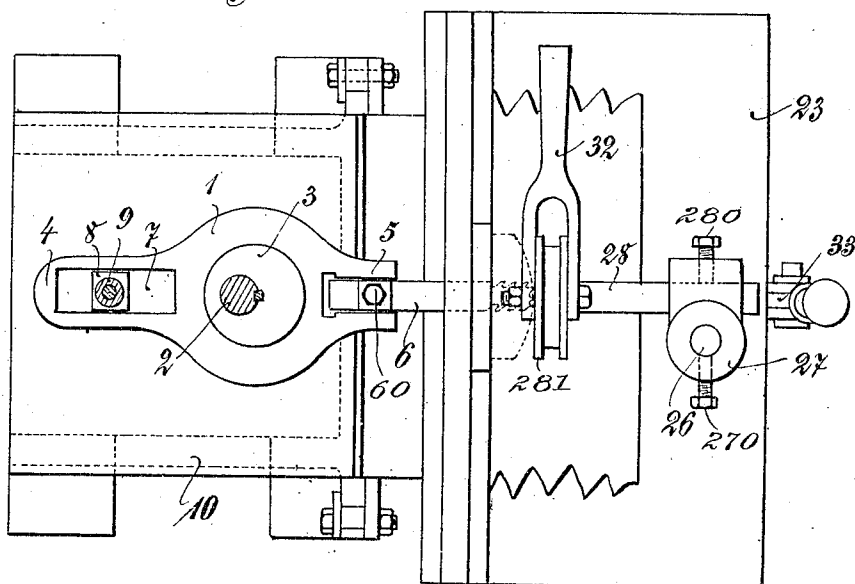
APPLICATION FILED JAN. 27, 1906.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
Arthur J. J. J.  
Ernest Penningwerth

Inventor:  
Peter Bontenakels  
by Frank W. Biesen Atty.

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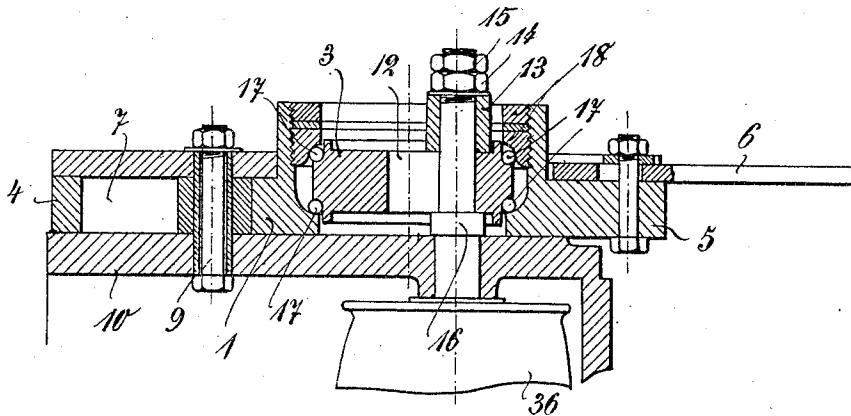
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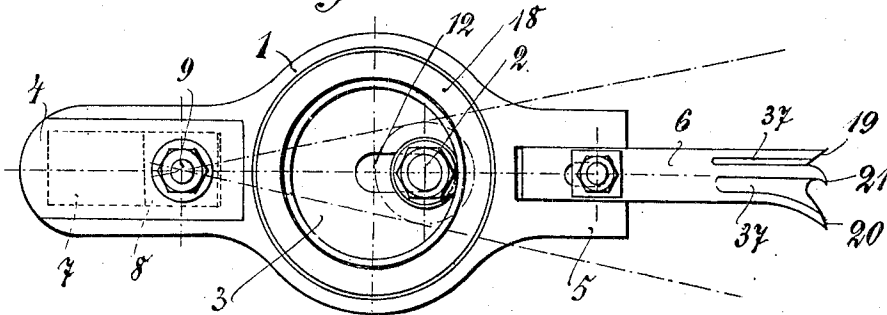
APPLICATION FILED JAN. 27, 1906.

2 SHEETS—SHEET 2.

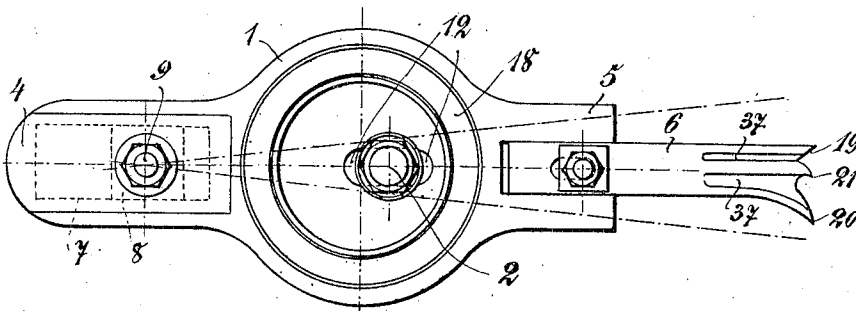
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Witnesses:

Arthur J. J. J.  
Ernest Genniguerth

Inventor:

Peter Bontenakels  
by [Signature] Att'y.

# UNITED STATES PATENT OFFICE.

PETER BONTENAKELS, OF DÜSSELDORF, GERMANY.

## GROOVE-CUTTING MACHINE.

No. 843,322.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed January 27, 1906. Serial No. 298,123.

*To all whom it may concern:*

Be it known that I, PETER BONTENAKELS, a subject of the German Emperor, residing at Düsseldorf, Germany, have invented new and useful Improvements in Groove-Cutting Machines, of which the following is a specification.

This invention relates to an improved machine for cutting grooves or holes by means of an oscillating bit having an adjustable stroke, so that grooves of different lengths may be readily formed.

In the accompanying drawings, Figure 1 is a vertical section through the principal part of my improved cutting-machine; Fig. 2, a plan, partly in section, thereof; Fig. 3, a section through a modification of the tool-actuating means; and Figs. 4 and 5 are plans thereof, showing the parts in different positions.

The numeral 1 indicates a strap or tool-holder embracing an eccentric 3, fast on a vertical shaft 2, which receives rotatory movement by a pulley 36. The strap 1 is provided with a pair of diametrically opposite arms 4 and 5, of which rear arm 4 is slotted, as at 7, while front arm 5 is grooved to receive the rear end of the cutting-tool 6, secured thereto by a screw 60. Within slot 7 is contained a squared block 8, rotatable on a pin 9, which is adjustably mounted within slots 11 101 of the frame 10 and top plate 100, respectively. It will thus be seen that upon the rotation of shaft 2 the tool-holder 1 will oscillate on pin 9 and will simultaneously move forward and backward toward or away from the work-piece 22. By adjusting the distance between pin 9 and shaft 2 the lateral stroke of tool 6 may be varied so as to set the machine to cut grooves of different lengths. If belt 9 is set close to shaft 2, a groove of greater length will be cut, while if the distance between belt 9 and shaft 2 is increased the length of the groove will be correspondingly diminished.

The work-piece 22 is secured to a slide 23, supported on a table 24 and adapted to be gradually advanced toward the cutting-tool

6. Table 24 is vertically adjustable by means of a hand-screw 38, engaging table 24 and tapped into a bracket 25 of frame 10.

For securing the work-piece 22 to slide 23 I have devised the following construction: Slide 23 carries a post 26, provided with a perforated block 27, which may be vertically adjusted upon the post by a set-screw 270. A horizontal bore of block 27 receives a horizontal rod 28, adjustably secured thereto by a set-screw 280. Rod 28 has a head 281, within which a plunger 29 is slidably mounted. The foot of plunger 29 bears against work-piece 22, while its upper end is engaged by an eccentric 30, fixed on a pin 31, rotating in head 281 and provided with a handle 32. By manipulating the latter the eccentric 30 will be pressed against plunger 29, which will hold the work-piece 22 in position upon slide 23. Slide 23 is advanced toward the cutting-tool by a hand-lever 33, connected to table 24 by a link 34 and pivoted to slide 23, as at 230. A spring 35 between frame 10 and lever 33 serves to retract slide 23 into its original position when the hand-lever 33 is released.

In the modification shown in Figs. 3-5 the length of the stroke of the tool may be regulated by making eccentric 3 adjustable on shaft 2. For this purpose I provide eccentric 3 with a slot 12, through which shaft 2 passes. Eccentric 3 is secured to shaft 2 by a sleeve 13 and nuts 14 and 15 pressing the eccentric against a collar 16 of such shaft.

Antifriction-balls 17 may be interposed between eccentric 3 and strap 1 and also between the eccentric and upper bearings 18.

I prefer to use a cutting-bit, as shown in Figs. 4 and 5, and provided with a beveled outer tooth 19, a curved central tooth 21, and a curved outer tooth 20, the teeth being separated by grooves 37.

What I claim is—

1. In a groove-cutting machine, a frame, an eccentric rotatable thereon, a surrounding strap having a first arm and a second slotted arm at diametrically opposite sides of the eccentric, a cutting-tool carried by the first arm, and a pin adjustably mounted in

the frame and engaging the second arm, substantially as specified.

2. In a groove-cutting machine, a frame, an eccentric rotatable thereon, a surrounding  
5 strap having a first arm and a second slotted arm at diametrically opposite sides of the eccentric, a cutting-tool carried by the first arm, a pin adjustably mounted in the frame, and a squared block rotatable on said pin

and engaging the slot of the second arm, substantially as specified. 10

Signed at the American consulate, Düsseldorf, Germany, this 17th day of January, 1906.

PETER BONTENAKELS.

Witnesses:

PETER LIEBER,  
RUDZ LIEBER.