

G. PEISELER.
MACHINE FOR PRODUCING FILES AND RASPS.
APPLICATION FILED AUG. 24, 1909.

957,367.

Patented May 10, 1910.

Fig. 1.

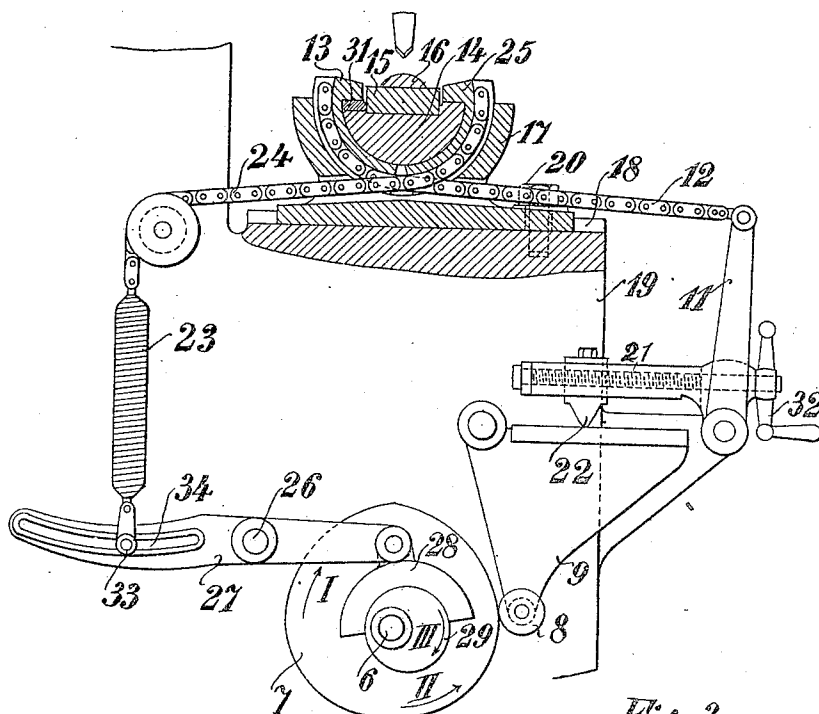


Fig. 3.

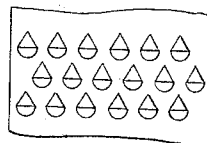
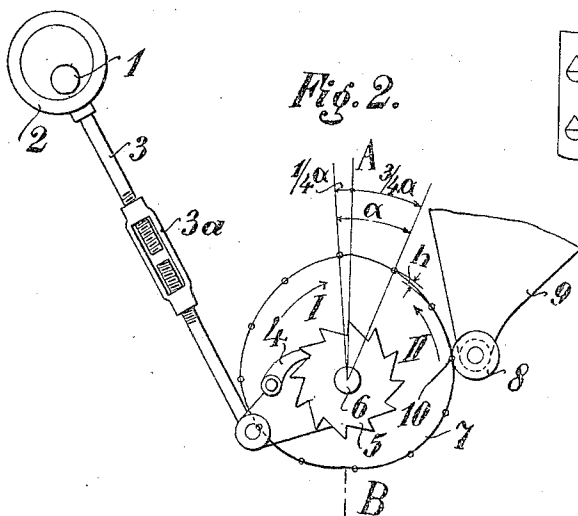


Fig. 2.



Witnesses:
Otto König
Willy Klein

Inventor:
Gottlieb Peiseler

UNITED STATES PATENT OFFICE.

GOTTLIEB PEISELER, OF REMSCHEID-HADDENBACH, GERMANY.

MACHINE FOR PRODUCING FILES AND RASPS.

957,367.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed August 24, 1909. Serial No. 514,424.

To all whom it may concern:

Be it known that I, GOTTLIEB PEISELER, a citizen of the German Empire, residing at Remscheid-Haddenbach, in the Province of Rhenish Prussia and Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Machines for Producing Files and Rasps, of which the following is a specification.

10 The present invention relates to a new machine for producing files and rasps, which machine as compared with hitherto well known machines in spite of simpler construction has a greater output and produces
15 a better article. This advance is attained in the first place by improving the mechanism for moving the slide and further by improving the setting device for transmitting motion to the slide.

20 A machine according to the present invention is represented by way of example in the accompanying drawing, in which—

Figure 1 shows the setting device for transmitting motion from the cam to the working slide, Fig. 2 a diagrammatic view
25 of the gear for operating the cam, and Fig. 3 the distribution of the rasp teeth on the rasp.

The cutting tool is moved as in the case
30 of the well known machines and consequently the gear for effecting the motion is not shown. The motion of the slide carrying the work, that is the article being operated upon, is derived from the shaft 1 by means of the eccentric 2, the eccentric rod 3,
35 the pawl 4 and the ratchet wheel 5. This ratchet wheel has for example as many teeth as are to be cut on the file during the travel of the cutting tool to and fro across the file.
40 The ratchet wheel 5 is together with a cam 7 keyed firmly on the shaft 6. The cam 7 is so formed that it consists of two halves symmetrical about the center-line A—B, any two radii at a given angle to one another on
45 either half differing in length by a constant amount. On the cam 7 there runs the roller 8 which by means of the lever 9 transmits to the slide carrying the file the movements produced by the cam. In Fig. 2 for example,
50 the pawl has moved forward through the space of one tooth and the roller 8 rests at the point 10 against the cam. On each additional forward movement the roller would come against one of the points indicated by

small circles. For purposes of adjustment 55 the rod 3 may be provided with a turn-buckle 3^a.

Fig. 1 shows the gearing transmitting motion from the lever 9 through the double armed lever 11, the chain 12 and the claw 13
60 to the slide 14 on which the file 16 to be cut lies on a support 15. The longitudinal slide 14 rests in the transverse slide 17. The transverse slide 17 runs in the guide 18
65 which is arranged on the machine body. If the transverse slide 17 is connected firmly with the machine body 19 by means of the screw 20, then the slide 14 will be turned
70 when the lever 9 moves. The cam 7 rotates for example in the direction of the arrow I and the roller 8 is therefore raised and the lever 9 turned counter clockwise so that it
75 acts on the intermediate member 22, the same being a nut adjustable along a face of lever 9 to vary their point of contact, by means of a hand operated screw 21 and
80 crank 32, which move pivotally with lever 11, the result being that the lever 11 is turned clockwise and the slide 14 with the file 16 counter-clockwise by means of the
85 chain 12 and the claw 13. The clockwise rotation of the slide 14 is effected by means of a spring 23, chain 24 and claw 25 as soon as the highest point of the cam 7 has passed the roller 8. The opposite end of the spring
90 23 to that at which the chain 24 is connected is secured to the double-armed lever 27 mounted revolvably on the bolt 26, said lever resting through the instrumentality of the intermediate member 28 on an eccentric 29.
95 This has the following purpose in the above described arrangement. The tension of the spring 23 keeps the roller 8 firmly in contact with the cam 7. In order during the interval between the forward movements of the
100 cam 7 to hold it in the position into which it is brought by the pawl and ratchet gear shown in Fig. 2, it is necessary to provide means for braking the cam 7. The braking action necessary is proportional to the
105 tension of the spring 23. Since the braking of the cam 7 means the same thing as loss of work the present invention possesses the additional important advantage that the tension of the spring 23 is kept as constant as possible. This is effected by the eccentric 29, since while the roller 8 is raised during the rotation of the cam 7 in the direction of the

arrow I and the tension of the spring 23 thereby increased, the arm of the lever 27 to which the spring is attached sinks on account of the rotation of the eccentric 29. By choosing a correct ratio of the one lever arm to the other the effect can consequently be obtained that the tension of the spring 23 is always only as great as is necessary for moving the work slide. Further if the eccentric 29 be correctly keyed on the shaft the spring acts on the shaft 6 which is common to the cam 7 and to the eccentric 29 in such a manner as to tend to produce rotation in the direction of the arrow III. On account of this it is sufficient to exert a very slight braking action on the cam 7. This is effected by forming the eccentric 29 as a brake-disk and the intermediate member 28 as a brake-block. In order entirely to do away with the idle travel in the setting device the claws 13 and 25 are divided. Consequently the tension of the spring 23 acts through the chain 24 on the slide 14 and through the latter on the claw 13, chain 12, double armed lever 11, lever 9, roller 8 and cam 7. The said claw 13 overlaps removable regulating bar or block 31. By substituting a thicker or thinner bar under said claw for the one shown, the movement of slide 14 will be correspondingly regulated and varied.

In order to be able to vary the magnitude of the movements obtained by means of one and the same cam 7, gearing in the form of the double-armed lever 11 and the lever 9 is geared in between the roller 8 and the chain 12. Between said levers 11 and 9 there moves the piece 22 which can be adjusted by means of the crank 32 and the worm 21 and by the movement of which the effective length of the lever arm of the lever 9 and that of the lever 11 is varied so that the gear can be quickly varied. In correspondence with this change of the gear the point of attachment 33 of the spring 23 in the slot 34 of the lever 27 can be varied so that the tension of the spring 23 remains as constant as possible.

There is an advantage in having the claws 25 and 13 arranged to overlap the extreme lateral parts of the slide 14 as shown as they get a better grip and leverage than if connected thereto at intermediate points. These claws and the intervening curved metal trough or cradle for said slide may be in one piece.

As shown in Fig. 3 the teeth are often formed in rows which break-joint with each other, the teeth being arranged in quincunx order on the face of the rasp. This is most conveniently effected by varying the feed of the blank operated on so as to move it alternately farther or less far laterally at regular intervals or by similarly the cutting tool. It is deemed not necessary to illustrate or describe means for such lateral feed

or shifting in the present application, the same not being claimed herein nor necessary to the comprehension of this invention.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In mechanism for reciprocating the work carrier of a file or rasp machine, a pawl and ratchet and means for operating the same, a cam moving with said ratchet and adjusting means for transmitting motion from said cam to the work carrier, the latter means comprising a part rocked by said cam, a nut movable along a surface of said part and actuated thereby, and an adjusting screw adapted to move said nut along said surface for varying the leverage exerted by said part and the movement correspondingly transmitted to said carrier.

2. The combination of a work carrier for rasp or file blanks, with a cam, means for rotating said cam, a lever rocked by said cam, an element adjustable in position and arranged for contact with said lever, a second lever moving in connection with said element, a flexible connection between said second lever and said work carrier and means for causing the return movement of said work carrier.

3. In a machine for producing files and rasps the combination of a work carrier and means for reciprocating the same, said means comprising a pawl, means for reciprocating the latter, a ratchet wheel engaged by said pawl, a uniformly ascending and descending symmetrically formed cam, connected with said ratchet wheel, means for transmitting motion from said cam to the work carrier, a spring for returning the work-carrier, means connecting one end of said spring with the work carrier, a counter-support connected with the other end of the spring and means for moving said counter-support substantially in unison with the first-mentioned end of the spring during the forward motion of the work-carrier for the purpose of maintaining the force exerted by the spring substantially constant.

4. In a machine for producing files and rasps the combination of a work-carrier and means for reciprocating the same said means comprising a pawl, means for reciprocating the latter, a ratchet wheel engaged by said pawl, a uniformly ascending and descending symmetrically formed cam connected with said ratchet wheel, and means for transmitting motion from said cam to the work carrier, a spring for returning the work carrier, means connecting one end of said spring with the work carrier, a counter-support connected with the other end of the spring and means for moving said counter-support substantially in unison with the first-mentioned end of the spring during the forward motion of the work-carrier for the purpose of maintaining the force exerted

by the spring substantially constant, said means for moving the counter-support comprising an eccentric connected with the cam.

5 In a machine for producing files and rasps the combination of a work carrier and means for reciprocating the same said means comprising a pawl, means for reciprocating the latter, a ratchet wheel engaged by said pawl, a uniformly ascending and descending
10 symmetrically formed cam connected with said ratchet wheel, and means for transmitting motion from said cam to the work carrier, a spring for returning the work carrier, means connecting one end of said spring
15 with the work carrier, a counter-support connected with the other end of the spring and means for moving said counter-support substantially in unison with the first-mentioned end of the spring during the forward
20 motion of the work-carrier for the purpose of maintaining the force exerted by the spring substantially constant, said means for moving the counter-support comprising an eccentric connected with the cam said
25 eccentric being in the form of a brake-disk.

6. In a machine for producing files and rasps the combination of a work carrier and means for reciprocating the same said means comprising a pawl, means for reciprocating
30 the latter, a ratchet wheel engaged by said pawl, a uniformly ascending and descending symmetrically formed cam connected with said ratchet wheel, and means for transmitting motion from said cam to the work
35 carrier a spring for returning the work carrier, means connecting one end of said spring with the work-carrier, a counter support connected with the other end of the spring, a two armed lever supporting said counter-
40 support on one arm, a brake-block mounted on the other arm, an eccentric in the form of a brake-disk engaging with said brake-block and connected with the cam the relative position of all said elements being such
45 that the counter-support is moved substantially in unison with the first-mentioned end of the spring for the purpose of maintaining substantially constant the force exerted by the spring.

50 7. In a machine for producing files and rasps the combination of a work carrier and means for reciprocating the same said means comprising a pawl, means for reciprocating the latter, a ratchet wheel engaged by said
55 pawl, a uniformly ascending and descending symmetrically formed cam connected with said ratchet wheel and means transmitting motion from said cam to the work-

carrier, said means engaging with said carrier by means of a claw 13, a spring for re- 60
turning the work carrier, means connecting one end of said spring with the work carrier, said means engaging with said carrier by means of a claw 25, a counter-support con- 65
nected with the other end of the spring and means for moving said counter-support substantially in unison with the first-mentioned end of the spring during the forward motion of the work carrier for the purpose of maintaining the force exerted by the spring 70
substantially constant.

8. The combination of a work carrier for file and rasp blanks, with a cam having two corresponding operative faces, means for rotating said cam, a lever rocked by said 75
cam, a nut arranged for contact with said lever, a hand operated adjusting screw engaging said nut and moving it along a surface of said lever, a second lever moving in connection with and being adjusted by said 80
adjusting screw and nut, a chain connecting the latter lever to said carrier and means for causing the reverse motion of said carrier after being acted on by said cam, levers and chain substantially as set forth. 85

9. In a machine for producing files and rasps the combination of a work carrier and means for reciprocating the same said means comprising a pawl, means for reciprocating the latter, a ratchet wheel engaged by said 90
pawl, a uniformly ascending and descending symmetrically formed cam connected with said ratchet wheel, and means for transmitting movement from said cam to the work carrier, said movement transmitting means 95
comprising a pivoted lever bearing against the cam, a second pivoted lever provided with a piece removably mounted and making contact with the first-mentioned lever, and means for adjusting the position of said 100
piece on said second lever, a spring for returning the work carrier means connecting one end of said spring with the work carrier, a counter-support connected with the other end of the spring and means for moving 105
said counter-support substantially in unison with the first-mentioned end of the spring during the forward motion of the work carrier for the purpose of maintaining the force exerted by the spring substantially constant. 110

In testimony whereof I affix my signature in presence of two witnesses.

GOTTLIEB PEISELER. [L. s.]

Witnesses:

OTTO KÖNIG,
WILLY KLEIN.