

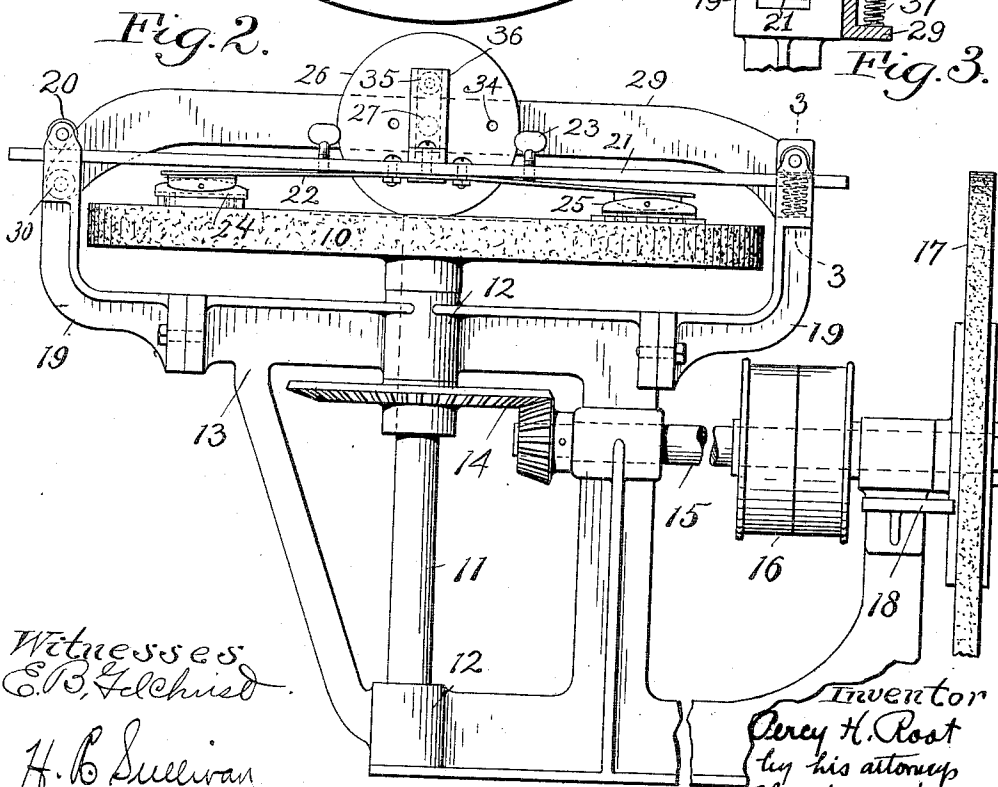
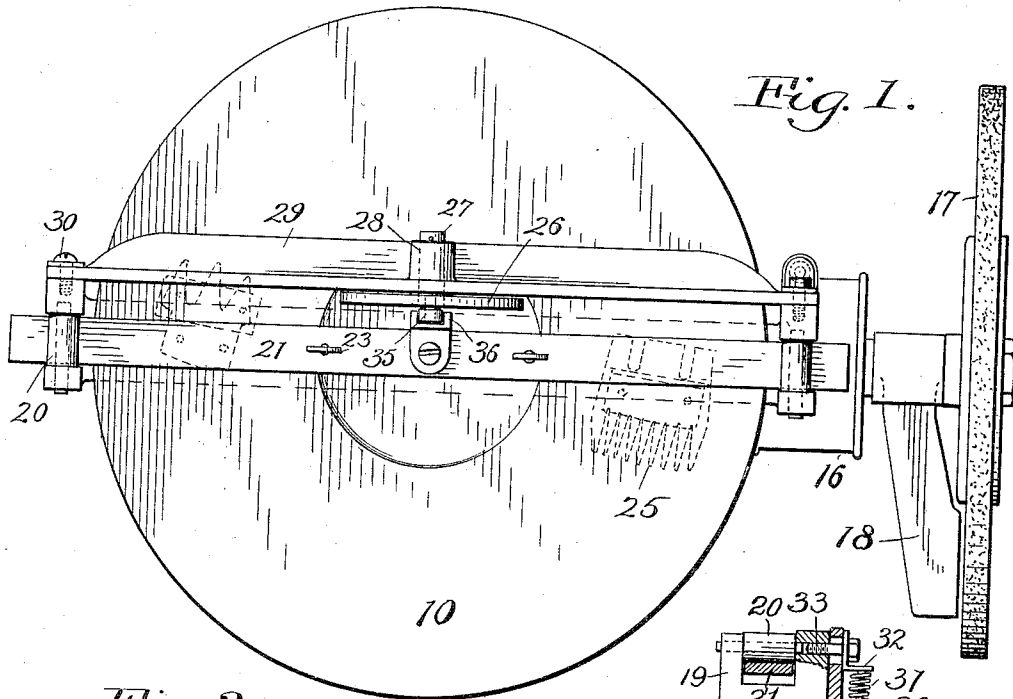
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P. H. ROOT.
GRINDING MACHINE.

APPLICATION FILED SEPT. 5, 1911.

1,044,575.

Patented Nov. 19, 1912.



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UNITED STATES PATENT OFFICE.

PERCY HUBERT ROOT, OF PLYMOUTH, OHIO.

GRINDING-MACHINE.

1,044,575.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed September 5, 1911. Serial No. 647,577.

To all whom it may concern:

Be it known that I, PERCY H. ROOT, a citizen of the United States, residing at Plymouth, in the county of Richland and State of Ohio, have invented a certain new and useful Improvement in Grinding-Machines, of which the following is a full, clear, and exact description.

This invention relates to grinding machines of the type which includes a rotary grinding plate or disk, and a work holder which presses the work down onto the plate and is reciprocated to distribute the wear evenly over the grinding surface,—machines of this type being especially adapted for grinding knives, blades of sheep and horse clippers and similar articles required to be dressed to a flat surface.

More particularly, the invention relates to mechanism for supporting and reciprocating the work holder and has for its object to provide in a grinding machine of this type a reciprocating mechanism for the work holder which is efficient, and simple in construction.

A further object is to provide a reciprocating mechanism which enables the length of stroke to be very readily adjusted to adapt the machine to work of different sizes.

The above and other objects are accomplished by my invention, which may be briefly summarized as consisting in certain novel details of construction and combination and arrangements of parts which will be described in the specification and set forth in the appended claims.

In the accompanying sheet of drawings, Figure 1 is a top plan view of a machine constructed in accordance with my invention. Fig. 2 is a side view of the same; and Fig. 3 is a detail view partly in section along the line 3—3 of Fig. 2.

Referring now to the drawings, 10 represents a rotary grinding plate or disk which is adapted to be provided on its upper face with a grinding paste for grinding the knives and blades. The plate 10 is secured to the upper end of a vertical driving spindle 11 which is journaled in bearings 12, 12, of a frame designated, as a whole, by the reference character 13. The vertical spindle and grinding plate are rotated by mechanism including bevel gearing 14 and a horizontal shaft 15, which may be driven in any suitable manner, but in this case is provided with tight and loose pulleys 16, so

that it may be belt driven. The shaft 15 may be provided with an emery wheel 17 which is adapted to rough grind the articles before being finished on the grinding plate 10. When the articles are being ground on the emery wheel, they are supported on a suitable rest 18.

A pair of arms or brackets 19 are secured to the frame and project upwardly above the grinding plate 10 at diametrically opposite sides thereof, and at the upper ends of these arms are journaled rollers 20 which constitute abutments for a slide or slide bar 21 which extends across the plate above the same, and is designed to support the work. This slide which is in the form of a flat bar has secured to its under side a spring 22, the free ends of which tend to spring up and to lie against the lower face of the bar, but are designed to be pressed yieldingly downward by adjustable thumb screws 23 which pass through the bar on opposite sides of its center. At the ends of this spring are carried any suitable holders 24 for the work to be ground, each of said holders being preferably pivoted to the spring, so that the work held by it can accommodate itself to the surface of the grinding plate,—the work which is carried by these holders being shown at 25.

The mechanism for reciprocating the slide and consequently the work holders and work forms the principal part of the present invention. To reciprocate the slide 21, I employ the grinding plate 10 as a friction drive wheel to rotate a wheel 26 which is arranged preferably in a vertical plane or at right angles to the grinding plate 10, and engages the same at a distance from its center. Preferably the grinding plate makes three or more revolutions to each revolution of the driven wheel 26. This wheel 26 is mounted upon a stud 27 which extends into a suitable journal 28 of a bar 29 which also extends across the grinding plate 10 above the same substantially parallel to the slide 21. This bar is pivoted at one end by means of a screw 30 to one of the arms or brackets 19, and at its opposite end is connected with the opposite arm or bracket 19 through the medium of a spring 31 which is arranged between the free end of the bar 29 and a clip 32 carried by a bolt or screw 33 extending loosely through a slot of the bar 29 into the bracket 19, so that the bar is pressed downward by the spring, causing the driven

wheel 26 to be held in yielding frictional engagement with the driving plate 10. This construction is illustrated in Fig. 3. The driven wheel 26 is provided with a number of holes or sockets 34 which are located different distances from the center of the wheel, and in one of these openings is placed a pin carrying a roller 35 which works loosely in the vertical slot of an upright member 36 which is secured to the slide 21 at its center. Thus through the frictional engagement of the grinding plate 10 and the wheel 26, said wheel is rotated at the proper speed, and as it is rotated the pin and roller 35 serves as a crank which, by its engagement with the slotted member 36, causes the slide to be reciprocated, the throw of the slide in each direction being equal to the distance of the center of the roller 35 to the center of the wheel 26. This mechanism for reciprocating the slide is very efficient and reliable and at the same time is inexpensive and simple in its construction.

The articles to be ground are attached to the holders and are pressed against the grinding plate by means of the screws 23 and spring 22, and the rotation of the grinding plate causes the sliding bar to reciprocate so as to carry the work in and out over the grinding plate,—the range of movement being sufficient to bring the whole working surface of the grinding plate into use, thereby maintaining the grinding plate true to its original surface. When wider blades are to be ground, the roller 35 is placed in a hole of the wheel 26 nearer the center, thereby reducing the length of stroke of the sliding bar and avoiding the danger of the blades being projected beyond the periphery of the grinding plate and engaging the brackets 19.

Having thus described my invention, what I claim is:

1. In combination in a grinding machine, a frame, a rotary grinding plate, a driving spindle supporting the same, a work holding

slide arranged at one side of the plate, and mechanism including a friction drive wheel in engagement with the grinding plate for reciprocating said slide.

2. In a grinding machine, a rotary grinding plate, a vertical driving spindle supporting the same, a work holding slide arranged above the plate, and means for reciprocating the slide comprising a wheel in frictional engagement with the grinding plate and having an operative connection with the slide, a support for said wheel, and means acting on said support to press the wheel yieldingly onto said grinding plate.

3. In combination in a grinding machine, a rotary grinding plate, a vertical spindle supporting the same, a work holding slide arranged above the plate, and means for reciprocating said slide comprising a wheel in frictional engagement with the grinding plate, a stud projecting outwardly from said wheel, a slotted member carried by said slide and engaged by said stud.

4. In combination in a grinding machine, a rotary grinding plate, a vertical spindle supporting the same, a work holding slide arranged and supported above the grinding plate, means for reciprocating the slide comprising a wheel in frictional engagement with the grinding plate, a support for said wheel having means for pressing the wheel yieldingly into engagement with the grinding plate, said wheel having a plurality of openings arranged different distances from the center thereof, a roller supported in one of said openings, and an upright member on the slide provided with a vertical slot which receives said roller.

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

PERCY HUBERT ROOT.

Witnesses:

O. S. EARNEST,
D. GLICK.