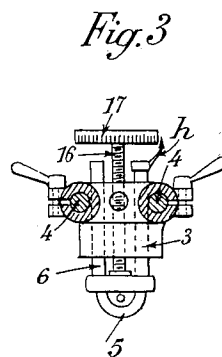
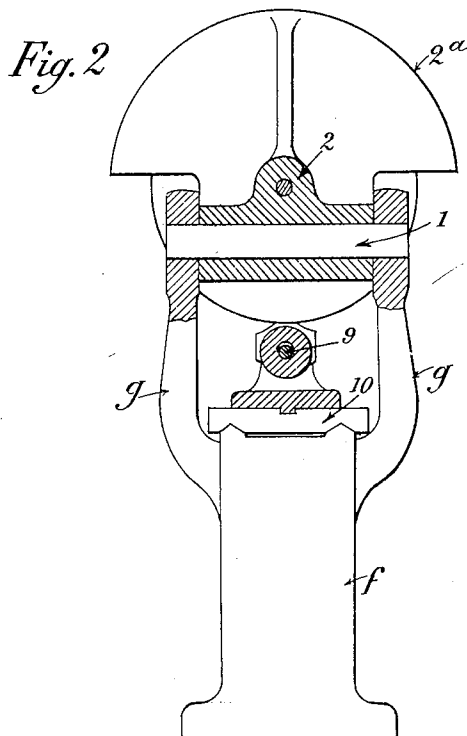
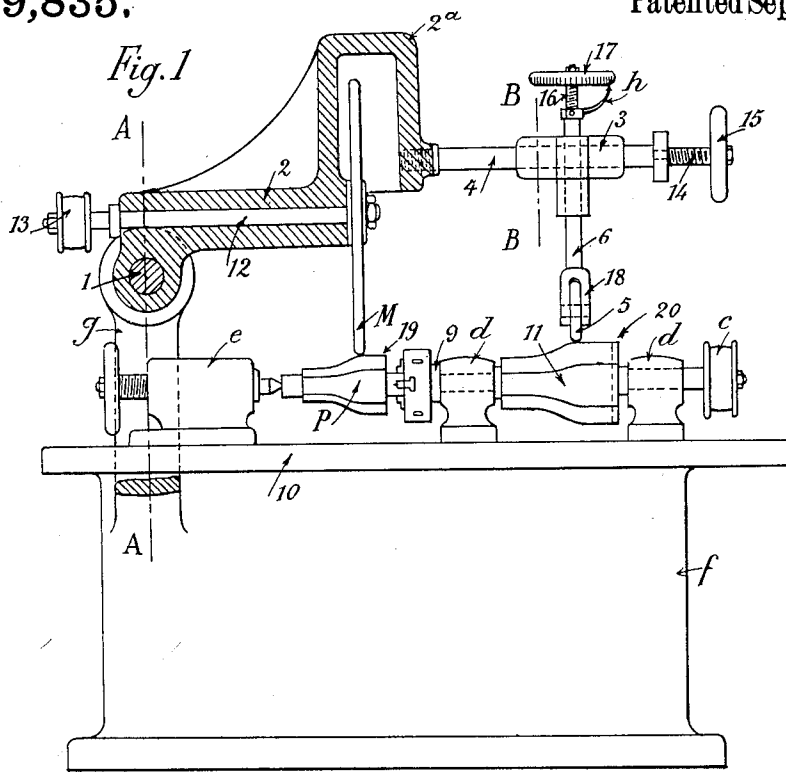


1,389,835.

Patented Sept. 6, 1921.



Inventor:
Albert Lecomte
By Laurence Langner
Attorney.

UNITED STATES PATENT OFFICE.

ALBERT LECOMTE, OF THIAIS, FRANCE.

GRINDING-MACHINE.

1,389,835.

Specification of Letters Patent.

Patented Sept. 6, 1921.

Application filed May 24, 1920. Serial No. 383,859.

To all whom it may concern:

Be it known that I, ALBERT LECOMTE, citizen of the Republic of France, residing at 1 Villa d'Ormesson, Thiais, Seine, in the Republic of France, have invented new and useful Improvements in Grinding-Machines, of which the following is a specification.

This invention relates to a grinding machine in which the grinding wheel and a guide roller or like member are carried on a swinging frame, the guide roller engaging with a pattern mounted coaxially with the work whereby the shape of the pattern is automatically reproduced on the work. The improved machine is of a very simple and cheap construction and very efficient in operation.

In the annexed drawings, given by way of example:

Figure 1 is a side elevation of the improved grinding machine partly in section.

Fig. 2 is a cross section of the same along the line A—A, Fig. 1.

Fig. 3 is a cross section along the line B—B, Fig. 1.

The frame *f* of the machine carries a longitudinally movable table or carriage 10 which is fed along the frame by any desired mechanism not shown. Mounted on said carriage, are bearings *d* in which the shaft 9 is rotatably supported. Upon said shaft is secured a pattern 11 and the work *P* is chucked on said shaft and supported on a tailstock *e*. A pulley *c* may be used to drive the shaft 9.

The frame of the machine is provided with one or two lateral upright arms *g* carrying a shaft 1 upon which a frame 2 carrying the grinding wheel *M* and the follower 5 for the pattern is pivotally supported. In the frame 2 rotates the wheel spindle 12 upon which the grinding wheel is secured. Said spindle may be driven by a pulley 13 which may be actuated by the same mechanism used for driving the spindle 9 and feeding the carriage 10. The grinding wheel may also be driven by a direct connection to a motor so as to reduce vibrations.

Secured to the swinging frame 2, are two parallel guide rods 4 connected to each other at their free ends, and supporting a slide 3 which may be shifted along said rods by means of a screwthreaded spindle 14 and handwheel 15 and clamped on the rods 4 in any desired position. In said slide 3, is a

vertically movable carrier 6 which may be raised and lowered by means of a screwed spindle 16 carrying a graduated hand-wheel 17. In the lower end of the carrier 6 is rotatably mounted a follower 5 which is designed to follow the contour of the pattern with a great accuracy and may be formed by a roller as shown, a ball or any other member of a suitable shape. The slide 3 carries a pointer *h* which coöperates with the divisions on the hand-wheel 17 whereby the position of the roller 5 in a vertical direction may be accurately adjusted.

All adjustable members are equipped with clamping devices so as to avoid vibrations and all movable parts are so constructed that wear may be taken up. The upper part of the grinding wheel is protected by a hood like part 2^a integral with the frame 2 and carrying the guide rods 4.

The grinding wheel being mounted and trued, the carriage 10 is shifted until one end 19 of the work *P* comes opposite the wheel and the slide 3 is adjusted so that the roller 5 is opposite the corresponding end 20 of the pattern 11. The position of the roller 5 is adjusted vertically by means of the hand-wheel 17. The operating gear is then thrown in whereby the spindle 9 carrying the pattern and the work is rotated, a rotary movement being also imparted to the grinding wheel and the carriage 10 being fed longitudinally toward the right (Fig. 1). The grinding wheel is thus held in operative contact with the work by the full weight of the swinging frame 2 and the parts thereon until the roller 5 comes to rest upon the pattern. As the carriage 10 is fed along, the roller 5 will follow the pattern and the work will be ground to a shape corresponding to that of the latter.

The wear of the grinding wheel is taken up by raising the roller 5. The divisions on the hand wheel 17 may be such as to permit an adjustment of .01 mm.

The above machine may be used for roughing or finishing either single pieces or whole series of pieces according to any given pattern: The work may be cylindrical or have an irregular shape. Punching and embossing tools, milling cutters and other tools may thus be machined at a low cost, and with a great accuracy.

Various changes may obviously be made in the construction described without departing from the invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A grinding machine comprising in
5 combination a machine frame, a carriage
movable on said frame along the axial line
of work, a master pattern, means on said
carriage for holding together said pattern
and the work, means for imparting to the
10 pattern and the work a common rotary
movement, a swinging frame having its axis
horizontal and perpendicular to the line of
work, a grinding wheel, a shaft supporting
said grinding wheel and a guiding rod on
15 said swinging frame, both perpendicular to
the axis of the latter, means for rotating
said shaft, a carriage movable on said guid-
ing rod, a feeler member supported by said
carriage and adapted to engage the pattern
20 and means for adjusting the position of said
feeler both in directions parallel and per-
pendicular to said guiding rod.
2. A grinding machine comprising in
combination a machine frame, a carriage
25 movable on said frame along the axial line
of work, a master pattern, means on said
carriage for holding together said pattern
and the work, means for imparting to the
pattern and the work a common rotary
30 movement, a swinging frame having its
axis horizontal and perpendicular to the line
of work, a grinding wheel, a shaft perpen-
dicular to said axis supporting said grind-
ing wheel, means for rotating said shaft, a
35 hood integral with said swinging frame and
adapted to cover the upper part of the
wheel, a guiding rod on said hood, also per-

pendicular to the swiveling axis of said
frame, a carriage movable on said guiding
rod, a feeler member supported by said car- 40
riage and adapted to engage the pattern and
means for adjusting the position of said
feeler both in directions parallel and per-
pendicular to said guiding rod.

3. A grinding machine comprising in 45
combination a machine frame, a carriage
movable on said frame along the axial line
of work, a master pattern, means on said
carriage for holding together said pattern
and the work, means for imparting to the 50
pattern and the work a common rotary
movement, a swinging frame having its axis
horizontal and perpendicular to the line of
work, a grinding wheel, a shaft perpendic- 55
ular to said axis supporting said grinding
wheel, means for rotating said shaft, a hood
integral with said swinging frame and
adapted to cover the upper part of the
wheel, a guiding rod on said hood, also per- 60
pendicular to the axis of said frame, a car-
riage movable on said guiding rod, a screw
and a hand wheel for adjusting the position
of said carriage on said rod, a contact roller
adapted to engage with the pattern, stems 65
supporting said roller and engaging guid-
ing slots in said carriage, an adjustment
screw for adjusting the position of said
roller, a graduated handwheel upon said
screw and an index on said carriage for
70 marking the position of said handwheel.

In testimony whereof I have signed my
name to this specification.

ALBERT LECOMTE.