March 31, 1925. 1,531,779

J. GAZO

ABRADING MACHINE

Filed Oct. 30, 1920 2 Sheets-Sheet 1

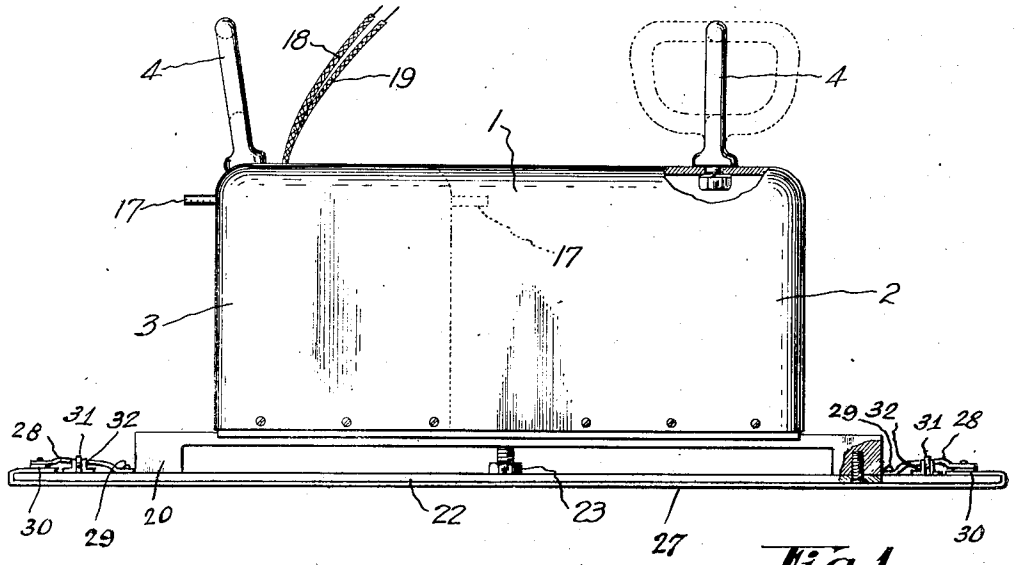

Fig. 1.

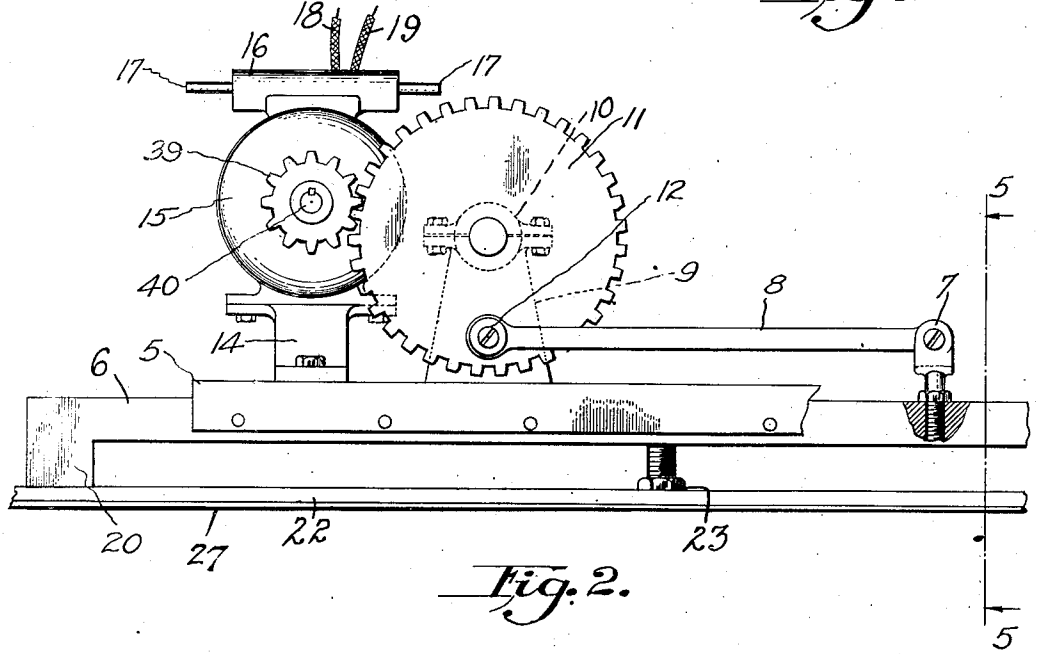

Fig. 2.

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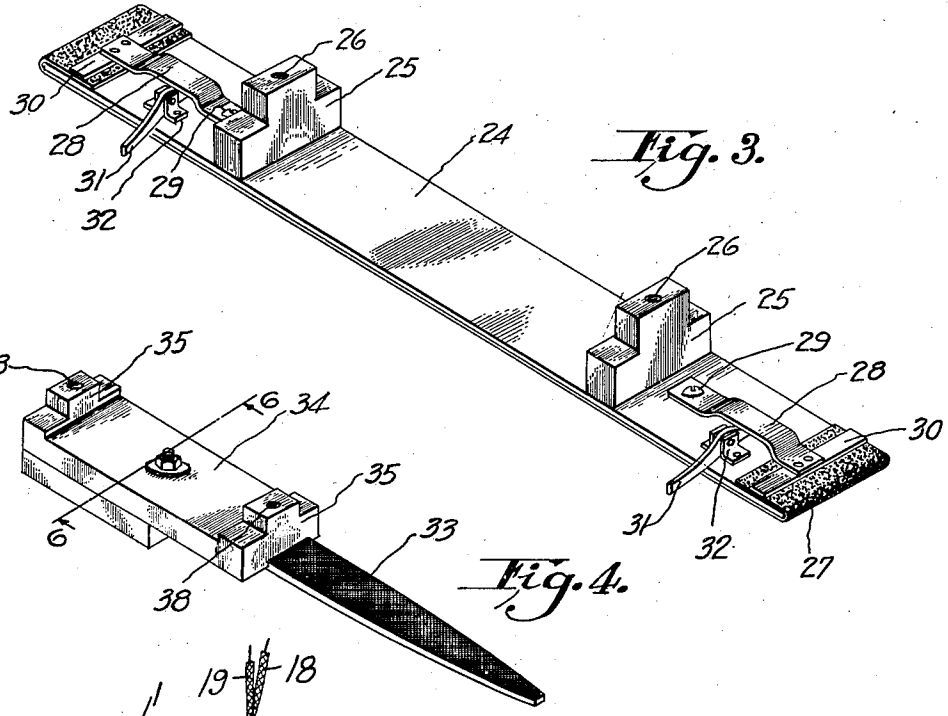

Fig. 3.

Fig. 4.

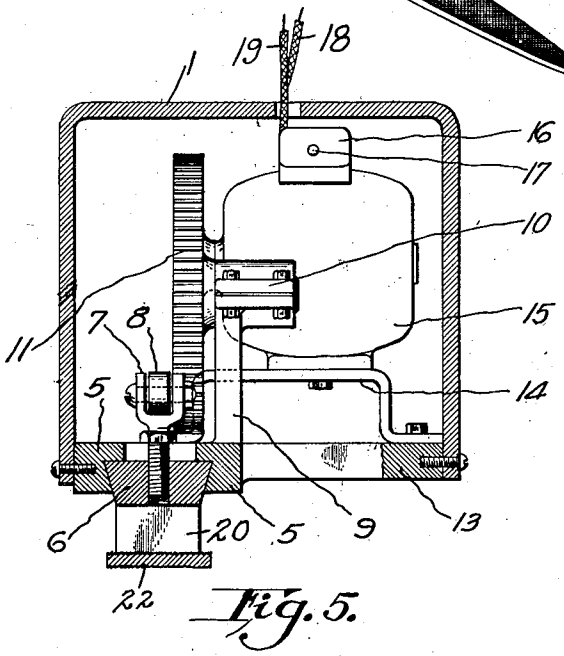

Fig. 5.

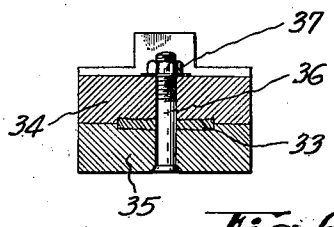

Fig. 6.

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Patented Mar. 31, 1925.

1,531,779

UNITED STATES PATENT OFFICE.

JOHN GAZO, OF DETROIT, MICHIGAN.

ABRADING MACHINE.

Application filed October 30, 1920. Serial No. 420,738.

To all whom it may concern:

Be it known that I, JOHN GAZO, a citizen of the Republic of Czechoslovakia, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Abrading Machines, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to filing machines and the object of the invention is to provide a filing machine having a stationary casing provided with handles for holding the same enclosing a driving mechanism for reciprocating the file which is positioned therebeneath. A further object of the invention is to provide a filing machine in which the file is supported in the center on the head of a screw the said screw being adjustable to support the file at the center. A still further object of the invention is to provide a filing machine having a reciprocable member to which several different types of files or abrasive members may be secured. These objects and the several novel features of the invention are herinafter more fully described and claimed and the preferred form of construction is shown in the accompanying drawings in which—

Fig. 1 is a side elevation of a filing machine embodying my invention.

Fig. 2 is a view of the filing machine with the casing removed.

Fig. 3 is a perspective view of one of the abrasive members adapted to be used in the filing machine.

Fig. 4 is a perspective view of an alternative type of file.

Fig. 5 is a section taken on line 5—5 of Fig. 2, the casing being broken away to show the construction.

Fig. 6 is a section taken on line 6—6 of Fig. 4.

As shown in Fig. 1, a casing 1 is provided the said casing being narrow at the end 2 and widened at the end 3 to enclose the driving mechanism. On this casing 1 is secured a pair of handles 4 as shown in Fig. 1, the handles being so constructed as to be turned longitudinally or transversely of the casing. Secured in this casing 1 is a stationary member 5 which, as shown in Fig. 5, is grooved to receive a reciprocating member 6. Secured to the reciprocating member 6 is a bifurcated member 7 in which the end of an arm 8 is pivoted, as shown in Figs. 2 and 5. Mounted on the side of the stationary member 5 is a stationary arm 9 which supports a bearing 10 for the shaft of a large gear 11. This arm 8 is pivotally secured at 12 to the face of the gear 11, as shown more particularly in Fig. 2. The frame member 5 is also provided with an outwardly extending portion 13 which provides a support for the bracket 14 on which an electric motor 15 is mounted as shown in Figs. 2 and 5. Secured on the top of the motor is a switch 16 operated by a button 17 which extends outwardly through the casing on each side, as shown in Fig. 1, the button being pushed from one end to close the circuit and supply current to the motor and being pushed from the opposite end to break the circuit and prevent operation of the motor. Leading from this switch is a pair of wires 18 and 19 adapted to be connected to a suitable source of current to supply current to the motor. The reciprocable member 6 is provided with a block 20 at one end and a block 21 at the opposite end to which the abrasive member is secured. This abrasive member may be of any of the well known types for working wood or metal and to prevent the same from curving at the center when downward pressure is applied thereto I provide a short hexagon headed screw 23 threaded into the member 6, as shown more particularly in Fig. 2. This screw may be adjusted by the use of a wrench to support the center of the file in a flat position or curve the same outward to a slight degree. By this construction the abrasive member is supported at both ends and at the center thus preventing it from curving and drawing away from the work between the ends when downward pressure is applied to the casing 1. The abrasive member 24 used with this device is provided with a pair of upwardly extending members 25, the member 6 in this instance being provided with a pair of screws extending therethrough and engaging in the threaded apertures 26 in the members 25 thus supporting the member 24 on the reciprocable member 6. A sheet of abrasive material 27 is positioned on this member 24 and to secure the same thereto I provide a pair of spring members 28 at the opposite ends of the member 24 secured

thereto by screws 29. These spring members 28 are provided with flat portions 30 at the ends thereof adapted to engage the ends of the abrasive strip 27 and bind the same in position by the action of the spring portions 28. After the abrasive strip has become worn and unfit for use it is necessary to remove the same and for this purpose I provide a lever 31 at each end of the member 24 which is pivotally supported in brackets 32. It can thus be seen that by pressing down on the ends of the member 31 the spring clips may be lifted to allow removal of the abrasive strip 27 therefrom and also allow the insertion of a new abrasive strip. In Fig. 4 I have shown an alternative form of file which is adapted to be secured to the member 6 adjacent the end 21 shown in Fig. 1. This file 33 is secured in a block 34 which is grooved to receive the file and an additional block 35 is provided fitting over the under surface of the file as shown in Figs. 4 and 6. A bolt 36 is provided, shown more particularly in Fig. 6, which extends through the block 35, through the file 33 and through the block 34 and a nut 37 is provided binding the said parts together on the bolt. The block 34 is provided with upwardly extending portions 35 at each end which in turn are provided with threaded apertures 38, a pair of screws being passed through the reciprocable member 6 and engaging in these threaded apertures 38 thus securing the block 34 to the reciprocable member 6 at one end. This block is adapted to be so secured to the member 6 that the file 33 protrudes beyond the end 2 of the casing 1. This file is particularly adapted to be used in apertures and other places where it is impossible to position the casing over the work.

In operation the wires 18 and 19 are connected to a suitable source of current and the operator, by means of the handles 4 on the casing 1, positions the abrasive member in contact with the work. When this has been done the button 17 at the left of Fig. 1 is actuated to close the circuit and set the motor 15 in operation. During operation of the motor 15 the gear 39 on the end of the shaft 40 thereof is rotated. The gear 39 being in mesh with the gear 11, the gear 11 is also rotated thereby causing the arm 8 to be reciprocated which reciprocates the member 6 and file secured thereto. It is therefore necessary for the operator to hold the casing 1 in a stationary position by the handle 4 while the abrasive member is reciprocated. The reciprocation of the file 22 is much faster than possible by hand filing and therefore the filing is accomplished in a much shorter period and with much more ease than by the hand method.

From the foregoing description it becomes evident that the device is very simple and efficient in operation, of comparatively low manufacturing cost and of few parts and provides a device which accomplishes the objects desired.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. In a device of the character described, a frame consisting of a base, a detachable cover therefor providing a housing, the base having a longitudinal way therein, an abrasive member comprising a bar reciprocable in the way and a member secured in spaced relation therewith at each end, a central adjustable support for the abrasive member to sustain the same between the ends thereof, a motor mounted on the base having a shaft at a right angle to the direction of reciprocation of the abrasive member, a gear on the shaft, a gear mounted on the base, and a pitman connection between the gear and the abrasive member, said cover housing the mechanism and being provided with a hand hold to permit manipulation of the device.

2. In a device of the character described, an abrasive member comprising a reciprocable bar, a flexible member secured thereto at each end and in spaced relation therewith, a central adjustable support for the flexible member adapted to sustain and to flex the same, an abrasive strip secured to the under surface of the said member, a spring clip at each end of the member for securing the abrasive strip thereto and a releasing dog for each clip carried by the said member.

In testimony whereof, I sign this specification.

JOHN GAZO.