July 15, 1930. A. PETERSON 1,770,549

SURFACING MACHINE

Filed Feb. 13, 1928 2 Sheets-Sheet 1

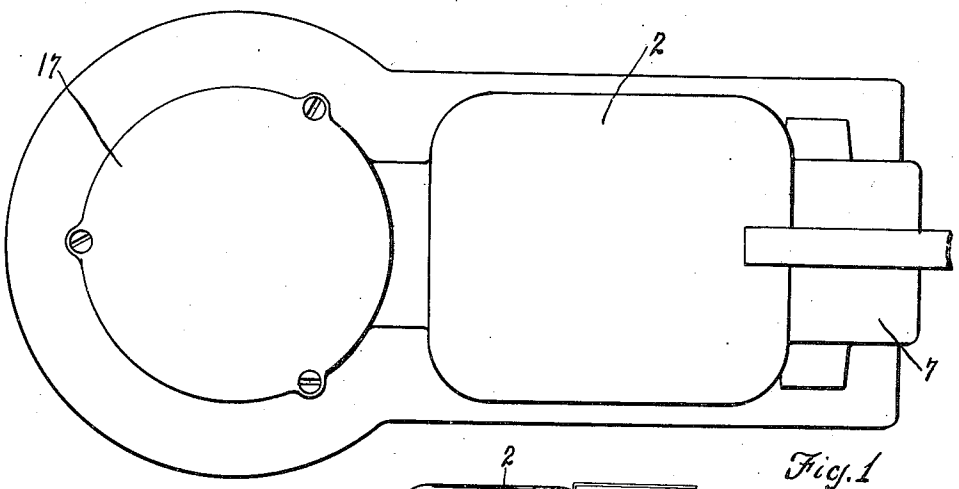


Fig. 1

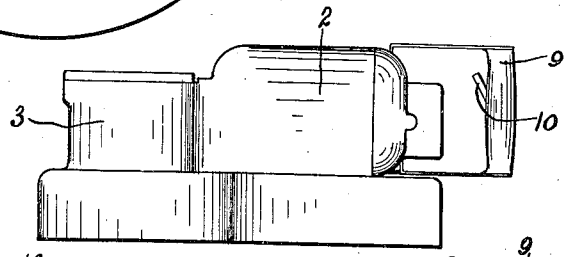


Fig. 3

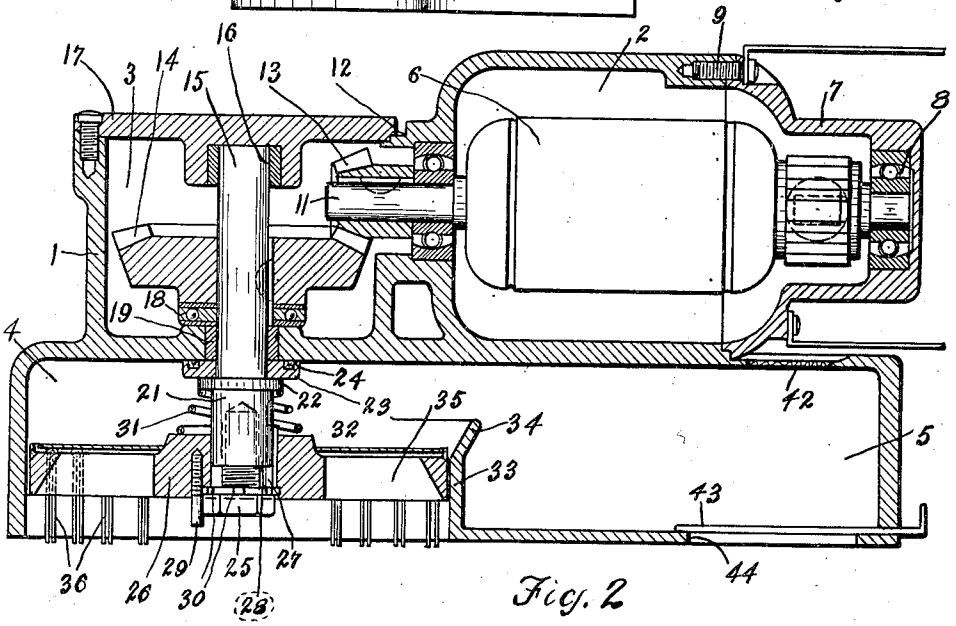


Fig. 2

INVENTOR.

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SURFACING MACHINE

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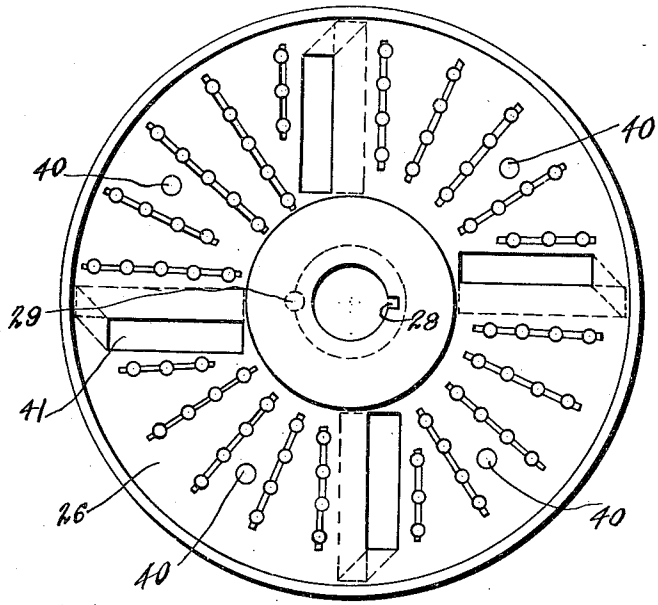


Fig. 4

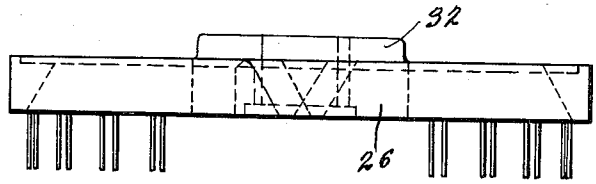


Fig. 5

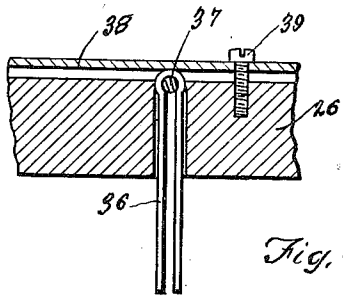


Fig. 6

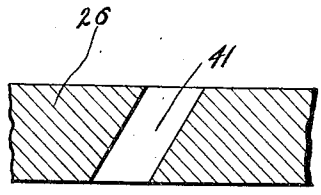


Fig. 7

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Patented July 15, 1930 1,770,549

UNITED STATES PATENT OFFICE

AUGUST PETERSON, OF CLEVELAND, OHIO

SURFACING MACHINE

Application filed February 13, 1928. Serial No. 253,856.

This invention as indicated relates to a surfacing machine. More particularly it comprises an apparatus adapted to be utilized for various purposes including the surfacing of the tops of meat blocks or similar blocks as well as for removing paint or preparing surfaces for the reception of a high luster finish.

Meat block polishing devices have heretofore been known but such devices are in many instances complicated structures involving numerous adjustments and being costly with reference to material and labor of assembling the same. The present invention has for its principal object the improvement of an apparatus of the character mentioned so that it will be provided with a minimum number of parts and will be of improved simplicity of manufacture and increased efficiency in operation.

Another object of the invention is to provide a device which will automatically adjust itself to the surface to be operated on and which will maintain the cutting elements free of material removed from the surface. Other and further objects of the invention will appear in the course of the following description. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a top plan view of an apparatus constructed in accordance with the principles of my invention; Fig. 2 is a central vertical sectional view showing the details of the construction of my device; Fig. 3 is a side elevation of the apparatus showing the handle and switch attached; Fig. 4 is a top plan view of the rotatable disc for supporting the cutter pins; Fig. 5 is a side elevation of the disc shown in Fig. 4; Fig. 6 is an enlarged sectional detail view showing the disc and cutter pin securing means; and Fig. 7 is an enlarged sectional view showing one of the air passageways through the disc.

As is clearly shown in Figs. 1 and 2 of the drawing, a casing 1 is provided which preferably is formed of an integral casting providing a motor housing 2, a gear casing 3, and a bottom compartment, a portion 4 of which is adapted to receive the disc and another portion of which is adapted to form a chamber 5 to receive the abraded material. An electric motor 6 is housed within the motor compartment, a cap 7 provided with the combined radial and thrust bearing 8 being secured to the housing by suitable means such as fastening screws. Said screws also serve to position the operating handle 9 on the casing, said handle carrying a switch 10. The other end of the motor shaft 11 extends through a combined thrust and radial bearing 12 and carries a beveled gear 13 at its outer end which engages with a bevel drive gear 14 keyed to a stub shaft 15 which extends through the gear housing into the disc chamber. The upper end of the stub shaft 15 is received within a bearing 16 formed in the top plate 17 of the gear housing which is suitably secured by screws or the like, to the casing. A ball-bearing 18 is provided immediately beneath the drive gear 14, to take the thrust upon the lower end of the stub shaft, and a bearing sleeve 19 is also provided in the base of the gear chamber. The stub shaft 15 is provided with an enlarged lower end 21 which is separated from the main portion of said shaft by means of an integral collar 22 which bears against a washer 23 provided with an internal groove 24 to receive packing material. At the lower end of the enlarged portion of the stub shaft, a set screw 25 is provided which is adapted to position the cutting disc 26 thereon. Said disc is provided centrally with an aperture of a size adapted to slidably engage over the enlarged lower portion of the stub shaft. A key or fin 27 is provided on the disc which engages a groove 28 in the enlarged portion of the stub shaft, and serves to lock the parts in non-rotatable engagement with reference to each other, while permitting sliding movement of the disc when in operation. Through the opera-

tion of the set screw 25, the lower limit of adjustment of the disc on the stub shaft may be controlled. By means of a locking pin 29 adapted to be screw threadedly engaged in the disc adjacent the stub shaft, the set screw 25 may be held in adjusted position, said pin slidably engaging one of a series of notches 30 on a flange of the set screw. A helical spring 31 is positioned between the collar 22 and the hub 32 of the disc and serves to maintain said disc projected toward the opening through the base of the casing.

The disc almost completely fills the opening through the base of the casing which opening over the greater portion of its extent follows the outside contour of the casing and is completed on its inner portion by means of a partition wall 33 terminating in a rearwardly projecting flange 34. The disc, as is more particularly shown in Figs. 2, 4 and 7 is provided with a series of apertures 35 preferably in spaced arrangement and in radial alignment with others of the series.

The apertures are of a size to receive cutting pins 26 formed of piano wire the shape of a cotter pin. A groove is provided for each radial series of apertures within which a securing wire 37 is positioned, each wire extending through the eyes of the cutting pins of its radial series. A metal plate 38 is preferably engaged over the top of the pins being held thereagainst by any suitable fastening means such as a series of securing screws 39 engaged in suitable apertures 40 in the body of the disc.

The disc in addition to providing a support for the cutting pins is also designed to provide a fan for removing the abraded material from the surface operated on. This fan construction comprises a series of elongated radially extending apertures or slots 41 formed at spaced intervals through the disc, said apertures being inclined upwardly in a direction rearwardly of the direction of rotation of the disc and being of smaller area adjacent the upper face of the disc. Thus as the disc is rotated, the air will be drawn from beneath the disc and forced into the upper portion of the casing and over the inclined edge of the spacing partition. The rearward portion of the casing as stated provides a chamber adapted to receive the abraded material and the upper wall thereof is provided with a screened opening 42 which permits the air drawn inwardly by the fan to be ejected rearwardly through said opening, the abraded material falling within the rearward portion of the casing. The plate placed above the eyes of the pins is provided with a series of slots in alignment with the slots through the disc. A slide 43 covering an opening 44 permits removal of the abraded material.

The operation of the device, it is believed, will be obvious from the description of its construction. Where a meat block or the like is to be resurfaced, the apparatus is positioned upon the block and the current is switched on so that the motor will rotate the disc and the cutting pins at a rapid rate. There are no wheels or other devices to space the casing from the block and the cutter accordingly will be held closely against the top surface of the block.

As the apparatus is pressed against the top surface of the block, the spring will press the disc with a predetermined degree of force against its surface and the pins will remove the projecting portions of the block through the usual abrading action. As the particles of material are removed from the surface, they will be maintained in motion between the pins and the suction created through the rotation of the disc will serve to force the current of air through the disc carrying with it the abraded material which will flow over the flanged partition and be captured within the chamber at the rear of the casing. It will be noted that the disc is held resiliently against the top surface of the block and that the degree of pressure may be regulated through the adjustment of the set screw at the end of the stub shaft. The stub shaft itself does not move vertically and the adjustment is entirely through the free sliding vertical movement of the disc upon the enlarged portion of the stub shaft against the pressure of the spring. This provides for the proper accommodation of the disc to irregularities in the surface of the block and provides a smooth running apparatus which may be maintained in service without injury for an indefinite period.

Other modes of applying the principle of the invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. An apparatus of the character described having in combination a casing, a motor and reduction gear within said casing, a stub shaft driven by said motor and an abrading disc resiliently supported for vertical movement on said stub shaft and engaged therewith for rotational movement and said disc being provided with apertures acting as fan slots.

2. An apparatus of the character described having in combination a casing, a motor and reduction gear within said casing, a stub shaft driven by said motor, an abrading disc, having fan slots, resiliently supported on said shaft, and a dust receptacle immediately adjacent said disc and separated by a low spacing partition therefrom, said receptacle being provided with an air pressure relief orifice.

3. An abrading disc for a surfacing ma-

chine comprising a body member provided with a plurality of inclined apertures to serve as air passageways acting as a fan at spaced intervals about said disc, and a plurality of cutting pins positioned at spaced intervals between said apertures.

4. An apparatus of the character described having in combination a casing, a motor and reduction gear within said casing, a stub shaft driven by said motor, an abrading disc resiliently supported on said shaft, said disc having apertures therethrough serving as fan slots, and a dust receptacle immediately adjacent said disc and spaced therefrom by a low spacing partition, said receptacle being provided with an air pressure relief orifice.

Signed by me this 21st day of January, 1928.

AUGUST PETERSON.