June 9, 1942. G. W. ROSS 2,285,874

ABRADING DEVICE

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Fig. 1.

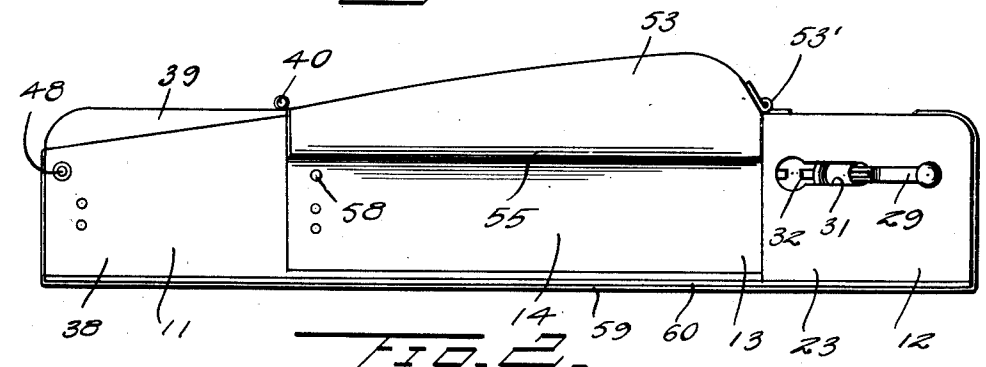


Fig. 2.

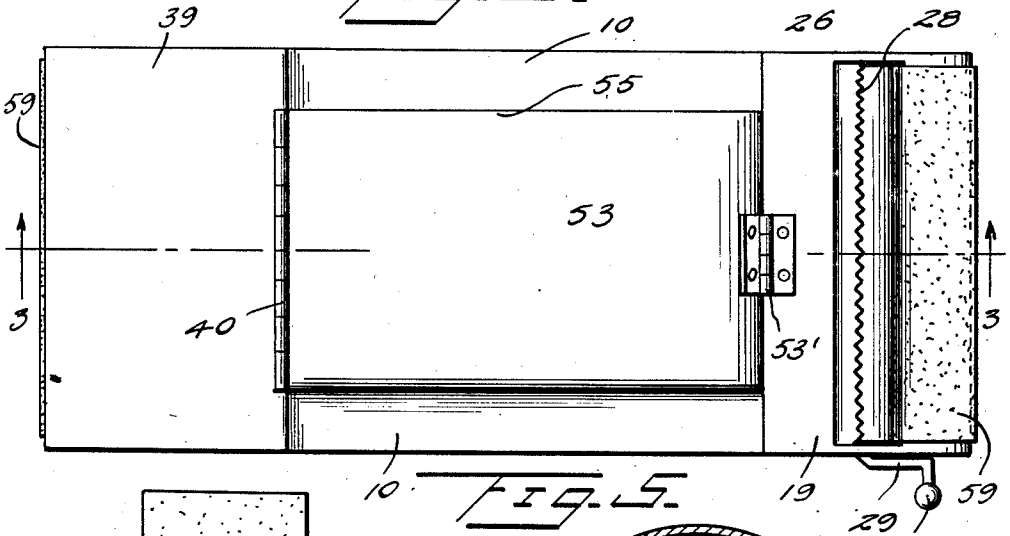
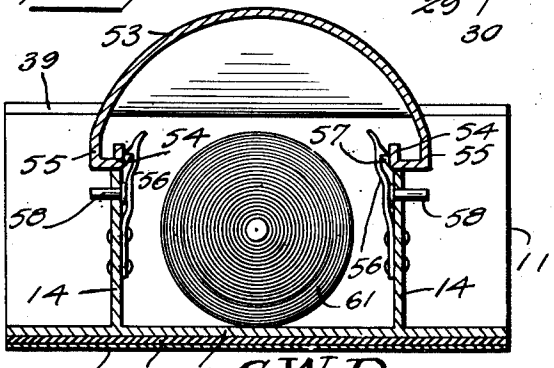


Fig. 5.



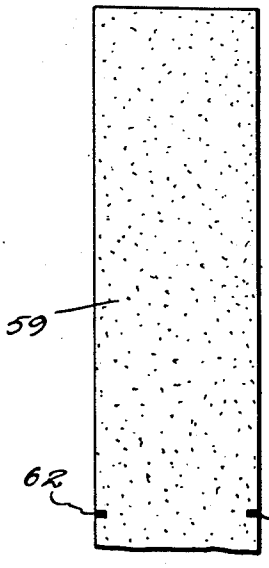


Fig. 6.

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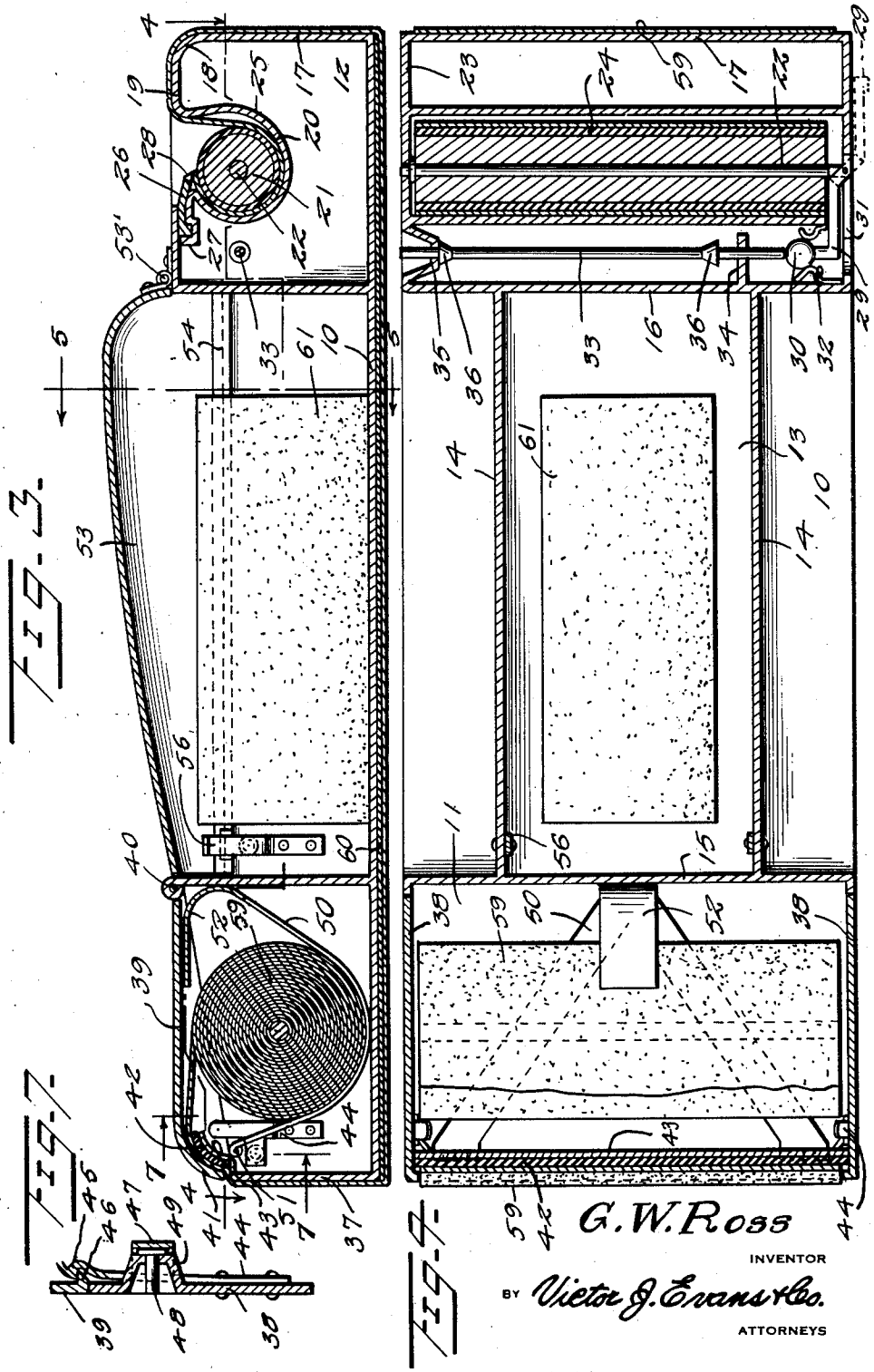


FIG. 3.

FIG. 4.

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ABRADING DEVICE

Glenn W. Ross, Crockett, Calif.

Application May 22, 1941, Serial No. 394,701

4 Claims. (Cl. 51—187)

The present invention relates to improvements in abrading devices.

An object of the invention is the provision of an abrading device of generally improved design.

Another object of the invention is the provision of an abrading device having means for moving and holding an abrading strip to present new surfaces thereof on the working face of the device.

A further object of the invention is to provide an abrading device constructed so that the abrading strip thereof may be easily and conveniently adjusted.

Still another object of the invention is to provide an abrading device which is relatively simple and durable in construction and efficient in use.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate corresponding parts throughout:

Figure 1 is a side elevational view of the device,

Figure 2 is a top plan view of the same,

Figure 3 is a longitudinal section taken on line 3—3 of Figure 2,

Figure 4 is a horizontal section taken on line 4—4 of Figure 3,

Figure 5 is a transverse section taken on line 5—5 of Figure 4,

Figure 6 is a plan view of a fragmentary portion of an abrading strip, and

Figure 7 is an enlarged fragmentary section taken on line 7—7 of Figure 3.

Referring to the drawings, wherein for the purpose of illustration is shown a preferred example of the invention, B generally designates the body of the device which is in the form of an elnogated casing having a flat longitudinally elongated base plate 10 having formed thereon transversely arranged rear and forward compartments 11 and 12. Intermediate these compartments is provided an elongated chamber 13 having opposed side walls 14 set inwardly relative to the side edges of the base plate and extending, at the ends, to transverse partitions 15 and 16 constituting the inner vertical walls of the end chambers.

The forward chamber 12 has an outer vertical wall 17 merging at an upper rounded corner 18 into a top 19. The latter is shaped to form a depressed transverse arcuate channel structure 20 in coacting relation with a roller 21 fitted in the member 20 and rotatably mounted on a center shaft 22 having its ends journaled in openings in side walls 23 of this compartment. On the circumferential surface of the roller is fastened a concentric cylinder cover 24 preferably formed of yielding resilient material such as soft rubber. As shown at Figure 3 the channel and roller are disposed so that the bottom and rear portion of the channel structure is curved in conformity with the curvature of the roller while the forward portion is shaped so that it is diverted from the roller as indicated at 25. A cutter blade 26 is mounted in a grooved support part 27 of the compartment top wall and is designed so that its outer serrated cutting edge 28 is arranged above and immediately adjacent the roller.

To one end of the shaft 22, to which is fastened the roller body 21, is pivotally connected an angular crank arm 29 provided at its outer extremity with a ball knob 30 and movable, when retracted, through a suitably shaped opening 31 in the side wall of the compartment 12. When fully retracted, as shown at Figure 4, the knob 30 is releasably engaged by a pair of opposed springs 32 secured in the compartment and disposed to yieldingly grip the knob to prevent its accidental extension. When it is desired to extend the crank for manual rotation of the roller 21 the user depresses the outer end of a rod 33 slidably mounted in the compartment on a bearing bracket 34 and set in an apertured bearing member 35. The rod 33 is mounted so that it is in transverse alignment with the crank knob 30 when the latter is retracted and may be forced thereagainst to eject the crank from its retracted position, this rod carrying shoulder stops 36 adjacent each end engageable with the bearings to limit its axial movement.

The rear compartment 11 of the device embodies a vertical front wall 37 and side walls 38 which have their upper edges inclined toward the edge of the front wall which is somewhat below the top edge of the partition 15. This compartment is normally covered by a cover 39 connected by a hinge 40 to the upper edge of the partition 15 and having its rear portion curved downwardly as indicated at 41. This curved portion of the cover is in cooperative relation with a transversely curved cushion element 43 formed of yieldable rubber or the like fastened on a transversely extending support bar 43 fixed within the rear portion of the compartment. The cover 39 is fastened by a snap connection comprising, at each side, a vertically arranged spring

latch bar 44 having its lower portion secured to the interior of the compartment at each side and formed at its upper end with an angular hook portion 45 operable to engage a complementary lug 46 on the cover. Projecting laterally from the bar 44 and offset from the plane thereof is a side arm 47 overlying the inner headed end of a pin 48 slidable in the bearing aperture of a set-in bearing element 49. The pin 48 is normally compressed by the resilient latch bar to assume an outwardly projected position so that its outer end is approximately flush with the outer face of the compartment side wall and is manually depressible to swing the hook 45 of the latch bar from its normal fastening position to a position removed from the lug 46 to allow opening of the cover.

Within the rear compartment is mounted a cradle member 50 of V-shaped formation having the diverging rear ends of its legs sleeved to engage pivot pins 51 formed on the bar 43. This cradle is bent longitudinally to assume an approximately U-shaped formation and is provided at its forward end with a curved lifting hook 52.

The intermediate compartment 13 is normally closed by a cover member 53 fastened to the body casing at the forward partition 16 by a hinge 53'. This cover is tapered longitudinally, as shown at Figure 3, and arched in cross section as illustrated at Figure 5, the sides being formed with inturned angular flanges 54 adapted to seat on the top edges of the side walls 14 and forming laterally bulging side portions 55. Spring pressed latch bars 56, similar to the latch elements 44, attached to the inner sides of the walls 14 coact with fastening lugs 57 to lock the cover 53 on the center compartment and are movable to depressed releasing positions by slide pins 58.

When the device is fitted for use a roll of abrasive material, such as an elongated strip of sand or emery paper, indicated at 59, is mounted transversely in the rear compartment upon the retracted cradle 50. A predetermined length of this strip is directed rearwardly from the top of the roll and over the cushion and friction pad 42 passing over the top edge of the back wall 37 and downwardly along the front of this wall and trained to extend longitudinally under a cushioning pad 60 secured to the under side of the longitudinal base plate 10 and formed of rubber or other suitable cushioning material. At the front of the body casing the strip is directed upwardly over the forward wall 17 and the rear portion of the top compartment wall 19. From this point the strip is directed downwardly and trained about the roller 21, terminating at or adjacent the serrated cutting edge 28. As will be noted from Figure 3 that portion of the strip 59 which initially engages the roller 21 is spaced from the bulging channel part 25 while the remaining portion between the roller and the channel is firmly compressed therebetween by the resilient roller covering 24. When the initially arranged length or section of the abrasive strip has become worn it is replaced by a succeeding section by ejecting the crank 29 through the medium of the push rod 33 so that the crank is arranged in exterior winding position as shown at Figure 2 whereupon it is rotated to revolve the roller 21 and advance the strip a length equal to the length of the base plate. The used portion of the strip 59 which is projected at the front of the body, is severed from the remaining portion by drawing the same transversely against the cutting edge 28. When the advancing roller 21 is rotated to move a succeeding length of abrasing material into working position the cover 39 is unfastened and elevated so that the strip may be freely drawn over the rubber pad 42. When this cover is fastened the forward curved portion functions to firmly compress or clamp the strip between the same and the friction pad 42 to firmly secure one end of the extended strip of abrasive. The opposite end of the positioned abrasive strip is secured against detachment by the pressure of the roller cover 24 which acts to compress the same between a section of the roller and the rearward portion of the channel or groove member 20 and the roller is locked in a fixed position by disposing the crank 29 in retracted position against the springs 32 as best shown at Figure 4.

When the roll of abrasive in the rear feed compartment is exhausted the cover 39 is swung open and the cradle 50 swung upwardly and forwardly to discard the roller core and receive a fresh roll of abrasive after which the cradle is lowered into the compartment to the feed position shown at Figure 3.

The intermediate compartment provides an auxiliary chamber for the storage of an extra roll of abrasive, indicated at 61, which may be readily disposed lengthwise therein for replacement of that in the feed compartment.

The formation of the cover 53 is such as to enable convenient gripping of the tool during use so that the device provides means for rapidly and effectively rubbing down and smoothing work surfaces and enables convenient adjustment of the abrasive to present an effective abrading surface thereunder at all times. In order to facilitate adjustment, the strip 59 may advantageously be marked, at longitudinal intervals corresponding to the exposed working length, by distinctive marginal stripes 62.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. An abrading device comprising a body having a flat bottom face, the said body having compartments at the front and rear to accommodate a feed roll of abrasive and an abrasive advancing roller respectively, means in the said compartments for releasably gripping the abrasive material thereat, a cutter in the said forward compartment for severing the used portion of abrasive material from the remainder thereof, means for rotating the abrasive advancing roller, and a compartment intermediate the said end compartments adapted to contain a spare roll of abrasive.

2. An abrading device comprising a body having a flat bottom face, the said body having compartments at the front and rear to accommodate a feed roll of abrasive and an abrasive advancing roller respectively, means in the said compartments for releasably gripping the abrasive material thereat, a cutter in the said forward compartment for severing the used portion of abrasive material from the remainder thereof, means for rotating the abrasive advancing roller, a compartment intermediate the said end compartments adapted to contain a spare roll of abrasive, and an elongated laterally bulging cover member mounted on the said intermediate compart-

ment adapted to be conveniently gripped for operation of the body.

3. In an abrading device of the character described, a body having a compartment adapted to contain a roll of abrading material therein, and a cradle pivotally mounted in the said compartment and supported therein to swing from a normally retracted position within the compartment to a vertically elevated core ejecting position, the said cradle being curved longitudinally to rotatably support a roll of abrading material thereon.

4. In an abrading device having an elongated body, a compartment formed at one end of the body adapted to contain a roll of abrasive material, a cover hingedly mounted on the said compartment, an approximately V-shaped support frame fitted within the said compartment and curved to rotatably support a roll of abrasive material thereon, that end of the said frame having spaced apart end portions being pivotally connected with a pivot support in the compartment, an inturned hook formed at the opposite end of the frame for swinging the same from a retracted position within the compartment to a vertically elevated core ejecting position.

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