

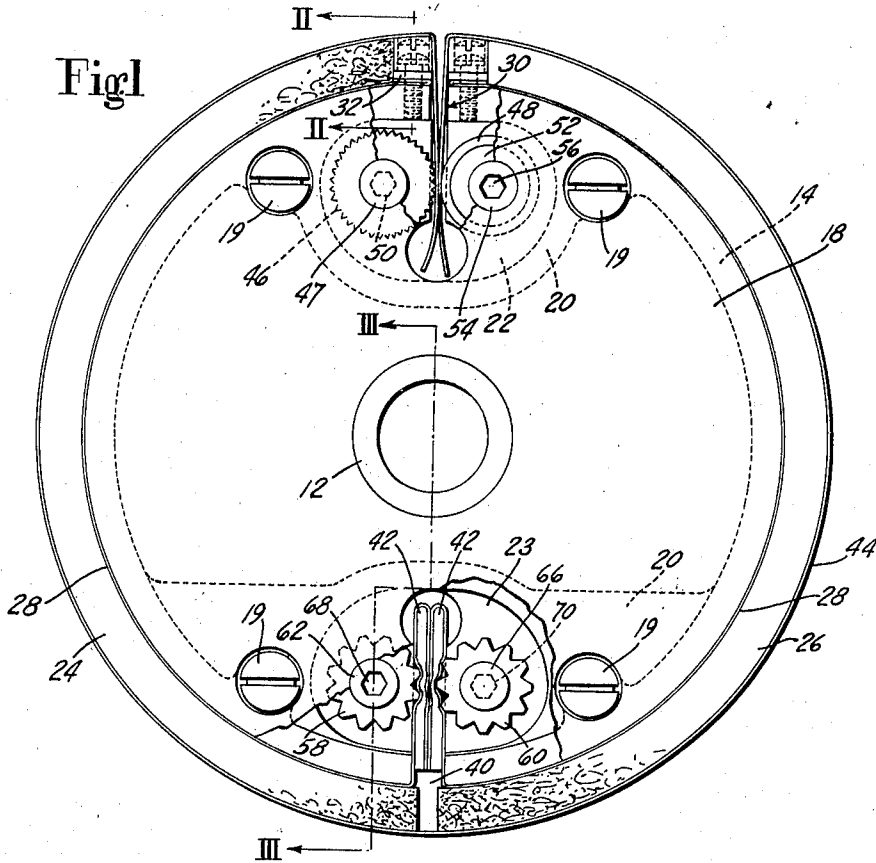
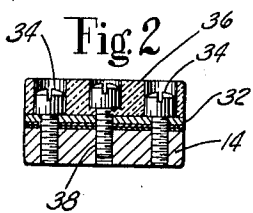
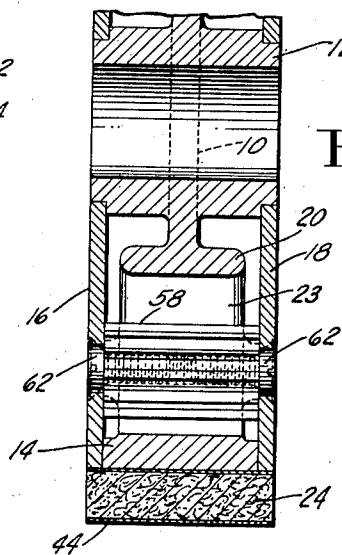
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ABRADING TOOL

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2,344,550

ABRADING TOOL

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4 Claims. (Cl. 51—194)

This invention relates to abrading tools and is herein illustrated and described as embodied in a heel scouring wheel provided with improved means for securing a cover upon the wheel body. In United States Letters Patent No. 2,218,533 granted October 22, 1940, in my name is described a bottom buffing roll covered with a cushion of sponge rubber which yieldably supports an abra-
sive cover. The periphery of the roll disclosed in said patent is provided with a pair of diametri-
cally opposite slots. Through one of these slots
extends a pair of tabs which constitute the ends
of the cushion. These tabs are gripped between
a pair of toothed rolls which are turned to tighten
the cushion about the roll body. Through the op-
posite slot extend the two ends of the abrasive
cover, these ends being gripped by a similar pair
of tightening rolls. Inasmuch as the material
gripped between the tightening rolls may vary in
thickness, the tightening rolls disclosed in said
patent are spaced far enough apart to accommo-
date the greatest thickness likely to be encoun-
tered. When thinner material is placed between
the rolls the compression is not always sufficient
to hold the rolls in their tightened position; and
set screws are accordingly provided to prevent the
rolls from yielding under the tension of the cover
and permitting the cover to loosen. Moreover in
cases of very thin material the rolls might not
always grip the material with sufficient force to
develop the desired tension.

It is an object of the present invention to pro-
vide an abrading tool having improved cover
tightening means adapted to operate upon ma-
terial of all degrees of thickness and without
requiring additional means for locking the cover
tightening means in position. In accordance with
a feature of the invention the illustrated lock-
ing means consists of a pair of tightening rolls,
one of which is mounted upon a bearing jour-
naled for rotation eccentrically with respect to
the axis of the tightening roll for enabling that
roll to be adjusted toward and from the other
roll. In the illustrated device the adjustable roll
has a smooth periphery while the other roll has
a periphery which is serrated to insure gripping
of the ends of the cover between the two rolls.
In accordance with a feature of the invention, one
end of the eccentric bearing is adapted to be en-
gaged by a key or wrench for adjusting the dis-
tance between the rolls while the end of the ser-
rated roll extending from the opposite end face
of the abrading tool is constructed and arranged
for engagement with a similar key or wrench for
turning the serrated roll to tighten the cover. The

operator is thus enabled to use both hands at the
same time on opposite sides of the scouring wheel
in performing these operations. In this way he
can readily determine by feel the degree of com-
pression of the material between the rolls. After
tightening the cover he will usually adjust the
rolls a little closer together to increase the com-
pression between them and thereby to bind them
against slipping back.

These and other features of the invention will
appear more fully from the following detailed de-
scription when read in connection with the ac-
companying drawing and will be pointed out in
the appended claims.

Referring now to the accompanying drawing:
Fig. 1 is an end view of the improved abrading
tool;

Fig. 2 is a sectional view of a portion of the
tool taken on the line II—II of Fig. 1; and

Fig. 3 is a sectional view of a portion of the
tool taken on the line III—III of Fig. 1.

The body portion of the illustrated heel scour-
ing wheel consists of a web 10 (Fig. 3) extending
from a hub 12 and having a peripheral flange 14.
A pair of end plates 16 and 18 extending from
the hub to the periphery are secured by screws
19 to diametrically opposite thickened portions
20 of the web. In one of the thickened portions
20 is a hole 22; and in the other is a hole 23.
A cover tightening and securing mechanism, later
to be described, is housed in each of the holes
22 and 23.

Mounted upon the periphery 14 is a cushioning
cover of felt. This cover is not continuous about
the periphery of the roll but is in two half-cir-
cular sections 24 and 26, each covering substan-
tially 180° of the circumference. The inner sur-
face of each of the cushion members 24 and 26
is secured to a reinforcing sheet 28 of stout fabric.
The felt members 24 and 26 terminate short of
the slot 30, but the fabric reinforcing sheets 28
extend all the way to the edges of the slot. A
pair of metal plates 32, each secured to the
flange 14 by screws 34, serve to clamp the ex-
tended end portions of the fabric sheets 28
against the flange on opposite sides of the slot
30. A filler block 36 of any suitable material is
clamped to each of the plates 32 by a screw 38.
The filler blocks disclosed herein are composed of
a commercial plastic known as Texolite. These
blocks occupy the spaces between the ends of the
felt members and the slot 30, and their purpose
is to provide support for an abrasive cover later
to be described. The filler blocks 36 should be
thick enough to bring their outer surfaces about

one thirty-second of an inch below the periphery of the felt pads 24 and 26. The filler blocks may readily be removed for replacement by taking out the screws 38 without releasing the clamped ends of the reinforcing sheets 28, such replacement sometimes being desirable to provide filler blocks of a different thickness after a truing operation on the felt pads.

Diametrically opposite the slot 30 is a similar radial slot 40 communicating with the hole 23. The unsecured extending ends of the fabric reinforcements 28 carry tabs 42, and the two tabs 42 in contact with each other extend into the slot 40 and into the hole 23. Each tab 42 consists of a piece of rubberized fabric belting secured within the folded end portion of the fabric reinforcement. Surrounding and yieldably supported by the cushions 24 and 26 is an abrasive cover 44 of sheet material such as emery cloth. The two end portions of the abrasive cover extend inwardly in contact with each other between the filler blocks 36 and through the slot 30 into the hole 22.

For tightening and securing the abrasive cover 44 there is provided a roll 45 and a roll 48 which between them grip the inwardly extending ends of the abrasive cover. The roll 45 has a serrated periphery. A pair of axles 47 extending from the ends of the roll 45 are journaled in suitable bearing holes formed in the respective end plates 16 and 18. The axle 47 opposite that shown in Fig. 1 is provided with a hexagonal socket 53 for engagement with a key or wrench which the operator holds in his right hand to turn the roll 45. The roll 48 has a smooth periphery and is freely rotatable upon a cylindrical bearing 52. A pair of axles 54 which are eccentric with respect to the roll 48 extend from the ends of the bearing 52 and are journaled in the respective end plates 16 and 18. The near axle 54 as shown in Fig. 1 has formed in it a hexagonal socket 56 for engagement with a key or wrench which the operator holds in his left hand to turn the bearing 52 and thereby to vary the distance between the roll 48 and the roll 45.

The inwardly extending tabs 42 for tightening and securing the cushioning covers 24 and 26 are gripped between a pair of serrated roll 58 and 60. The roll 58 has a pair of axles 62 journaled in the respective end plates 16 and 18. The roll 60 has a pair of similar axles 66 also journaled in the respective end plates 16 and 18. One of the axles 62 has formed in it a hexagonal socket 68, and one of the axles 66 has formed in it a hexagonal socket 70, these sockets being on opposite sides of the wheel to enable the operator to turn the rolls simultaneously to tighten the cushioning cover.

To prevent too easy turning of the rolls 48, 58 and 60, and of the eccentric 52, the body portions of these members are made about five ten-thousandths of an inch longer than the thickness of the wheel body in the vicinity of the screws 19. The tightening of these screws will therefore cause the end plates 16 and 18, which are of sheet metal and resilient, to exert a binding effect against the ends of the body portions of the rotary members, thereby tending to hold the rotary members in their adjusted positions.

It will be noted that in the tightening rolls for the abrasive cover and also in the tightening rolls for the yieldable supporting cover, the

wrench sockets for each pair of rolls are at opposite sides of the wheel. This arrangement is more convenient for simultaneous operation than if both wrench sockets were accessible on only one side of the wheel. The operator can thus draw in the ends of the abrasive cover by turning one of the rolls of the pair with one of his hands, and at the same time he can adjust the distance between the rolls with the other hand. In adjusting the distance while tightening the cover he can readily determine by feel the degree of compression of the material between the rolls. While he is tightening the cover he will keep the compression just sufficient to maintain good traction; and when he has obtained the desired tension in the cover he will adjust one roll closer to the other to increase the compression and thereby to bind the rolls against slipping back. In a similar manner he can tighten the felt cushioning pads about the periphery of the wheel by turning the tab-gripping rolls simultaneously from opposite sides of the wheel.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a finishing tool having a cover-securing device of the type wherein a cover is secured between a pair of tightening rolls, a bearing for one of the tightening rolls, said bearing having an axle extending eccentrically from one of its ends, and a support in which said axle is rotatably mounted to enable the roll carried by said bearing to be adjusted toward and from the other roll.

2. A device for securing a cover upon a finishing tool, comprising a pair of rolls between which the ends of the cover may be introduced, one of said rolls being constructed and arranged to be turned to tighten the cover upon the finishing tool, a bearing for rotatably supporting one of said rolls, said bearing having a pair of axles extending eccentrically from its respective ends, supports in which said axles are rotatably mounted to enable the roll carried by said bearing to be adjusted toward and from the other roll, and means for rotatably supporting the other roll.

3. A device for securing a cover upon a finishing tool, comprising a serrated roll and a smooth roll for gripping a cover between them, said serrated roll having a portion adapted to be turned to rotate the roll for tightening the cover, a bearing on which the smooth roll is idly mounted, means for supporting said bearing for rotation about an axis eccentric with respect to the axis of the smooth roll to enable the smooth roll to be adjusted toward and from the serrated roll, said bearing having a portion adapted to be turned for the purpose of making said adjustment, and a bearing for the serrated roll.

4. A finishing tool comprising a tool body, an abrasive cover surrounding said tool body, a pair of rolls between which the inwardly turned ends of said abrasive cover are gripped, one of said rolls being adapted to be turned to tighten the abrasive cover upon the tool, bearings for rotatably supporting said rolls, one of said bearings being carried by the tool body, and means carried by said tool body for rotatably supporting the other bearing about an axis eccentric with respect to its roll, the eccentrically mounted bearing being adapted to be turned to vary the distance between the rolls.

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