

April 18, 1933.

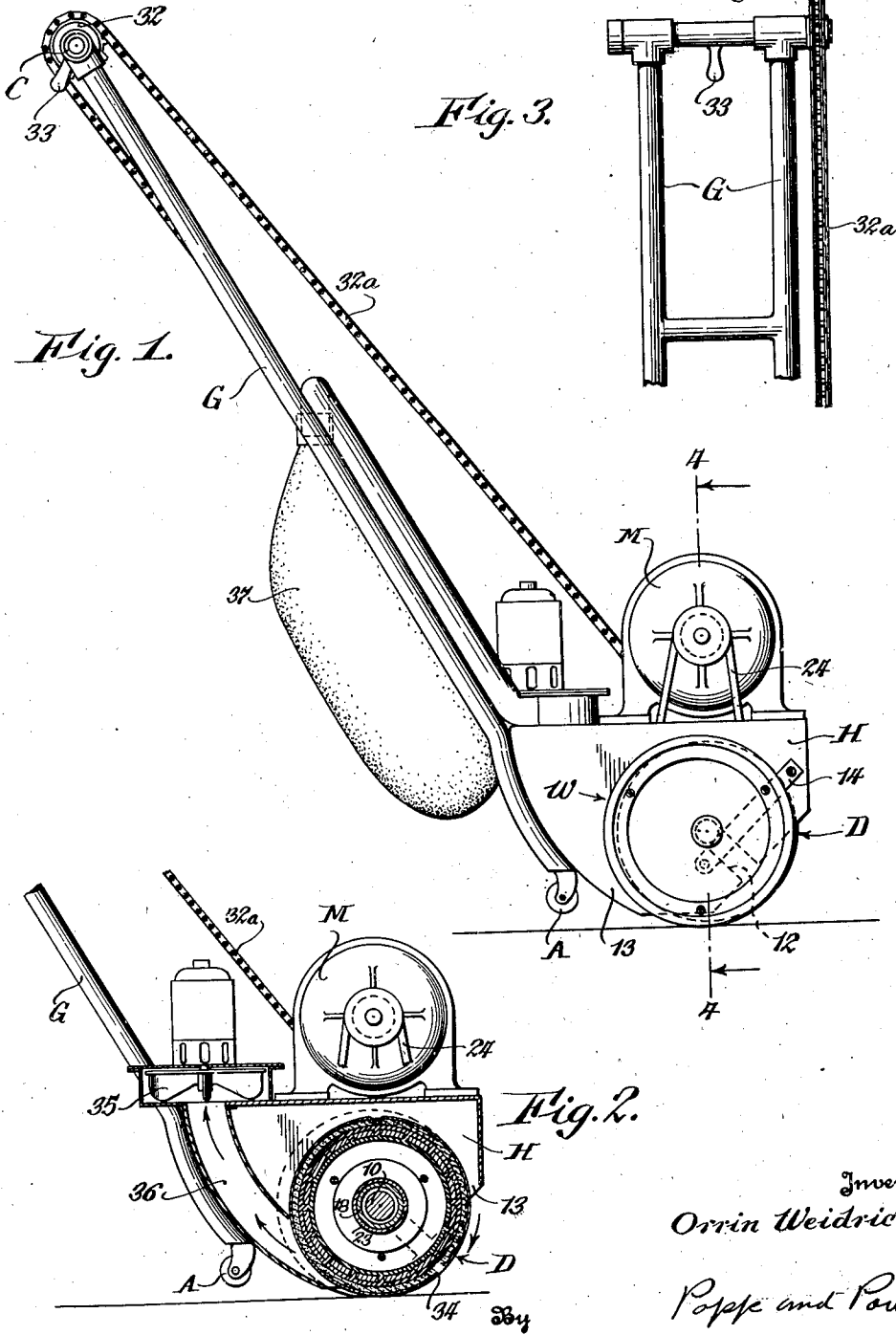
O. WEIDRICH

1,904,893

SURFACE CONDITIONING MACHINE

Filed Aug. 1, 1930

2 Sheets-Sheet 1



Inventor  
Orrin Weidrich  
Pope and Powers  
Attorneys

April 18, 1933.

O. WEIDRICH

1,904,893

SURFACE CONDITIONING MACHINE

Filed Aug. 1, 1930

2 Sheets-Sheet 2

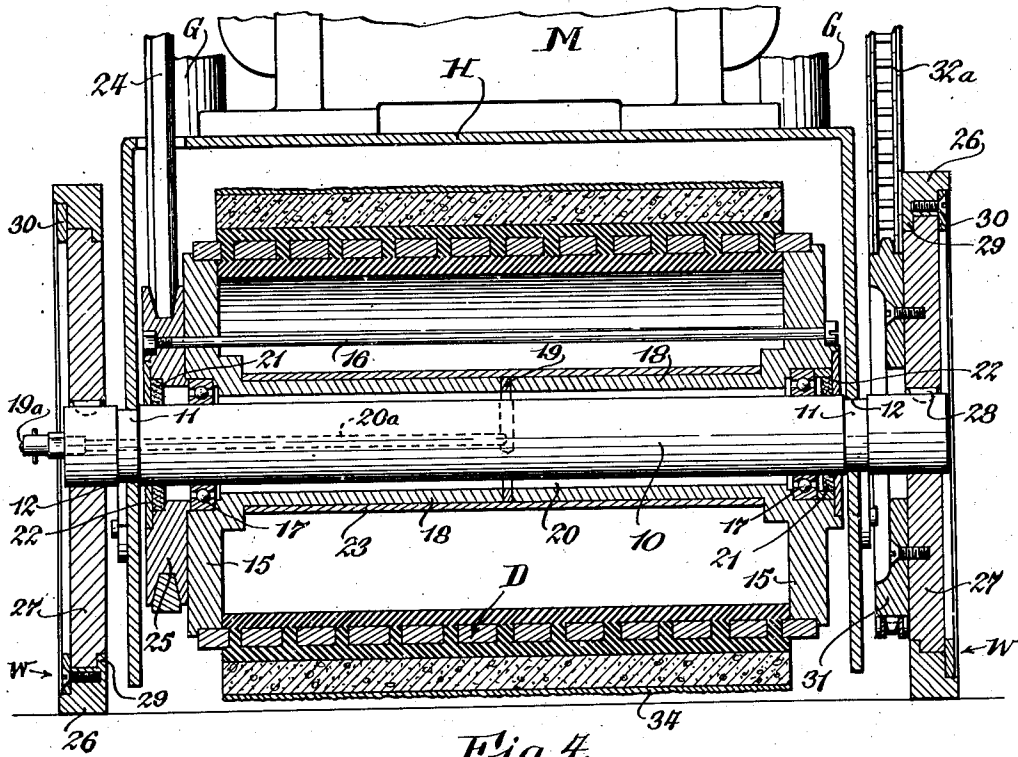


Fig. 4.

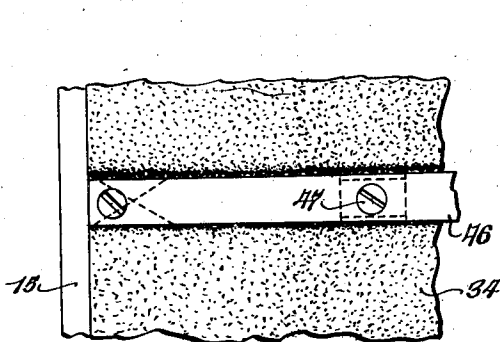


Fig. 5.

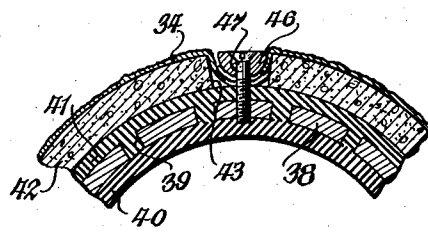


Fig. 6.

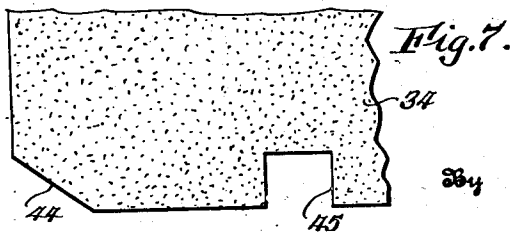


Fig. 7.

Inventor  
Orrin Weidrich

Popp and Powers

Attorneys

# UNITED STATES PATENT OFFICE

ORRIN WEIDRICH, OF KENMORE, NEW YORK

SURFACE CONDITIONING MACHINE

Application filed August 1, 1930. Serial No. 472,432.

This invention relates to improvements in surface conditioning machines of the kind in which the surface treating member is adjustable toward and away from the surface to be treated.

One object of the invention is a machine of the type generally described in which the surface treating member may be adjusted at will by the operator of the machine as it is operated over the surface being treated.

A further object is a novel construction of working roll or drum upon which the abrasive or other treating material in the form of a sheet may be firmly but removably secured.

The invention is illustrated in the accompanying drawings in which:—

Figure 1 is a side elevation of a surface conditioning machine constructed in accordance with my invention.

Figure 2 is a transverse section through the working roll or drum, parts of the machine being shown in elevation.

Figure 3 is a fragmentary view of the handle by which the machine is directed and the control for the drum adjusting mechanism which is associated therewith.

Figure 4 is a section taken along line 4—4 of Figure 1, part of the motor for driving the working roll or drum being shown in elevation.

Figure 5 is a fragmentary sectional view of the working roll or drum with a sheet of abrasive material secured thereto.

Figure 6 is a section taken along line 6—6 of Figure 5.

Figure 7 is a fragmentary view of one end margin of a sheet of abrasive material with portions thereof cut away to facilitate securing of the sheet to the working roll or drum.

The machine, as illustrated, includes a housing or frame H in which a drum D is mounted, the latter being designed to have the surface treating material secured thereon in the form of a sheet. The machine is provided with wheels W which support the drum D above the surface being treated in the position to which it has been adjusted. An auxiliary wheel A is available as a third point of

rest when the machine is not in use. Upwardly and rearwardly extending arms G are suitably secured at their lower ends to the housing H and at their upper ends may be connected by a cross bar C, the latter providing a handle by which the machine may be guided by the operator.

The drum D is mounted upon a shaft 10, the latter being formed adjacent its ends with annular grooves 11 and being supported to the housing H in slots 12 formed in the side walls 13 thereof as by straps 14. The slots 12 are preferably of a width less than the diameter of the shaft 10 so that upon assembly of the shaft in the housing, the marginal portions of the housing which outline the slots 12 will fit in the grooves 11 and secure the shaft against axial movement. The drum D may be mounted upon the shaft 10 in any suitable manner. As illustrated, this is accomplished by means of heads 15 which are fitted in the open ends of the drum D and are secured thereto as by tie rods 16. The heads 15 are recessed upon their outer faces to receive anti-friction bearings 17 and are formed with inwardly extending sleeve portions 18 which are of a length such that they together with a soft washer 19 provide a continuous annular chamber 20 about the shaft 10. Lubricant is supplied to this chamber through the fitting 19a and passage 20a, the latter being formed in the shaft 10. The chamber 20 acts as a reservoir and the lubricant therein works out to the anti-friction bearings 17 as needed, leakage from the chamber 20 being prevented by sealing rings 21 which fit about the shaft 10 and which are secured as by plates 22 to close the ends of the chamber 20. In the assembly of the parts of the drum, the sleeve-like portions 18 of the heads 15 may be fitted within a tubular member 23, the latter being designed to reinforce the construction and to maintain the soft ring 19 in the position desired.

The drum D, as illustrated, is rotated by means of an electric motor M which may be secured to the top wall of the housing or frame H, the motor being connected to the drum D by a belt 24 and a pulley 25. The latter is secured co-axially with the shaft 10

to a head 15 of the drum by the tie rods 16.

It is to be noted that the position of the drum D relative to the surface which is to be treated is determined by the wheels W of the machine, which similarly to the drum D, are mounted upon the shaft 10. In order to enable adjustment of the drum D so that it may be brought to bear with more or less pressure against the surface being treated, I utilize a construction which stated generally permits vertical adjustment of the shaft 10. To this end, each of the wheels W includes a rotatable rim 26 which is mounted upon a companion supporting disc 27, the latter being fixed to the shaft 10 as by a key 28 but in eccentric relation thereto. The rims 26 are adapted to rotate about the discs 27 which are normally held against rotative movement and which are designed to be moved only during adjusting operations, it being understood that the drum D may be raised or lowered by lowering or raising the centers of the discs 27 relative to the axis of the shaft 10. The rims 26 are formed with flanges 29 which engage the inner margins of the discs 27 while the latter are engaged at their outer margins by rings 30.

In order to effect rotative movement of the discs 27 to adjust the position of the drum D, means is provided whereby the operator of the machine may effect at will the desired adjustment without tools. For this purpose, a sprocket wheel 31 is fixed to one of the discs 27, it being understood that rotative movements of the said sprocket wheel effect corresponding rotative movements of the shaft 10 and the discs 27 fixed thereto. A companion sprocket wheel 32 is fixed to the cross-bar C, the latter being mounted for rotation between the ends of the arms G and both of said sprocket wheels are connected as by a chain 32a. The cross bar C may be rotated to effect rotation of sprockets 31 and 32 with consequent adjustment of the drum D by means of the knob or extension 33 which is fixed to the handle or cross bar C. The friction which exists between the cross bar C and the T-shaped connections by which it is supported upon the arms G is sufficient to prevent movement of the cross bar and connected adjusting parts, although any suitable means may be availed of for locking the cross bar in the adjusted position if desired. The knob or extension 33 is within convenient reach of the operator of the machine and the drum D may be readily and conveniently adjusted at will by the operator without tools.

The drum D carries the surface treating material, preferably in the form of a sheet 34, which may be either for abraiding or polishing purposes. In the operation of the machine, the drum rotates in the direction of the arrow (Figure 2). Any particles which are removed from the surface being treated are drawn by a suction fan 35 up through the

mouth of a suction chamber 36 into a bag 37 which may be suitably secured to the machine. It will be noted that any unintentional change in elevation of the drum D with respect to the surface being treated which may result from slight raising or lowering of the handle C by the operator while using the machine will be slight and that these variations will not be great enough to be objectionable. However, if desired, the auxiliary wheel A may be arranged to engage the surface during the operation of the machine and thus avoid even these small variations or change in elevation of the working drum.

Any desired construction of drum may be employed. However, it is preferred that the drum consist of a cylindrical reinforcing member 38 (best shown in Figure 6). This reinforcing member is formed with apertures 39 at intervals preferably throughout its extent. It is then coated upon its inner and outer surfaces with gum rubber to provide inner and outer layers 40 and 41 respectively. The inner layer 40 serves to firmly anchor the outer layer 41 to the reinforcing member 38, both of said layers being vulcanized together through the apertures 39. A layer 42 of relatively soft rubber such as sponge rubber is secured in any suitable manner to the outer layer of relatively harder rubber 41, the latter forming a base for the softer rubber layer. The outer layer of sponge rubber 42 is cut away to provide a slot 43 which extends longitudinally of the drum D and in which the ends of the abrasive paper 34 or other sheet material are forced to secure the same tightly about the drum D. To further this end, the sheet 34 to be employed in connection with the drum is preferably cut away at the corners as at 44 and centrally as at 45 as best shown in Figure 7. In applying the paper to the drum, the ends of the same are lapped above the slot 43 with the cut away portions of each end aligning with those of the opposite end. A cross rod 46 is then forced tightly against the ends of the sheet 34 into the slot 43 by screws 47, the latter co-operating with threaded openings in the reinforcing member 38 and extending through the openings provided by the cut-away end portions of the sheet.

While the invention has been described in connection with machines in which the surface conditioning member either abrades or polishes the surface being treated it will, of course, be obvious that the adjusting mechanism for the surface conditioning member is not limited to the examples given but is equally applicable to other types of surface conditioning machines, as for example, machines in which the surface conditioning member utilizes cutting means.

Having fully described my invention, I claim:

1. A drum for surface treating machines

comprising a cylindrical reinforcing member, said member being formed with apertures at points in its extent, a layer of rubber upon the outer surface of said reinforcing member forming a base, a layer of rubber upon the inner surface of said member, said outer and inner layers being vulcanized together through said apertures and a layer of relatively softer rubber secured to said outer layer of rubber, said layer of relatively softer rubber being cut away to permit securement of a sheet of treating material upon said drum.

2. A drum for surface treating machines comprising a cylindrical reinforcing member, said member being formed with an aperture, a layer of rubber upon the outer surface of said member providing a base, a layer of rubber upon the inner surface of said member, said outer and inner layers being vulcanized together through said aperture and a layer of relatively softer rubber secured to said outer layer of rubber and upon which a sheet of surface treating material may be secured.

3. A drum for surface treating machines comprising a cylindrical metal reinforcing member, said member being formed with apertures, a layer of rubber upon the outer surface of said member providing a base, a layer of rubber upon the inner surface of said member, said outer and inner layer being vulcanized together through said apertures and a layer of sponge rubber secured to said outer layer of rubber and upon which a sheet of surface treating material may be secured.

In testimony whereof I affix my signature.

ORRIN WEIDRICH.

40

45

50

55

60

65