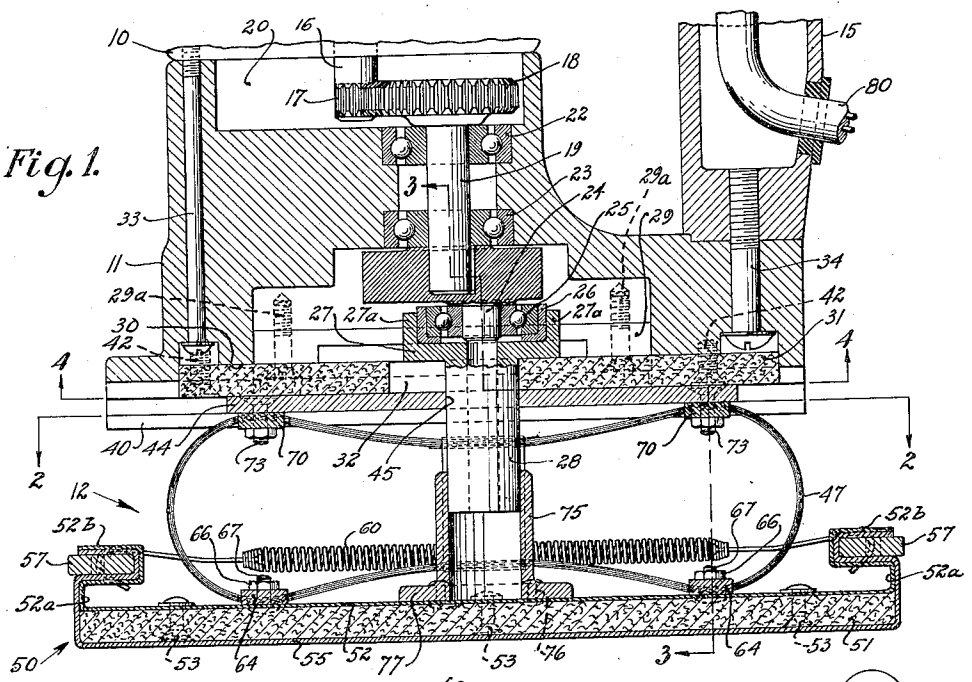
May 28, 1940. W. B. WILSON 2,202,072

SANDING AND RUBBING DEVICE

Filed March 29, 1938 3 Sheets-Sheet 1

Fig. 1.



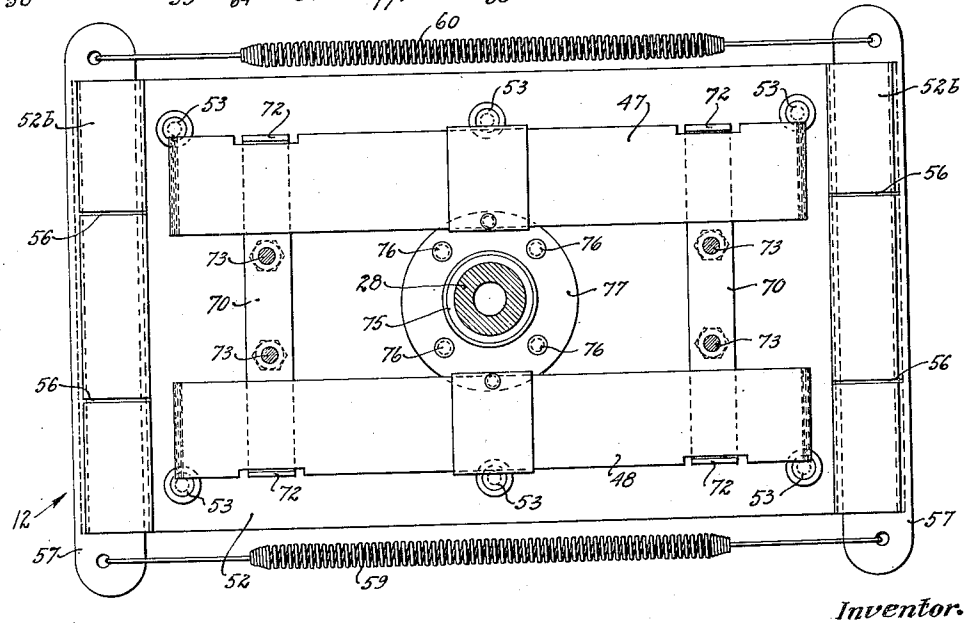


Fig. 2.

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SANDING AND RUBBING DEVICE

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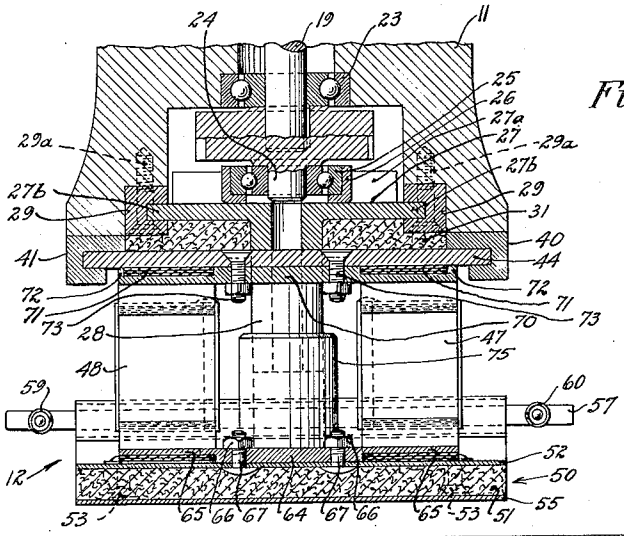


Fig. 3.

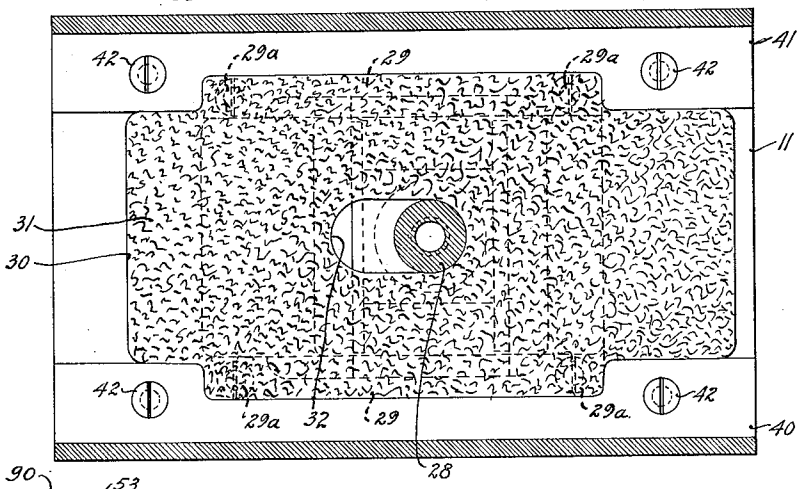


Fig. 4.

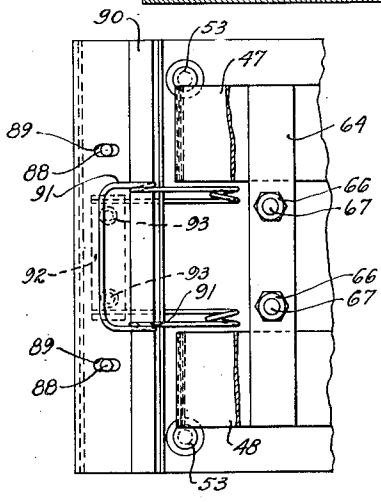


Fig. 8.

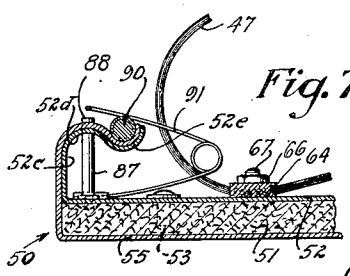


Fig. 7.

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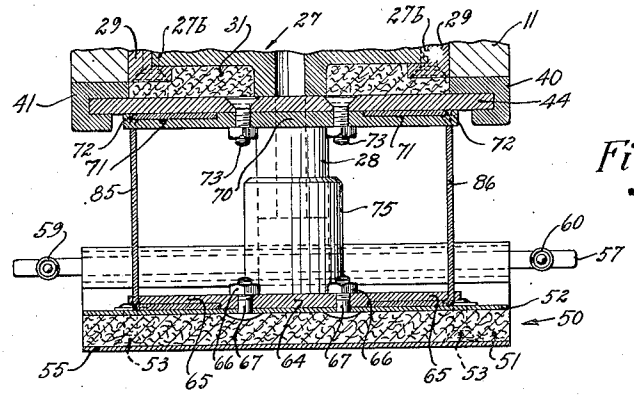


Fig. 6.

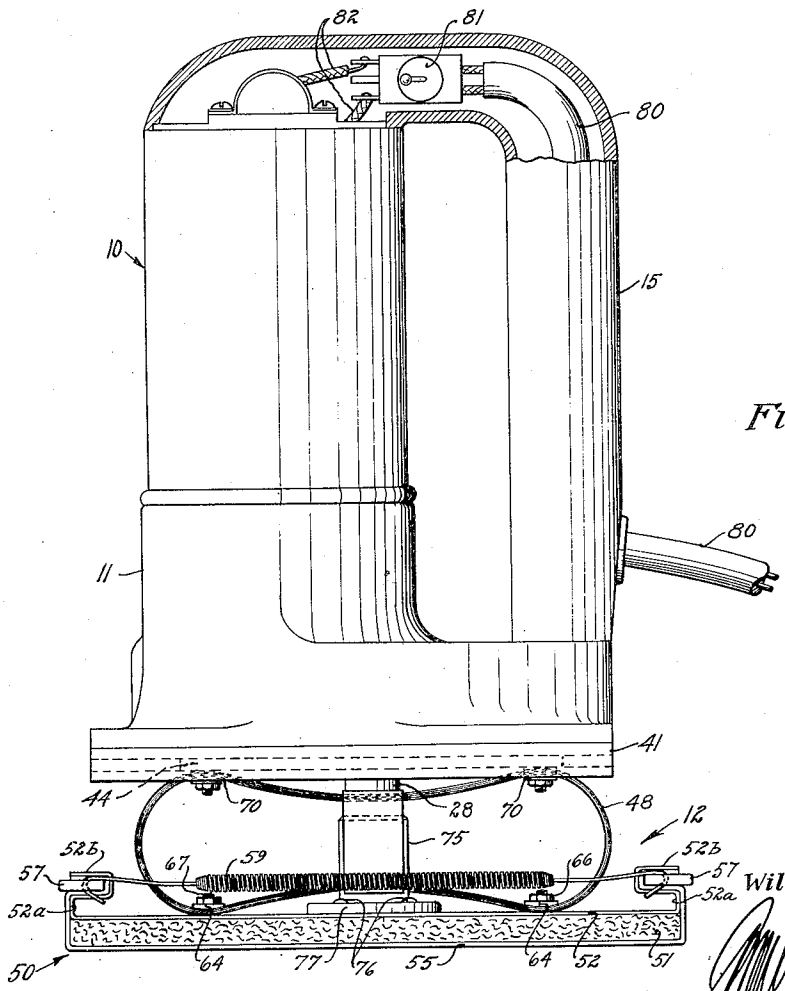


Fig. 5.

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Patented May 28, 1940 2,202,072

UNITED STATES PATENT OFFICE

2,202,072

SANDING AND RUBBING DEVICE

William B. Wilson, Los Angeles, Calif., assignor to Sterling Products Company, Los Angeles, Calif., a corporation of California

Application March 29, 1938, Serial No. 198,661

8 Claims. (Cl. 51—170)

My invention has to do with sanding and rubbing devices.

Among the more particular objects of my invention, I aim to provide a device which has suitable resiliency and yet one that eliminates undesired flexure of its spring elements. For instance in most sanding pads of the flexible type of which I am aware, the operating movement is applied to the pad either at its top or bottom and, in use, the spring members between the top and bottom of the pad are flexed to such an extent that in a short period of use the springs become crystallized and require replacement, or if the members between the top and bottom faces of the pad are of rubber, such as rubber webs, the rubber deteriorates rapidly. Generally speaking, I overcome this serious shortcoming by providing a resilient member or members between the top and bottom faces of the sanding pad and then I apply the reciprocatory movement at both the top and bottom portions, allowing the reciprocating pin to pass loosely through the top plate and to be longitudinally slidable in a shoe affixed to the bottom plate. This prevents lateral movement of the bottom plate with respect to the top, yet permits the desired vertical movement.

Another object is to provide a rubbing pad element which is of such design and construction that it may easily and quickly be changed from a resilient to a non-resilient sander, if desired.

Another object is to provide novel means for preventing the escape of oil from the propelling element.

Another object is to provide a novel and extremely effective means of retaining a sanding or buffing sheet in position on the working face of the pad element.

Still another object is to provide a device which is durable, will withstand long use at high speeds, and which is easy to assemble and disassemble.

Still further objects and accomplishments will be apparent to those skilled in the art from the following specification wherein, by way of example, I describe one particular embodiment of my invention, reference being therein made to the accompanying drawings, in which:

Fig. 1 is a vertical section through the carriage element and a portion of the propelling element;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is a section on line 4—4 of Fig. 1;

Fig. 5 is a side elevation, with some parts being broken away and some parts in section;

Fig. 6 is a transverse section showing a modified form of spacer element;

Fig. 7 is a fragmentary sectional view showing a variational form of abrasive sheet retaining clip; and

Fig. 8 is a plan view of Fig. 7.

Referring now more particularly to the reference characters on the drawings, 10 denotes a housing for a propelling device, here shown as an electric motor of conventional type, 11 denotes the propeller base, 12 the carriage element and 15 indicates the vertically disposed control handle.

The motor shaft 16 is journalled in the motor housing and carries at its lower end gear 17 which meshes with gear 18 keyed to the top end of driven shaft 19. Gears 17, 18 are housed within the recess 20 provided at the top of base member 11 and shaft 19 is journalled in the base by means of ball-bearings 22, 23. The rotary movement of shaft 19 causes reciprocation of pad element 12 by means of cam 24 whose base is keyed to the lower end of shaft 19. This cam 24 rotates within roller bearing 25 mounted in sliding member 26, which latter member slides longitudinally between guides 27*a* of yoke 27 formed integrally with reciprocating pin 28 to reciprocate pin 28 between right and left in Fig. 1. End extensions 27*b* of yoke 27 are slidably mounted in guide 29, which guides are secured to base 11 by screws 29*a*.

As shown in Figs. 1 and 4 a substantially rectangular recess 30 is provided in the bottom of base 11 and in this recess there is fitted an absorbent pad of felt or the like 31 to catch any oil which might tend to be thrown out from the reciprocating mechanism before described. This pad 31 has an elongated central slot 32 to allow pin 28 to move during its reciprocating movement. Motor housing 10 and handle 15 are preferably formed integrally and are secured to base 11 by screws 33 and 34.

Track members 40, 41 are secured to base 11 by screws 42 to provide guides for the reciprocating movement of carriage 12 which will now be described.

The carriage 12 has supporting plate 44, which plate is slidable longitudinally of the track provided by guides 40, 41 and has at its center a hole 45 through which operating pin 28 passes. Connected to plate 44 by a pair of laminated springs 47, 48 is a bottom portion generally designated by the numeral 50 comprised preferably of a sheet of felt, rubber or other suitable material 51 secured to a plate 52 of thin metal by rivets 53. The ends of plate 52 extend upwardly and thence backwardly, upwardly and forwardly to

provide a U-shaped socket to receive the ends of the abrasive sheet 55 which extends over the working face of the pad 51. The end portion 52a and socket portion 52b of each end of plate 52 are slitted as shown at 56 to lend flexibility to the end portions of the plate. The ends of abrasive sheet 55 are held in the respective sockets provided by the U-shaped ends of plate 52 by bars 57 which compress the ends of sheet 55 against the back wall of the socket by means of a pair of coil springs 59, 60, which springs are secured at their ends to the respective ends of bars 57 as shown in Fig. 2. A spaced pair of transverse bars 64 are secured to the plate 52 by nuts 66 threaded onto bolts 67, which latter bolts extend through plate 52. The ends of bars 64 are of reduced thickness as shown at 65, to provide a space between the bottom of the bar and plate 52 the width of the thickness of springs 47, 48, to hold said springs. A spaced pair of upper transverse bars 70 are provided to secure springs 47, 48 to plate 44, those bars being cut away at 71 to receive the springs and having flanged ends 72 to hold the springs in place. Bars 70 are secured to plate 44 by means of bolts 73.

A shoe 75 for receiving the lower end of reciprocating pin 28 is secured to the medial portion of plate 52 by rivets 76 passing through flanged portion 77. It will be observed that the lower end of pin 28 is spaced from the bottom of shoe 75 so that member 50 may move vertically towards and away from plate 44 as springs 47, 48 are flexed, while the side walls of the shoe, in cooperation with pin 28, restrain lateral movement of plate 50 with respect to plate 44.

Current for the driving motor is supplied through flexible cable 80 which enters the device at the bottom end of handle 15 and leads to a switch 81, from which switch feed wires 82 lead to the motor.

In Fig. 6 I illustrate a variational form of sanding and buffing element. Here the device is the same as before described except that in lieu of the springs 47, 48, I utilize rigid channel or U-shaped bars 85, 86 to space the top and bottom portions 44, 50, respectively, apart. These bars 85, 86 are disposed longitudinally of the sanding element and their channels open towards each other. Thus if desired, the sander element may be quickly and easily converted from a resilient device to a rigid one by removing the springs and substituting the rigid members 85, 86 in their place.

In Figs. 7 and 8 I show a modified means for holding the abrasive sheet in place. Here the ends of plate 52 extend upwardly at 52c, thence backwardly in an arc, 52d, and terminate in a reverse arc 52e to present an upwardly opening socket or trough. A pair of bolts 87 extend upwardly from plate 52 through holes in portion 52d of plate 52 to provide lugs 88 which project through slots 89 provided in abrasive sheet 55. The ends of the abrasive sheet are held in troughs 52e by means of transverse bar 90 which is pressed downwardly by spring members 91, which spring is mounted on plate 52 by bracket 92, being held thereon by rivets 93.

While, in the foregoing description and in the drawings, I refer to an electric motor as the driving element it will of course be understood that any other suitable driving means may be employed.

Furthermore, I wish it understood that while, in the foregoing specification and drawings, I have resorted to various details of parts, combinations and associations of elements, I have done so only for the purpose of making my invention understood and such details are not to be considered limitative. Rather, my invention is only to be limited as defined by the appended claims.

I claim:

1. In a device of the character described, including a base having reciprocating means, a carriage operatively connected to the reciprocating means, said carriage comprising a top plate slidably mounted on the base and a bottom working plate, a cross-bar secured to the underside of the top plate and a cross-bar secured to the top face of the bottom plate, each of said cross-bars having a slotted portion, and spring spacing members mounted in said slots and disposed longitudinally of the carriage for resiliently holding the top and bottom plates apart.

2. In a device of the character described, including a base having reciprocating means, a carriage operatively connected to the reciprocating means, said carriage comprising a top plate slidably mounted in the base and a bottom plate carrying a work sheet, a plurality of cross-bars detachably secured to the underside of the top plate and a plurality of cross-bars detachably secured to the top face of the bottom plate, said cross-bars having means for detachably holding spacing members, and a plurality of resilient spacing members disposed between said plates and retained in position by said cross-bars.

3. In a sanding device, the combination of: a base, a motor mounted on the base, reciprocating means actuated by the motor, a pair of guide members forming a track on the underside of the base, a carriage slidably mounted on said track, said carriage comprising a top plate having a medial opening therethrough, a bottom plate disposed parallel to the top plate, a plurality of spring loops disposed longitudinally of the carriage between said plates to vertically space them apart, means for detachably securing said spring loops to said plates, including transverse, slotted bars in which slots said spring loops are supported, said bars being detachably secured to said carriage, a tubular guide secured at one end to the bottom plate and having an open end in alinement with the opening in the top plate, and a pin operatively connected to said reciprocating means and projecting through the opening in the top plate into said tubular guide, there being a space provided between the lower end of said pin and the top face of the working plate to permit of downward movement of the pin in the guide when the bottom plate is moved towards the top plate, said pin cooperating with the side walls of the tubular guide and with the side walls of the opening in the top plate to prevent lateral movement of said lower plate with respect to the top plate.

4. In a sanding device, the combination of: a base, a motor mounted on the base, reciprocating means actuated by the motor, a pair of guide members forming a track on the underside of the base, a carriage slidably mounted on said track, said carriage comprising a top plate having a medial opening therethrough, a bottom plate disposed parallel to the top plate, a plurality of laminated springs mounted between said plates to vertically space them apart, means for detachably securing said springs to said plates, including transverse, slotted bars in which slots said springs are supported, said bars being detachably secured to said carriage, a tubular guide

secured at one end to the bottom plate and having an open end opposite the opening in the top plate, and a pin operatively connected to said reciprocating means and projecting through the opening in the top plate into said tubular guide, there being a space provided between the lower end of said pin and the top face of the working plate to permit of downward movement of the pin in the guide when the bottom plate is moved towards the top plate, said pin cooperating with the side walls of the tubular guide and with the side walls of the opening in the top plate to prevent lateral movement of said lower plate with respect to the top plate.

5. In a sanding device, the combination of: a base, a motor mounted on the base, reciprocating means actuated by the motor, a pair of guide members forming a track on the underside of the base, a carriage slidably mounted on said track, said carriage comprising a top plate having a medial opening therethrough, a bottom plate disposed parallel to the top plate, a plurality of spring loops disposed longitudinally of the carriage between said plates to vertically space them apart, means for detachably securing said spring loops to said plates, including transverse, slotted bars in which slots said spring loops are supported, said bars being detachably secured to said carriage, a tubular guide secured at one end to the bottom plate and having an open end opposite the opening in the top plate, a pin operatively connected to said reciprocating means and projecting through the opening in the top plate into said tubular guide, there being a space provided between the lower end of said pin and the top face of the working plate to permit of downward movement of the pin in the guide when the bottom plate is moved towards the top plate, said pin cooperating with the side walls of the tubular guide and with the side walls of the opening in the top plate to prevent lateral movement of said lower plate with respect to the top plate, and an absorbent pad interposed between the reciprocating means and the top plate, said pad having an elongated medial slot to pass said pin.

6. In a device of the class described having a base, a carriage slidably mounted thereon and propelling means in the base including an operating pin projecting from the base into the carriage to slide the latter with respect to the base, said carriage comprising: a top plate slidably mounted on the base, a bottom plate disposed under and parallel to the top plate, resilient spacing means between and secured to said plates, a socket in the bottom plate for receiving an end of the said pin and an opening through the top plate concentric with the socket to pass the pin to the socket, said pin fitting substantially snugly against the inner side walls of the opening and the socket whereby simultaneously to impart sliding movement to both said plates and to restrain lateral movement of said plates with respect to each other.

7. In a device of the class described having a base, a carriage slidably mounted thereon and propelling means in the base including an operating pin projecting from the base into the carriage to slide the latter with respect to the base, said carriage comprising: a top plate slidably mounted on the base, a bottom plate disposed under and parallel to the top plate, a shoe carried by the bottom plate for receiving an end of said pin, an opening through the top plate concentric with the shoe to pass the pin into the shoe, said pin fitting substantially snugly against the inner side walls of the opening and shoe whereby simultaneously to impart sliding movement to both said plates and to restrain lateral movement of said plates with respect to each other, and yieldable means resiliently holding the plates vertically spaced apart far enough normally to hold the bottom inner wall of the shoe spaced from the bottom end of said pin.

8. A device of the character described comprising a base, power means on the base, a carriage positioned under and slidably carried by the base, an oscillating member operatively connected to the power means and extending through the base to operatively engage the carriage, a recess in the bottom of the base through which said oscillating member passes, and an absorbent pad mounted in the recess, said pad having an elongated opening therethrough to pass and permit oscillation of the pin.

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