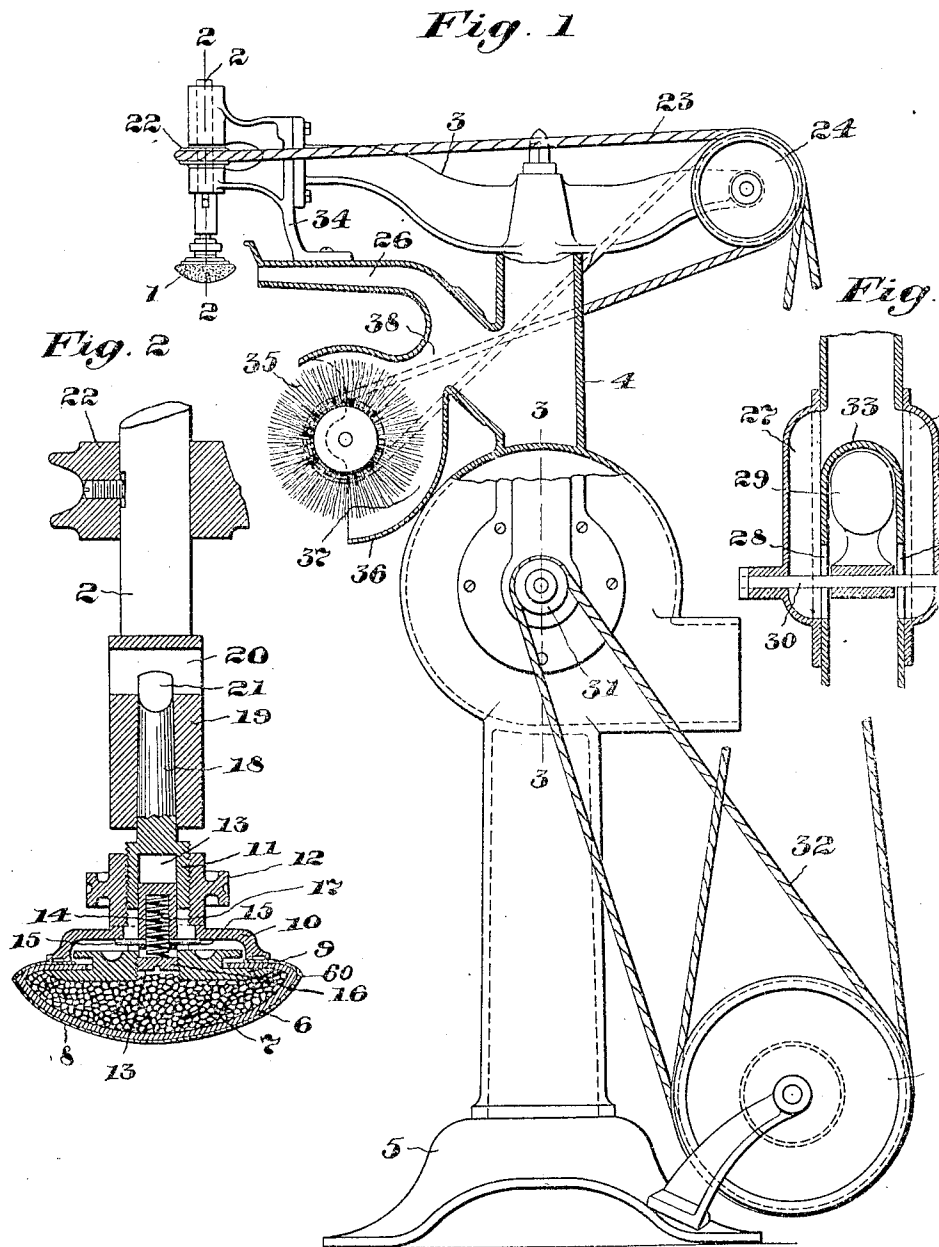


J. E. LEAVITT.
BUFFING MACHINE.
APPLICATION FILED FEB. 3, 1905.

2 SHEETS—SHEET 1



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No. 871,942.

PATENTED NOV. 26, 1907.

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2 SHEETS—SHEET 2.

Fig. 4

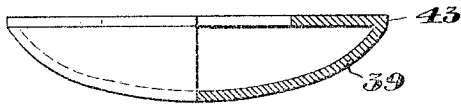


Fig. 5

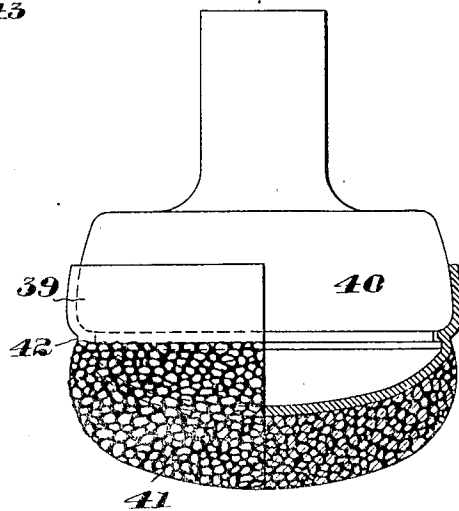


Fig. 6

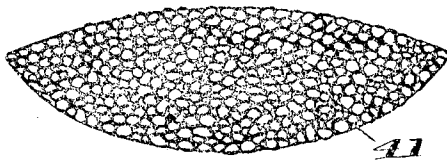
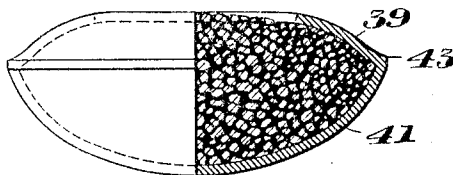


Fig. 7



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UNITED STATES PATENT OFFICE.

JOHN E. LEAVITT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO MANUFACTURERS MACHINE COMPANY, OF MONTCLAIR, NEW JERSEY, A CORPORATION OF NEW JERSEY.

BUFFING-MACHINE.

No. 871,942.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed February 3, 1906, Serial No. 243,936.

To all whom it may concern:

Be it known that I, JOHN E. LEAVITT, a citizen of the United States, residing at Boston, in the county of Suffolk, Commonwealth of Massachusetts, have invented an Improvement in Buffing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to buffing machines and particularly to those of the "Naumkeag" or vertical spindle type used for buffing or finishing the tread surfaces of boot and shoe soles.

One of the aims of my invention is to provide a buffing pad which shall combine the permanence, and stability of the felt pad with the greater resilience, life and adaptability of the pneumatic pad, while eliminating the objectionable features of each which objections are well known to those skilled in the art.

One embodiment of my invention for fulfilling this aim comprises a casing containing a filler of sponge rubber or other material or construction that presents a plurality of pneumatic cells that require no continuous inflation when in use, yet furnish all the life and resilience of any pneumatic pad.

My invention also aims to provide improvements in the general structure and arrangement of the parts of the machine as a whole.

The nature of my invention will be more clearly apparent from a description of one embodiment thereof, which has been selected for illustration and is shown in the accompanying drawings, and its scope will be pointed out in the appended claims.

In the drawings,—Figure 1 illustrates my improved machine in side elevation partly in section; Fig. 2 is a detail sectional view on the line 2—2, Fig. 1 showing the buffing pad and its shaft; Fig. 3 is a detail sectional view on the line 3—3 Fig. 1, showing the fan suction member intended to dispose of the dust incident to the buffing or cleaning operation; and Figs. 4, 5, 6 and 7 are views illustrating various steps in the manufacture of the improved pad.

In the particular embodiment of my invention which has been selected for illustration herein, the buffing pad 1 is mounted upon a

vertical shaft 2, which is journaled in suitable bearings on a horizontal arm 3, mounted upon the column 4, of a tripod base 5.

The buffing pad in the form shown Fig. 2 comprises a casing 6, supported by a shaped filler of cellular material, such as sponge rubber. Over the exterior of the casing 6 is stretched a sheet of suitable abrading material 8, the perimeter of which, together with the inturned lip of the casing 6, are firmly clamped upon a holder 9, by means of a clamping member 10, mounted upon the hub 11 of said holder. The exterior of the hub 11 is threaded, as shown in Fig. 2, to receive a threaded nut 12, which may be turned down upon the clamping member 10, to press the latter firmly upon and to hold the pad lip and abradent cover 8.

Suitable means may be provided to lift the clamping member 10, from the holder 9 to facilitate release of the abradent covering or the pad and to hold the clamping member elevated while a pad casing and its abradent covering are being adjusted thereon. For this purpose in the construction here shown, the hub of the holder 9 is drilled centrally to present a chamber 13, which receives a thin-ble 14, supported by a spring 17 and carrying laterally extending pins or lugs 15, which protrude through slots in said hub and underlie the clamping member 10, serving to raise the latter from clamping position upon the unscrewing of the nut 12. A plug 16 screwed into the open end of the chamber 13, serves as an adjustable support for the spring 17. The plug 16, as shown in Fig. 2, is preferably screwed some distance into the chamber 13, to leave an air chamber auxiliary to the pad for increasing and maintaining the resilience of said pad.

The hub 11 of the holder 9 is provided with a tapering spindle 18, adapted to be inserted in and to frictionally engage a correspondingly tapered socket in the lower end 19 of the actuating shaft 2. The upper end of this tapered socket terminates in a transverse slot 20, which receives the upper flattened end 21 of the spindle 18, to prevent rotation of the spindle in its socket. The socket 20, moreover, being open ended, furnishes a convenient opening for the insertion of a suitable tool above the spindle 18 whereby, when necessary the latter may be forced downwardly and released from its socket.

A more convenient method of ejecting the spindle is by unscrewing the nut 12, until, bearing against the lower end of the shaft, it forces the spindle from its socket.

5 The shaft 2 has mounted thereon a suitable driving pulley 22 for the reception of a driving belt 23 which passes over guide pulleys 24 at the rear of the horizontal arm 3, down to and about the main driving pulley 25, conveniently located upon the base of the machine.

Suitable means are also provided for conveying away from the buffer tool the dust incident to the buffing operation, which means may be of any desired construction. As here shown it comprises a suitably arranged suction flue 26, which may be cast as a part of the column 4, and communicates at its lower end with suitably arranged passages 27 (see Fig. 3) situated upon either side of said column and opening at 28 into the center of a fan casing containing a suction fan 29. This fan is mounted upon a shaft 30, journaled in the column 4, and is provided with a suitable pulley 31, to which rotation is imparted by means of a belt 32 from the driving wheel 25.

In order to add to the rigidity of the horizontal tool carrying arm 3 and to stiffen the suction flue 26, said arm at its front extremity may be provided with the projecting web 34, extending to and secured in suitable manner upon said suction flue 26, as shown in Fig. 1.

35 The usual cleaning brush 35 is herein shown as journaled in an arm 36 extending preferably from the column 4 beneath the flue 26 and which is here shown as shaped to provide a suction chamber 37 communicating by means of a passage 38 with the main suction flue of the machine.

While it is possible to use to advantage the cellular filler when loosely inserted in its sheath or casing, it is found in practice that 45 under some conditions of work the filler thus loosely confined, is apt to creep and become bunched and uneven. In order to avoid this and to provide a pad which shall operate with absolute certainty under all conditions, 50 I find it preferable to cement or otherwise secure, as by vulcanization, the cellular filler to and preferably throughout the working or effective area of the pad casing.

The operation of cementing or securing a 55 sponge rubber filler within and to its inclosing sheath or casing is attended with some difficulty unless the proper conditions are present, for it is found in practice to be impossible after the sponge rubber has once 60 come in contact with the cemented interior surface of the casing to thereafter alter its position relative to the casing. It is necessary, therefore, that the pad shall be initially presented to the cemented inner face of the 65 casing in precisely the position in which it is

to remain. To insure such proper initial presentation of the filler to the casing or sheath to which it is applied, a properly formed casing, such as that shown at 39 in Fig. 4, having a curved cover supporting or working 70 face and a marginal inwardly projecting lip, is reversed or turned inside out upon a suitably shaped form 40 (Fig. 5), whereupon the exposed interior surface of the casing may be readily coated with suitable cement, the 75 surface of the casing, when of rubber, being first for the best results, buffed to remove the glazed surface. The sponge rubber filler may be placed upon a suitable support and the form 40 with the casing 39 reversed 80 upon it brought down accurately upon the filler and the edges of the latter pressed in any suitable manner upwardly against the cemented surface of said casing, said edges being made to coincide accurately with the 85 crease 42 of the casing formed by the reversal of the rim 43 thereof. By this process or method of manipulation the filler will be secured to and throughout the working area of the casing whereby creeping of 90 the filler within the casing will be effectually prevented.

While I have herein described and shown a pad formed of a separate casing and cellular filler, it is within the scope of my invention 95 to form the pad in a single piece with a sponge-like or cellular interior body portion integral with a continuous solid facing portion, the feasibility of such a construction being obvious to those conversant with the 100 art of manufacture of sponge rubber.

Owing to the cellular structure of the filler the pad while possessing the advantages of the pneumatic construction, does not become deflated upon removal from its 105 holder, nor upon cracking or perforation of the casing of said pad, and furthermore, by making the filler of somewhat larger normal volume than that of the casing, the resilience of the pad will be materially increased, 110 owing to the resulting compression under which the filler will be held within the casing.

It is apparent that my invention as here illustrated does not contemplate or require a tubular spindle nor an inlet for inflation or 115 distention of the walls of the casing chamber, nor is the abradent covering held in place by any expansive action or distention of the pad. On the contrary, the pad carrying spindle is preferably solid or non- 120 tubular, and whatever air may be contained within the pad casing, whether in the sponge rubber cells or in any chamber communicating with the sponge rubber, is confined like the air in a pneumatic wheel tire or in 125 the buffing pads, such, for instance, as shown in the patent to Crooker No. 472,287, April 5, 1892.

I have herein shown but one embodiment of my invention, the same having been se- 130

lected for illustrative purposes only. Many changes may be made in the construction and relative arrangement of parts and in the character of the materials used, and my invention otherwise may be variously embodied, all without departing from the spirit and scope of my invention.

From the construction thus presented as one of the many modifications the invention may assume, it will be noted that the cellular or sponge-like filler sustains the peripheral portions of the buffing element projecting beyond the periphery of the holder 9 in such manner that upon the presentation of work thereto the buffing pad is rendered self-sustaining as to general shape, and the portions 60 is made effectively operative without injurious distortion, even though the work be pressed with energy against the peripheral portions, a condition not attainable in the ordinary pneumatic pad, as will be readily understood by those skilled in the art. Moreover, it will be noted that while the cellular condition of the filler presents a multiplicity of air cells or chambers, the closed or auxiliary air chamber created by the space in chamber 13 below the plug 16, affords a pneumatic action additional to the elastic action of the cellular filler; and by reason of the union between the cellular filler and the inclosing sheath or cover all liability of the objectionable creeping and bunching of the filler is avoided,—a consideration of great importance in tools of this character, as will be at once appreciated by those skilled in the art. The filler formed as a mass previously shaped to the conditions of use, renders a proper position of the filler with respect to its sheath or cover readily possible without distortion of the filler mass in placing and securing it to the working area of the sheath or cover.

Claim

1. A buffing pad comprising a pad-shaped mass of filling material and a casing enveloping said mass, the said mass having portions united to the inner surface of said casing throughout the working area of the pad and having other portions free from the casing.

2. As a new article of manufacture a buffing pad comprising a pad-shaped mass of resilient filling material, and a resilient casing therefor, the inner surface of said casing being united with the adjacent surface of the pad shaped mass and retaining said mass in proper relation to the casing, the non-adjacent surface of the pad shaped mass being free from the casing.

3. A Naumkeag buffing pad for operating upon boots and shoes, comprising a casing

having a working face and an inwardly projecting lip extending about the perimeter of the casing, and a filler shaped to fit between the inner surface of the working face of the casing and said lip, said filler being formed of previously shaped sponge rubber.

4. A buffing pad comprising a casing and a filler formed of sponge rubber, the inner surface of the casing being cemented to the sponge rubber filler and an abrading material supported by the casing.

5. A buffing pad comprising a substantially disk-shaped head, a casing secured to said head, an abrading material supported by said casing a sponge rubber filler formed as a pad shaped mass and interposed between the said head and casing, the peripheral portions of the casing and the filler extending beyond the peripheral portions of the head.

6. As an article of manufacture, a buffing pad comprising a substantially disk-shaped head, a casing of resilient material secured thereto, a resilient cellular filler interposed between the head and the casing, the peripheral portions of the casing and filler extending beyond the peripheral portions of the head, said filler being united to the inner surface of the casing substantially throughout the working area of the pad and having other portions free from said casing.

7. A buffing pad, a support therefor, a clamping member, a thimble 14 having projecting portions 15 engaging the clamping member, and a spring acting to move the thimble and clamping member from clamping position when the latter is released.

8. A buffing pad comprising, in combination, a head 9, a clamping member 10 and its clamping means to secure the pad to the head, a thimble 14, having portions engaging the clamping member, and a spring 17 for lifting the clamping member from the head when released by its clamping means.

9. A buffing machine pad of substantially disk-like form, comprising a casing 39 having a curved working face and an inwardly projecting lip, and a pad-shaped mass of sponge rubber previously formed to fit within said casing between the inner surface of its curved working face and said projecting lip, said sponge rubber filler being secured to the inner surface of the casing.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN E. LEAVITT.

Witnesses:

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ANNIE E. CHESLEY.