

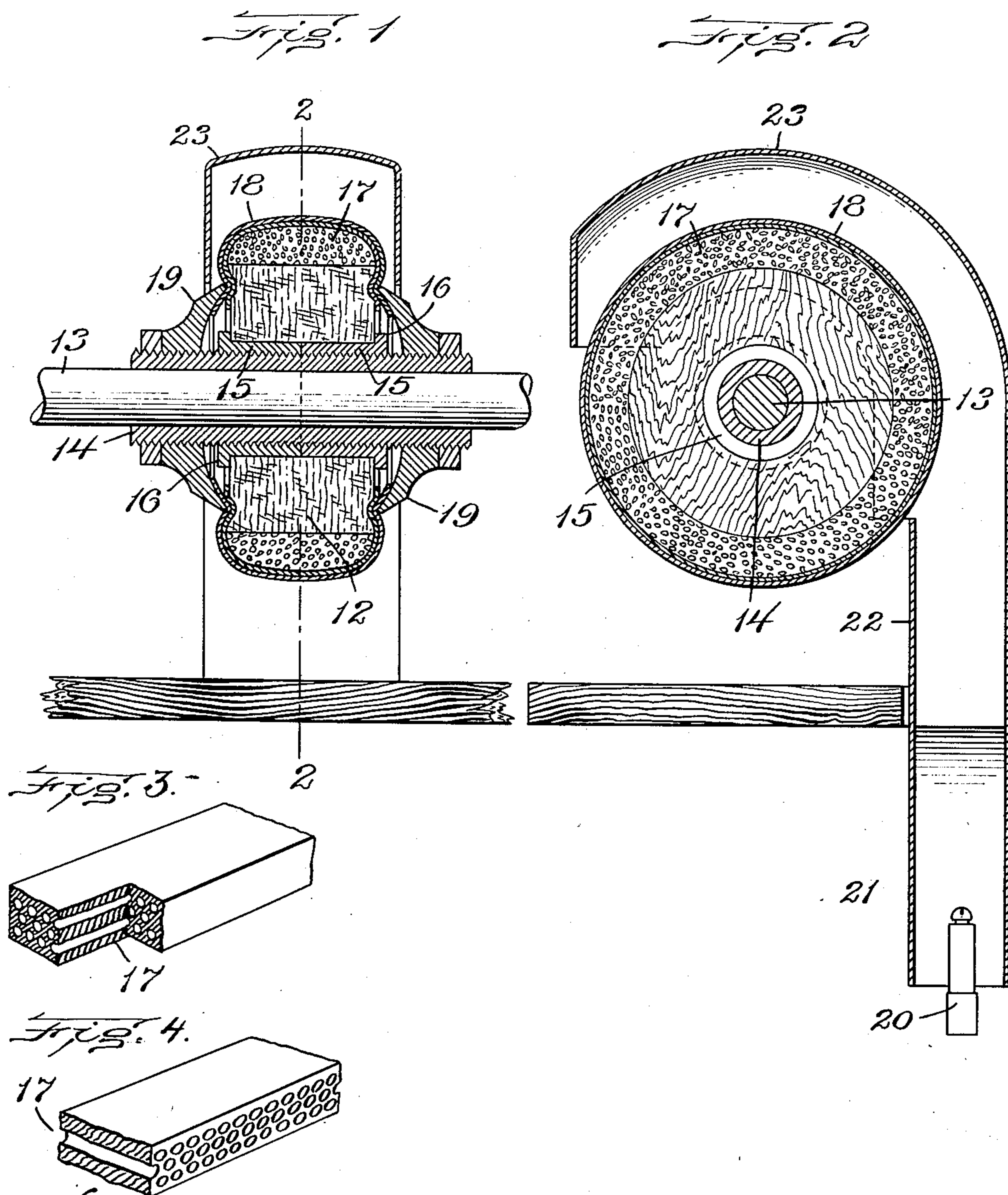
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ROTARY OPERATING MEMBER FOR BOOT AND SHOE FINISHING MACHINES.

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UNITED STATES PATENT OFFICE.

WILLIAM WINSLOW CROOKER, OF LYNN, MASSACHUSETTS.

ROTARY OPERATING MEMBER FOR BOOT AND SHOE FINISHING MACHINES.

No. 868,532.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed September 13, 1906. Serial No. 334,436.

To all whom it may concern:

Be it known that I, WILLIAM WINSLOW CROOKER, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Rotary Operating Members for Boot and Shoe Finishing Machines, of which the following is a specification.

This invention relates to machines for performing various operations in the finishing of boots and shoes, such as buffing, polishing or burnishing, and applying wax preparatory to polishing or burnishing. In machines of this character a rotary member is employed having a working cover composed of abrasive material for buffing, and of flexible textile material for waxing and polishing, the said working cover being backed by a compressible cushion. Heretofore the said cushion has been usually made of felt, although in some cases, especially in buffing appliances, the cushion has been provided by inflating a suitable sack or holder with air under pressure. Felt as a cushioning material has the disadvantage of being relatively inelastic and liable to be permanently compressed and rendered undesirably rigid by use. Compressed-air cushions are difficult to maintain, owing to the liability of puncturing the bag or case in which the air is confined.

My invention has for its chief object to provide a cushion or backing for the working cover of an operating member of the class stated which shall have practically all the advantages of a pneumatic cushion without its disadvantages, and to this end the invention consists in a rotary operating member having a working cover and cushion or backing therefor composed of cellular rubber. This cushion may be the ordinary sponge rubber containing a large number of air cells, the walls of which are composed of thin elastic rubber, the resilience of which enables the air cells to be normally maintained when not flattened by compressive pressure, and to return to their original form when the pressure is removed, the cellular rubber cushion being practically as resilient and affording all the desirable features of a pneumatic cushion.

The invention also has for its object to provide improved means for securing an annular cushion to the hub or body which it surrounds, the said means being embodied in an elastic retaining band, the diameter of which is normally less than that of the cushion, said band, when sprung to place, forming a yielding cushion-retaining cover which in effect forms a part of the cushion, and yieldingly backs or supports the flexible working cover.

The invention consists in the improvements hereinafter described and claimed.

Of the accompanying drawings,—Figure 1 represents a longitudinal section of a rotary operating member having a construction suitable for applying wax to surfaces of boots and shoes. Fig. 2 represents a section on

line 2—2 of Fig. 1. Figs. 3 and 4 represent perspective views of fragments of cellular cushions with different forms of air cells.

The same reference characters indicate the same parts in all the figures.

Referring to Figs. 1 and 2, 12 represents a circular body or hub, which is suitably affixed to a shaft 13. The hub may be composed of any suitable material, and while it may be rigid, I prefer to make it of closely compressed felt, an annulus of felt being applied to the shaft 13, and secured thereto by a suitable means, such as a sleeve 14 and flanged thimbles 15, 15 threaded thereon. The sleeve is made rigid in any suitable way to the shaft, and has an external screw-thread upon which the several clamping nuts hereinafter described are threaded. The thimbles are adapted to fit snugly in the central aperture of the hub 12, and have flanges 16, 16 on their outer ends, which clamp the parallel faces of the hub when said thimbles abut against each other, as in Fig. 1.

17 represents a cushion of cellular rubber surrounding the body 12 and suitably secured thereto, the rubber employed being preferably the ordinary sponge rubber.

18 represents a working face or cover, which is formed to embrace the cushion 17, its edges overlapping the sides of the body 12 and being secured thereto by suitable means such as clamping nuts 19 which press the edge portions of the cover 18 against the sides of the body 12.

The cellular rubber cushion 17 forms an elastic support for the working cover, and the elasticity of the cushion may be regulated by the tension given to the cellular rubber in applying it to the body 12. In other words, the strip of cellular rubber of which the cushion is composed may be stretched more or less in applying it to the body. The air cells are compressed or contracted by the stretching of the rubber, and the elasticity of the cushion is decreased to the extent to which the rubber is put under tension.

The working face or cover 18 may be heated to soften or melt the wax applied to it by suitable means such as by a gas burner 20 in a casing 21 and a flue 22 extending from the casing and conducting heated air therefrom to the periphery of the rotary member above described, the said casing being extended in the form of a hood 23 partially surrounding the periphery of the said operating member.

The burner while adjacent to the operating member, is so far removed from it that the flame from the burner cannot impinge on any part of the operating member, the latter being heated by hot air and products of combustion conducted from the burner. There is therefore no liability of injuriously heating the cover 18 and other combustible parts of the operating member. The heat supplied should be sufficient to soften the wax without melting it, and a degree of heat suitable

for the accomplishment of this result may be readily maintained by means of the burner located at a distance from the operating member, the hood covering a part of the periphery of said member, and the flue conducting heat from the burner to the hood. The motion of the periphery of the operating member through the hood induces an outward flow of the heating medium from the hood.

While I have specified ordinary sponge rubber as the preferred material of the cushion, it will be understood that any suitable form and arrangement of rubber forming the elastic walls of numerous air spaces or cells may be adopted in the construction of said cushion, and that the air cells may have any desired form and arrangement. They may be small cells detached from each other or elongated either lengthwise of the cushion as shown in Fig. 3, or crosswise of the cushion as shown in Fig. 4. Sponge rubber is very desirable for the purpose described because it forms a cushion which can be renovated when its air cells have become flattened, by simply removing the cushion from the hub and suitably manipulating it as by rubbing or shaking while in a loose condition, the air cells being thus restored to their original form. The cushion is preferably an annulus of sponge rubber, as shown in Fig. 2, so that it can be easily applied and removed, the annulus being of such normal diameter that it will hug the periphery of the hub.

I prefer to confine the cushion by an elastic band 30 which surrounds the cushion and is of such width and elasticity that its edge portions hug the sides of the cushion and overlap the body 12. This construction permits the ready application and removal of the cushion, the band 30 being sprung onto the cushion after

the latter has been placed on the body 12. The outer working cover 18 bears on the elastic band 30. The said band when made rubber not only confines the cushion in place, but also prevents access to the cushion of melted wax and other material that might find its way through the working cover and stiffen the cushion. Moreover the band adds resilient material to the cushion.

It will be seen that the heat supplied, acts not only to melt the wax on the working cover, but also to heat the air in the air cells or spaces of the cellular rubber cushion, the heated air expanding the said cells, and keeping the cushion properly distended, thus preventing the cushion from being permanently compressed by the pressure to which it is subjected.

I claim:—

1. In a machine of the character described, a rotary wheel comprising a hub and an elastic cushion on the periphery thereof, an elastic retaining band the diameter of which is normally less than that of the cushion, said band being sprung to place on the cushion so that its edges automatically form flanges which engage the edges of the hub and cover the ends of the cushion, and a flexible working cover bearing on the band and backed by the band and cushion.

2. In a machine of the character stated, a rotary wheel comprising a circular hub or body, an annular cushion of sponge rubber surrounding the periphery of the same, an air-proof elastic band or clamp removably securing the cushion to the body and covering the face and both edges of the cushion, and a flexible working cover bearing on said band and backed by the band and cushion.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WILLIAM WINSLOW CROOKER.

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