May 30, 1944. G. R. CHURCHILL 2,350,216

BUFFING WHEEL

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Fig. 1

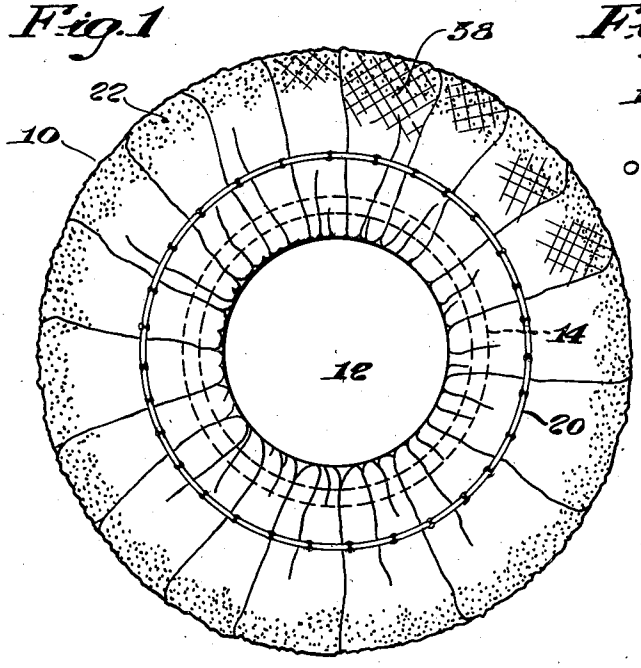



Fig. 2

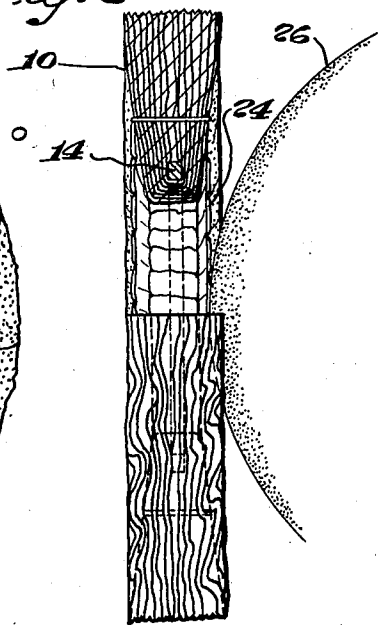



Fig. 3

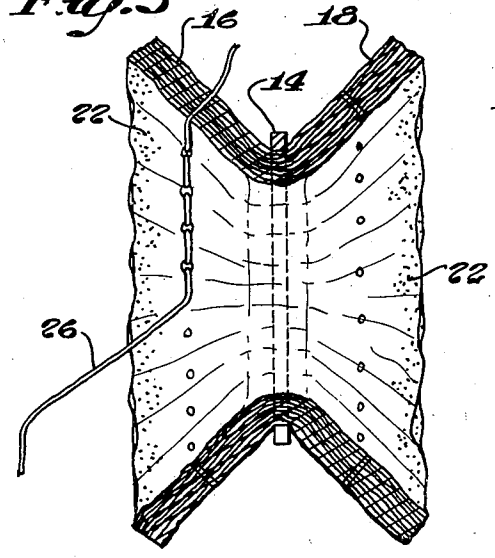
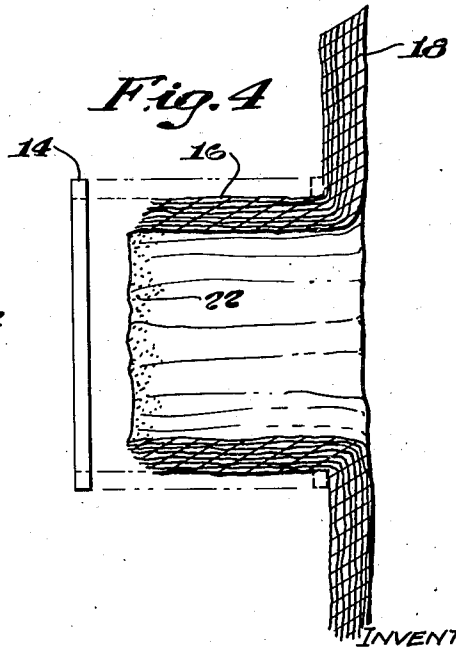



Fig. 4




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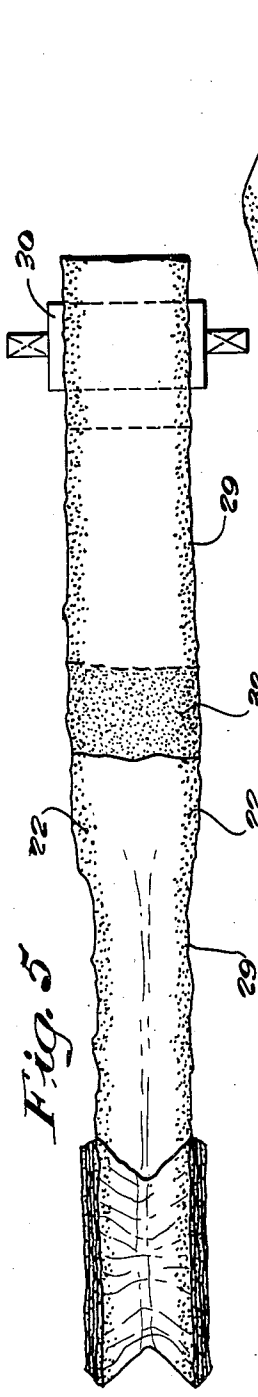



Fig. 5

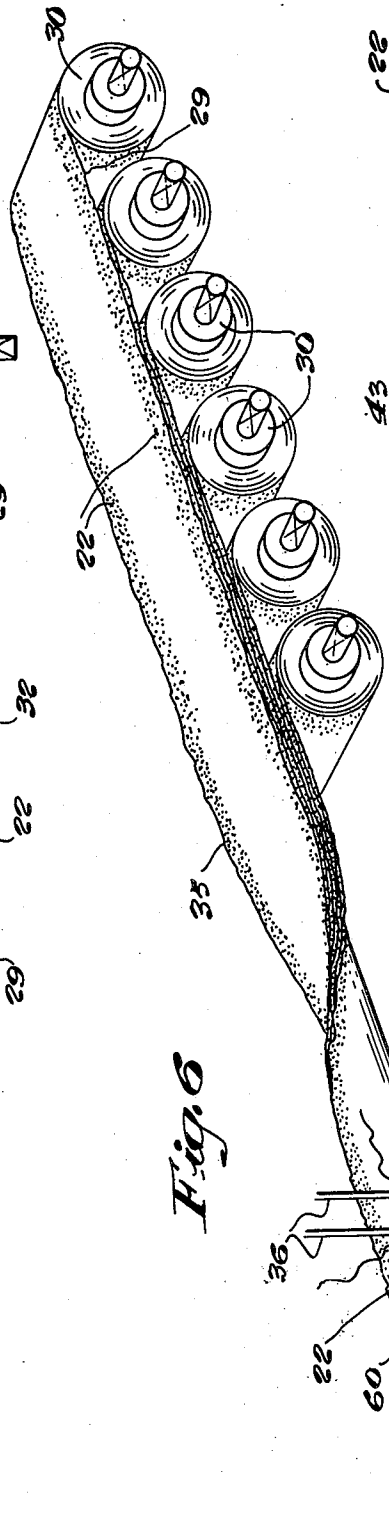



Fig. 6

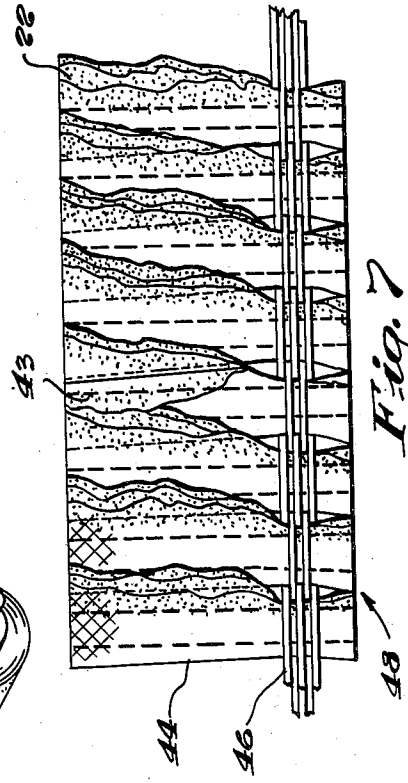



Fig. 7

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BUFFING WHEEL

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Fig. 8

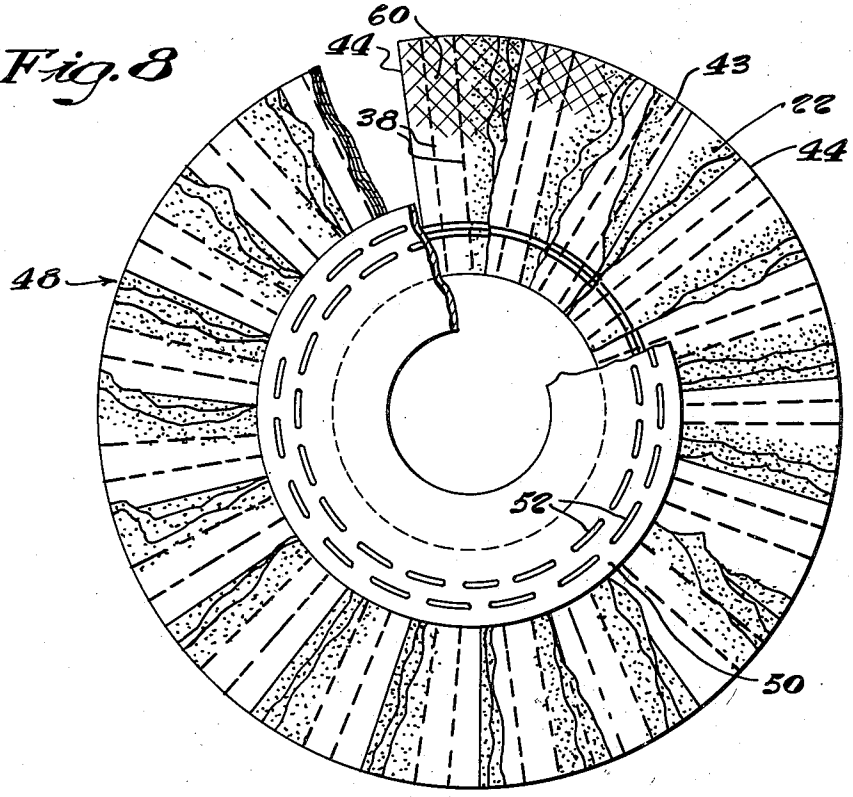
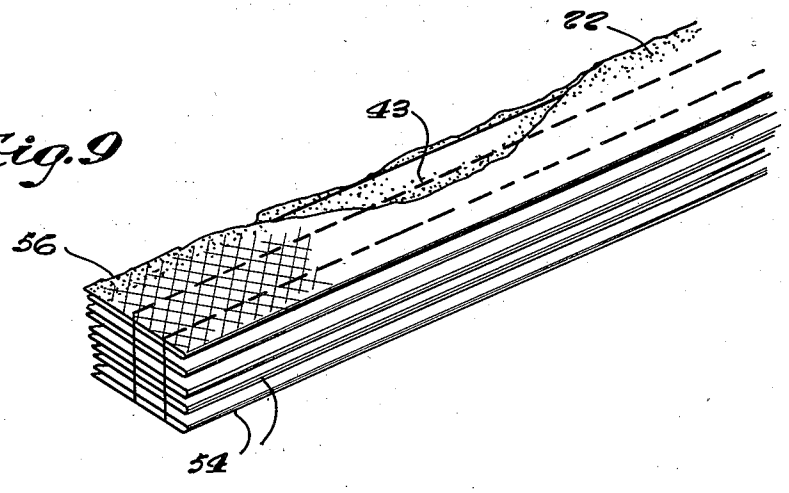



Fig. 9




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Patented May 30, 1944 2,350,216

# UNITED STATES PATENT OFFICE

2,350,216

## BUFFING WHEEL

George R. Churchill, Hingham, Mass.

Application January 6, 1943, Serial No. 471,413

3 Claims. (Cl. 51—193)

This invention relates to a buffing wheel and to a method of making the same.

The invention has for one of its objects to produce a novel and improved buffing wheel characterized by structure which enables its production from materials salvaged from previously used buffing wheels which might otherwise be discarded and which material in its pre-used state has become partly saturated with buffing compound whereby when used to produce the improved buffing wheel, the absorption of freshly applied compound is greatly facilitated.

Another object of the invention is to provide a novel and improved cloth buffing wheel in which the material used in its production has been partly pre-saturated with a buffing compound whereby to enhance its affinity to receiving freshly applied compound in its manufactured state.

A further object of the invention is to provide a novel and improved method of making a buffing wheel by which materials salvaged from previously used buffing wheels may be re-used.

With these general objects in view, and such others as may hereinafter appear, the invention consists in the buffing wheel and in the method of making the same hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a side elevation of a used buffing wheel of the type from which the material may be salvaged to produce the present buffing wheel; Fig. 2 is an end view, partly in cross-section, illustrating the first step in disassembling the used wheel to obtain the material therefrom; Figs. 3 and 4 are cross sectional views illustrating succeeding steps in disassembling the used wheel from which the material is to be salvaged; Fig. 5 is a plan view showing the salvaged web being unwound, ends of successive webs adhesively connected, and the extended web rewound on a roller; Fig. 6 is a perspective view illustrating the manner in which a plurality of superimposed webs are simultaneously withdrawn from the rolls and the multi-ply web thus formed being longitudinally folded and stitched; Fig. 7 is a side elevation of a strip of connected buffing fingers produced from the multi-ply folded and stitched web; Fig. 8 is a front view of a completed buffing wheel embodying the present invention, some of the parts being broken away to more clearly illustrate the structure; and Fig. 9 is a perspective view illustrating a method of folding and superimposing the salvaged material to produce a modified form of buffing finger.

In general the present invention contemplates a novel and improved buffing wheel of the radially extended finger type which may be produced from materials salvaged from previously used buffing wheels, such for example as those buffing wheels of the type made up from a continuous strip or web of cloth of substantial width which is rolled up to form a plurality of plies about a central opening and then doubled up widthwise and gathered on its folded median line around the central opening. Such prior wheels when worn down to a minimum diameter for use in their existing form contain a substantial amount of unused cloth, which still retains some of the buffing compound which has been applied thereto during its prior use. In accordance with the present invention, such material may be salvaged and re-used to produce the buffing wheels of the type illustrated and described in the United States patent to George R. Churchill, No. 2,146,284, issued February 7, 1939, which comprise a plurality of radially extended fingers made up from folded lengths of cloth connected together at one end preferably by wires as shown in said patent. The buffing wheel embodying the present invention, when made up from material salvaged from prior buffs which have been partly saturated with buffing compounds during use, was found in practice to facilitate the absorption of fresh buffing compound so that a minimum of time and effort is consumed to prepare the present buffing wheel for use. In practice, in manufacturing the present buffing wheel from such prior continuous strip buffing wheels, I have discovered a practical and economical method of preparing and handling the salvaged material to render it readily and conveniently available for use in the present manufacturing process, including disassembly of the old buffing wheel in a simple and rapid manner as will be hereinafter more fully described.

Referring now to the drawings and particularly to Figs. 1 to 5, illustrating the manner of disassembling a used buffing wheel of the continuous web type from which the material is to be salvaged, 10 represents a used buffing wheel made up from a continuous web of cloth rolled up to form a plurality of plies about a central opening 12, folded up widthwise and gathered on its folded medial line around the opening. In the illustrated buffing wheel 10 the material is doubled up and folded widthwise about a

metal ring 14 and the two sides 16, 18 of the folded web are held together in their assembled form by a circular row of stitches 20. As illustrated, and as a result of previous use, the worn buffing wheel 10 is impregnated or saturated with a buffing compound 22 for a substantial distance from the peripheral edge thereof.

The first step in disassembling a worn buffing wheel of the illustrated type, as shown in Fig. 2, is to cut off the stitching loops 24 on one side only, preferably by abrasion, as by a grinding wheel 26. The opposed sides 16, 18 may then be easily spread apart and the remaining thread 26 pulled out as clearly shown in Fig. 3. One of the side walls 16, 18 may then be squeezed together as shown in Fig. 4 and the metal ring 14 removed. This ring may be salvaged for re-use. The continuous web of cloth 29 may now be unwound from its rolled up form, and, as shown in Fig. 5, in order to prepare the material in convenient form for economical handling for the manufacture of the present buffs in accordance with the present method, the salvaged material is again rolled up upon a roller 30, the material being stretched out during this operation to cause the material to lie flat against the roller rather than in the V-shaped form it assumes upon disassembly. One roller 30 may and preferably will have continuous lengths of salvaged material 29 from several used wheels wound thereon, and, as herein shown, the ends of the continuous lengths may be adhesively joined as illustrated at 32.

In practicing the present method of making a buff, a plurality of rollers 30 having a supply of salvaged material 29 wound thereon are arranged in alignment, one behind the other, as shown in Fig. 6, with each successive roller mounted progressively higher than the one preceding it so that a plurality of webs may be conveniently withdrawn simultaneously in superposed condition to form a multiple ply web or strip 35 of salvaged material having its longitudinal edges saturated or impregnated with buffing compound 22. In accordance with the present invention, the multiple ply web 35 thus formed is folded upon itself along a substantially medial longitudinal line and stitched together in a sewing machine, the needles of which are indicated at 36, to form one or more rows of stitching 38, as illustrated. The stitching serves to reenforce and stiffen the fingers to render them capable of standing up under hard usage. However, for some types of work where a relatively soft buffing wheel is preferred, the stitching operation may be eliminated and the folded unstitched web used. Although the salvaged web 35 is herein shown as being folded once to provide one closed side 40 and one open side 42, in some instances the finger material may be folded and overfolded to form a finger having both sides closed or one side closed and the other side partly closed, as shown and described in my Patent No. 2,146,284, above referred to. Furthermore, in practicing the present method of folding and stitching the webs, some of the webs or portions thereof may be folded back upon themselves, as indicated at 43 in Figs. 7 and 9, so as to be stitched back in this position during the sewing operation, thus effecting a more equal distribution of the pre-saturated material throughout the circumference of the completed wheel.

The folded and stitched web 35 thus formed is then cut up into substantially equal lengths of the desired size to form buffing fingers 44 and the fingers are connected together at one end preferably by wires 46 which are woven so as to form sheds into each of which an individual buffing finger 44 is inserted and compressed into compact form and firmly held by the wires to form a continuous strip 48 of any desired length, a portion of such strip being shown in Fig. 7. The continuous strip 48 thus formed may then be cut up into suitable lengths according to the diameter or size of the buffing wheel in which they are to be used. When a desired length of the strip of fingers 48 is cut from the continuous strip, the ends of the wires may be secured together to form a closed ring of radially extending buffing fingers. Thereafter, the closed ring of radially extending buffing fingers is arranged concentrically with a metal or cardboard disk 50 and attached thereto by staples 52 or other fastening means to form the complete wheel shown in Fig. 8, ready for mounting upon an arbor and between the clamping disks of the usual buffing wheel support.

A modified form of the present buffing wheel made up from strips of salvaged and pre-saturated material is illustrated in Fig. 9 and comprises a plurality of individual strips or webs 54 first folded once longtiudinally and then placed in superimposed form one upon the other and stitched as shown to form a continuous strip 56 which may be cut up into suitable lengths to form buffing fingers, as above described.

In practice, best results and longest wear is usually obtained when the direction of rotation of the wheel is such as to present the closed side 40 of the fingers to the work first, that is, with the open side 42 trailing behind. However, it has been found that for some types of work, particularly where it is desired to reach into grooved or depressed portions thereof, the direction of rotation of the wheel with respect to the work may be reversed so that the free or relatively loose ends 42 of the fingers engage the work first.

It will be observed that the peripheral edge of the material in its original form, as shown in Fig. 1, is cut on the bias, as indicated by the cross-hatching 58, to present a working edge which will not unravel, and that the present finger buffs are likewise arranged to present a bias cut working edge, as indicated by the cross-hatching 60, at right angles to the original bias cut.

From the above description it will be observed that the present buffing wheel produced from material salvaged from a pre-used continuous web type of buff embodies a substantial amount of buffing compound which facilitates the absorption of fresh buffing compound resulting in a more economical use of the latter and effecting a reduction in the time and labor involved in the application thereof.

While the present method of disassembling and salvaging the material to be used in the manufacture of the present buffing wheel has been found practical from a manufacturing viewpoint, it will be understood that other methods may be employed to achieve the same results. For example, after the stitching threads 20 and the metal ring 14 have been removed, a radial cut through one side of the rolled up material will enable the material to be extended and stretched out to form a length of folded web equal to the circumference of the original wheel. Such folded and extended length may then be stitched longitudinally, as above described.

and cut up into individual lengths to form buffing fingers to be subsequently formed in a buffing wheel in the manner above described.

While the preferred embodiment of the invention and the preferred manner of practicing the present method have been herein illustrated and described, it will be understood that the invention may be embodied in other forms and applied to other methods within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. As a new article of manufacture, a buffing wheel comprising a closed ring of connected and radially extended fingers, each of said fingers comprising a plurality of layers of relatively narrow strips of cloth, each of said fingers having at least one radial edge impregnated with a buffing compound for substantially the length thereof and having the medial lengthwise portion of each finger unimpregnated throughout its length, whereby to facilitate absorption of fresh buffing compound in preparing said buffing wheel for use.

2. As a new article of manufacture, a buffing wheel comprising a closed ring of connected and radially extended fingers, each of said fingers comprising a plurality of layers of relatively narrow strips of cloth folded longitudinally, each of said fingers having at least one radial edge impregnated with a buffing compound for substantially the length thereof and having the medial lengthwise portion of each finger unimpregnated throughout its length, whereby to facilitate absorption of fresh buffing compound in preparing said buffing wheel for use.

3. As a new article of manufacture, a buffing wheel comprising a closed ring of connected and radially extended fingers, each of said fingers comprising a plurality of layers of relatively narrow strips of cloth folded longitudinally, each of said fingers having at least one row of stitches extending longitudinally thereof, each of said strips also having at least one radial edge impregnated with a buffing compound for substantially the length thereof and having the medial lengthwise portion of each finger unimpregnated throughout its length, whereby to facilitate absorption of fresh buffing compound in preparing said buffing wheel for use.

GEORGE R. CHURCHILL.