Nov. 2, 1954 G. A. LYON 2,693,064

METHOD OF MAKING BUFFING WHEELS

Filed Dec. 29, 1949 2 Sheets-Sheet 1

Fig. 2

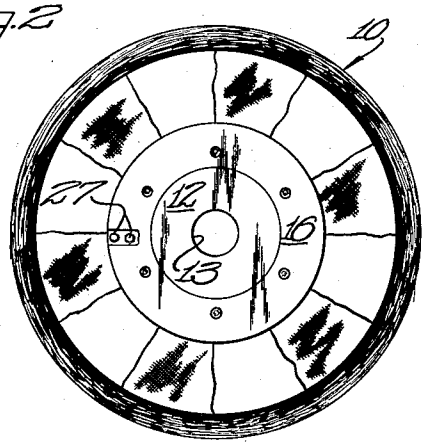


Fig. 1

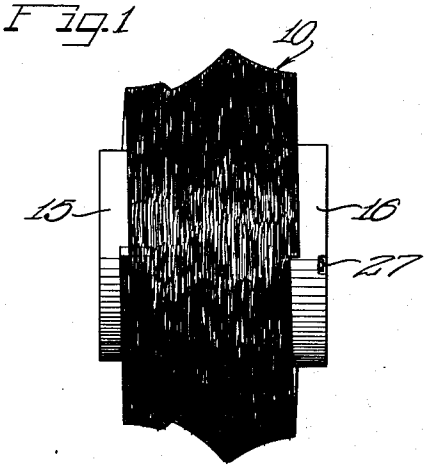
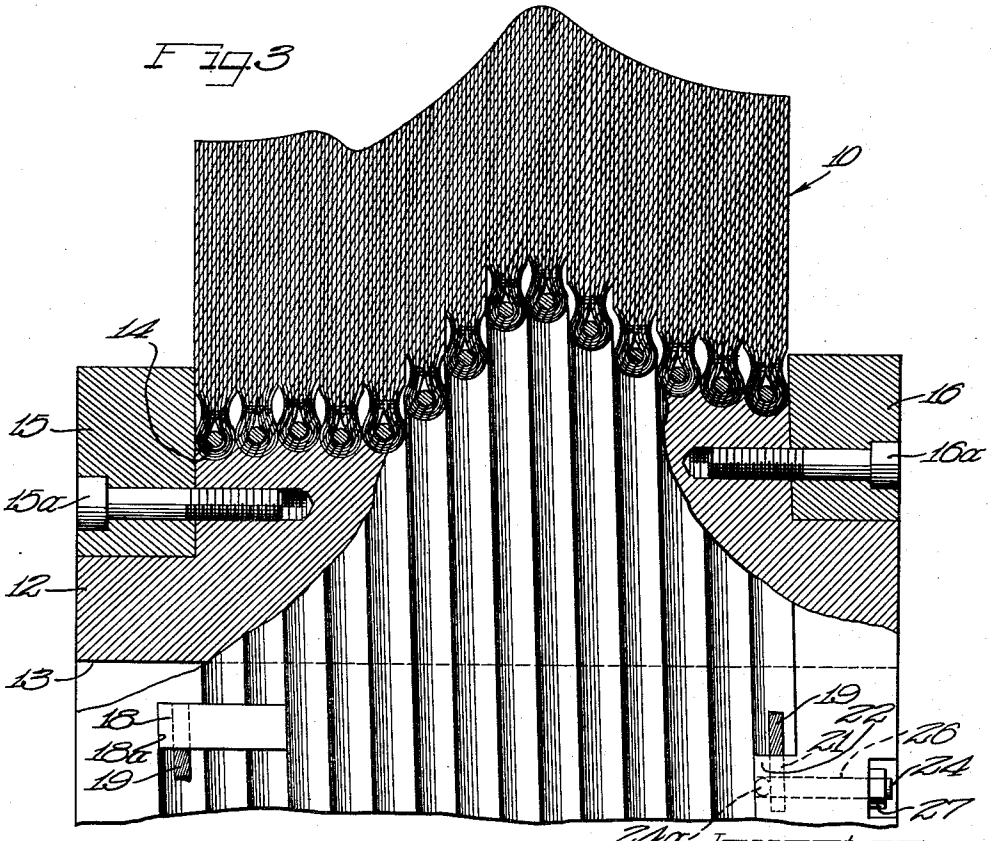


Fig. 3



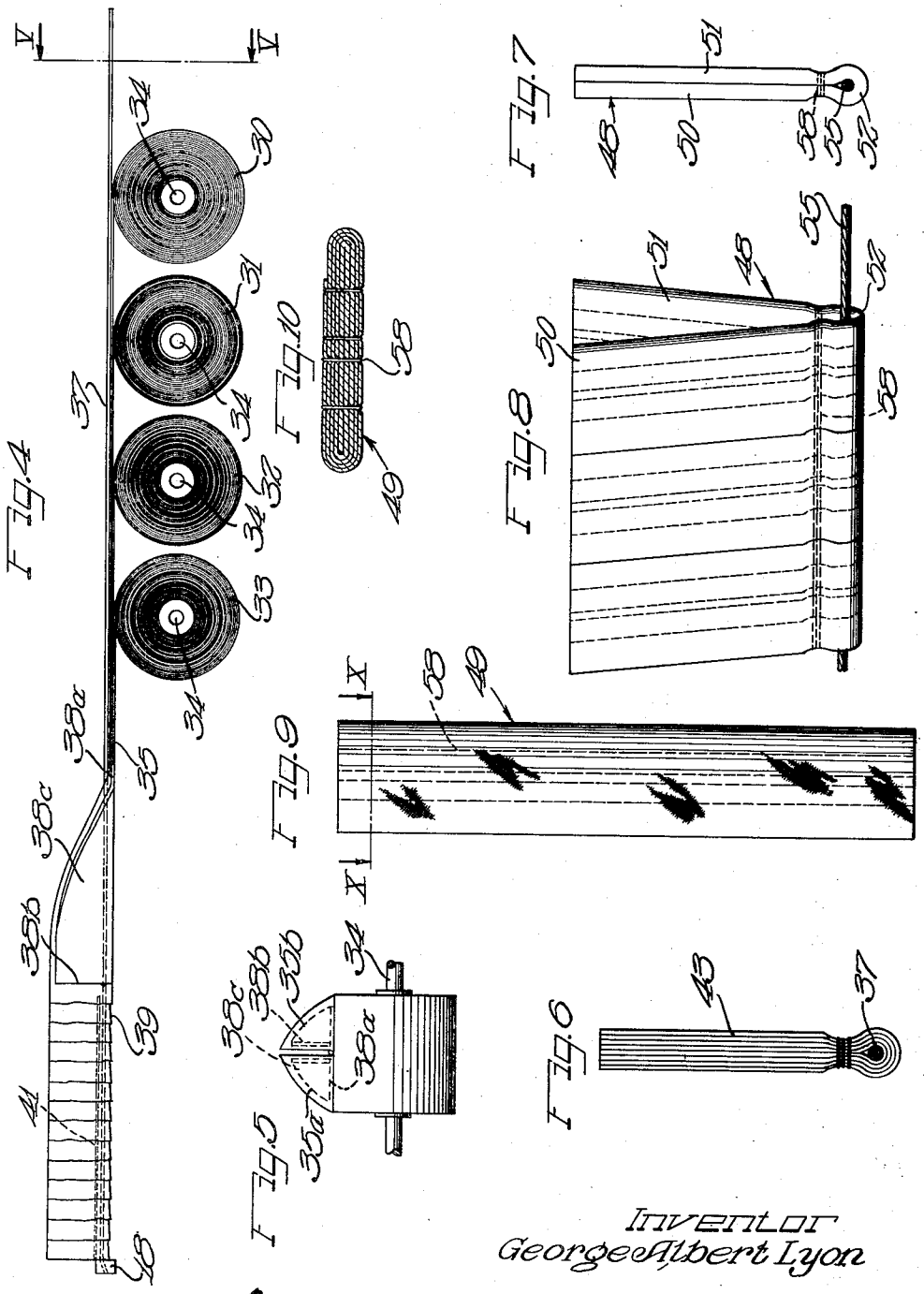
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United States Patent Office 2,693,064 Patented Nov. 2, 1954

2,693,064

METHOD OF MAKING BUFFING WHEELS

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Application December 29, 1949, Serial No. 135,675

5 Claims. (Cl. 51—193)

This invention relates to improvements in buffing wheel construction. More particularly, it has to do with an improved buff and a method of making the buff.

Heretofore, buffing wheels have been provided wherein the buff was fabricated by assembling a plurality of discs on a common arbor. In my copending application, U. S. Serial No. 126,353, filed November 9, 1949, which matured as Patent No. 2,571,147, granted October 16, 1951, of which the present application is a continuation-in-part, I disclosed a new type of buffing wheel wherein a flat strip of buffing material of constant width is wound on the peripheral surface of a generally cylindrical core with the plane of the flat strip disposed substantially at right angles to the axis of the core.

The present application has to do with a novel type of continuous flat strip buffing element for winding on a core, and a method of fabricating the element.

It is therefore an important object of the present invention to provide a novel buff element.

Another object of this invention is the provision of a novel method of assembling a buff element.

A further object is the provision of a novel buff element that may be quickly assembled by use of a standard sewing and tucking machine.

A still further object of this invention is the provision of a novel "finger" element which may be used to form a continuous strip buffing element.

According to the features of the present invention, a continuous buffing element is formed by disposing a plurality of flat strips of buffing material of the same width one on top of the other and then placing a wire or cable longitudinally on top of the upper strip intermediate the side edges of the strip. The superimposed layers of buffing material are then guided over laterally spaced guide plow sections which contact the material near the side edges and progressively fold the sides upwardly while leaving the central portion of the layers and the cable disposed thereon substantially at the original level. When the sides are in upright position, the layers of material are directed through a standard sewing and tucking machine where the layers are tucked and the opposed upstanding sides are sewed together by a continuous line of stitching at a point immediately above the cable. The element so formed has a rounded folded edge enclosing the cable, which rounded edge may be positioned in grooves on the peripheral surface of the core.

Other and further features, objects, and advantages of the present invention will become apparent to one skilled in the art from the following detailed description taken in connection with the accompanying drawings.

On the drawings:

Figure 1 is a side elevational view of a buffing wheel employing a buff element constructed in accordance with the teaching of the present invention;

Figure 2 is an end elevational view of the buffing wheel of Figure 1;

Figure 3 is a fragmentary vertical view of the buffing wheel of Figure 1 showing the grooved core in elevation and the buffing element and a portion of the end flanges in section;

Figure 4 is a side elevational view of apparatus used in fabricating the novel buffing element of the present invention;

Figure 5 is an end elevational view of the apparatus of Figure 4 looking in the direction indicated by the arrows;

Figure 6 is an end elevational view of a buffing element constructed according to the teachings of the present invention;

Figure 7 is an end elevational view of a modified buff assembly using "finger" elements;

Figure 8 is a perspective view of a buff assembly partially assembled;

Figure 9 is a plan view of a "finger" element;

Figure 10 is a sectional view taken on line 10—10 of Figure 9.

As shown on the drawings:

In Figures 1, 2 and 3 the reference numeral 10 indicates a buffing element wound on a core or arbor 12 which has a continuous helical groove 14 extending around the periphery. End plates 15 and 16 are disposed over reduced diameter end portions of the core and are secured thereon by bolts 15*a* and 16*a*.

The buffing element 10 is wound in the groove 14 and is anchored at one end by means of an elongated block 18 that extends axially of the core 12 and is disposed in an axial groove 18*a* in the core. A strong elongated flexible element 19, which may be of stranded form or of solid form and will, for convenience, be referred to as cable, extends through the buffing element and is secured in the block 18. This anchoring block 18 may be made of metal and the cable 19 may advantageously be welded or brazed thereto to provide a solid anchor during the winding of the cable 19 and the buffing element onto the core.

As seen in Figure 3, the free end of the cable 19 is disposed in a blind passage 21 in a shoulder 22 of the end plate 16. A U-bolt 24 has leg portions disposed through spaced parallel openings 26 in the end plate 16 while the bight portion extends around the cable 19 and draws it into locked engagement with the end wall of the end plate when lock nuts 27 are tightened on the leg portions.

In Figures 4, 5 and 6 is shown one method of assembling the novel buffing element of this invention. The buffing element 35 is formed, in this illustration, of four layers of material, one layer being unwound from each supply roll 30, 31, 32 and 33. The rolls may be journalled for rotation on shafts 34 and, as seen in Figure 4, the rolls may be so positioned that the material from the separate rolls is disposed in superimposed relation with aligned marginal edges. A cable 37, having an anchoring block 18 secured thereon, is positioned on the uppermost layer intermediate its side edges and then the four layers of material and the cable 37 are fed through a suitable guide plow 38 which progressively folds up the material on either side of the cable until it is in an upright position.

The guide plow 38 may be of any suitable construction. As shown in Figures 4 and 5, the plow may have oppositely sloping sides that engage the sides 35*a* and 35*b* respectively. Each side includes a substantially horizontal portion 38*a* and a vertical portion 38*b* with a sloping transition portion 38*c*.

Next, the buffing element is guided into a standard tucking and sewing machine where the layers of material are pleated as shown at 39 in Figure 4 and then sewed together by stitching 41 adjacent the cable 37 as seen in Figure 6. The tucking operation is necessary to provide sufficient material at the outer periphery of the element as it is wound over the core.

After the buffing element leaves the sewing machine, it may be cut into appropriate lengths.

In Figures 7, 8, 9 and 10 is illustrated another form of buffing element 48. This element is made up of a plurality of "finger" buffs 49 which are bent over a cable 55 and sewed together with the top of one side of the finger buff in advance of the top of the other side. This provides a V-shaped appearance in a side elevational view as in Figure 8. In the end view of Figure 7, the sides 50 and 51 appear close together, joined by the continuous stitching 58. The rounded lower edge 52 of the element is adapted to fit into a groove on the peripheral surface of the core.

Each finger buff is made up of a sheet of buffing material folded over on itself several times and joined together by stitching 58.

A buffing element made of finger buffs does not require

pleating at the base since the fingers are not joined at their outer ends.

It will be understood that the buffing element made of finger buffs may be formed in the same manner as the element of Figure 4. Thus, the buffs may be disposed in an angular position relative to the line of feeding of the material into the plows and sewing machine so that when the sides **50** and **51** are folded up, side **51** will trail side **50** as seen in Figure 8.

From the foregoing description it will be seen that there is provided in this invention a novel, efficient manner of assembling buffing elements by use of a standard sewing machine. The buffs so formed are simple in design and are accurately shaped ready for winding on a core to form a buffing wheel.

It will be understood that modifications and variations may be effected without departing from the novel concepts of the present invention.

I claim as my invention:

1. In a method of forming a buffing element from sheet material, the steps of positioning material supply rolls of the same width in alignment for feeding material in a given direction with the axis of rotation of the rolls normal to the line of feeding, disposing the sheets of material one on top of the other with the sheet from the rearmost roll on top, placing a cable longitudinally on the uppermost sheet midway between the marginal edges, folding the sides of said sheets upwardly on either side of the cable, forming pleats in the sheets adjacent said cable and sewing the sides together by continuous stitching immediately above the cable.

2. In a method of forming a buffing element, the steps of disposing a plurality of strips of buffing material in superimposed layers for movement in a path parallel to the longitudinal axis of the strips, positioning a cable on said strips intermediate the side edges thereof, folding the sides of said layers upwardly and inwardly above said cable, forming pleats in the strips adjacent said cable, and sewing said sides together by continuous stitching.

3. In a method of forming a buff assembly, the steps of supporting a plurality of lengths of buffing material for movement in a longitudinal path, placing a cable on said lengths of material intermediate the side marginal edges, folding upon itself the material on either side of the cable as said lengths are moved in said path, forming pleats in the material adjacent said cable, sewing the folded material together by a continuous line of stitching close to said cable and on the opposite side from the fold juncture cutting a desired length of cable and material secured thereto, fixing one end of said length to a core, winding said length on the core, and fixing the other end of said length to said core.

4. In a method of forming a surface-treating element, the steps of feeding a plurality of juxtaposed strips of surface-treating material in a generally rectilinear path, placing a cable longitudinally against one strip midway between the marginal edges thereof, equally and evenly pressing the sides of the strips on both sides of the cable in the direction generally normal to the portions of the strips in said rectilinear path as the strips are fed in said path to fold the strips about the cable with both marginal edges of each of the juxtaposed strips accurately aligned, forming pleats in the strips adjacent said cable, and sewing the folded sides together by continuous stitching close to the cable and on the opposite side from the fold.

5. In a method of forming a buffing element, the steps of disposing buffing material in elongated strip form in superimposed layers for movement in a path parallel to the longitudinal strip axis, positioning a cable on said layers longitudinally intermediate the side edges thereof to provide portions of the layers at opposite sides of the cable, folding said opposite side portions of said layers toward one another about said cable with a fold juncture connecting the portions on one side of the cable, forming pleats in the layers adjacent said cable, and securing said portions together on the opposite side of the cable from said fold juncture.

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