Feb. 24, 1953 G. A. LYON 2,629,212

BUFFING WHEEL AND METHOD OF MAKING THE SAME

Filed Nov. 22, 1949 2 SHEETS—SHEET 1

Fig. 2

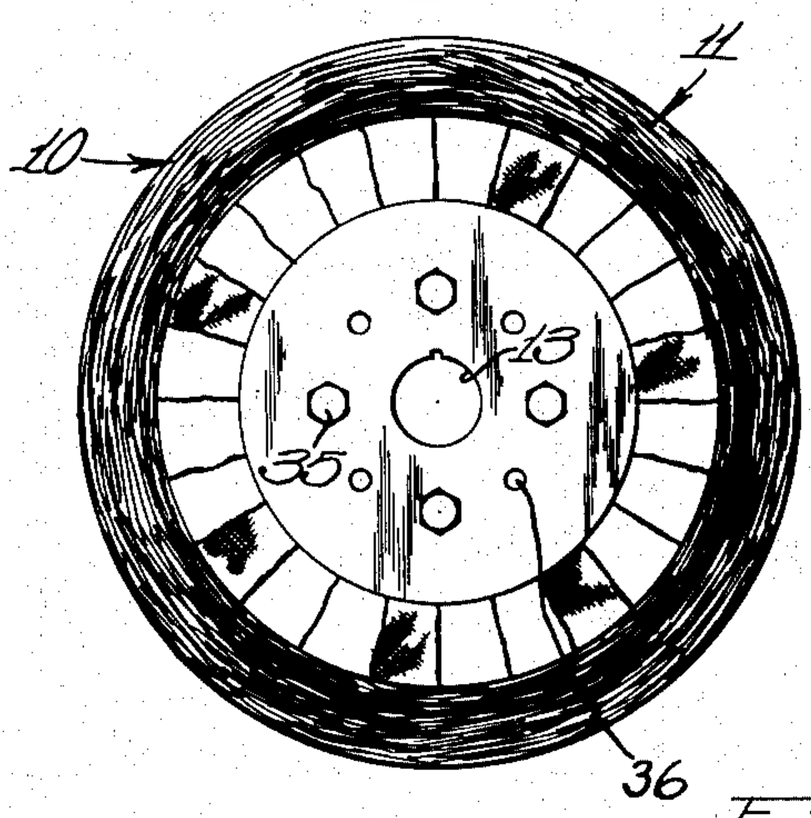

Fig. 1

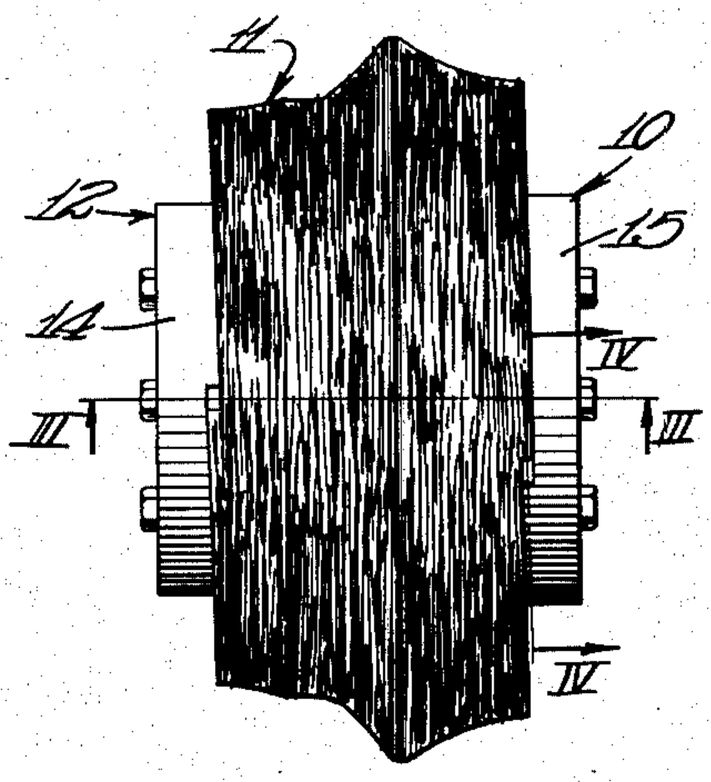

Fig. 3

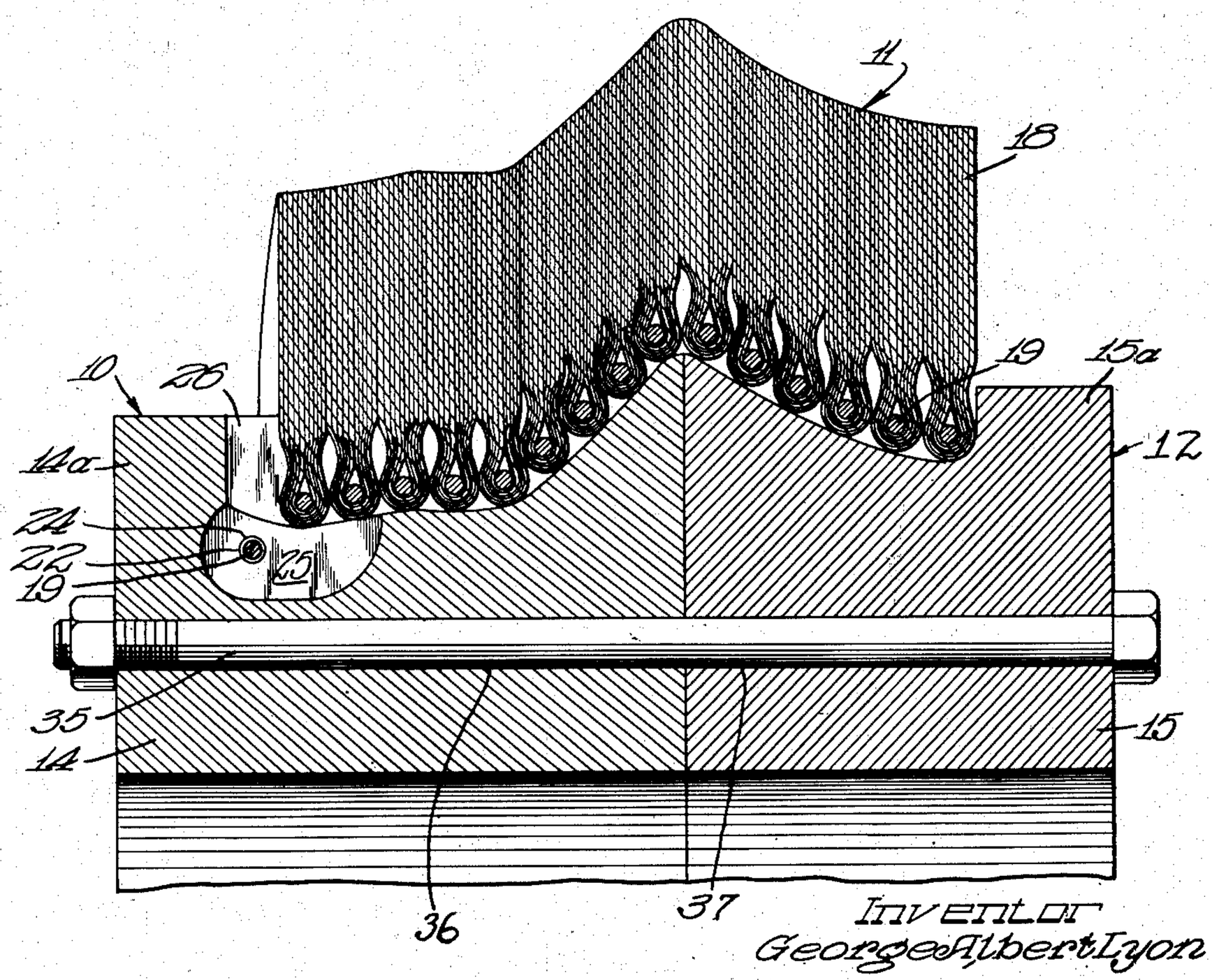

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Fig. 7

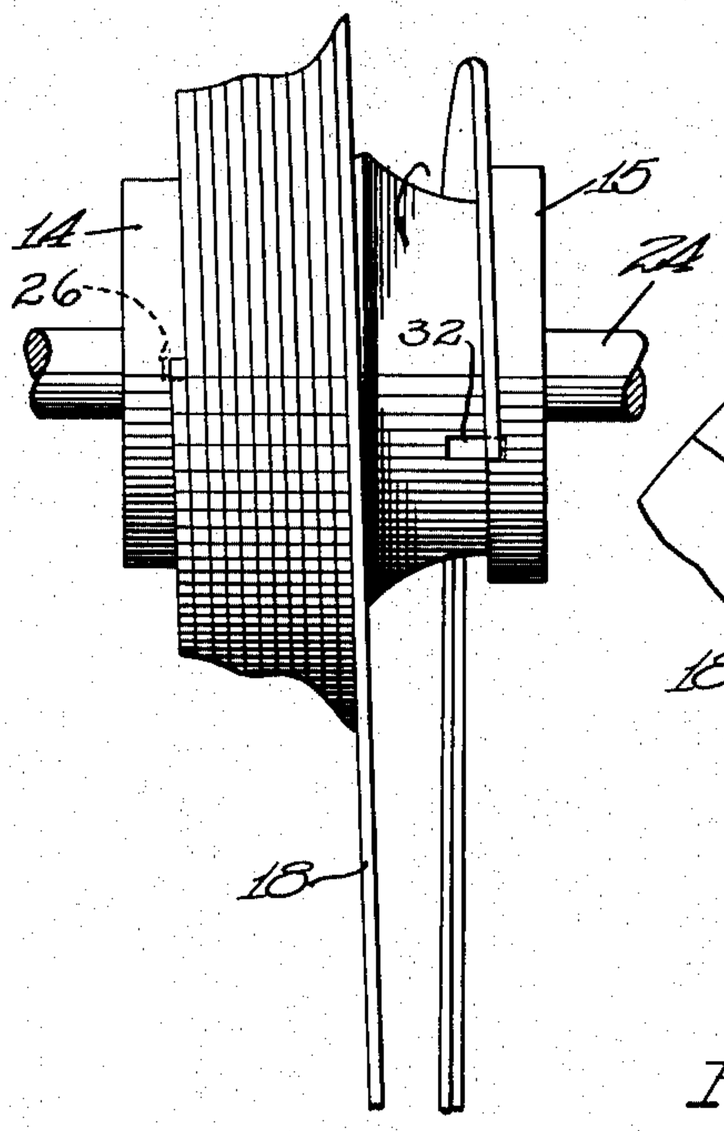


Fig. 4

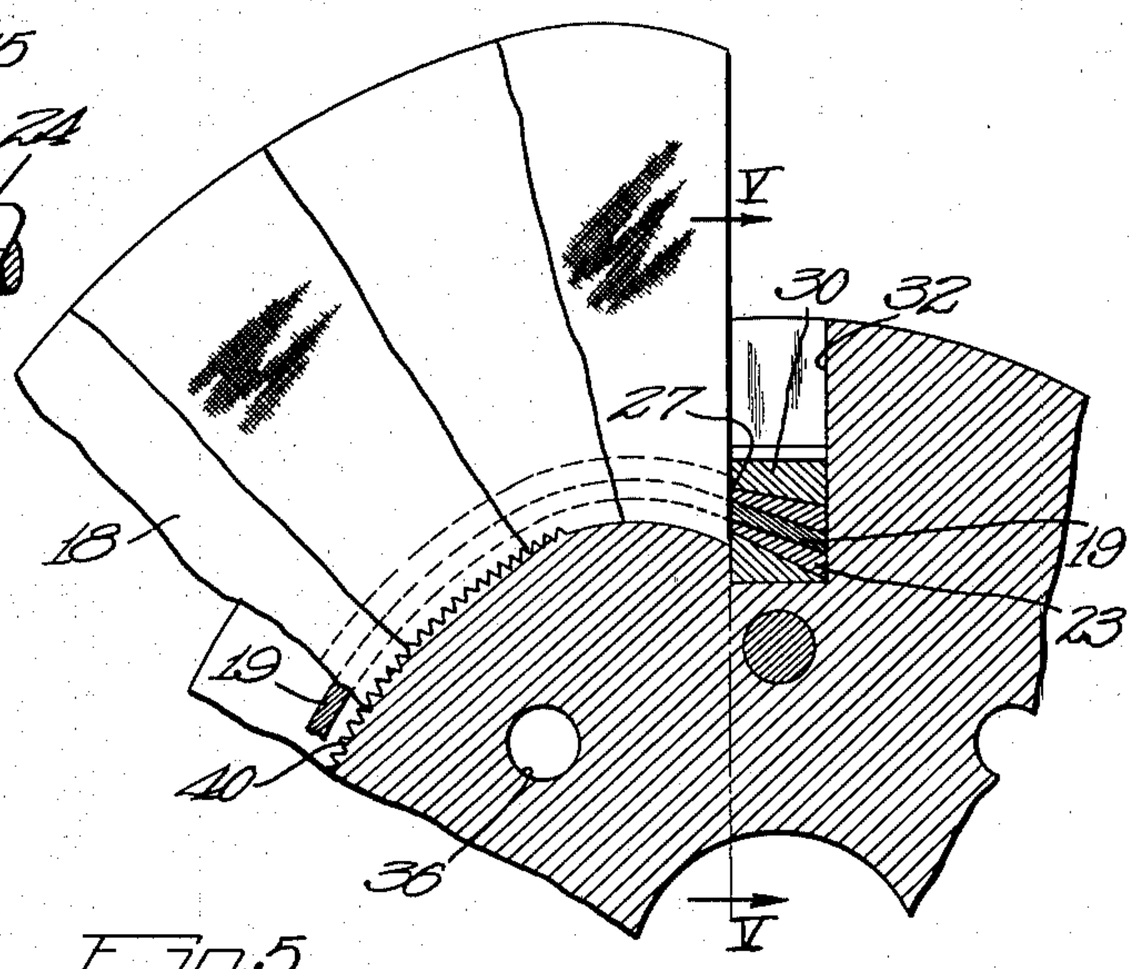


Fig. 5

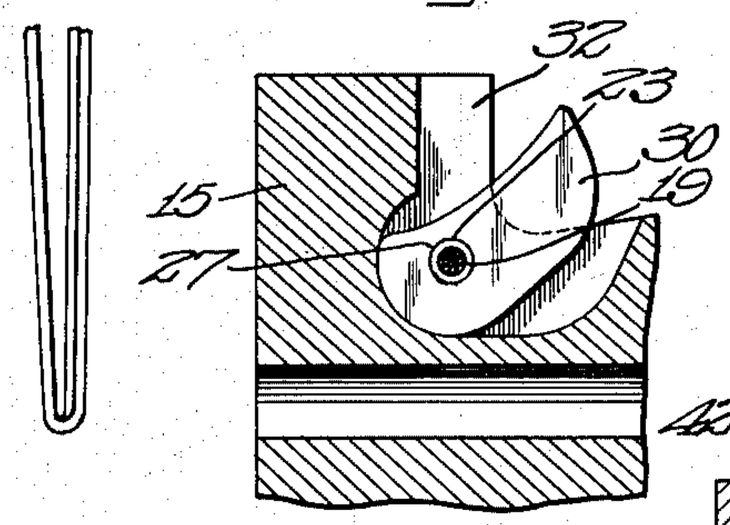


Fig. 8

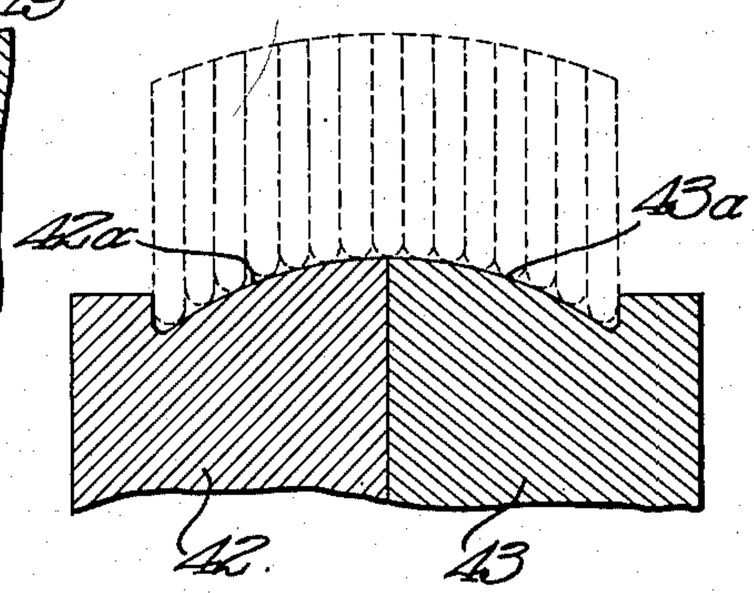
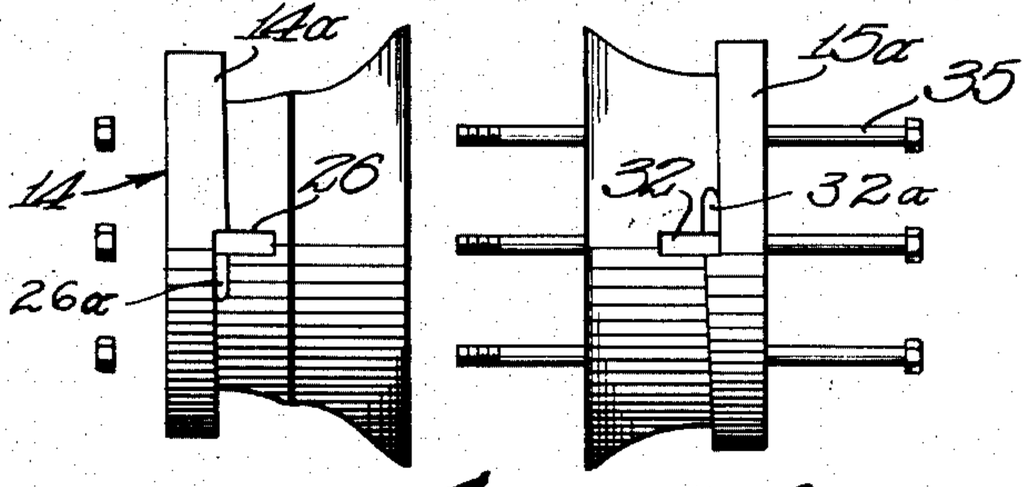


Fig. 6



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BUFFING WHEEL AND METHOD OF MAKING THE SAME

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6 Claims. (Cl. 51—193)

1

This invention relates to improvements in a buff assembly for use on a buffing wheel. More particularly, it has to do with a buff assembly which may be economically formed with a predetermined irregular peripheral contour for ready installation on a spindle of a buffing wheel.

In my copending application for patent Serial No. 126,353, filed November 9, 1949, now Patent No. 2,571,147, dated October 16, 1951, I described and claimed a buff assembly in which an elongated strip of buffing material was wound on a grooved core or arbor having a predetermined irregular contour. According to the method described in that application, the buff assembly is provided in which the depth of the buffing material is constant regardless of the irregular contour of the core.

In forming a buff assembly by winding a continuous strip on a core with an irregular exterior surface, it has been found particularly difficult to wind the strip on a downwardly inclined portion of the core surface. It is, therefore, an important object of the present invention to provide a novel method for winding a continuous strip of buffing material on a downwardly inclined core surface.

Another object of this invention is to provide a buff assembly in which the continuous strip of buffing material is wound in a helical path on the core thus forming a buffing contact surface that will not wear grooves in the article being buffed.

A still further object of this invention is to provide a novel method of fastening a strip of buffing material to the core preparatory to winding the strip on the core.

Another and further object of this invention is to provide a novel sectional core for a buffing wheel.

According to the teachings of the present invention, a buff assembly is formed by winding a continuous strip of buffing material on a core having an irregular contour. The core is formed in two sections, one section having the upwardly inclined portion of the peripheral contour and the other section having the downwardly inclined portion of the contour.

The two core sections are rotatably mounted on a support shaft and, while the section having the upwardly inclined contour is held against rotation, the continuous strip is secured in a slot therein and then wound on the core until the highest point of the core is reached. At this point the core section having the downwardly

2

sloped portion is brought up close to the first core section and, the other end of the buffing material is secured in the second core section at the lowest portion thereof.

Rotation of the second core section will then cause the buffing material strip to be wound on the rotating core section. As the buffing material is wound on the rotating core section it approaches the intersection of the two core portions. The length of the buffing material is, of course, chosen so the entire strip may be tightly wound on the core.

Thus, in winding the buffing material strip on the core the winding is begun at the lowest portion of the core sections and continued until it reaches the highest point.

Other and further features, objects and advantages of the present invention will be 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 buff assembly constructed according to the teachings of the present invention;

Figure 2 is an end elevational view of the buff assembly of Figure 1;

Figure 3 is a fragmentary vertical sectional view taken on line III—III of Figure 1;

Figure 4 is a fragmentary vertical sectional view taken on line IV—IV of Figure 1;

Figure 5 is a fragmentary sectional view taken on line V—V of Figure 4;

Figure 6 is an exploded view in elevation of the novel mandrel of the present invention;

Figure 7 is a side elevational view of the buff assembly of the present invention shown in a partially assembled condition; and

Figure 8 is a fragmentary vertical sectional view of a second embodiment of a mandrel for use with the buffing assembly of the present invention.

As shown on the drawings:

In Figures 1, 2 and 3, the reference numeral 10 indicates a buff assembly which includes a buffing element assembly 11 wound on a core or arbor 12. The core 12 is made in two sections 14 and 15, each section having an integrally formed enlarged end flange 14*a* and 15*a* respectively.

The core sections 14 and 15 have abutting end surfaces, the peripheral surfaces of each core inclining downwardly from the abutting end surfaces.

The buffing element assembly 11 includes an elongated buffing element 18 of predetermined

length which is formed by folding a flat ribbon of material over a flexible wire or cable 19 so that the ribbon extends substantially equidistantly on either side of the cable. The ribbon portions are then sewed together as shown in Figure 3 close to the wire 19 to form a buffing element of constant depth.

A length of cable 19 longer than the buffing material ribbon is chosen so that it extends out of the element at each end. Identical wedge blocks 22 and 23, Figure 4, are secured in the opposite end of the cable as by crimping or pressing them onto the cable.

In assembling the buffs, the core sections 14 and 15 are slid onto a suitable support spindle 24. The wedge block 22 on one end of the cable is placed in a tapered hole 24, Figure 3, in a locking key which may be positioned in a longitudinal slot 26 in the mandrel section 14. The other wedge block 23 is disposed in a tapered hole 27, Figure 4, in a locking key 30, which is arranged to be positioned in a longitudinal slot 32 in the core section 15.

As best seen in Figure 5, the keys 25 and 30 have curved lower surfaces which permit them to pivot toward the curved base of the slots 26 and 32, respectively, for snug engagement therein. Inclined slots 26*a* and 32*a*, Figure 6, extend at right angles to the slots 26 and 32, respectively, for the purpose of leading the wire 19 upwardly from its position in the key to the surface of the core.

To assemble the buffs, the key 25 is slid into the slot 26 of the core section 14. The element 18 is progressively wound up the sloping side of the core section 14 until it reaches the position illustrated in Figure 7. The core section 15 is then moved up close to the core section 14. The key 30 is positioned in the slot 32 and the core section 15 is rotated while the core section 14 is held stationary.

It is of course obvious that the core section 15 may be moved into position against the core section 14 prior to the winding of the element on section 14. Also, if the core section 15 is free on the spindle and will rotate freely, both ends of the strip can be fastened in the core sections before the winding is begun.

It will be readily seen that, as the core section 15 is rotated, the element 18 will be progressively wound thereon starting close to the flange 15*a* and moving up the inclined surface toward the junction of the two core sections.

When the element assembly is wound tightly on the core sections, screw bolts 35 are inserted through aligned bores 36 and 37 in the core sections 14 and 15, respectively. In order that the core sections can be secured as soon as the element is wound on the mandrel, one of the core sections may have a continuous series of spaced openings so that, when the bolts 35 are inserted in the core section having the smaller number of holes it will find a hole in the other core section without much rotation of the section to align the hole. In Figure 2 it is seen that the core section 14 has eight holes while the core section 15 is provided with only four holes. Any number of holes may be used.

In order that the buffing material strip 18 will not creep around the core after it has been positioned in place, the surface of the core is provided with a plurality of serrations or grooves 40, Figure 4, which extend longitudinally of the core. These grooves may be continuous or broken and, of course, may extend parallel to the axis of

the mandrel or may be inclined. Their only purpose is to prevent creeping of the buffing material strip.

In Figure 8 there is illustrated a second embodiment of the buffing assembly of the present invention. In this view there is shown a buffing assembly having two core sections 42 and 43, each having oppositely inclined curved surfaces 42*a* and 43*a*. The buffing material disposed on these surfaces is shown in dotted outline in Figure 8. This view illustrates that the method used in the present invention can be used on other core surfaces besides the one illustrated in Figure 3.

From the foregoing description it will be seen that there is provided in this invention a novel method of winding a strip of buffing material on a core having an irregular surface. This method is especially efficient in winding material on a core having a downwardly sloped surface.

Since the material strip will assume a slightly helical continuous strand of material, there will be no tendency of the buff assembly to mar the article being buffed by putting a series of spaced lines thereon.

This improved method of assembling a buff is extremely simple in operation, but produces an efficient accurately shaped buff assembly.

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

I claim as my invention:

1. A surface-treating assembly comprising a first core section having an axial aperture therethrough and an axially extending upwardly inclined surface that has a highest point adjacent one end face of said first core section, an elongated strip of surface-treating material, means for securing one end of said material to said first core section at a point spaced from said one end face, a second core section having an axial aperture arranged to be aligned with the aperture of said first section on a common spindle, said second core section having an axially extending upwardly inclined surface with the highest point adjacent the end face of the second core section that abuts said one end face of said first core section, means for securing the other end of said strip on said second section adjacent the low end of said surface.

2. A surface-treating assembly comprising first and second core sections having abutting end surfaces and axial apertures arranged for disposition on a common spindle, each core section having an axially inclined outer surface with its highest point at said abutting end surface of said section, and means for securing the ends of a surface-treating material strip to said core sections.

3. A buff assembly comprising a first and a second core section having axially aligned apertures and arranged to be disposed in abutting relation on a common spindle, each section having an inclined surface with its crest at the abutting surfaces, an elongated strip of buffing material secured to said one section at the base of the upwardly inclined surface and secured to the other section at the base of the inclined surface, means for securing said core sections together, said means including selectively positionable bolts arranged to hold the buff in assembled condition.

4. In a method of forming a surface-treating assembly having a two piece composite core

formed of two core sections with abutting end faces, each core section having an upwardly slanted peripheral surface with a high point at the abutting faces of the cores, the steps of holding the first core section in a stationary position, securing one end of a flexible strip of surface-treating material to said first core section adjacent one end thereof, winding said material strip on said first core section starting at said secured point and moving up the inclined surface toward the opposite end of the core section, positioning the second core section for rotation on a spindle in axial alignment with said first core section, securing the free end of said buffing strip to said second core section at the base of the inclined surface, rotating said second core on said spindle while holding said first core section stationary causing said strip to be wound on said second core starting at the base of the inclined surface and moving toward the end face of said first core section.

5. A surface-treating assembly comprising a first core section having an axially extending upwardly inclined surface having a high point adjacent one end face thereof, means for securing one end of a strip of surface-treating material to said first core section at a point thereon spaced from said one end face thereof, a second core section rotatable relative to said first core section and having an axially extending upwardly inclined surface having a high point adjacent an end face thereof in adjoining relation to said one end face of said first core section, means for securing the other end of the strip of surface-treating material on said second core section at a point thereon spaced from said end face thereof, and means for securing said relatively rotatable core sections together with the surface-treating material wound tightly and uniformly over both core sections and over the junction of said adjoining end faces thereof.

6. In a method of forming a surface-treating assembly having a two-piece composite core formed of two core sections with adjoining end faces, each core section having an upwardly slanted peripheral surface with a high point at the abutting faces of the sections, the steps of securing one end of a flexible strip of surface-treating material to one of said core sections at a point spaced from said abutting faces, securing the other end of said surface-treating material strip to the other of said core sections at a point spaced from said adjoining faces, winding said surface-treating material strip on each core section starting at said point thereon and moving up said inclined surface thereof, and effecting relative rotation of said core sections until said strip is wound uniformly over both of said core sections and over the junction of said adjoining faces thereof.

GEORGE ALBERT LYON.

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