

July 20, 1937.

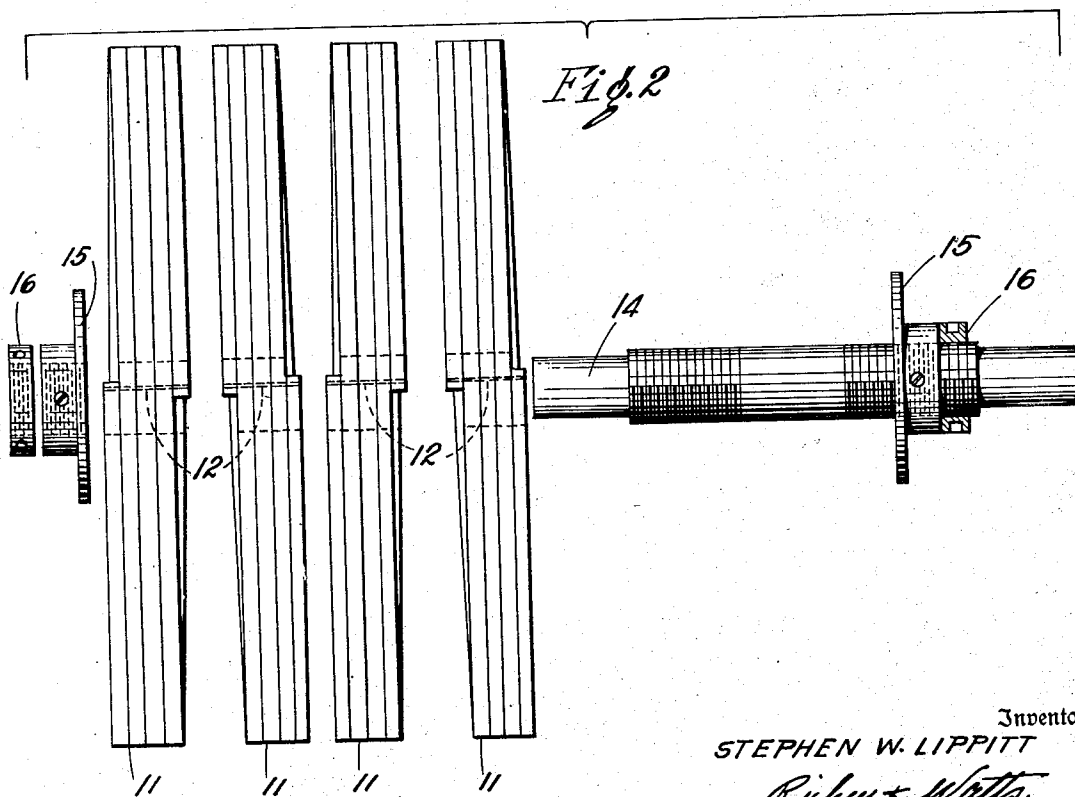
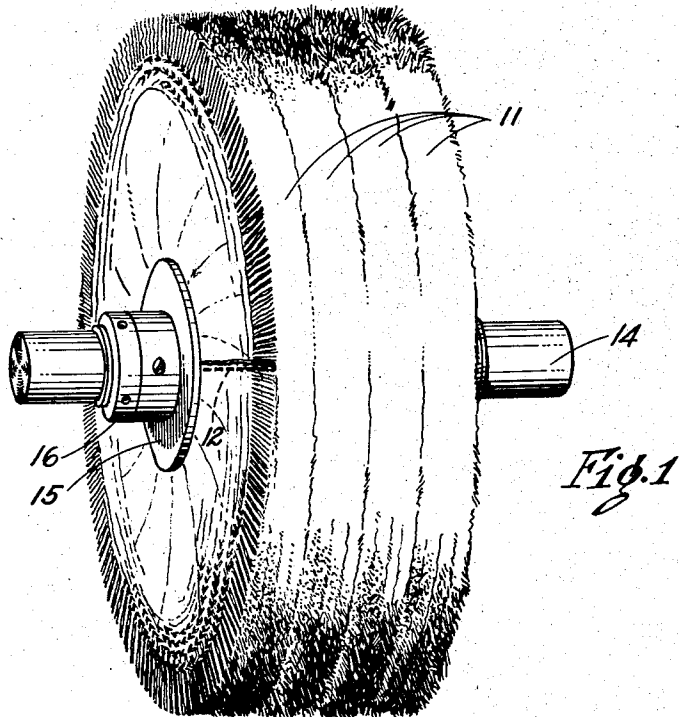
S. W. LIPPITT

2,087,693

BUFFING WHEEL

Filed Feb. 3, 1936

2 Sheets-Sheet 1



Inventor
STEPHEN W. LIPPITT

Rickey & Watts.

Attorneys

July 20, 1937.

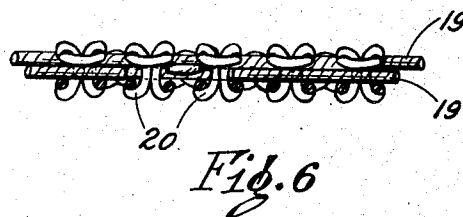
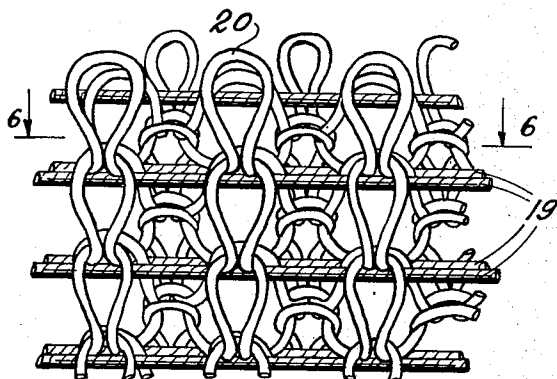
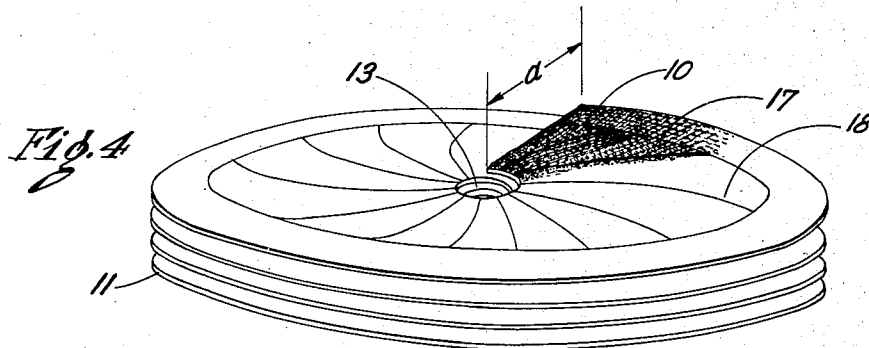
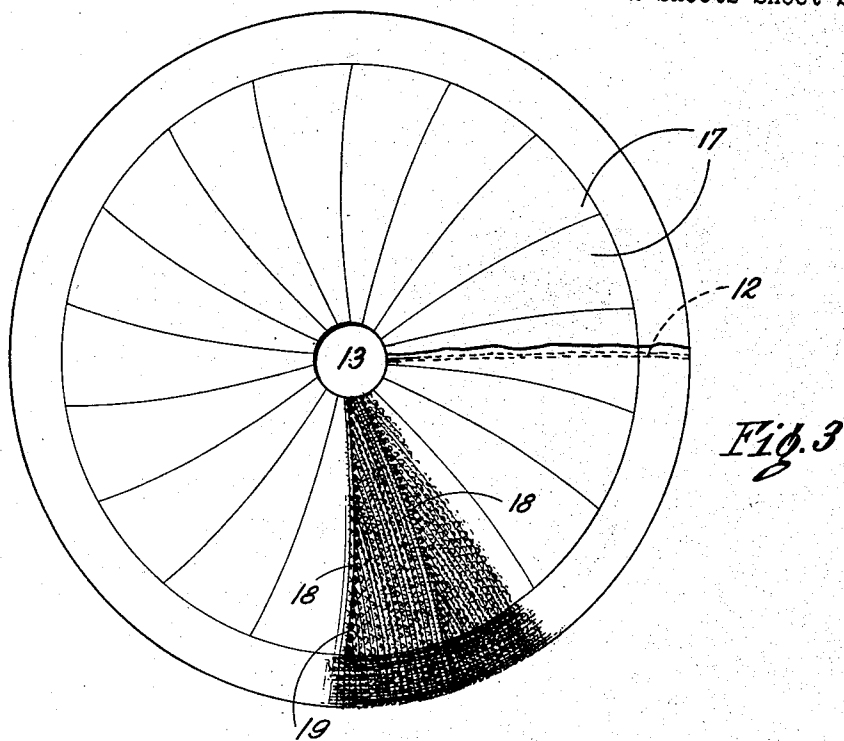
S. W. LIPPITT

2,087,693

BUFFING WHEEL

Filed Feb. 3, 1936

2 Sheets-Sheet 2



Inventor
STEPHEN W. LIPPITT

Rickey & Watts
Attorneys

UNITED STATES PATENT OFFICE

2,087,693

BUFFING WHEEL

Stephen W. Lippitt, Cleveland, Ohio

Application February 3, 1936, Serial No. 62,142

14 Claims. (Cl. 51—193)

This invention relates broadly to buffing wheels and more specifically to improvements in the form and construction of the buffing wheel sections and an improved fabric therefor.

5 One of the objects of the invention is to construct a buffing wheel from a knitted fabric, the textile therein being so knitted as to prevent raveling of the peripheral edge thereof and also knitted so that a greater number of frayed ends
10 of the textile are presented to the work than are presented by the warp and weft threads in the woven fabric heretofore employed in the construction of buffing wheels.

Another object of the invention is to provide
15 a fabric which is of an open mesh so that the heat generated by the buffing operation may be readily dissipated.

Another object of the invention is to provide
20 an open mesh fabric knitted with loops or threads transversely disposed in relation to the work for the retention of the abrasive material applied to the face of the wheel during the buffing operation.

Another object of the invention is to form a
25 knitted fabric with radially disposed fibers or strands of abrasive material therein, the textile forming the body of the fabric being so entwined with such fibers as to facilitate the construction of a buffing wheel of relatively large diameter capable of resisting the centrifugal force imposed
30 thereon.

Another object of the invention is to construct a buffing wheel from a knitted fabric formed of a textile impregnated with an abrasive and/or constructed with loops or openings between the fiber
35 of the fabric which may receive and retain an abrasive worked therein before the material is formed into a buffing wheel section.

Another object of the invention is to construct a buffing wheel section from a fabric knitted to
40 form a continuous spiral with the convolutions thereof disposed in intimate engagement smooth and flat upon each other, the free ends of the fabric and the body thereof being stitched through and through to form a solid homogeneous mass.

Another object of the invention is to construct a knitted fabric in which the stitch or loops are so formed as to restrain radial extensibility of the fabric under working conditions of the buffing
50 wheel.

Other objects more or less ancillary of the foregoing and the manner in which all the various objects are realized will appear in the following description which, considered in connection with
55

the accompanying drawings, sets forth the preferred embodiment of the invention.

Fig. 1 is a perspective view of a buffing wheel, illustrating the improved fabric and construction of the buffing wheel sections;

Fig. 2 is a diagrammatic elevational view of the buffing wheel illustrating the manner in which the buffing wheel sections are constructed and assembled;

Fig. 3 is a plan view of one of the buffing wheel sections;

Fig. 4 is a perspective view somewhat diagrammatic of the fabric forming one of the buffing wheel sections, the fabric being arranged in distended position to illustrate the configuration of the knitted material;

Fig. 5 is a fragmentary portion of the fabric, illustrated in a greatly enlarged scale, and showing the arrangement of the radial strands and interlooped textiles therein; and

Fig. 6 is a transverse section through the fabric, the section being taken on a plane indicated by the line 6—6 in Fig. 5.

Referring first to Fig. 4, the knitted fabric comprises a continuous helical band preferably knitted in relatively long strips which may be sheared into the buffing wheel sections of the desired number of convolutions, as for instance the buffing wheel section 11 of four convolutions shown herein. The portions of the sections forming the ends thereof are preferably sheared radially at contiguous points in the periphery of the spiral band so that they may be sewed through and through the fabric by a single stitching operation 12 as shown in Fig. 3. In forming the buffing wheel fabric the band is knitted to provide an opening 13 in the center of the spiral, such opening being adapted for the reception of the arbor or spindle 14 of the polishing stand or buffing machine. After sewing the free ends of the fabric to the body thereof and if desired sewing the contiguous convolutions through and through, the selvage is cut from the peripheral edge and the sections thus formed are completed for assembly upon the spindle 14 in the customary manner as illustrated in Figs. 1 and 2 with the clamping flanges 15 in abutting engagement with the faces of the fabric and the jam nuts 16 adjusted to suitably impinge and retain the fabric against rotation upon the spindle 14. The number of sections employed will obviously vary with the character of the work. For purpose of illustration, however, four of such sections are shown herein.

The body of the fabric may be knitted from a

single strand of yarn or cord or from a plurality thereof progressively looped and interlooped in courses along the radius "a" of the fabric (see Fig. 4), the courses building up progressively to form the body of the fabric 10. In knitting the fabric certain of the knitting needles adjacent the inner end of the band or as illustrated the center of the body of the fabric are dropped from operation so that the fabric is configured in segments 17 united by interlooped seams 18 automatically knitted by the machine to form a continuous homogeneous fabric.

By forming the fabric in the manner above described the textiles are so arranged as to prevent raveling thereof in the peripheral edge of the buffing wheel sections. Moreover, as the loops in the circumferential portion of the buffing wheel are worn away and frayed a greater number of free ends are presented to the work than the single ends of the warp and weft threads in woven fabric. In knitting the body of the fabric a portion of the loops are disposed transverse the edge of the fabric, as will be seen in Fig. 6. Such loops constitute openings or pockets which receive the polishing material applied to the surface of the wheel during the buffing operation and also more readily retain the material after the application thereof.

In forming the fabric a secondary textile 19 as shown in Fig. 3 may be interknitted in the radial positions as shown in Fig. 4. Such fibers may be of an abrasive character, the quality thereof varying to meet the service demanded thereof. If desired a wire or a stranded metallic cord may be used in section adapted for rough polishing operation while jute, manila, hemp, cotton or other similar fibers of a less harsh nature may be used in sections employed for finishing operations. The textile 19 is looped back and forth along the radius "a" progressively through each course in the segments 17 and is thus so entwined with the looped fibers 20 in the body of the fabric that danger of separation, fatigue and the expulsion of the textile by centrifugal force is entirely eliminated.

In the construction of a buffing section wherein the radially disposed fibers 19 are formed of jute or a material of a similar texture, a light knitted textile 20 is preferably employed so that the transverse support for the fibers may be readily fatigued during the buffing operation and thus release a substantial portion of the ends of the brush-like fibers 19 in the periphery of the buffing wheel.

In the construction of a buffing wheel of the type preloaded with a cutting compound a textile impregnated with a solution containing an abrasive may be used or, if desired the fabric may be charged with abrasive material, as for instance a crocus paste worked into the openings between the loops of the textile before the fabric is wound in spiral form and sewed to complete buffing wheel section.

Since a fabric formed by knitting constitutes a material of relatively open mesh and it possesses as an inherent quality the characteristic porosity it obviously follows that the heat generated in the periphery of the wheel during the buffing operation will be readily dissipated and that such ventilation will not only prevent the deterioration of the wheel but will also effect substantial economy of the operator's time.

Although the foregoing description is necessarily of a detailed character, in order that the invention may be completely set forth, it is to be

understood that the specific terminology is not intended to be restrictive or confining, and that various rearrangements of parts and modifications of detail may be resorted to without departing from the scope or spirit of the invention as herein claimed.

I claim:

1. A buffing wheel comprising a plurality of sheets of fabric knitted in circular form from a single continuous textile element interlooped radially and circumferentially and having radially disposed cords surrounded by said knitted textile element.

2. A buffing wheel comprising a plurality of sheets of fabric knitted in circular form from a single continuous textile element interlooped radially and circumferentially and having a radially disposed wire surrounded by said knitted textile element.

3. A rotary buffing wheel comprising a plurality of layers of knitted fabric, formed of textiles in looped and interlooped engagement, radial cords surrounded by said loops, the textile loops in the peripheral edge of said fabric being cut and constituting free loose ended strands, the inner end of each of said strands being interlooped radially and circumferentially with the loops contiguous thereto, whereby tensional strains applied upon the free ends of said strands effects the tightening of said loops and impingement of said radial cords.

4. A buffing wheel comprising a plurality of layers of knitted fabric formed from textiles interlooped progressively circumferentially and radially throughout the area of the fabric, coarse bristly fibers disposed radially in said fabric intermediate said interlooped textiles, said bristly fibers being of a character which will resist wear more readily than said textiles.

5. A rotary buffing wheel section embodying a plurality of layers of knitted fabric, said fabric comprising radially disposed loops progressively interlooped with each other and constituting radial courses, the loops of each course being interlooped with the loops of the adjacent course thereby forming interlooped circumferential ribs and radial cords intermediate the loops of said radial courses.

6. A buffing wheel section embodying a plurality of layers of knitted fabric formed from a continuous looped cord, the loops comprising said fabric being interlooped to form a band having transverse courses therein and being knitted with a greater lineal dimension on one marginal edge than upon the opposed edge thereof, whereby said band will fold into helical form with said courses disposed radially therein, the loops in said radial courses being interlooped with the loops in the radial courses adjacent thereto and a second cord disposed intermediate the loops of said radial courses and interlocked adjacent its inner ends with the first named cord.

7. A rotary buffing wheel comprising radial courses of a knitted textile and a plurality of radially disposed cords bound thereby, said textile being knitted to form circumferential ribs disposed in staggered relation upon opposed faces of said fabric, the textile being diagonally crossed between said cords throughout said fabric.

8. A buffing wheel disc of the circumferential cutting edge type, comprising a disc of knitted fabric, said fabric being knitted in parallel courses disposed radially in said disc.

9. A circular buffing disc of the edge cutting type comprising a knitted fabric disc constructed

of textile interlooped to form courses, said courses being disposed radially in said disc, and a second textile within said courses and enveloped by the first named textile.

5 10. A circular buffing wheel disc comprising a plurality of textiles radially disposed within said disc and divergent from the central portion thereof, a second textile interlooped upon itself and around said first named textiles and entwined
10 upon itself in progressive radial loops to form the fabric intermediate said first named textiles.

11. A circular disc buffing wheel comprising a plurality of layers of knitted fabric, said fabric being formed from a plurality of textiles, certain
15 of which comprise straight strands disposed radially in said disc, other of said textiles being knitted circumambient said straight strands and entwined together back and forth along the radii of said disc.

12. A circular disc buffing wheel formed of a knitted fabric, the body of said fabric comprising textiles entwined together along the radii of said disc.

13. A circular disc buffing wheel formed of a knitted fabric, the body of said fabric comprising textiles entwined together along the radii of said disc, and means for reinforcing said disc. 5

14. A circular disc buffing wheel, comprising a plurality of layers of knitted fabric, said fabric being formed from a plurality of textiles, certain
10 of which comprise straight strands, other of said textiles being entwined upon itself around and throughout the length of said strands and entwined upon itself intermediate said strands. 15

STEPHEN W. LIPPITT.