

July 23, 1940.

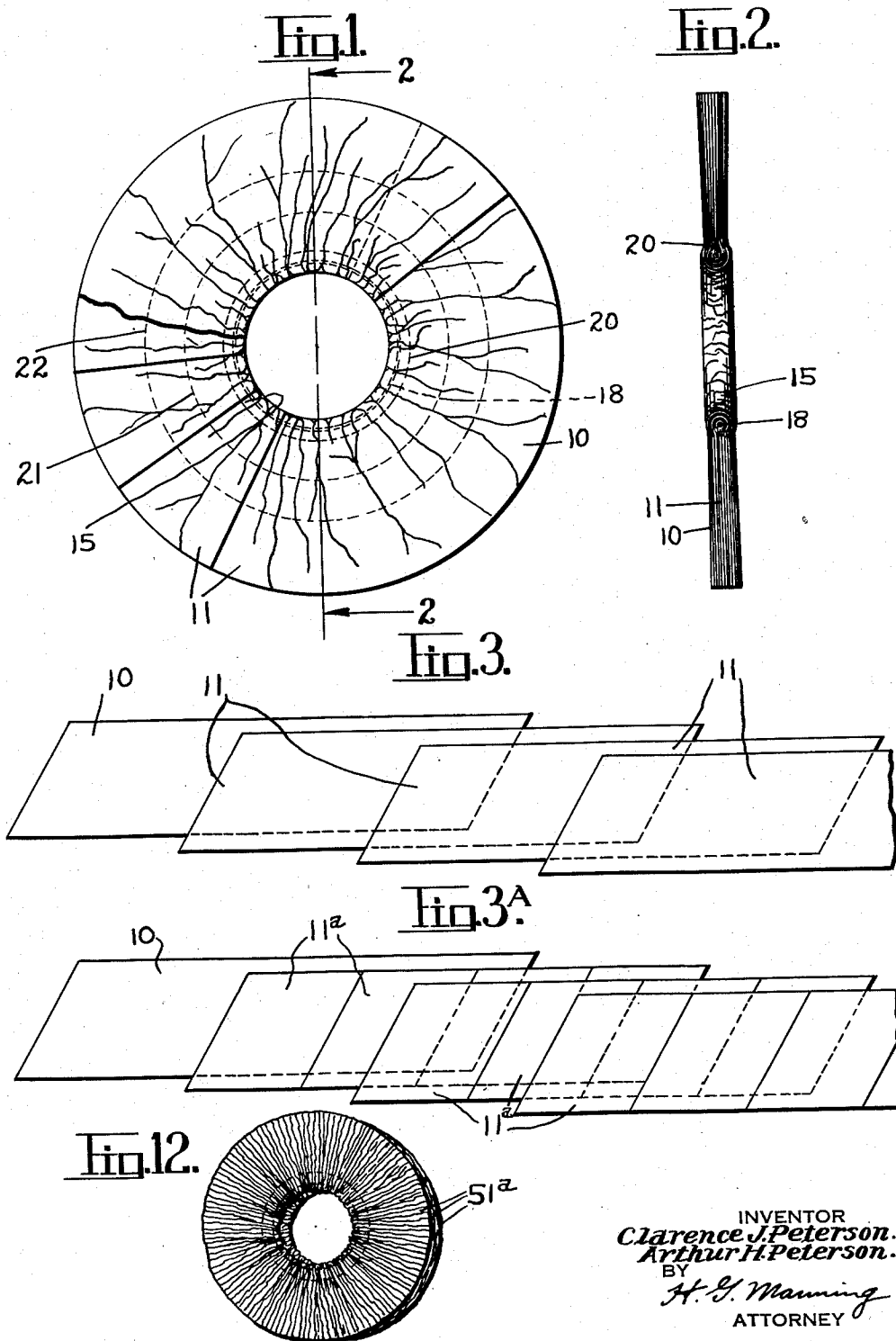
C. J. PETERSON ET AL

2,209,089

BUFFING WHEEL

Filed June 14, 1938

3 Sheets-Sheet 1



INVENTOR
Clarence J. Peterson.
Arthur H. Peterson.
BY
H. S. Manning
ATTORNEY

July 23, 1940.

C. J. PETERSON ET AL

2,209,089

BUFFING WHEEL

Filed June 14, 1938

3 Sheets-Sheet 2

Fig. 4.

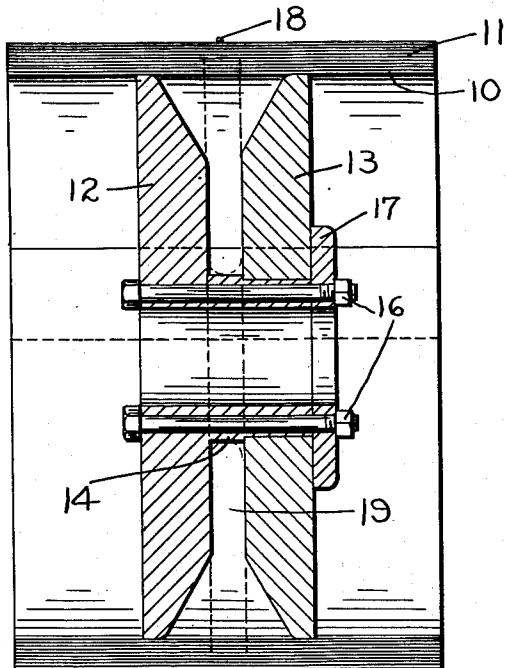


Fig. 8.

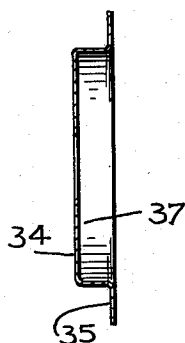


Fig. 5.

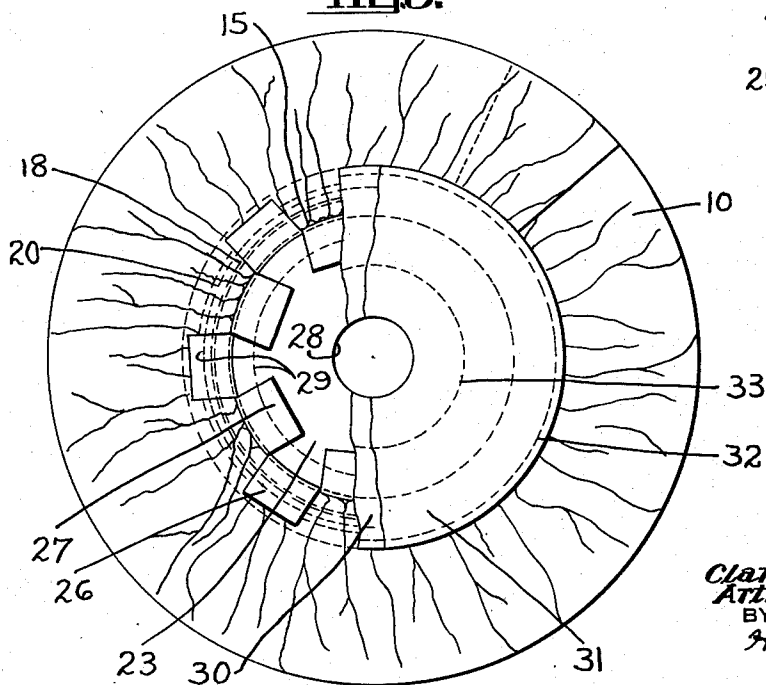
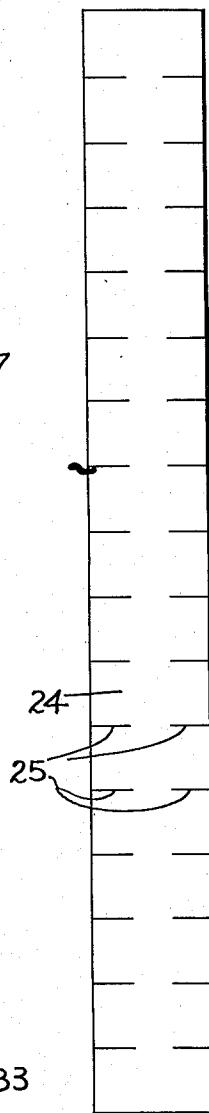


Fig. 6.



INVENTOR
Clarence J. Peterson.
Arthur H. Peterson.
BY
H. G. Manning
ATTORNEY

July 23, 1940.

C. J. PETERSON ET AL

2,209,089

BUFFING WHEEL

Filed June 14, 1938

3 Sheets-Sheet 3

Fig. 7.

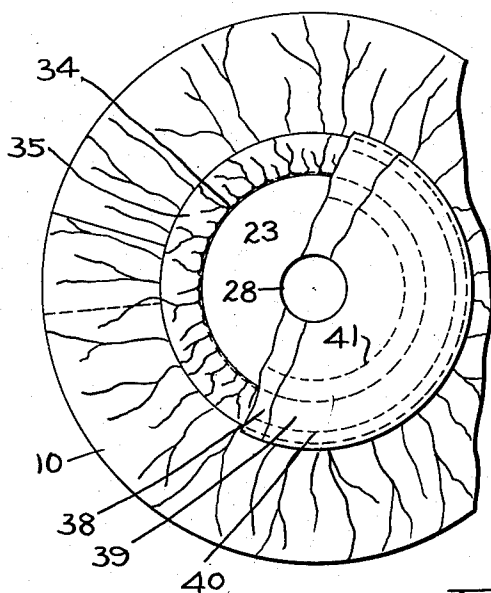


Fig. 10.

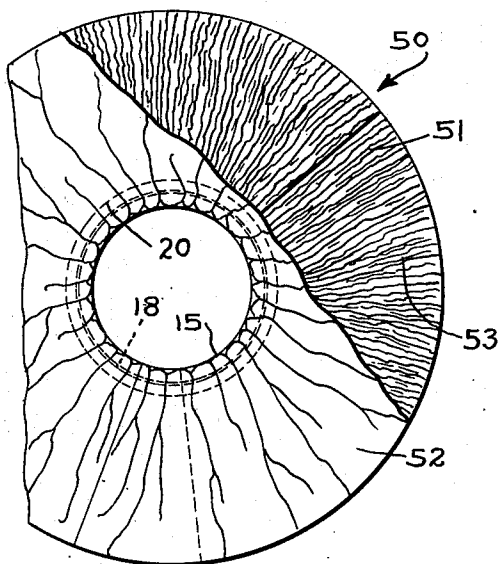


Fig. 9.

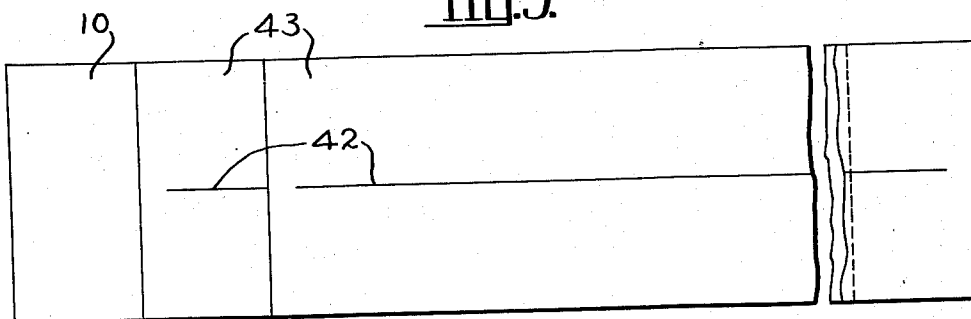
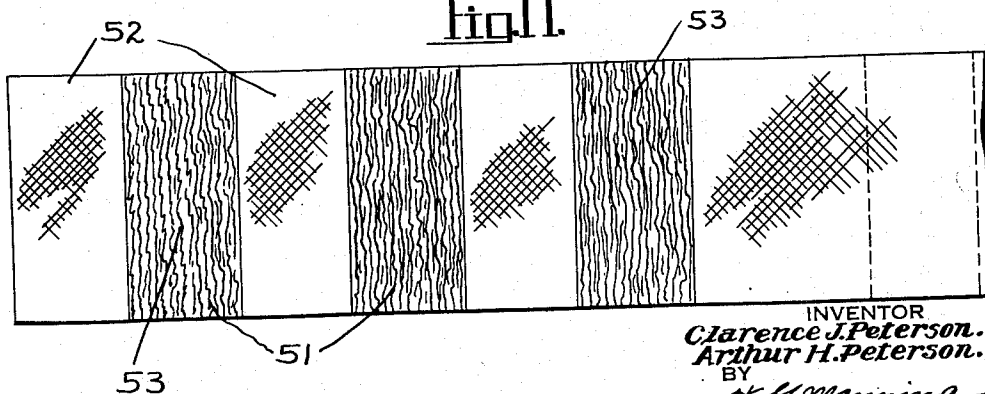


Fig. 11.



INVENTOR
Clarence J. Peterson.
Arthur H. Peterson.
BY
H. G. Manning
ATTORNEY

UNITED STATES PATENT OFFICE

2,209,089

BUFFING WHEEL

Clarence J. Peterson and Arthur H. Peterson,
Meriden, Conn.

Application June 14, 1938, Serial No. 213,613

6 Claims. (Cl. 51—193)

This invention relates to buffing, polishing and abrasive wheels, and more particularly to an improved form of laminated buffing wheel.

One object of this invention is to provide a buffing wheel of the above nature in which the laminations comprise a plurality of overlapping strips, whereby the heat generated during use will be rapidly dissipated.

Another object is to provide a buffing wheel of the above nature having improved means for securing and centering said wheel upon a supporting spindle.

A further object is to provide an improved buffing wheel employing alternate layers of fabric and crinkled paper.

Still another object is to provide a buffing wheel of the above nature which will be simple in construction, inexpensive to manufacture, readily manipulated, compact, and very efficient and durable in use.

With these and other objects in view, there have been illustrated in the accompanying drawings, several forms in which the invention may be conveniently embodied in practice.

In the drawings:

Fig. 1 is a face view of a buffing wheel embodying the features and principles of this invention.

Fig. 2 is a cross-sectional view of the same, taken along the line 2—2 of Fig. 1.

Fig. 3 is a development view, showing one method of arranging the overlapping fabric strips to produce a "hard" buffing wheel.

Fig. 3A is a similar development view, showing a method of obtaining a "soft" buffing wheel.

Fig. 4 is a longitudinal sectional view of a slotted cylinder upon which the strips shown in Figs. 3 and 3A may be wound in the second step of the method, before being drawn into the shape shown in Figs. 1 and 2.

Fig. 5 is a face view of a modified form of buffing wheel of larger diameter having a central reinforcing disc for securing said wheel to a central spindle.

Fig. 6 is a development view of a hard reinforcing fibre strip used in forming the central portion of the wheel shown in Fig. 5.

Fig. 7 is a fragmentary face view similar to Fig. 5 of another form of buffing wheel having a modified form of central reinforcing disc.

Fig. 8 is a cross-sectional view of the cupped locking disc used in forming the wheel shown in Fig. 7.

Fig. 9 is a development view of a modified form of base strip which may be used in connection with any of the preceding forms of buffing wheels.

Fig. 10 is a face view of another modified form of buffing wheel employing alternate layers of cloth and paper.

Fig. 11 is a development view of the alternate overlapped strips of cloth and paper used in forming the buffing wheel shown in Fig. 10.

Fig. 12 is a perspective view of a modified form of buffing wheel made entirely of crinkled paper.

Referring now to the drawings wherein like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates an elongated rectangular base strip of sheet material, preferably of cloth cut on the bias, and of the proper dimensions to correspond with the circumference and width of the size of buffing wheel to be formed therefrom.

A plurality of successive layers 11 of the same length as the base strip 10 are then superimposed upon it. The successive upper layers are staggered uniformly to produce an even thickness in the resulting buffing wheel, when wound into circular form, and if a "softer" wheel is desired, said upper layers will be cut into an equal number of short sections arranged edge to edge throughout their lengths (see Fig. 3A) without, however, disturbing the overlapping staggered relationship of said successive layers, as shown in Fig. 3. The greater the number of sections into which the layers are cut, the softer will be the wheel produced.

After the desired number of strips 11 (or 11a) have been laid upon the base strip 10, as shown in Figs. 3 and 3A, respectively, the assembly will be wound into cylindrical shape about a slotted drum, such as is shown in Fig. 4, and which comprises a pair of spaced apart beveled discs 12 and 13. The disc 12 is provided with an integral hub portion 14 having an exterior diameter corresponding to the size of the buffing arbor (not shown). The discs 12 and 13 are adapted to be clamped together by means of a pair of bolts 16 and a washer 17.

In order to draw the central portion of the wound up strips 11 inwardly down into the slot 19 formed between the discs 12 and 13, provision is made of a cord 18, the ends of which are tied together. The wheel is then stitched in a circular line at 20 to hold the bent-in sides of the material together about the cord 18. Other circular rows of stitches, as indicated by the dotted lines 21 and 22 concentric with the stitching 20, may be provided to stiffen the wheel as desired (see Fig. 1). Spiral stitching may also be employed if desired within the spirit of the invention.

In use, the small diameter buffing wheel shown in Figs. 1 and 2 may be clamped directly upon the buffing arbor, not shown. When, however, buffing wheels of larger size, such as are shown in Figs. 5 and 7, are employed, a centering bushing 23 or insert is preferably disposed therein. In addition, the buffing wheel may also be provided with a reinforcing fibre ring formed from a ring-shaped strip of stiff fibre 24 (see Fig. 6) disposed about an opening 15 in said wheel and surrounding the centering bushing 23. The stiff fibre ring 24 has a plurality of slits 25 regularly spaced apart along its length, said slits extending inwardly from each side toward the longitudinal center thereof (see Fig. 6). The distance between said rows of slits corresponds to the thickness of the buffing wheel. When bent into ring shape, as shown in Fig. 5, the portions of the strip 24 between the slits 25 of each side edge are alternately bent into tongues 26 and 27, outwardly upon the material surrounding the opening 15, and inwardly upon the centering disc 23 located inside said opening 15, respectively, and at both sides of the wheel.

For small buffing wheels, when no centering disc 23 is used, all of the tongues 26 and 27 will preferably be bent outwardly upon the material surrounding the opening 15. The centering disc 23 shown in Fig. 5 is provided with a small spindle receiving opening 28. The tongues 26 and 27 are each stitched to the wheel and disc 23, respectively, by a circular row of stitching 29. If desired, a reinforcing disc of fibre 30 and fabric 31 will then be disposed over the tongues 26 and 27 at each side of the wheel to which they are stitched, as shown at 32 and 33.

In place of the ring-shaped strip of stiff fibre 24 a cupped disc of hard fibre 34 may be provided, as shown in Figs. 7 and 8, said cupped disc having an annular flange 35 adapted to lie on the outer face of the buffing wheel surrounding the opening 15. The centering bushing 23 is adapted to be disposed within the cupped portion 37 of the disc 34, after which fibre and cloth discs 38 and 39, respectively, will be placed over the bushing 23 and cupped disc 34 and stitched thereto as at 40 and 41, respectively (see Fig. 7).

In the modified form of the invention shown in Fig. 9, a base strip 10 having a longitudinal slit 42 is first laid flat upon a suitable support, and a plurality of strips 43 also having slits 42 are then superimposed thereon in overlapping relation with their ends spaced apart, as shown in Fig. 9. If desired, an unslitted strip of the same size as the base strip 10 may be superimposed on the strips 43 to assist in holding the assembled strips together while winding them upon the slotted drum, shown in Fig. 4, and tying them with the cord 18.

In the modified form shown in Fig. 10, a buffing wheel 50 having alternate layers 51 and 52 of paper and cloth, respectively, is shown—said wheel being constructed from overlapping paper and cloth strips 51 and 52, respectively, as illustrated in Fig. 11. Preferably, the paper strips are made from crinkled material, as shown, with the serrations of the crinkles 53 extending cross-wise of the strip, whereby in the finished buffing wheel, the crinkles will lie in radial lines extending from the center opening 15 to the periphery of the buffing wheel. When a wheel is thus formed of alternate layers of paper and cloth, the paper will act to reinforce the cloth and maintain the peripheral surface of the wheel

firm, thereby insuring an even polish on the article. Such a composite wheel has been found of particular advantage in polishing aluminum or similar methods.

It is also within the purview of this invention to omit the cloth strips from the form shown in Figs. 10 and 11, so that the buffing wheel will be composed entirely of crinkled paper strips 51a. This is indicated in Fig. 12.

One advantage of the present invention is that by providing unconnected short strips in the buffing wheel, the heat developed during buffing is more rapidly and efficiently dissipated than when strips connected end to end or superimposed discs are used.

While there have been disclosed in this specification several forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims. Having thus fully described the invention, what is claimed as new and for which it is desired to secure Letters Patent is:

1. In a buffing wheel, a relatively long and narrow fabric base strip, a plurality of relatively short longitudinally overlapping fabric strips substantially coextensive in width with said base strip and superimposed upon said base strip, the combined strips being rolled as a unit into cylindrical form and drawn together along the longitudinal center line thereof to form a flat apertured double disc puckered at the center and having the side edges of all of said strips disposed relatively flat at the periphery of said disc.

2. In a buffing wheel, a relatively long and narrow fabric base strip, a plurality of longitudinally overlapping relatively short fabric strips superimposed upon said base strip, each of said plurality of superimposed strips comprising a plurality of shorter lengths of fabric placed end to end lengthwise thereof, the combined strips being rolled as a unit into a cylindrical tube and drawn together to form a flat disc having a central circular opening with the side edges of all said strips being disposed at the periphery thereof.

3. In a buffing wheel, a relatively long and narrow fabric base strip, a plurality of relatively short longitudinally overlapping fabric strips superimposed upon said base strip, the combined strips being rolled as a unit into cylindrical form and then drawn together at the center to form a flat disc having a central circular opening, a stiff central spindle-engaging disc fitted within said circular opening, and a reinforcing ring surrounding said disc and also being fitted within said circular opening, said ring having radial tongues extending both inwardly and outwardly and stitched to said buffing wheel and said spindle-engaging disc.

4. In a buffing wheel, an elongated fabric base strip, a plurality of longitudinally overlapped shorter fabric strips of substantially the same width as said base strip superimposed upon said base strip, said base strip with said overlying layers of strips being rolled as a unit into tubular shape and drawn together along their center to form a flat disc having a central circular opening, and a stiff cupped spindle-engaging disc located within said circular opening, said disc

having an outturned flange stitched to said buffing wheel.

5 5. In a buffing wheel, an elongated flexible base strip of buffing material, a plurality of relatively short longitudinally overlapping flexible strips of buffing material superimposed upon said base strip, the combined strips being formed into a roll which is drawn together at its mid-portion to produce a disc having a central circular opening for mounting upon a spindle, the original side edges of said strips lying at the perimeter of said disc, and means for permanently securing the sides of said disc together to form a rigid flat buffing wheel.

6. In a buffing wheel, an elongated flexible base strip of buffing material, a plurality of separate strips of longitudinally overlapping flexible strips of buffing material superposed upon said base strip, the combined strips being formed into a roll which is drawn together at its mid-portion to produce a flat disc having a central circular opening for mounting upon a spindle, the original side edges of said strips lying at the perimeter of said disc, and means for permanently securing together the sides of said disc to form a substantially rigid buffing wheel.

CLARENCE J. PETERSON.
ARTHUR H. PETERSON.