

Oct. 4, 1949.

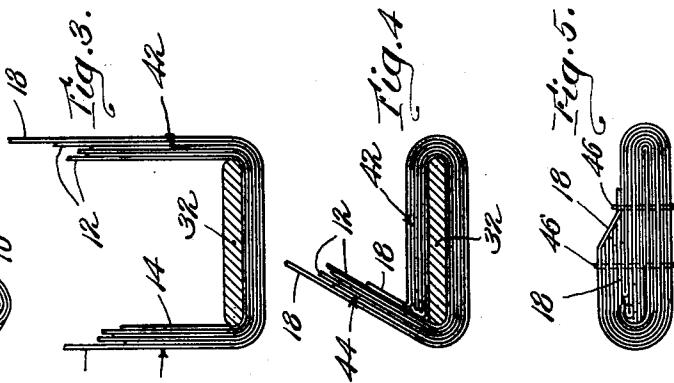
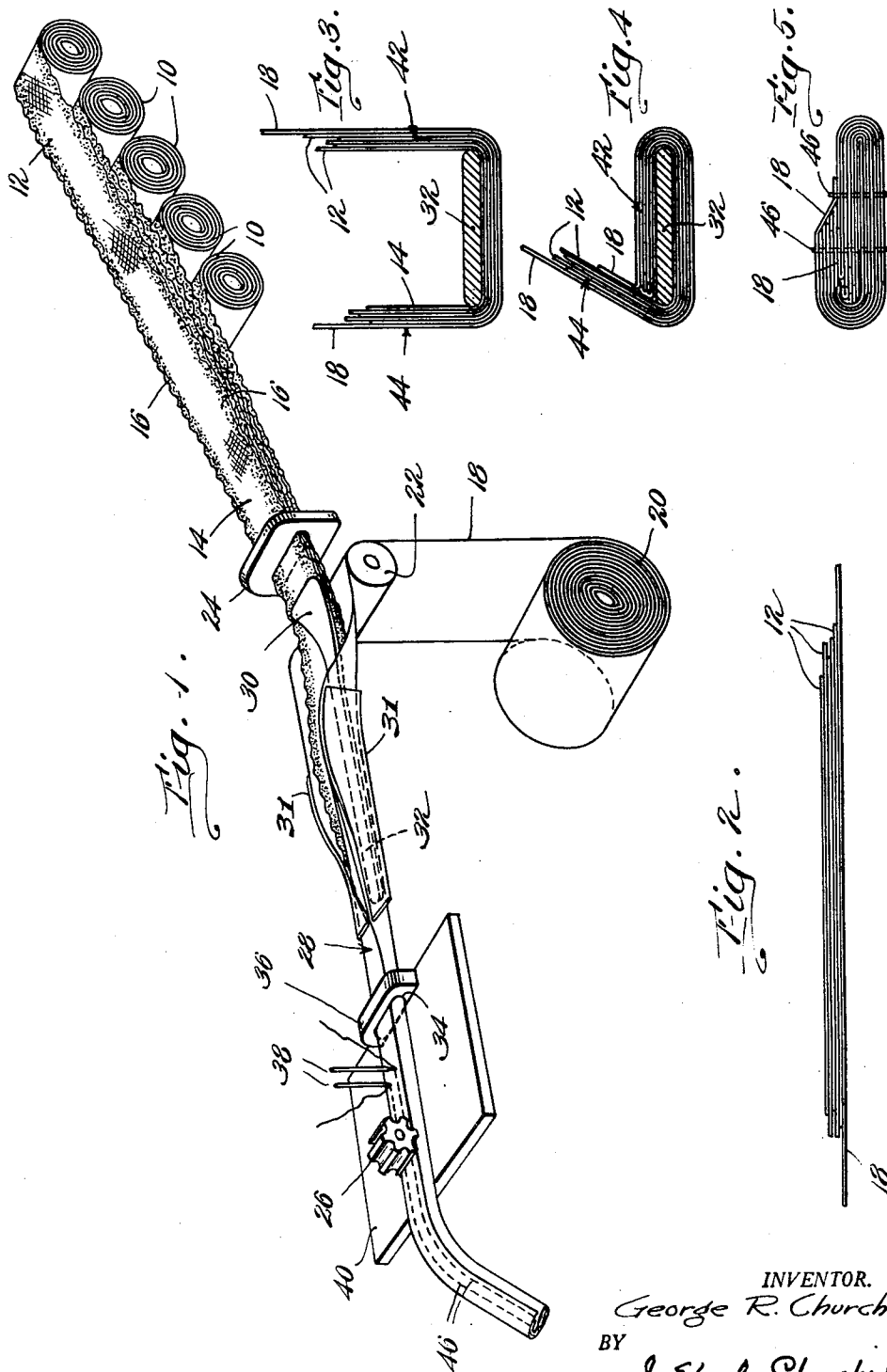
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2,483,879

BUFFING WHEEL

Filed April 29, 1948

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6.

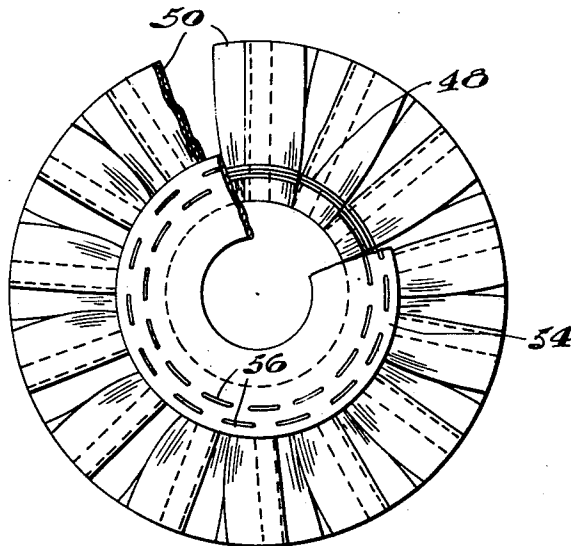
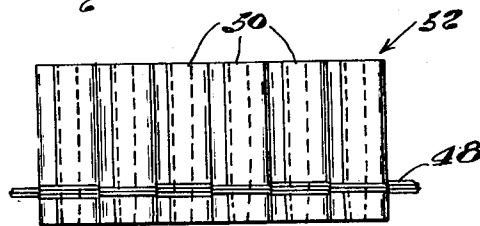


Fig. 7.



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UNITED STATES PATENT OFFICE

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BUFFING WHEEL

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2 Claims. (Cl. 51—193)

1

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

In general, the invention is an improvement upon the buffing wheel forming the subject matter from my United States Patent No. 2,350,216 and has for an object to provide a novel and improved buffing wheel and a novel method of making the same wherein difficulties which have been experienced in the practical manufacture of buffing wheels, forming the subject matter of my said patent, may be avoided and in addition, the improved buffing wheel itself may be handled, shipped and assembled upon the buffing arbor with minimum soiling of the hands of the operator.

With this general object in view and such others as may hereafter 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 perspective view illustrating the preferred method of making the present buffing element from which the present buffing wheel is manufactured; Figures 2, 3, 4 and 5 are views illustrating the successive steps in folding the multi-ply cloth into the form of an elongated strip in accordance with the method diagrammatically illustrated in Fig. 1; Fig. 6 is a view partly broken away illustrating the buffing wheel formed in accordance with the present invention; and Fig. 7 is a view in side elevation of a strip of connected buffing elements used in manufacturing the buffing wheel shown in Fig. 6.

In the commercial manufacture of buffing wheel in accordance with my United States Patent No. 2,350,216, above referred to, it has been found that the partially impregnated cloth strips which are reclaimed from partially used and worn buffing wheels had deeply serrated and un-pregnated side edges produced by wear during the previous use of the wheel. The radial buffing elements formed by folding a multi-ply assembly of such serrated-edged strips also had not only a folded edge but also a serrated raw edge and during the use of the buff oftentimes these serrated portions of the edge or edges were torn off by impact with the work being buffed and as a result these detached portions being impregnated with buffing compound scratched and damaged the work as they were thrown with force from the highly-rotating buffing wheel. In addition such flying cloth pieces presented a hazard to the operator. Another difficulty which has been

2

experienced during the manufacture of buffs under my aforesaid patent resulted from the fact that the opposite side-edge portions of the strip were impregnated with buffing compound resulting from the previous use of the buff from which the cloth strips were reclaimed. This buffing compound being of a greasy abrasive nature interfered with the sewing operation by which the multi-plies of the folded buffing elements were sewn together. The contact of the sewing needle and the associative parts of the sewing machine with the abrasive particles of the buffing compound effected the dulling of the needle and prevented the smooth passage of the cloth through the sewing machine. The buffing compound accumulated upon the various parts of the sewing mechanism to such an extent that much time and effort was required to maintain the sewing machine in a most efficient operating condition. It was found that the abrasive particles from the buffing compound worked into the bearings of the sewing machine and soon wore the machine excessively, thus shortening the life thereof.

These difficulties experienced with the buffing wheel and with the sewing machine elements used in its production may be reduced to a minimum by utilizing an outer ply of cloth which is free or substantially free of buffing compound during the manufacture of the multi-ply elongated strip used in producing the radial-buffing elements of the buffing wheel of my patent, No. 2,350,216. Accordingly, the present invention contemplates a construction of buffing wheel embodying radially extended buffing elements having their outer plies composed of such a cloth strip which is free or substantially free of the buffing compound. In practice the outer ply of the buffing element is made substantially wider than the remainder of the plies of impregnated cloth making up the improved buffing finger. By the use of an outer ply of such unimpregnated cloth in the manufacture of the elongated strip, as described, I have found that the partially impregnated strips may be completely enclosed within an outer casing of such compound free cloth, thus maintaining the buffing compound from direct contact with the moving parts of the sewing machine, and also, from contact with the usual knife of the cutting mechanism which is employed to cut the individual buffing elements from the elongated multi-ply strip thus formed. In this way, the accumulation of buffing compound upon the working parts of the sewing machine and also upon the knife is prevented, and the excessive wear and dulling of the needle and

knife is eliminated resulting in a much more rapid and smooth operation of these mechanisms. In addition to these advantages, the outer compound free cloth of the buffing element serves to prevent the accumulation of buffing compound upon the operating elements of the usual automatic machines which are utilized during the folding of the cloth and the weaving of the binding wires about the ends of the buffing elements in the manner set forth in my United States Patent No. 2,146,284. This contributes to economy of manufacture and extends the useful life of these machines.

Referring now to the drawings, it will be understood that the strips 12 are partially impregnated with buffing compound as indicated at 16 and may be obtained from previously used or discarded buffing wheels all as set forth in said Patent No. 2,350,216. A plurality of supply rolls 10 of such strips are arranged in a line, one behind the other as shown in Fig. 1, with each successive roll mounted in suitable supports not shown, progressively higher than the one preceding it so that a plurality of webs may be conveniently withdrawn simultaneously in superposed relation to form a multi-ply web 14 with each ply having its longitudinal marginal edges impregnated as at 16 with the buffing compound resulting from the previous use of the buffing wheel from which the strip is salvaged or reclaimed.

In accordance with the present invention, the multi-ply web 14 is continuously advanced and combined with a web 18 of buffing compound free cloth drawn from a supply 20 thereof. The web 18 is preferably substantially wider than the reclaimed impregnated cloth and is arranged to form the outer layer of the composite strip 28 from which the radial buffing elements of the buffing wheel are to be produced. As illustrated in Fig. 1, the unimpregnated web 18 is unwound from the supply roll 20 thereof and passed over a guide roll of 22 and the multiple-ply web 14 of the salvaged and partially impregnated material is guided on top of the web 18 and maintained by suitable guide members 24 in a substantially-central position with relation to the web 18. Provision is made for folding the marginal side edges of the web 18 over upon the upper surface of the composite web 14 forming the inner core of the composite strip 28. As herein shown, the web 18 is guided under suitable folding members 31 by which the side edges are folded into the desired position and in overlapping relation completely enclosing the central core 14.

As shown in Fig. 1, the multiple-ply web 14 of salvaged material is arranged to pass under a stationary flared guide member 30 which urges the salvaged material down into engagement with the compound free web 18 as the latter passes over the idler roll 22, and, an elongated extension 32 of the guide member 30 is arranged to provide a support or forming member about which the longitudinal marginal edges of the composite web are folded in overlapping relation during the advance of the webs. The extension 32 terminates before the strip reaches the sewing machine to permit the plies of the folded composite strip to be stitched in flattened condition.

Referring to Fig. 1, it will be observed that the composite strip 28 thus formed is guided through a suitable stationary guide member 36 having an opening 34 therein immediately prior to its passage through the sewing machine diagrammatically illustrated by the needles 38. The strip is

advanced by a continuously operating feed roller 26, being supported on a suitable platen 40 as it passes through the sewing machine. Preferably the sewing machine may be of the double needle type to sew two lines of stitches 46 in the folded composite strip 28.

As shown in detail in Figs. 2, 3, 4 and 5, the individual webs 12 of salvaged material may be irregular in marginal contour and may vary considerably in width, so that, in practice, a fresh outer web 18 is provided which is substantially greater in width than the maximum width of a salvaged web. The first folded upstanding marginal edge 42, as shown in Fig. 4, may extend substantially across the width of the forming member 32 with the extended portion of the relatively wider outer layer engaging the second folded upstanding marginal edge 44 and being folded back upon itself during completion of the folding operation, as shown in Fig. 5. Some of the irregular portions of the edges of the salvaged material may likewise be folded back upon themselves in this manner. Upon completion of the folding operation, the extended longitudinal edge of the fresh outer layer of the second or final folded upstanding marginal edge 44 extends over and entirely covers the underlying compound-impregnated edges of the salvaged material, and, the folded edges are secured in their folded condition by the stitches 46 as shown in Fig. 5. It will thus be observed that an elongated strip of buffing finger material is produced which is closed at both longitudinal edges with the compound impregnated portions of the salvaged material confined within and substantially equally distributed throughout the length of the strip. It will be understood that the webs of material both new and used are preferably arranged to provide a bias cut working edge on the buffing fingers made from the strip.

The elongated strip of finger buffing material thus prepared may then be fed to a weaving machine, not shown, which operates to sever successive finger sections 50 of substantially equal lengths and to connect the fingers together at one end preferably by wires 48 which are woven so as to form sheds into each of which an individual buffing finger 50 is inserted and compressed into compact form and firmly held by the wires to form a strip 52 of any desired length, a portion of such strip being shown in Fig. 7. To form a buffing wheel section, a strip of connected buffing fingers of suitable length is formed into a closed ring of radially extended buffing fingers, the ends of the strip being connected by twisting the ends of the weaving wires together and thereafter the closed ring may be arranged concentrically with a metal or cardboard disc 54 and attached thereto by staples 56 or other fastening means to form a completed buffing wheel section, shown in Fig. 6, ready for mounting on an arbor with a number of similar sections to form a buffing wheel of the desired width.

In practice, when a softer buff is desired, the stitching operation may be eliminated and the folded and compressed elongated strip of buffing material may be fed directly to the weaving machine to be severed into successive equal length fingers and connected together at one end to form a length of connected folded buffing elements maintained in folded relation by the weaving wires alone.

As above stated and as will be apparent from the foregoing description the present invention enables the multi-ply buffing wheels to be manu-

5

factured utilizing the partially impregnated salvaged buffing cloth in such a manner as to avoid the several difficulties and disadvantages above referred to which have heretofore been encountered, and were inherent in this type of buffing wheel and the prior method of manufacture.

While the preferred embodiment of the invention and the preferred method of manufacturing the same have been illustrated and described, it will be understood that the invention may be embodied in other forms and modified methods within the scope of the following claims.

I claim:

1. A buffing wheel having radially extending buffing elements, said elements each comprising a core of a plurality of plies of material having radially extending edge portions, the said edge portions only of said core plies being impregnated with a buffing compound, and a sheath of unimpregnated material enclosing all but the end extremities of said core.

2. A buffing wheel having radially extending buffing elements, said elements each comprising

6

a core of a plurality of plies of material having radially extending edge portions, the said edge portions only of said core plies being impregnated with a buffing compound, a sheath of unimpregnated material enclosing substantially all but the end extremities of said core, and stitching extending laterally through said core and opposed portions of said sheath.

GEORGE R. CHURCHILL.

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The following references are of record in the file of this patent:

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