

Oct. 5, 1948.

F. H. OGDEN

2,450,859

MANUFACTURE OF ABRADING ELEMENTS

Filed March 14, 1945

2 Sheets-Sheet 1

Fig. 1.

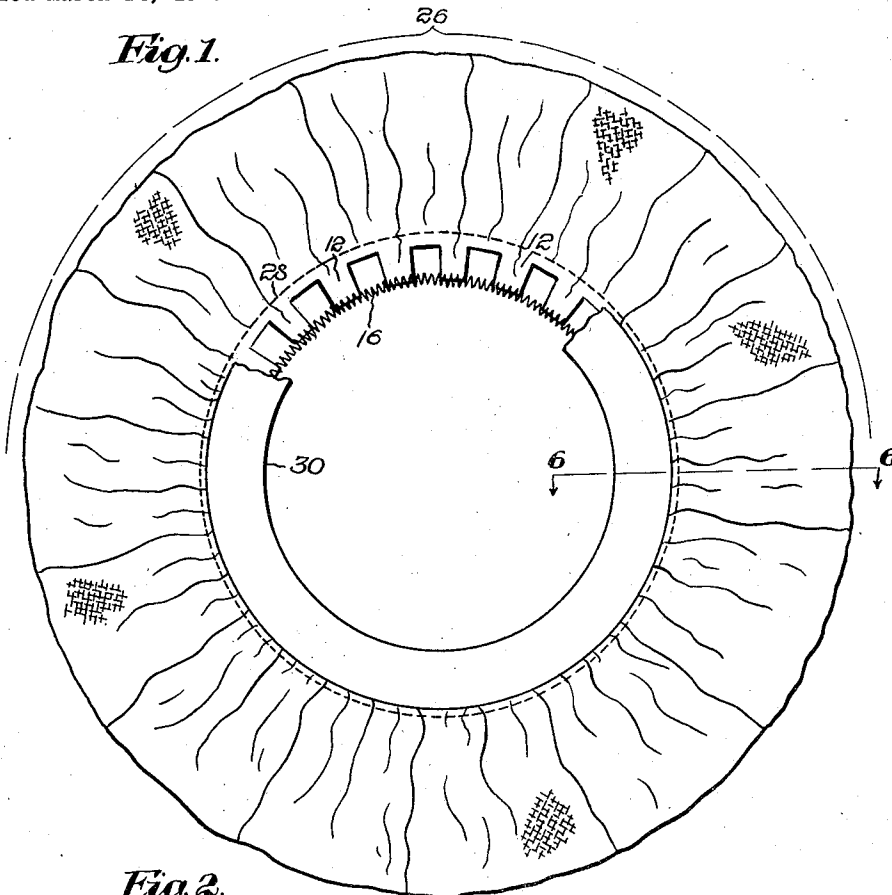
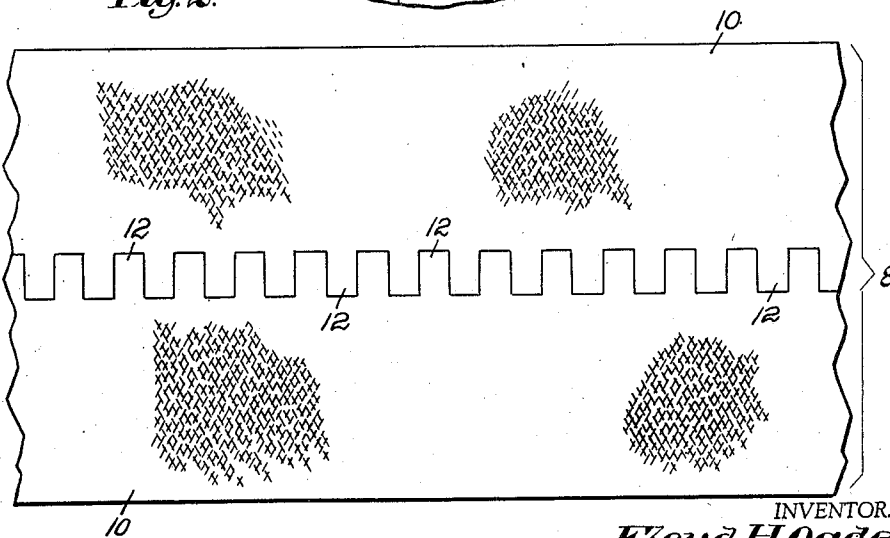


Fig. 2.



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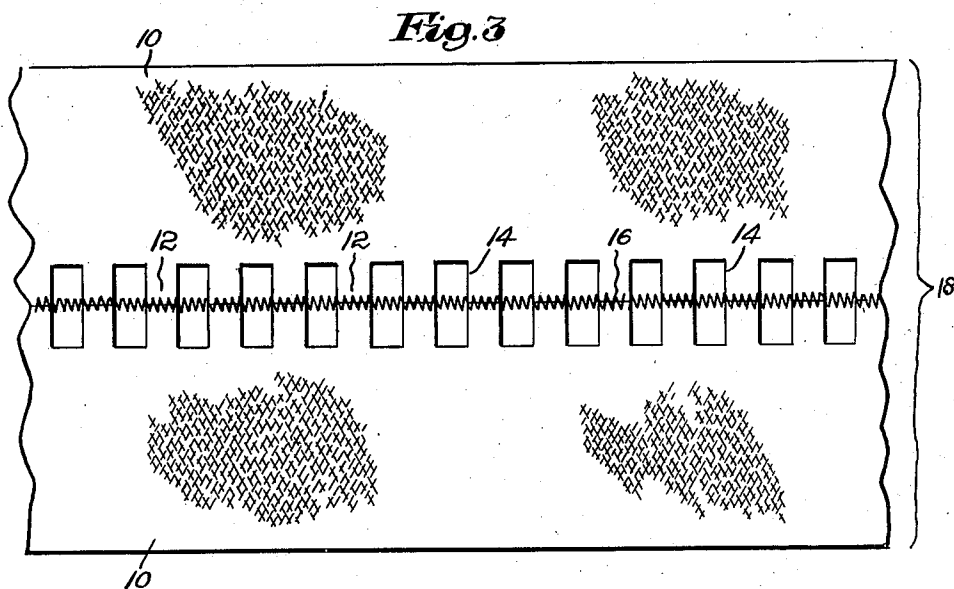
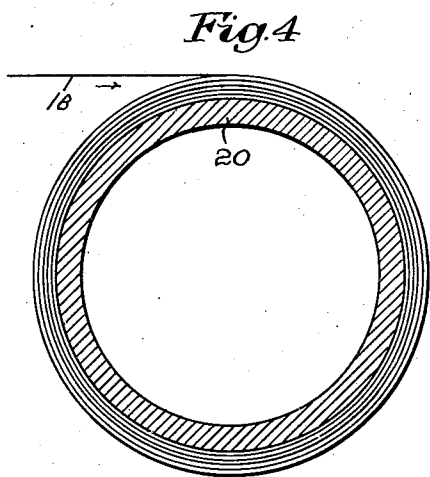
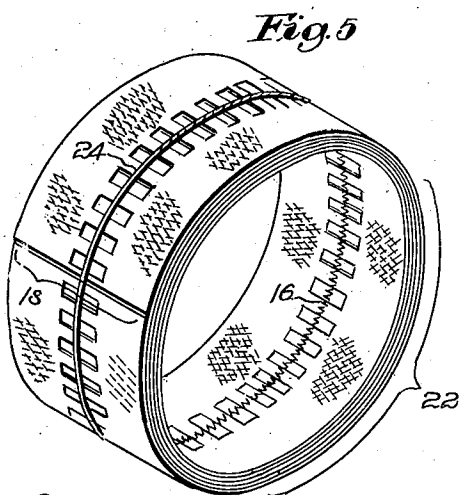
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2,450,859

MANUFACTURE OF ABRADING ELEMENTS

Filed March 14, 1945

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,450,859

MANUFACTURE OF ABRADING ELEMENTS

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Application March 14, 1945, Serial No. 582,659

3 Claims. (Cl. 51—193)

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This invention relates to abrading elements and the art of making the same, and is concerned with a section for a rotary cylinder abrading wheel and the manufacture of the same. Heretofore, in the manufacture of such wheel sections, one method is to wind a cloth strip spirally upon itself to form a ring about a drum, then apply a ligature about the ring at its central portion, then bring the edges of the strip together toward a plane perpendicular to the axis, and then remove the same from the drum, after which the disk thus formed is sewn through and through the layers, and a hub of some sort is provided.

One of the disadvantages of that method is the bulkiness of the disk toward its center. The present invention reduces that bulkiness by a novel construction and mode of manufacture which, moreover, results in an economy of the cloth from which the wheel section is made.

The invention will be understood by reference to the following description when taken in connection with the accompanying drawings, while its scope will be pointed out more particularly in the appended claims.

In the drawings:

Fig. 1 is an elevation of an abrading element in the form of a disk;

Fig. 2 is a plan of a cloth strip cut along its central portion to form two distinct, notched strips, each of which has a series of tongues alternating with spaces;

Fig. 3 is a plan of the two notched strips moved apart to withdraw the tongues of each from the spaces of the other, and with the tongues of one strip attached to the tongues of the other as by sewing;

Fig. 4 is an end view of a drum about which the composite strip is being wound spirally like a clockspring to form a ring;

Fig. 5 is a perspective view of the ring thus formed, with a ligature about its central portion preparatory to bringing the edges of the strips toward each other to form a disk; and

Fig. 6 is a sectional view on an enlarged scale on line 6—6 of Fig. 1.

Referring to the drawings and to the embodiment of the invention and the art of making the same illustrated therein as an example, and having reference at first to Fig. 2, there is shown a strip 8 of cloth, preferably bias-cut and of indefinite length which has been cut, as by a pair of appropriate pinking wheels to form two distinct strips 10 each notched to form complementary sets or series of spaced tongues 12.

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Cutting the strip in this manner results in a considerable economy of material because the spaces between the tongues are formed without loss of material.

This first step is followed by the step of drawing the two strips 10 apart (see Fig. 3) to withdraw the tongues 12 from spaces 14 between them and then shifting the strips, relatively, one lengthwise of the other, by an appropriate amount so that at least a part of a tongue of one strip is contiguous to at least a part of a tongue of the other strip. In the present example, the spaces 14 are equal in width to the tongues 12 though this proportion may be varied if desired. In any event, it is preferred to have the tongues of one strip approximately aligned with the tongues of the other strip as shown.

The next step is to join the tongues of one strip to the tongues of the other by suitable fastening means such as one or more, herein two threads 16 of what is known as an overlock stitch performed in a known sewing machine, thus forming a composite strip 18. As shown, the threads continue across the spaces 14 between the tongues 12 because the sewing is a continuous operation performed on strips of indefinite length. This type of sewing is preferred because it produces a looseness and flexibility of attachment of each tongue of one strip to its counterpart on the other strip. This looseness is desirable because it permits a degree of separation of one tongue from its mating tongue. This is a contributing factor in the lack of bulkiness toward the center of the ultimate ring disk.

The next step is to wind the composite strip spirally (like a clock spring) about a drum 20 (see Fig. 4) to form a ring 22 (see Fig. 5) by rotating the drum the number of turns required to produce the desired number of layers or plies. The next step of placing a ligature such as a cord 24 snugly about the composite strip along its median line, (centrally) and tying it, is conveniently performed while the ring 22 is still on and about the drum 20. Finally, (preferably while the ring is still on the drum) the edges of the strips are brought together toward a plane perpendicular to the axis to form a ring-like disk 26 (see Fig. 1). At this point, the disk can be removed from the drum and provided with a circular row of stitches 28 through the several plies to maintain the flat, disk-like form.

The abrading element, now in the nature of a ring-like disk, can be utilized in various ways as a wheel section. Without further provision

several of them may be assembled face-to-face, axially, on and about a hub and clamped by end plates. Another and preferred way is to provide each individual disk with its own hub 30 which may be a narrow, ring-like affair suitably united with the fabric disk as by bonding with molded plastic, for example, adhering to the fabric and bonding the parts together radially outward beyond the notches 14.

In Fig. 6, the thicknesses of the cloth 10 and the diameter of the ligature 24 are considerably exaggerated for the sake of clearness, but this exaggeration conveys an impression of bulk of the fold and thickness of the hub 30 not actually present in practice. Furthermore, as the ligature 24 actually is not needed and may be removed after the stitching 28 is in place, the fold will not then have even the bulk of the ligature.

Having thus described one embodiment and one method as examples of the invention, what I claim is:

1. The method of making an abrading element which comprises cutting a cloth strip to form two complementary strips each with a series of tongues and a series of notches, the tongues of one series being disposed in the notches of the other series, separating the complementary strips and reassembling them with the ends of one series of tongues presented to the ends of the other series of tongues, and fastening the ends of one series of tongues to ends of the other series of tongues.

2. The method of making an abrading ele-

ment which comprises cutting a cloth strip to form two complementary strips each with a series of tongues and a series of notches, the tongues of one series being disposed in the notches of the other series, separating the complementary strips and reassembling them with the ends of one series of tongues presented to the ends of the other series of tongues, and sewing one series of tongues to the other series of tongues by a line of stitches extending lengthwise of both series.

3. The method of making an abrading element which comprises cutting a cloth strip to form two complementary strips each with a series of tongues and a series of notches, the tongues of one series being disposed in the notches of the other series, separating the complementary strips and reassembling them with the ends of one series of tongues presented to the ends of the other series of tongues, and sewing one series of tongues to the other series of tongues by a line of stitches extending along the ends of the tongues and across the notches therebetween.

FLOYD H. OGDEN.

REFERENCES CITED

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

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Number	Name	Date
1,404,620	Levett -----	Jan. 24, 1922
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Certificate of Correction

Patent No. 2,450,859.

October 5, 1948.

FLOYD H. OGDEN

It is hereby certified that errors appear in the above numbered patent requiring correction as follows:

In the grant, lines 2 and 13, and in the heading to the printed specification, line 4, for "F. L. & J. C. Codman" read *F. L. & J. C. Codman Company*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of December, A. D. 1948.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.
