

June 18, 1957

A. BLOCK

2,796,337

METHOD OF MAKING AN ABRASIVE WHEEL

Filed Feb. 14, 1955

2 Sheets-Sheet 1

FIG. 1

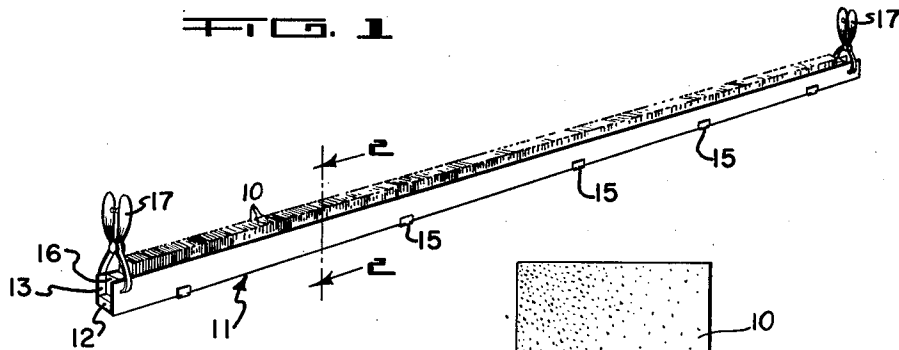


FIG. 2

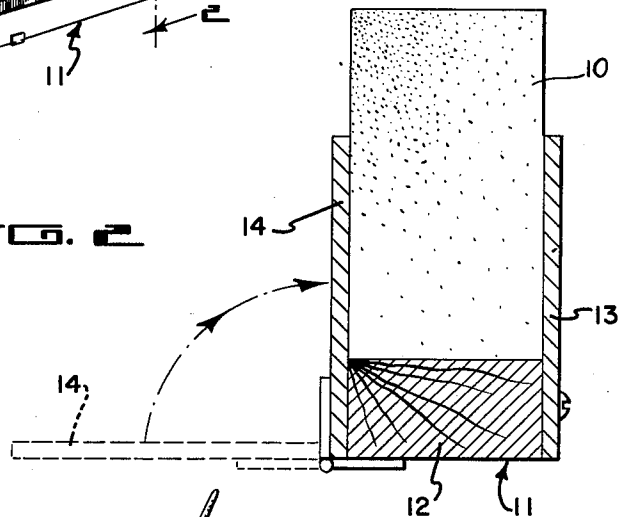
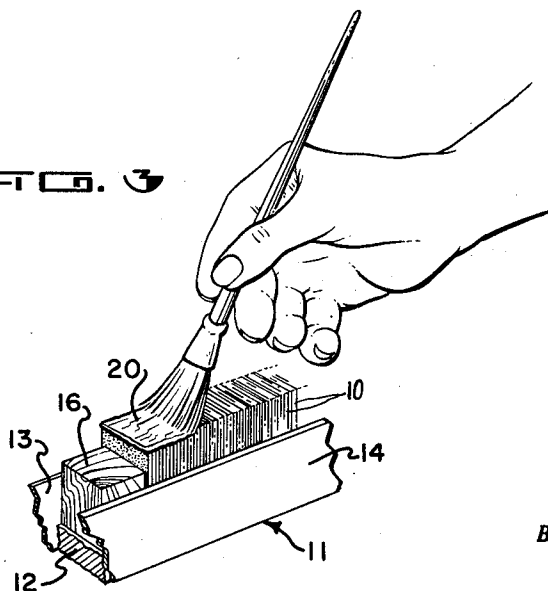


FIG. 3



ALECK BLOCK

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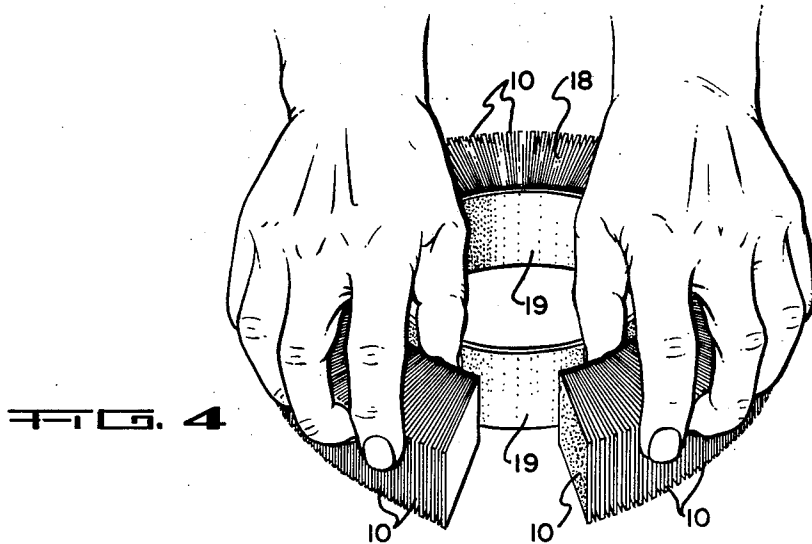
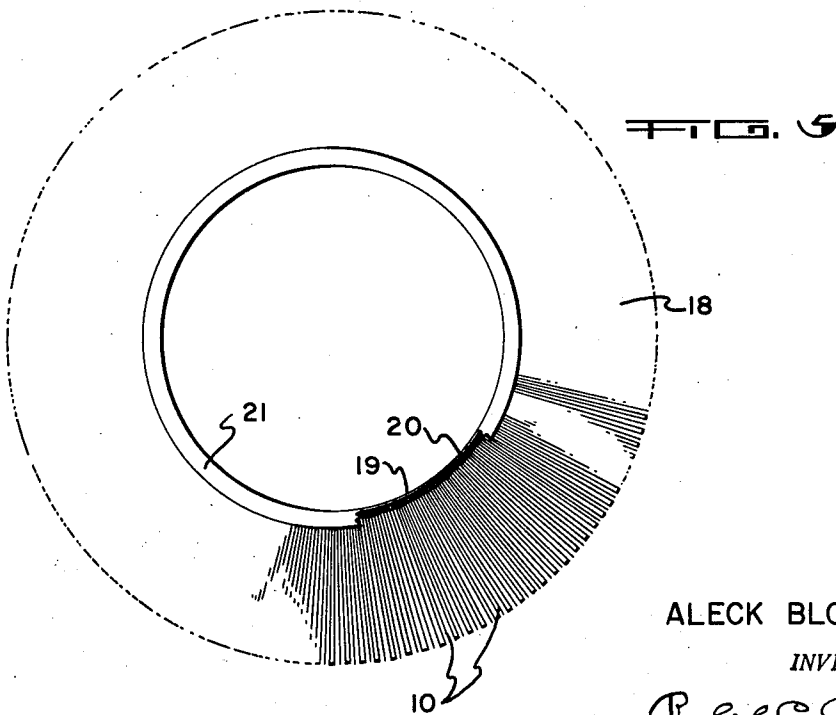
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ALECK BLOCK

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METHOD OF MAKING AN ABRASIVE WHEEL

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Application February 14, 1955, Serial No. 487,910

4 Claims. (Cl. 51—293)

This invention relates to an abrasive wheel and to an improved method of making the same and more particularly to such a wheel which is formed from a plurality of leaves which are adhered to a central core.

In the past, such wheels have been formed in various ways, the leaves sometimes being threaded on a central core member or otherwise formed into an abrasive wheel.

It is an object of my invention to provide an improved and simplified method of assembly and manufacture of such wheels and a more simplified and economical wheel structure which results therefrom. More specifically, it is an object of my invention to provide a simplified method and assembly for converting a plurality of separate leaves into a completed abrasive grinding wheel.

In essence, my invention contemplates assembling a large number of separate leaves and holding them tightly adjacent to each other, the number of leaves being sufficient to form several complete wheels. A coating of flexible adhesive such as a vinyl adhesive is then applied to the edges of the leaves in such thickness that when such adhesive dries it not only adheres the individual leaves to each other, but the adhesive itself forms a substantially resilient core which permits any desired length of the assembled leaves to be separated from the elongated resilient strip of leaves which is so formed and bent into a circle to form a complete wheel. This circle of leaves is then suitably adhered to a circular cardboard core and suitable side members attached to provide a complete abrasive grinding wheel which is ready for use.

My invention also contemplates such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by my invention.

While I have shown in the accompanying drawings a preferred embodiment of my invention, it should be understood that the same is susceptible of modification and change without departing from the spirit of my invention.

Referring to the drawings, Fig. 1 is a top perspective view of the channel used to assemble the leaves in close proximity to each other;

Fig. 2 is a sectional view of the same taken on line 2—2 of Fig. 1;

Fig. 3 is a top perspective view of a portion of the channel showing the adhesive being applied to the adjacent top surfaces of the leaves;

Fig. 4 is a top perspective view showing a length of assembled leaves being mounted around a central cardboard core;

Fig. 5 is a top plan view of a completed abrasive grinding wheel, with a portion of the side strip broken away.

A preferred embodiment which has been selected to illustrate my invention comprises an abrasive grinding wheel which is formed of a plurality of substantially rectangular leaves 10, which are preferably formed of paper or the like and some of which are coated on one side thereof with a suitable abrasive material. In forming my abrasive grinding wheel, I first assemble a plurality of the leaves 10 in an elongated U-shaped channel 11, which

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is substantially the same width as the leaves 10 and which is somewhat shorter in height than the length of the leaves 10. The leaves 10 are disposed so that their abrasive coated sides all face in the same direction if the abrasive coating is only on one side of the leaves.

The channel 11 is provided with a fixed bottom 12, a fixed side 13 and a swingable side 14, which is pivotally attached to the bottom 12 by a plurality of leaf hinges 15. The swingable side 14 of channel 11 can be swung between an upright vertical position and a downwardly depending vertical position, the latter position leaving the side of channel 11 open to receive the leaves.

After the channel 11 has been substantially filled with leaves, a wooden block 16 is inserted into the channel at each end of the row of leaves. The blocks 16 are moved toward each other to compress the leaves so that they are disposed closely and tightly adjacent to each other. The side 14 is then swung into upright vertical position and a pair of spring clamps 17 are then mounted on the opposite ends of the channel 11. The clamps 17 extend across the top of the channel 11 and bear against the outer surfaces of the sides 13 and 14 to hold the side 14 in upright vertical position, bearing against the sides of the leaves 10. The blocks 16 are slightly wider than the leaves 10 and are thus held against displacement by pressure from the assembled leaves when the side 14 is in upright position and the clamps 17 are in place.

A coating of adhesive 20 is then applied across the closely adjacent exposed edges of the entire row of assembled leaves. The adhesive 20 is preferably based upon one or more vinyl components and is preferably applied in liquid form with a brush and permitted to dry through exposure to the atmosphere. The adhesive which is used must be characterized by the fact that it possesses a certain amount of flexibility or elasticity so that the bond formed thereby is not disturbed by the formation of the leaves into wheels in the manner hereinafter described. The adhesive should also preferably have the ability to readily adhere to the leaf surfaces, some of which are coated with various inorganic abrasive materials.

The blocks 16 hold the leaves 10 in tight parallel proximity to each other, but a limited amount of the liquid adhesive will still seep and penetrate into the area between the leaves and particularly where the abrasive particles only partly fill the space between the leaves. The leaves and abrasive particles thus become intermingled with the adhesive to a certain extent and provide reinforcement of the adhesive, resulting in a stronger bond.

The adhesive 20 is applied in such a thickness that it not only bonds the leaves 10 to each other in the manner set forth, but further provides a substantially resilient core to which all of the leaves are united and which permits the leaves to be handled thereafter as an integral unit of any desired length and even bent to form a complete circle without disturbing the bond uniting each leaf to the whole.

After the adhesive has dried, the clamps 17 may be removed and the side 14 swung into downward position. The multiplicity of individual leaves 10 has now been formed into an elongated resilient strip of united leaves. This strip may be handled as a unit and separated into individual lengths 18 of any size which may be desired. Any of the lengths 18 after being separated from the strip may be bent to form a complete circle without the leaves becoming separated from each other.

The length 18 is then adhered to a more rigid core 19 which is preferably formed of cardboard. A pair of circular fibre side plates 21 are then adhered to the sides of the length 18 adjacent the cardboard core 19 to complete the abrasive grinding wheel.

It will be noted that the edges of the leaves are not

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adhered to any additional member, the length 18 comprising merely a plurality of leaves 19 held together by the adhesive 20. My abrasive grinding wheel is thus more economical in that it uses less component parts and in that it requires less time and labor in assembly.

I claim:

1. The method of forming an abrasive grinding wheel comprising assembling a large number of separate substantially rectangular leaves adjacent each other in a long row, at least some of said leaves having an abrasive surface thereon, holding said leaves in tight parallel proximity to each other with one of their narrow edges upright and exposed, applying a coating of resilient adhesive to the top of the exposed narrow edges of said leaves, drying said adhesive, said adhesive binding said leaves together to form an elongated resilient strip having a central resilient core formed from said adhesive, the strip so formed being capable of handling without separation of said leaves from said strip, cutting said strip into a plurality of lengths corresponding to the circumference of the abrasive grinding wheel being formed, bending each of said lengths into a complete circle and adhering the adhesive coated edge of each of said lengths to a substantially rigid circular core.

2. The method of forming an abrasive grinding wheel comprising assembling a number of separate substantially rectangular leaves adjacent each other in a long row, at least some of said leaves having an abrasive surface thereon, holding said leaves in tight parallel proximity to each other with one of their narrow edges upright and exposed, applying a coating of resilient adhesive to the top of the exposed narrow edges of said leaves, drying said adhesive, said adhesive binding said leaves together to form an elongated resilient strip having a central resilient core formed from said adhesive, the strip so formed being capable of handling without separation of said leaves from said strip, said strip corresponding to the circumference of the abrasive grinding wheel being formed, bending said strip into a complete circle and adhering the adhesive coated edge of said strip to a substantially rigid circular core.

3. The method of forming an abrasive grinding wheel comprising assembling a number of separate substantially

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rectangular leaves adjacent each other in a long row, at least some of said leaves having an abrasive surface thereon, holding said leaves in tight parallel proximity to each other with one of their narrow edges upright and exposed, applying a coating of vinyl glue which is flexible when dry to the top of the exposed narrow edges of said leaves, drying said adhesive, said adhesive binding said leaves together to form an elongated resilient strip having a central resilient core formed from said adhesive, the strip so formed being capable of handling without separation of said leaves from said strip, said strip corresponding to the circumference of the abrasive grinding wheel being formed, and bending said strip into a complete circle and adhering the adhesive coated edge of said strip to a substantially rigid circular core.

4. The method of forming an abrasive grinding wheel comprising assembling a number of separate leaves adjacent each other in a long row, at least some of said leaves having an abrasive surface thereon, holding said leaves in tight parallel proximity to each other with one of their edges available for the application of adhesive thereto, applying a coating of resilient adhesive to said edges, drying said adhesive, said adhesive binding said leaves together to form an elongated resilient strip having a central resilient core formed from said adhesive, the strip so formed being capable of handling without separation of said leaves from said strip, said strip corresponding to the circumference of the abrasive grinding wheel being formed, bending said strip into a complete circle and adhering the adhesive coated edge of said strip to a substantially rigid circular core.

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