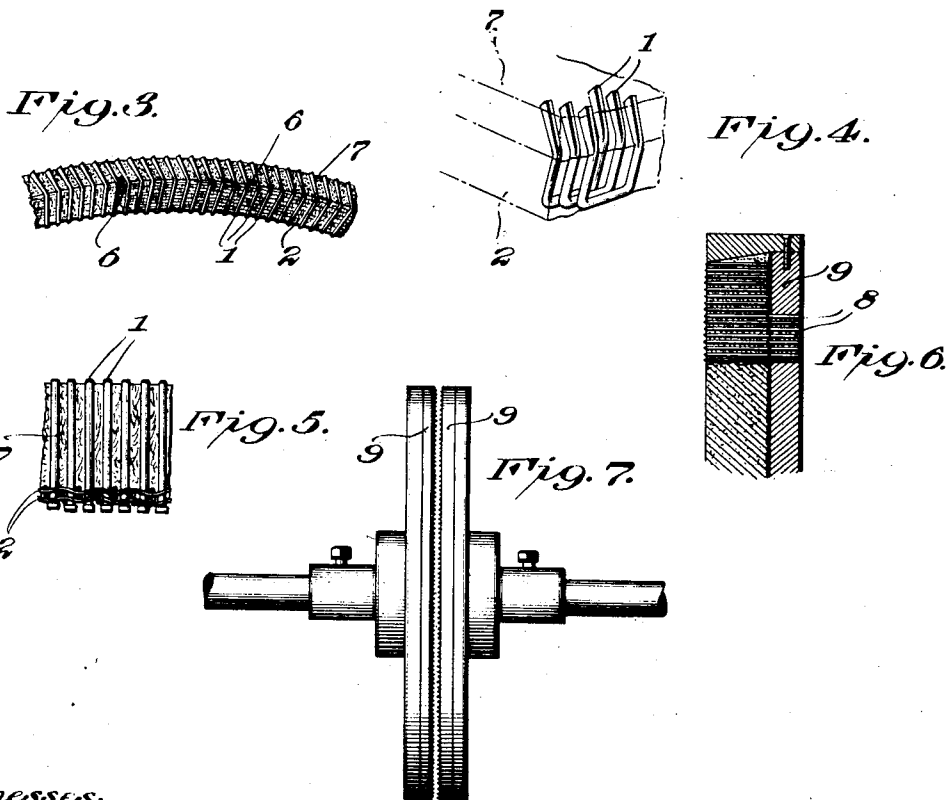
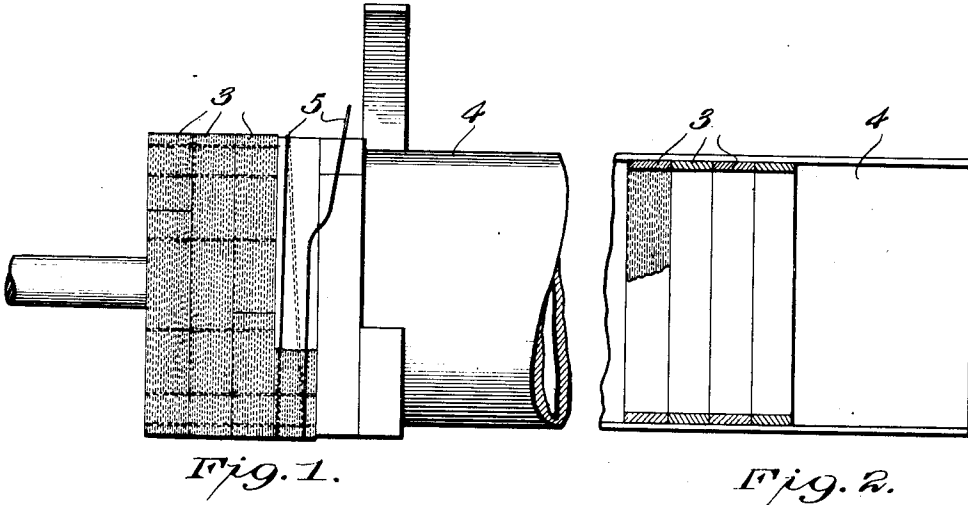


C. H. CASEBOLT.
 ABRASIVE,
 APPLICATION FILED MAR. 9, 1912.

1,039,487.

Patented Sept. 24, 1912.



Witnesses:

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UNITED STATES PATENT OFFICE.

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ABRASIVE.

1,039,487.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed March 9, 1912. Serial No. 682,818.

To all whom it may concern:

Be it known that I, CHARLES H. CASEBOLT, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Abrasives, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows one of the forms of my invention as applied to the outside of a cylindrical roll. Fig. 2 is a similar form of my invention applied to the inside of a cylindrical shell. Fig. 3 is a cross section through the preferred form of my invention. Fig. 4 is a perspective of a fragment of the preferred form showing the relation of the abrasive elements to one another and to the retaining materials. Fig. 5 is a vertical cross section through a modified form. Fig. 6 is a modified form applied to a grinding wheel or attrition disk. Fig. 7 is my invention applied to the disks of an attrition mill.

My invention relates broadly to abrasives and specifically to a manufactured abrasive material adapted for use in scouring, grinding, delinting and clipping.

An understanding of the following description may be had by reference to the accompanying drawings.

The principal object of my invention is to provide an abrasive which will be self-sharpening.

Another purpose of my invention is to provide an abrasive material which may be applied to curved or irregular surfaces and when shaped to conform thereto may be made rigid so as to preserve that form.

A further purpose of my invention is to produce an abrasive which may be formed with abrading elements therein of any desired degree of hardness or in any desired number.

As may be seen from the illustrations, my invention contemplates the use of a number of metallic abrading elements 1, which are set in any desired arrangement in a firm fabric 2, which fabric is of sufficient strength to hold the abrading elements firmly therein and of pliability sufficient to permit its being shaped to conform to curved or irregu-

lar surfaces, as is illustrated in Figs. 1 and 3, wherein the strips 3 are shown applied to the curved surfaces of the cylindrical members 4. When thus applied, the strips may be held in place by suitable securing means in the form of wires 5 and held together by means of suitably disposed transverse wires or reinforcing members 6. These securing and reinforcing members are laid close to the fabric 2 below the upper ends of the abrading elements 1. After being thus applied, the interstices between the several abrading elements 1 are filled with a suitable cement metal, crystalline material, or plaster 7 which is allowed to set and which when set forms a rigid structure which holds the abrasive in the form to which it has been shaped. This cement or plaster 7, while of sufficient hardness or rigidity to give strength and form to the abrasive, is of a less degree of hardness than are the abrading elements 1. The purpose of this is that when the abrasive is in use and as the abrading elements are gradually worn down at their outer ends, the cement between them will be worn down faster, and hence the abrading elements 1 will always project beyond the surface of the cement 7. By this means the abrasive surface is made self-sharpening as the wearing action upon the surface always keeps the abrading points projected beyond the general surface of the material.

In the forms illustrated in Figs. 1, 2, 3, and 4, the fabric carrying the abrading elements 1 is shown as ordinary card clothing. As this material may be obtained having any desired arrangement or number per inch of elements 1, and having said elements 1 formed of material of any degree of hardness, it is obvious that the degree of hardness and roughness of my abrasive may be positively and accurately determined.

In the forms shown in Figs. 5 and 6, the foundation fabric 2 consists of contiguously disposed sheets of wire mesh and the abrading elements 1 are inserted and held in the openings between the strands. It will be seen that this form gives a very firm, though flexible foundation which may be cut into any shape suitable for application to grinding disks or attrition disks. When designed to be applied to disks in this fashion, some of the elements 1 may be made longer than

the others, as is illustrated at 8, the extended portions being left projecting below the meshing in groups of any desired form. When these projecting portions are then filled with cement, they form securing members which may be inserted in suitable apertures of the disk 9 to hold the abrasive against slipping.

A sharp working edge may always be preserved on the abrading elements 1 by simply reversing the direction of movement of the abrading surface, whereby when the working edges on one side of the abrading elements 1 have become worn, the opposite edges may be brought into use. As a further means of preserving sharp working edges on the elements 1, it is often desirable to reduce or flatten the portions of the elements 1 above the fabric 2, whereby a sharp edge is secured on the working sides of the elements.

My abrasive may be advantageously used on delinting rolls in which a working surface of constant sharpness must be maintained, or in attrition mills in which the abrading surface dulls rapidly and is difficult to resharpen.

While I have disclosed but two forms of my invention, it is obvious that many modifications thereof may be made and I do not wish my invention to be considered as limited to the specific forms shown.

What I claim is:

1. An abrasive comprising a pliable meshed foundation member, a plurality of abrasive elements secured in said foundation, and a plastic filler surrounding the said elements and filling the fabric.

2. An abrasive comprising a pliable fabric, abrasive elements secured in said fabric, and provided with reduced projecting portions and plastic material surrounding said projecting portions.

3. An abrasive surface comprising a plurality of strips of fabric, abrading elements secured in said fabric, reinforcing elements connecting said strips, and plastic material surrounding said abrading elements and said reinforcing elements.

4. An abrading surface comprising a meshed fabric foundation, abrading elements set in said foundation, and rigid material covering and filling said foundation.

5. An abrasive comprising a pliable meshed fabric, abrading elements set in said fabric, and plastic material applied to said fabric.

6. An abrasive comprising a meshed fabric foundation, a plurality of abrasive elements secured in said foundation, and a filler composed of crystalline material surrounding portions of said abrasive elements and filling the fabric.

7. An abrasive comprising a pliable fabric, abrasive elements secured in said fabric, and a metallic filler of less degree of hardness than said elements surrounding said elements and impregnating said fabric.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 27th day of February, 1912.

CHARLES H. CASEBOLT.

Witnesses:

M. P. SMITH,
C. S. BUTLER.