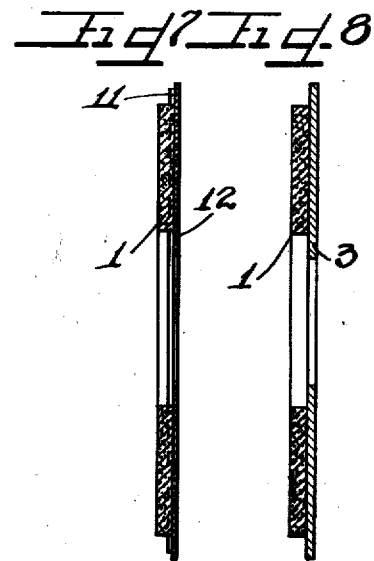
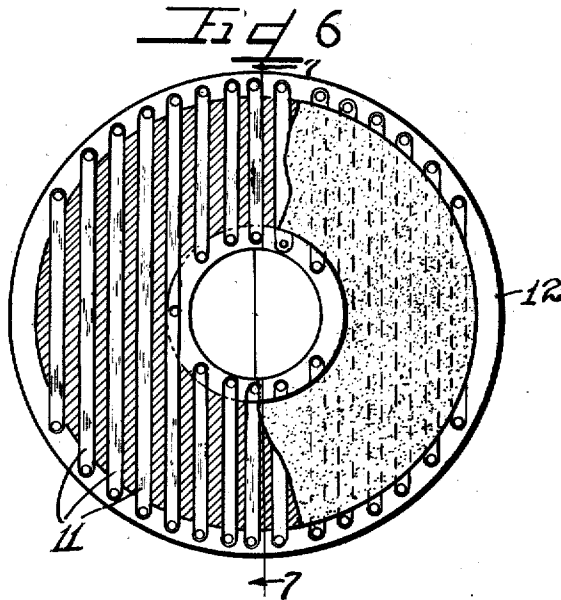
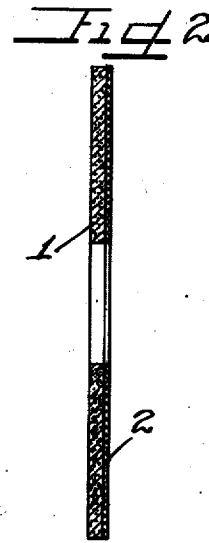
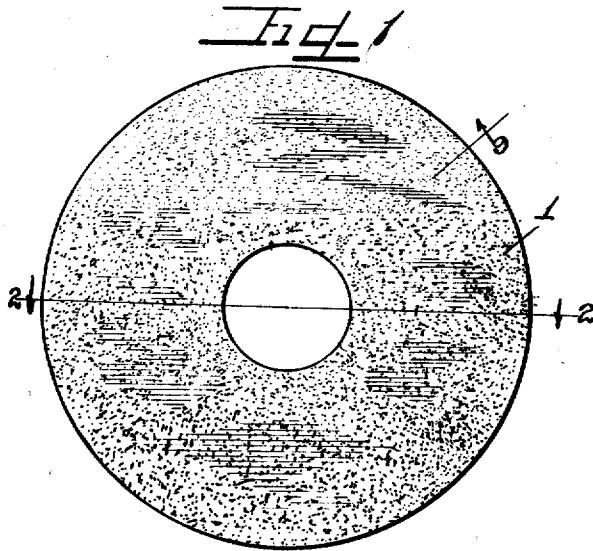


S. M. BULLOCK AND H. S. LLOYD.
 PROCESS OF FORMING ABRASIVE DISKS.
 APPLICATION FILED SEPT. 10, 1915.

1,311,550.

Patented July 29, 1919.
 2 SHEETS—SHEET 1.



WITNESSES

A. J. Tobin
Charles W. Bullock by

INVENTORS

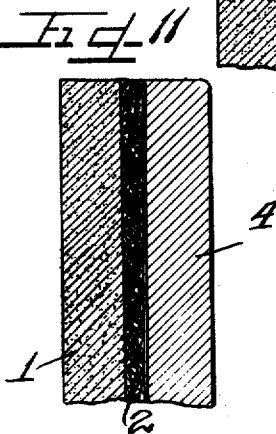
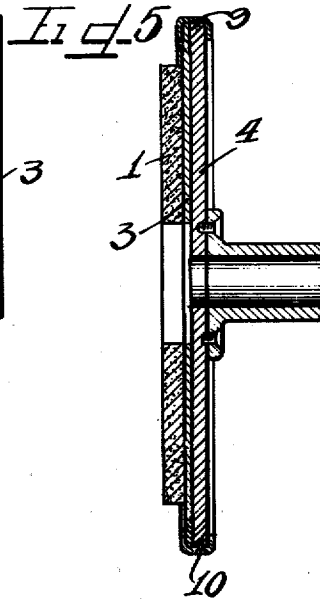
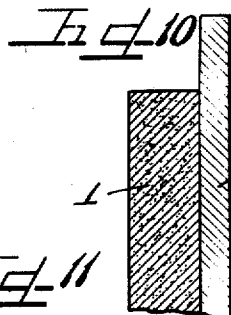
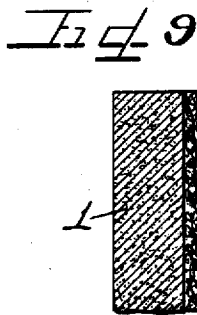
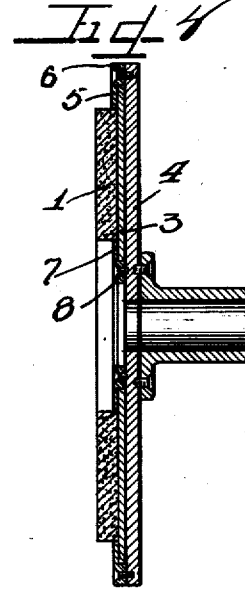
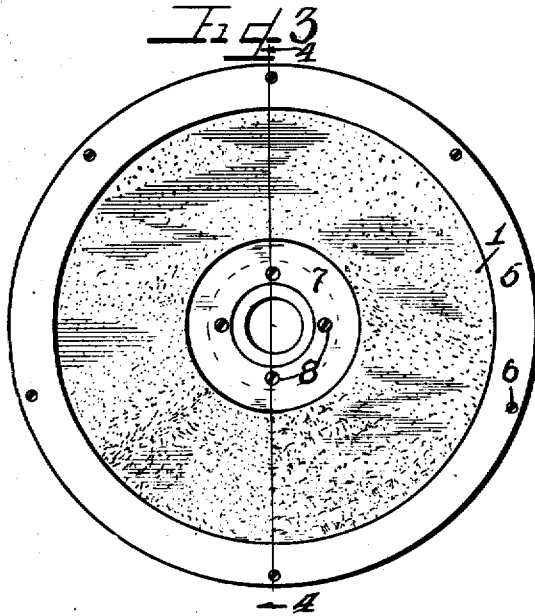
Samuel M. Bullock
Harry S. Lloyd
Charles W. Bullock
 ATTORNEY

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2 SHEETS—SHEET 2.



WITNESSES

A. J. Tolmie.
Charles W. Phelps, Jr.

INVENTORS
Samuel M. Bullock
Harry S. Lloyd

Charles W. Viles
Att'y

UNITED STATES PATENT OFFICE.

SAMUEL M. BULLOCK, OF CHICAGO, AND HARRY S. LLOYD, OF OAK PARK, ILLINOIS.

PROCESS OF FORMING ABRASIVE DISKS.

1,311,550.

Specification of Letters Patent.

Patented July 29, 1919.

Application filed September 10, 1915. Serial No. 49,983.

To all whom it may concern:

Be it known that we, SAMUEL M. BULLOCK and HARRY S. LLOYD, citizens of the United States, and residents of the city of Chicago and village of Oak Park, respectively, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Processes of Forming Abrasive Disks; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

Many different types of abrasive wheels and disks have been made for operation and use in different kinds of work, but in any instance when the wheel, after continued use, has become worn, it is necessary to replace the same. This invention relates to an improved type of abrasive disk and process of making the same, whereby the disk may be attached upon a wheel for use thereon and after the same has become worn, readily detached and replaced by a new disk.

It is an object therefore of this invention to construct a disk of abrasive material suitably mounted upon a backing or carrier member to permit ready attachment or detachment thereof, to or from a wheel or plate.

It is also an object of this invention to provide a process for manufacture of an abrasive wheel by the use of calcined magnesite and magnesium chlorid, together with an abrasive material to compose a cementitious mass for application upon a carrier member of fabric, metal, fiber or wood, to provide a finished article for the market capable of being readily attached upon a driving wheel or disk for use.

It is also an object of this invention to provide an improved method of associating an abrasive cementitious mixture with a carrier member of fabric or the like, together with an improved means of attaching the finished product to a driving wheel, plate or disk by means of the carrier member either mechanically or by cementing the carrier member thereto in an improved manner.

It is furthermore an important object of this invention to provide an improved process for the construction of a new type of abrasive element whereby the abrasive material is associated with the carrier member due to the cementitious character of the abrasive mixture permitting the device to be attached by means of the carrier member upon a suitable driving means for use.

It is finally an object of this invention to provide a detachable abrasive disk for use on abrading wheels.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a front elevation of a disk embodying the principles of our invention.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a front elevation of a slightly different form of disk attached upon a driving wheel.

Fig. 4 is a section taken on line 4—4 of Fig. 3.

Fig. 5 is a view similar to Fig. 4, illustrating another means of attachment of an abrasive disk upon a wheel.

Fig. 6 is a front view broken away of another form of abrasive disk constructed according to the principles of my invention.

Fig. 7 is a section taken on line 7—7 of Fig. 6.

Fig. 8 is a section of the disk shown in Fig. 4.

Fig. 9 is an enlarged fragmentary section taken on line 9—9 of Fig. 1.

Fig. 10 is a view similar to Fig. 9 of the slightly modified type of construction shown in Fig. 5.

Fig. 11 is a view similar to Fig. 9, illustrating the type of construction shown in Fig. 9 associated with the driving wheel or disk.

As shown in the drawings:

We will first describe the method by which the abrasive wheel is constructed and then by reference to the drawings, point out the various elements entering into the construction of the wheel and the method of use thereof. In making the abrasive disks, any suitable abrasive may be used such as sand or other silicates, carborundum, emery or

alundum, and after the same has been reduced to the required fineness according to the character of the work to be done, is mixed with calcined magnesite and wet
5 magnesium chlorid to form a pasty mass capable of being molded into any desired shape and the mixture is then applied, either by pounding, tamping, rolling, spreading or pressing on any desired material, such as
10 fabric, fiber, paper, wood, or metal.

If desired, the material adapted to receive the mixture associated therewith, may first be coated with pure cement such as calcined magnesite and magnesium chlorid in proper
15 proportions although obviously any other cementitious material may be used, and then rolling or pressing the abrasive into the cementitious substance, or working the same thereinto in any desired manner. Another
20 manner in which the disk may be formed is by first treating the material to be coated with a solution of the magnesium chlorid and then applying the dry mixture of abrasive and calcined magnesite thereto and wet-
25 ting the same with the solution of magnesium chlorid. Still another means of applying the abrasive to the material to be coated, is by first spreading dry calcined magnesite over the surface of the material
30 and then applying the cementitious coating consisting of a mixture of the calcined magnesite, wet magnesium chlorid and the abrasive over the same by pressing, tamping, pounding or rolling either by hand or by
35 machine to mold the same into proper shape and cause the same to closely adhere to the material. We wish to emphasize the manner in which the elements constituting the mixture are associated with the material to be
40 coated whereby the mixture is spread upon the material and made into forms by tamping, pounding or rolling, or if desired, molded into form even without being spread upon the material, so that a disk of the abra-
45 sive is formed when the molded mixture hardens.

Referring to the drawings, the reference numeral 1, indicates the cementitious abrasive mixture composed of an abrasive of any
50 suitable kind, calcined magnesite, and magnesium chlorid, and the proportions of the constituents may vary according to the character of the abrasive disk desired. As shown in Figs. 1, 2, 9 and 11, the abrasive cementi-
55 tious mixture is applied upon a carrier member, which may be of any suitable material, preferably fabric denoted by the reference numeral 2, and the method of application of the mixture thereon may be of any of the
60 foregoing pointed out. When constructed as shown in Figs. 1 and 2, the disk may be glued upon a driving wheel 4, by applying any glue or preferably a magnesite and magnesium chlorid cement upon the surface of

the fabric 2, and after clamping the disk
65 upon a wheel, allowing the same to dry, and this will serve to hold the disk rigidly associated with the driving wheel until the disk has become worn necessitating removal
70 thereof. The fabric and remaining portion of abrasive may be torn from the wheel or the glue or cement may be dissolved by any suitable solvent to permit easy removal of the fabric and the remainder of the abrasive
75 thereon.

In Figs. 3, 4, and 10, I have illustrated the abrasive mixture 1, applied upon a disk 3, of any suitable material, the inner and outer
80 margins of which extend beyond the edge of the abrasive coating to afford a means of attachment to a driving wheel or plate. For this purpose, the carrier disk 3, with the abrasive material 1, thereon, is laid flat
85 against the surface of the driving wheel 4, as shown in Fig. 4, and a ring 5, is laid over the extended margin of the disk 3, and secured into the wheel 4, by means of screws 6,
90 and at the inner marginal periphery of said disk 3, another ring 7, is likewise secured by means of screws 8.

Another method of associating the abrasive disk 1—3 upon a driving wheel is shown in Fig. 5, wherein the abrasive disk 1—3, lies
95 flat against the driving wheel 4, and a channeled ring 9, is engaged over the outer margin of the disk member 3, and also the wheel 4, and is secured thereto by means of a screw 10, to hold the abrasive disk securely upon
100 the driving wheel. In the construction illustrated in Figs. 6 and 7, I have shown a plurality of reinforcing and attaching strips 11, laid across the surface of the carrying member, which in the present instance is denoted by the reference numeral 12, and may
105 be of any suitable material preferably fabric, receiving the abrasive mixture 1, molded thereover so that said strips are embedded therein. Said strips project beyond the inner and outer margins of the abrasive portion of the construction, however, as clearly
110 shown in Fig. 6, to permit attachment thereof to the driving wheel to insure positive connection of the abrasive device upon the driving wheel. A barium salt or compound may be also mixed with the materials consti-
115 tuting the disk in order to water proof the same.

We are aware that many other methods of constructing the abrasive disk and attaching
120 the same upon the driving wheel will readily suggest themselves to one skilled in the art after the disclosures we have made but we do not purpose limiting the patent granted otherwise than necessitated by the prior art.

We claim as our invention:

1. The process of forming an abrasive disk which consists in coating a fabric with
125 dry calcined magnesite and applying a cem-

entitious mixture of calcined magnesite, abrasive, and magnesium chlorid thereon.

2. The process of forming an abrasive disk which consists in first coating a material with a dry cement and then applying a mixture of calcined magnesite, abrasive, and magnesium chlorid thereon.

In testimony whereof we have hereunto

subscribed our names in the presence of two subscribing witnesses.

SAMUEL M. BULLOCK.
HARRY S. LLOYD.

Witnesses:

CHARLES W. HILLS, Jr.,
EARL M. HARDINE.