

H. F. STEMPEL, JR.
 PROCESS OF PRODUCING ATTRITION SHEETS AND THE ARTICLES OF MANUFACTURE
 PRODUCED THEREBY.

1,208,688.

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Fig. 1.

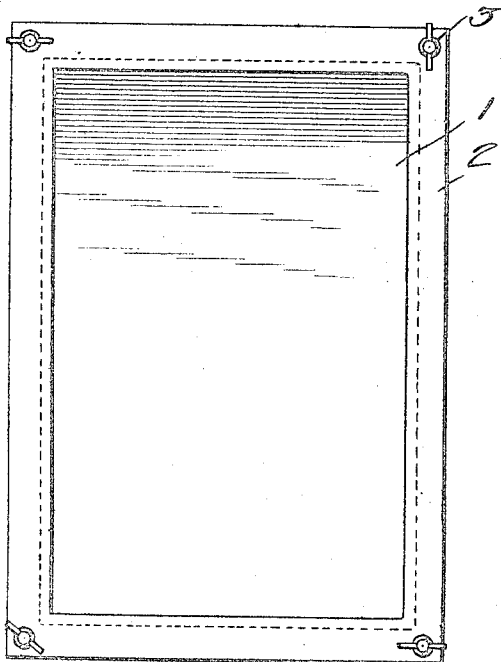


Fig. 2.

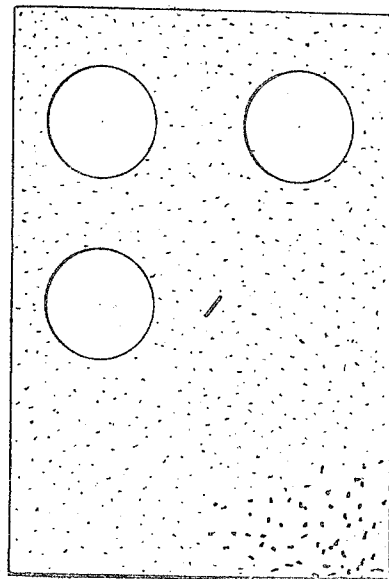


Fig. 3.

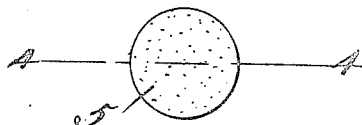


Fig. 4.



WITNESSES

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PROCESS OF PRODUCING ATTRITION-SHEETS AND THE ARTICLES OF MANUFACTURE PRODUCED THEREBY.

1,208,688.

Specification of Letters Patent.

Patented Dec. 12, 1916.

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To all whom it may concern:

Be it known that I, HERMAN F. STEMPEL, Jr., a citizen of the United States, and a resident of Fort Madison, in the county of Lee and State of Iowa, have made certain new and useful Improvements in Processes of Producing Attrition-Sheets and the Articles of Manufacture Produced Thereby, of which the following is a specification.

My invention relates to improvements in the process of manufacturing attrition sheets, disks, strips and other attrition devices, and to the improvements in the articles of manufacture produced thereby, and it consists in the steps of a process, and the product produced thereby as herein set forth and as specified in the annexed claims.

An object of my invention is to provide a process for making attrition sheets, disks, strips and other attrition devices which is simple and which results in a superior product.

A further object of my invention is to provide a process for the manufacture of attrition sheets, disks, strips and other attrition devices which obviates the use of heat and pressure.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application in which—

Figure 1 is a plan view of a sheet of celluloid before treatment, Fig. 2 is a face view of the sheet after treatment, Fig. 3 is a face view of a finished disk, and Fig. 4 is a greatly enlarged section through the disk.

In carrying out my invention I make use of a sheet 1 of celluloid, since the latter is possessed of the requisite strength and flexibility and is also waterproof. This sheet is placed in a frame 2, which is provided with suitable clamping members such as thumb screws 3 to hold the sheet rigidly. Any other suitable means for holding the sheet rigidly might be employed without departing from the spirit and the scope of the invention.

The sheet is treated with a solution of celluloid in a suitable solvent. I preferably use acetone or some similar volatile solvent. The frame prevents the sheet from buckling. The sheet may be treated with the

solution in any suitable manner. The face of the sheet may be dipped in the solution or the latter may be caused to flow over the face of the sheet, the surplus being drained off, or the solution may be applied to the sheet with a brush or other suitable device.

The solvent contained in the solution acts upon the celluloid sheet and dissolves some of the surface of the sheet causing the surface of the sheet to become part of the solution. Before the solvent has time to evaporate, the granulated attrition material 4, such as sand, emery and other attrition material is applied on the solution surface of the sheet. The whole solution and sheet, after the evaporation of the solvent, become united, and as one homogeneous mass form the base in which the attrition material becomes embedded and set. This attrition material may vary in size so as to produce disks and other attrition devices which are either coarse or fine.

When the solvent has evaporated the celluloid in the original solution and that dissolved on the surface of the sheet thereby regains its former character as celluloid, and the grains of the attrition material become embedded and set firmly on the sheet, the bases of the grains being surrounded by the celluloid residue of the original solution and of the dissolved portion of the sheet.

The process described above will form disk and other attrition devices of excellent quality. I may, however, apply a second coat of the solution to the sheet upon which the attrition material has been placed. The application of the second coat results in surrounding the attrition material more deeply with celluloid without lessening the attrition qualities. Where it is desired to produce a product having very fine material embedded upon it the one coat process is preferable.

At the time the solution and attrition material is applied to the sheet, and until the evaporation of the solvent is complete, the sheet must be kept from buckling by some means such as the frame shown in Fig. 1. After the evaporation of the solvent is complete, the sheet is removed from the frame, and disks 5, or strips, or other attrition devices may be cut or stamped from the sheet thus produced.

I am aware that it has been proposed to form attrition disks and the like from celluloid by heating the sheet and forcing the

attrition material into the sheet under pressure. I do not claim such a process. I am also aware that it has been proposed to apply attrition material to celluloid disks or
5 the like and to secure the attrition material to the sheets by the use of a cement. I therefore do not claim either of these processes.

What I claim is:

10 1. The herein described process of producing attrition sheets which consists in treating the face of the sheet with a solvent, thereby softening the surface of the sheet, applying attrition material to the sheet while
15 the latter is in its softened condition, and then drying the sheet.

2. The herein described process of producing attrition sheets which consists in treating the face of the sheet with a solvent,
20 thereby softening the surface of the sheet, applying attrition material to the sheet while the latter is in its softened condition, then drying the sheet, and preventing the buckling of the sheet while the latter is
25 drying.

3. The herein described process of producing attrition sheets, which consists in treating the face of a sheet of celluloid with a solvent of celluloid, thereby softening the
30 surface of the sheet, applying attrition ma-

terial to the sheet while the latter is in its softened condition, and then drying the sheet.

4. The herein described process of producing attrition sheets which consists in treating
35 the face of a sheet of celluloid with a solution of celluloid containing a volatile solvent, applying attrition material to the sheet and subsequently permitting the solvent to evaporate.

5. The herein described process of producing attrition sheets which consists in treating the face of a sheet of celluloid with a solution of celluloid containing a volatile
40 solvent, applying attrition material to the sheet, subsequently applying a second coat
45 of the solution and drying the sheet.

6. The herein described attrition sheet which consists of a body portion of celluloid having the particles of attrition material
50 partly embedded in its surface and the bases of the particles of attrition material entirely surrounded by the residue of a celluloid solution which has become united with the sheet.

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Witnesses:

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RUTH LOW.