C. RADCLIFFE.

METHOD OF JAPANNING SMALL ARTICLES.

No. 184,662. Patented Nov. 21, 1876.

Fig: 1.

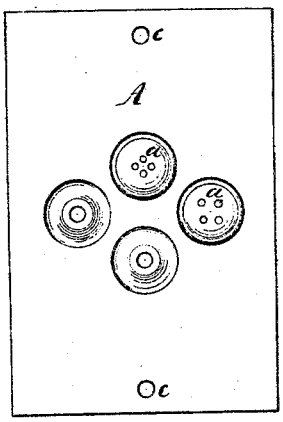


Fig: 2.

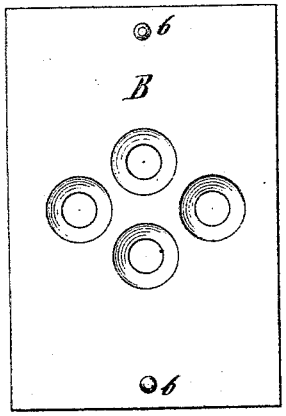


Fig: 3.

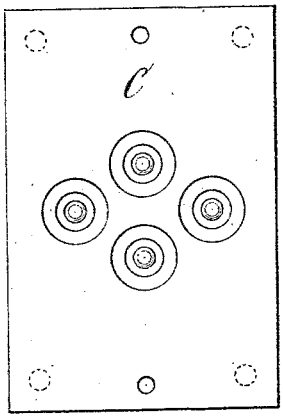


Fig: 4.

Fig: 5

Fig: 6.

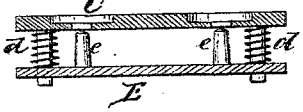


Fig: 10

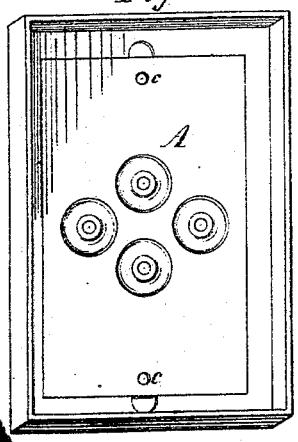


Fig: 7.

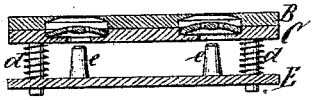


Fig: 8.

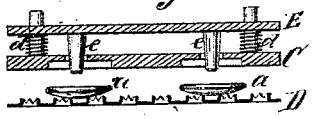
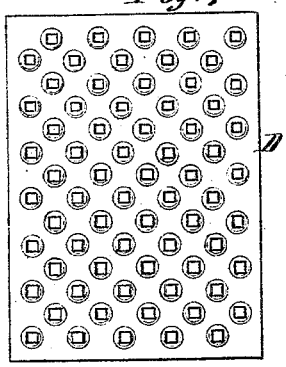


Fig: 9



Witnesses:

[illegible] McMahon.

[illegible] and Keaton.

Charles Radcliffe

Inventor.

UNITED STATES PATENT OFFICE.

CHARLES RADCLIFFE, OF NEWARK, NEW JERSEY, ASSIGNOR TO NEW JERSEY MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN METHODS OF JAPANNING SMALL ARTICLES.

Specification forming part of Letters Patent No. **184,662**, dated November 21, 1876; application filed May 8, 1876.

To all whom it may concern:

Be it known that I, CHARLES RADCLIFFE, of the city of Newark and State of New Jersey, have invented a new useful Improvement in Apparatus and Process for Japanning Small Articles, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to facilitate the smooth and proper coating of small articles with japan, and to facilitate the separation of said articles, so that the same can be japanned or baked without danger of their sticking together.

My invention is applicable to the japanning of large numbers of small articles which would require time and labor separately to handle; but I illustrate the same in its application to the japanning of metal buttons, from which illustration its applicability to the arrangement and japanning of other small articles of different configuration will be readily apparent.

In the drawings, Figure 1 is a top view of a plate for collecting the buttons. Fig. 2 is a view of a second plate, to which the buttons are transferred from plate A. Fig. 3 is a view of a third plate, to which the buttons are transferred from plate B, and with which is arranged a device for removing the buttons. Fig. 4 is a section showing plates A and B when placed together, with buttons in the cavities between them. Fig. 5 is a section of plate B, with the buttons lying in the depressions therein. Fig. 6 is a section showing plate C with a device for removing the buttons therefrom. Fig. 7 is a section showing the plates B and C, together with buttons in the cavities between the same. Fig. 8 is a section showing the operation of the device for removing the buttons from the depressions in plate C, and a section of a fourth plate, D, also shown in Fig. 9, having small points or projections therein, upon which the buttons rest. Fig. 10 is a view of the box or receptacle for holding plate A for the purpose of collecting and arranging the buttons.

My invention has been applied by me in the manufacture of suspender-buttons. These buttons are wholly or in part of metal, and the process heretofore employed in japanning them has been either to dip or immerse them in japan in a vessel from which the japan is afterward strained off, and the buttons picked apart, or to place them in revolving cylinders, into which the japan is sprinkled while the buttons are kept in motion; or to rotate them in a cylinder or rattler over the fire after the japan is applied until they are sufficiently dry not to stick together, or other similar methods. These operations involve considerable time and labor.

The object of my invention is to obviate the necessity of these methods.

I proceed to describe my invention as applied by me to the japanning of said metal buttons. These buttons are circular, and have a depression in the center of their face on one side. I form a plate, A, preferably of brass, on the surface of which I produce a large number of depressions of the size of the buttons to be japanned. In the drawings I have represented four depressions; but in practice I make as many of these depressions as possible on the surface of this plate, leaving a small space between each one—say, about one-quarter of an inch. These depressions are made with a slight elevation in their center. In order to fill this plate with buttons I usually place the plate in the bottom of a box, Fig. 10, adapted to receive it, and, pouring in a quantity of buttons, sweep or slide the same over the surface of the plate backward and forward, by which means the depressions in the plate will be almost immediately filled with buttons; and, owing to the fact that each depression has a slight protuberance in the center corresponding to the depression in the face of the button, all the buttons will be arranged on the plate with the same side downward. This arrangement of the buttons with the same side downward I adopt for convenience, though it is not a necessary part of my invention. When the depressions on said plate A are filled with buttons, as shown in Fig. 1 at *a a*, I place a corresponding plate, B, having depressions in locations corresponding precisely with the depression in the first plate over the top of said plate A. Said two plates may be caused to

register by pins in one or the other of them, as at *b b*, fitting into recesses or sockets in the other plate, as at *c c*.

By turning the two plates thus placed together over, as shown in section, Fig. 4, the buttons are caused to be arranged in the second plate with the other side upward. A brush filled with japan is then passed over the surface of said buttons as they lie in the depressions in the plate B, and they are thus coated with japan upon one side. I now place a third plate, C, of the same size, and having depressions in locations corresponding precisely with the depressions in the first and second plates, over the plate B, and turning the two plates over, as shown in section in Fig. 7, the buttons will be arranged in the depressions in the plate C with their unjapanned sides uppermost. With a japanning-brush I then coat the other sides of said buttons with japan, as before. The depressions in plate C are made with holes in their center, passing entirely through the plate. In the rear of the plate C I arrange a plate, E, of similar size. This plate is arranged to move on bearings, so that it may approach or recede from the plate C. The plate E is kept at a short distance from the rear surface of the plate C by springs, as shown at *d d*. On the surface of the plate E, toward the rear of the plate C, I arrange pins *e e*, corresponding in location to the holes in the depressions in the plate C. By pressing the plate E on its bearings toward plate C, the pins *e e* will be caused to enter the holes in the depressions in the plate C. When the buttons have been coated, as aforesaid, on both sides, I place over the upper surface of the plate C a plate, D, (shown in section at Fig. 8;) then, by turning the two plates C and D over, and pressing the plate E towards C, so that the pins will enter the holes in the depressions, the buttons will be pushed out of the depressions onto the plate D, when they will lie separated from each other at distances regulated by the depressions in the first plate in which they were collected. The plate D has its surface preferably covered with small points or projections, which may be readily made by punching small holes through the surface of the same, or in any other suitable manner, the result of which is that the said buttons, being coated with fresh japan, will rest only on the small projecting points of the plate D, and will thus avoid being marked or defaced by contact with the plate. The buttons so arranged upon the plate D will be separated from each other, and can then be carried and placed in the japanning-oven to be baked.

I have described the use of three separate plates, A, B, and C, but two plates only may be used, if desired, for the japanning of both sides of the articles; or, in case only one side is to be japanned, one plate only may be used. I have, however, in practice found it desirable to use three plates, so that the first plate A may be kept clean for the purpose of collecting the buttons, in the first place, the plates B and C, or one of them, being subsequently used for the purpose of holding the buttons while they are being coated with japan.

I have shown a particular form of device for removing the said buttons from the depressions in the plate C after they are coated with japan; but I do not limit myself to this form of device, as other known and existing devices may be used for this purpose, though I have found the arrangement shown and described desirable. The buttons may also be allowed to fall out of the depressions onto the plate D by their own gravity; but I prefer the use of a device to remove them, as they tend to stick by the japan.

The plates described by me may be used for collecting buttons or small articles for other purposes than above indicated, and when used for collecting or holding articles other than buttons the shape of the depressions therein will of course be correspondingly modified.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improvement in the art of japanning small articles, which consists in collecting said articles in one or more plates, substantially as above described, coating the same with japan while held in said plates, and depositing them and hardening them upon a baking or drying plate, substantially as specified.

2. The improvement in the art of japanning small articles preparatory to baking them, which consists in the process of coating one side of said articles while the same are held in a plate, B, and removing said articles to a second plate, C, which registers with the first, and then coating the opposite side of said articles.

CHARLES RADCLIFFE.

Witnesses:
JAMES MCMAHON,
EDWARD HEATON.