

No. 667,589.

Patented Feb. 5, 1901.

W. F. SILVERMAN.

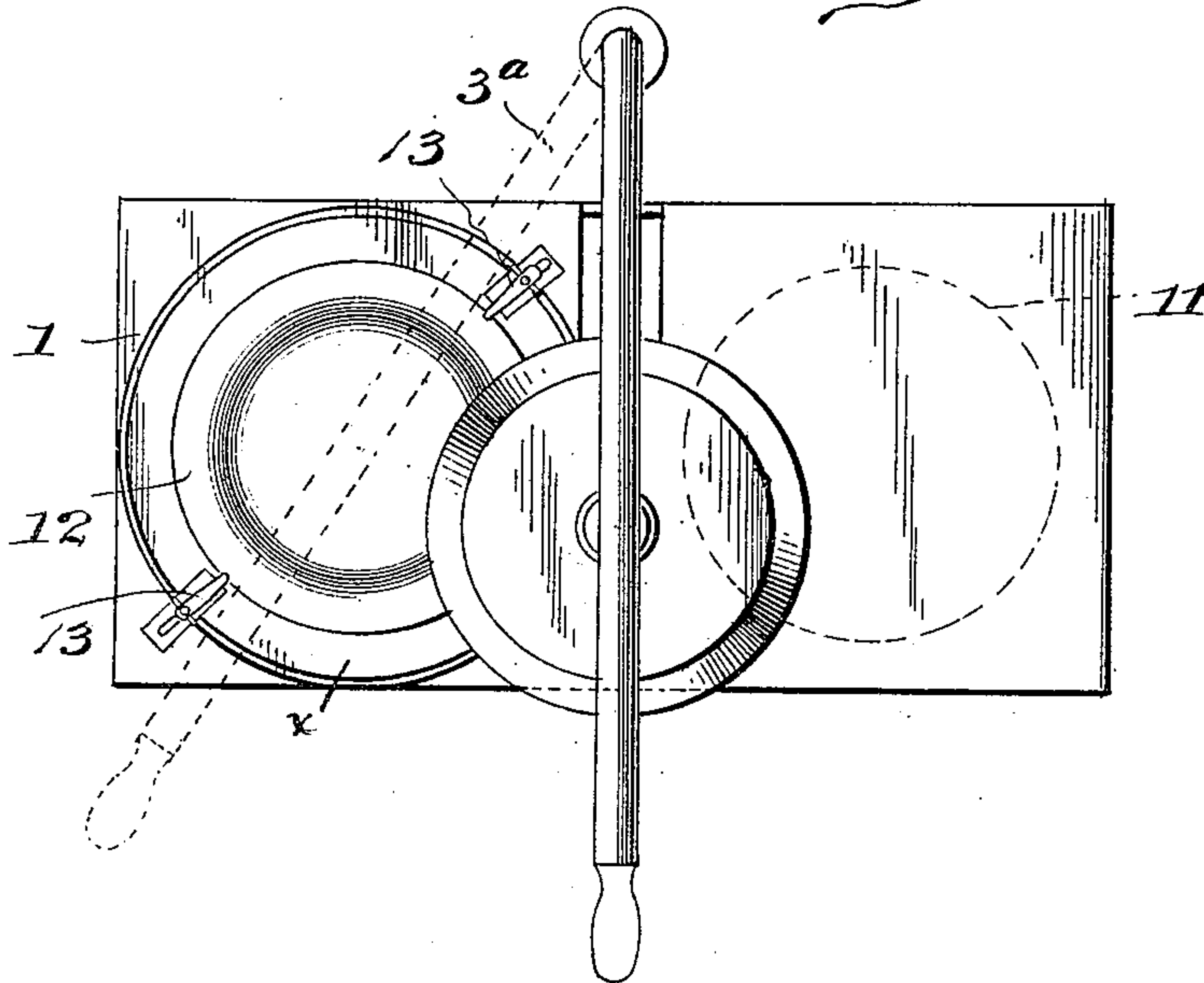
DEVICE FOR DECORATING ON EARTHENWARE, CHINA, OR GLASS.

(Application filed Mar. 24, 1900.)

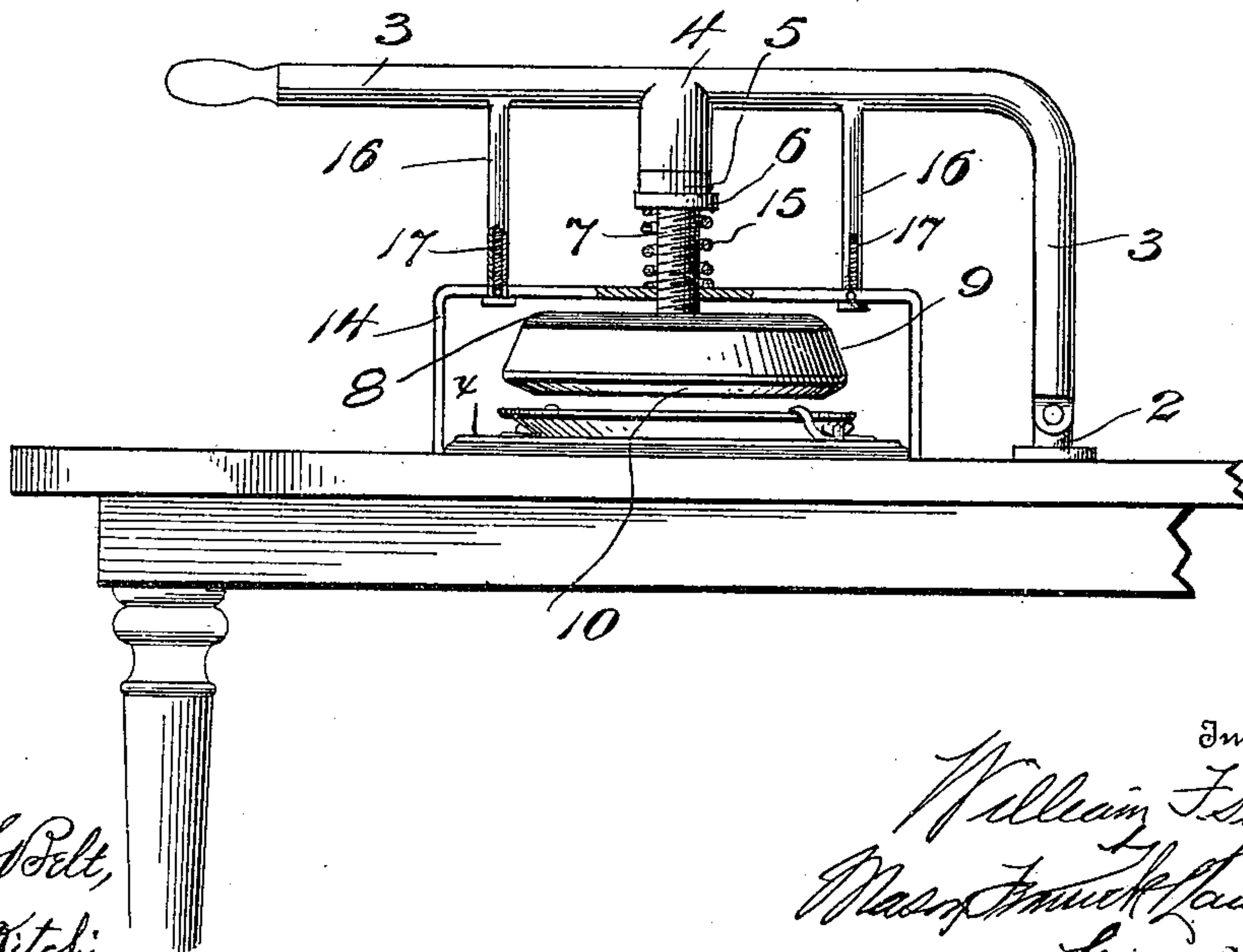
(No Model.)

2 Sheets—Sheet 1.

*Fig. 1.*



*Fig. 2.*



Witnesses  
*Fenton S. Delt,*  
*Edgar M. Kitchin*

Inventor  
*William F. Silverman*  
*Mary Ann Lawrence*  
*his* Attorney

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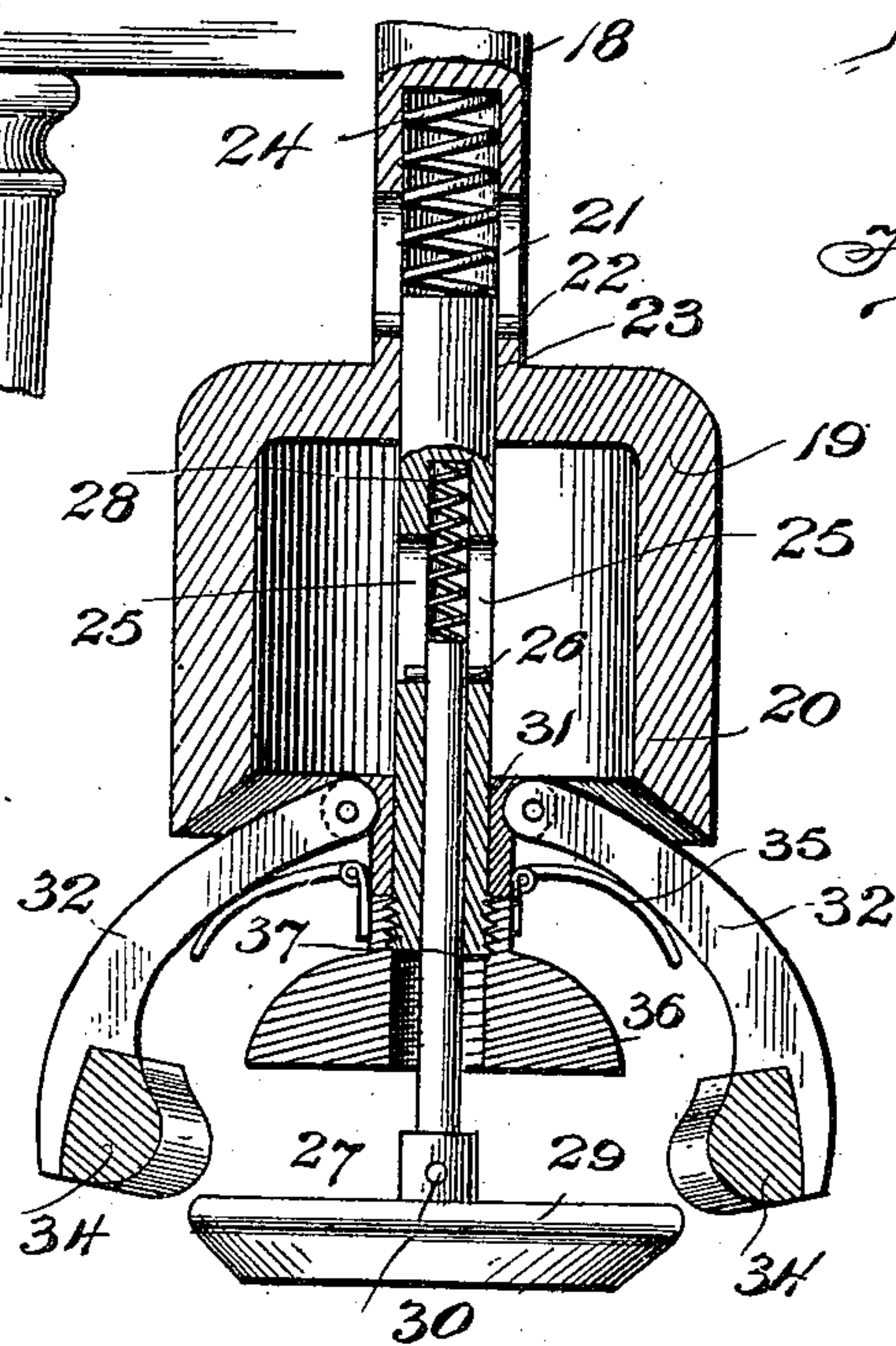
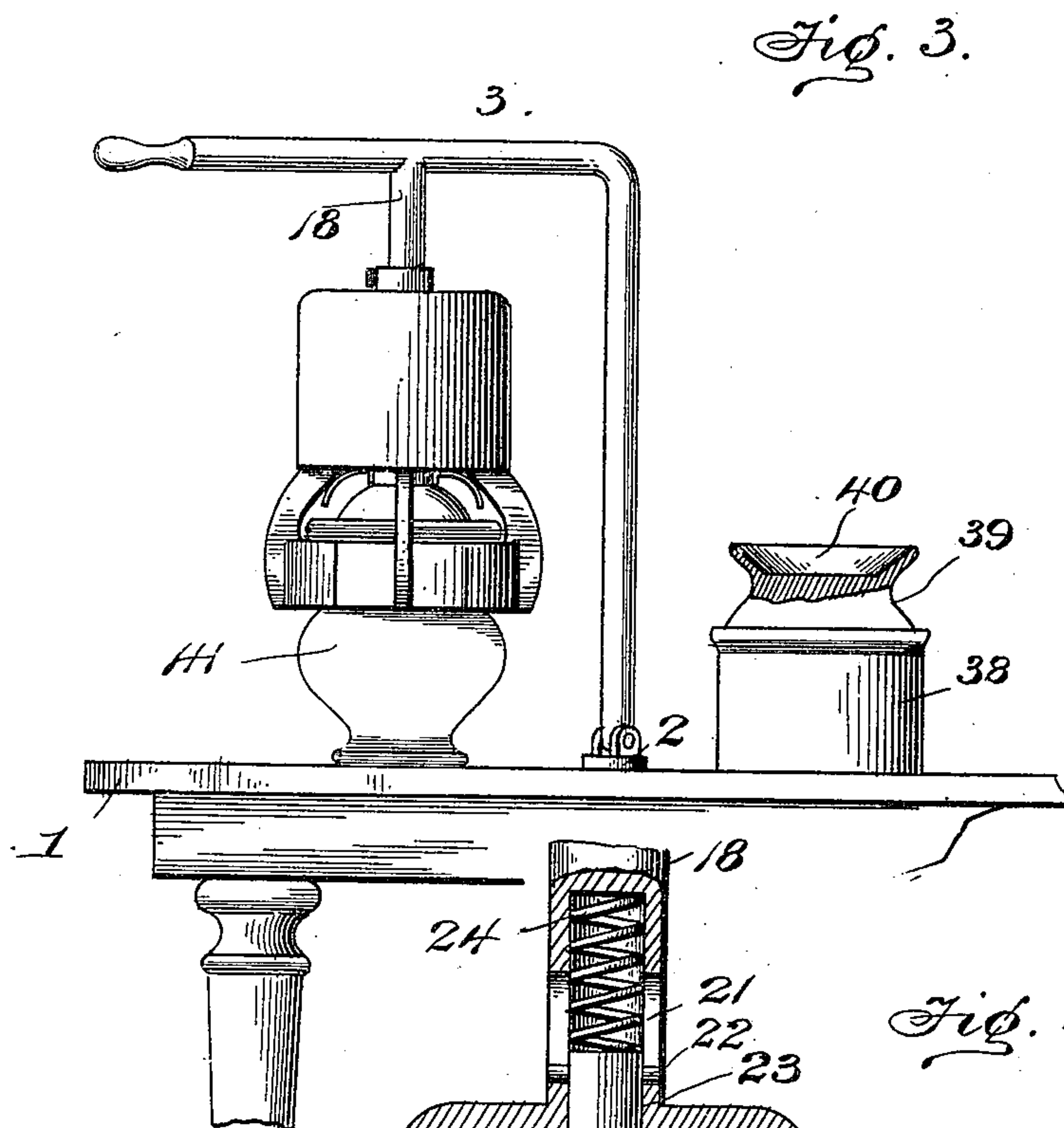
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2 Sheets—Sheet 2.



Witnesses

*Ernest A. Bell,*  
*Geo. P. Kingsbury*

Inventor

*William F. Silverman*  
by  
*Wm. Frank Hamme*  
Attorneys



# UNITED STATES PATENT OFFICE.

WILLIAM F. SILVERMAN, OF EAST LIVERPOOL, OHIO, ASSIGNOR OF ONE-HALF TO ALBERT W. CORNS, OF SAME PLACE.

## DEVICE FOR DECORATING ON EARTHENWARE, CHINA, OR GLASS.

SPECIFICATION forming part of Letters Patent No. 667,589, dated February 5, 1901.

Application filed March 24, 1900. Serial No. 10,037. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. SILVERMAN, a citizen of the United States, residing at East Liverpool, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Devices for Decorating on Earthenware, China, or Glass; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to decorating articles such as plates, saucers, cups, jugs, &c., of earthenware, chinaware, or glass.

The object of the invention is to provide improved means whereby such articles may be decorated in liquid bright gold, gold luster, burnished gold, or any mineral colors direct from a design without the use of brush or pencil.

With this object in view the invention consists in the improved construction, arrangement, and combination of parts of a device or machine for accomplishing these results, which will be hereinafter fully described, and afterward specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a device constructed in accordance with this invention for decorating flat or nearly flat articles, such as plates, saucers, tiles, &c. Fig. 2 is a side elevation thereof, part of the table being broken away. Fig. 3 is a view in side elevation, with parts broken away, of a device or machine for decorating articles, such as cups, jugs, vases, &c., on the outside thereof. Fig. 4 is an enlarged detail view, partly in vertical section and partly in elevation, illustrating the dies and their operative mechanism.

Corresponding parts in the figures will be indicated by the same reference characters.

Referring to the drawings 1 indicates a table, bench, or other support for the device, which support may be of any suitable construction or material.

2 indicates a pin vertically swiveled in the support 1, to which is horizontally pivoted a lever 3. Depending from the lever is a thick bar provided with an end cushion 5.

6 indicates the flat head of a bolt or rod 7,

upon which is threaded at its lower end a back or disk 8, of any suitable rigid material, such as wood or metal. Secured to the disk or back 8 is a block 9, of printers' composition or any other suitable flexible or elastic material, which forms the body of the die and upon the lower surface of which is secured or formed the design or ornamentation to be placed upon the article to be decorated.

The dotted lines at 11 in Fig. 1 indicate the location of the tile, plate, or pad upon which the decorating material is to be spread, and 12 is a plate or other similar article held in position upon the support 1 by suitable clamps 13. These clamps are so arranged as to secure articles of different sizes in position to receive the impression of the die when the lever 3 is moved around to the position indicated by the dotted lines 3<sup>a</sup> in Fig. 1. It will be understood that the impression-surface of the die 9, besides containing the design or ornamentation to be transferred to the article to be decorated, will be shaped to conform to the surface upon which the impression is to be made.

14 indicates a guide-frame composed of vertical arms and a connecting horizontal arm, the latter being perforated or provided with a central opening through which the bolt or rod 7 is passed before the disk 8 is threaded thereon, and a spring 15 coiled around the rod or bolt 7 serves to normally force the guide-frame 14 away from the head 6, so that in bringing the die down upon the article to be decorated the frame 14 being in sliding contact with the support or table will be guided by the edge of the auxiliary base or support *x* and center the die with the article to be decorated. The frame 14 is supported yieldingly upon and near the lower ends of hollow arms 16, which depend from the lever 3, said arms passing through openings in the frame 14 and containing springs 17, which have a normal tendency to force the frame into the position farthest removed from the lever 3.

In the operation of the device as thus far described, the decorating materials being spread upon the tile or plate, as before set forth, the lever 3 is swung around to bring the die 9 over the plate or pad, the lever mov-



ing during this motion upon the swiveled pin 2. The lever is now brought downward, bringing the die into contact with the tile or pad, which may be flat or of the same contour as the article to be decorated, when a sufficient quantity of the decorating material will be supplied to the printing-surface 10. The lever is now raised on its horizontal pivot until the die clears the pad and is swung around to the position shown in dotted lines 3<sup>a</sup> in Fig. 1 and in full lines in Fig. 2 over the plate or other article 12. The last movement is to press the lever down, bringing the die or printing-surface into contact with the article 12 to be decorated. By reason of the corresponding shape of the die and the article to be decorated, and, further, by reason of the fact that the main body of the die is made of yielding material downward pressure upon the die will cause its surface to contact with every portion of the article to be decorated, thus leaving the impression upon the article.

In Figs. 3 and 4 I have illustrated a further development of my invention for the purpose of decorating the outside of such articles as vases, cups, jugs, &c., and in these figures the support 1, swivel-pin 2, and lever 3 are of the same construction as in Figs. 1 and 2. In this instance, however, the depending arm of the other construction is replaced by a hollow depending arm 18, to which is secured or it may be formed integral an inverted cup or open-ended cylinder 19, the lower edges of which are inclined downwardly and outwardly, as at 20. Slots 21 are formed in the sides of the arm 18, in which are seated the ends of a pin 22, secured in a vertically-movable stem 23 in the hollow arm 18, the stem 23 being normally held in its outer position by means of a spring 24. The stem 23 is also hollow for the greater portion of its length, and is provided with slots 25, in which are seated the ends of a pin 26, projected through the upper end of a rod 27, which is held normally in its outer position by a spring 28. 29 indicates a centering disk or guide secured by a pin 30 upon the lower end of the rod 27. 31 indicates a sleeve mounted on the stem 23 and carrying pivoted arms 32, which are provided on the inner faces of their outer ends with dies 34, formed of yielding or elastic material and shaped on their faces to correspond with the outer shape of the article to be decorated. These arms are normally held in their extended position by springs 35. 36 indicates a head or disk threaded upon the lower end of the stem 23, the upper face of which is beveled or curved, as shown at 37. 38 indicates the pad upon which the decorating material is to be placed, the surface to be supplied with such material, as at 39, being shaped to correspond with the faces of the dies 34. The upper surface of the pad 38 may be hollowed out, as shown at 40, to receive the centering-head 29.

In operation the lever 3 is turned upon the swivel 2 to bring the die over the pad 38.

When the lever is brought down, the centering-head 30 will enter the hollow 40 in the pad 38 and serve as a solid support against which to press. As the lever is brought down, carrying the cup 19 with it, the lower inclined edge 20 of said cup will force the arms 32 inward until the faces of the dies 34 come in contact with and receive a supply of the decorating material from the part 39 of the pad. The lever is now raised, carrying the cup 19 with it and permitting the springs 35 to force the arms 32 to their outer positions, in which the dies are spread far enough apart to permit them to be brought down over the vase, cup, or jar 41 without the dies coming in contact therewith. The lever having been carried around into its position above the article to be decorated, the centering-head 30 will enter the upper end of the article and by pressing the lever and cup 19 downward the inclined lower edges 20 of the cup will force the levers 32 inward, bringing the dies, with the decorating material thereon, into contact with the irregular surface which is to be decorated, the yielding material of the die being pressed in the latter part of the stroke in order to insure perfect contact with all of the parts. The raising of the lever will permit the springs 35 to spread the arms 32 apart and carry the dies away from the surface of the decorated article before the centering-head 30 is lifted from its position, so that there will be no danger of smearing the decorating material.

By means of the constructions described I am enabled to transfer decorating material of the colors mentioned to various shapes and forms of articles without the necessity of employing artists to apply the decorating material with the brush or pencil, thus greatly economizing in the manufacture of earthenware, chinaware, and glass.

I am aware that it is not new to construct a flat die for printing on a curved surface, such as a lamp-globe, said die having a yielding back or body portion and an attached printing-face of cloth or similar material, and I make no claim to such construction. The objection to this construction is that sufficient pressure must be exerted to cause the entire face of the flat die to contact with the curved surface to be printed, and in order to accomplish this the central portion of the flat die coming in contact with the curved surface first and the outer edges of the die coming in contact with the curved surface later will cause the pressure to be unevenly exerted and the decorated material to be unevenly distributed and the impression not uniform throughout. With my construction the die is adapted to bring every part of the printing-surface of the same simultaneously into direct contact with the surface to be decorated and with uniform and even pressure throughout.

I am also aware that it is not new to provide a curved die having a preferably hollow



head adapted for printing on lamp-chimneys; but in said construction the head is not of a yielding material, such as printers' composition and the like, and the curved surface shown is not adapted to print upon irregular or undulating surfaces, such as is contemplated by my invention. With my construction and arrangement I am enabled to print directly and simultaneously upon irregular or undulating surfaces with even and uniform pressure throughout and transfer a perfect design on all parts of the surface with which the die comes in contact.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. Means for decorating irregular or undulating surfaces of earthenware, china, glass, &c., comprising a movable head carrying a die, the body of which is composed of solid flexible material, such as printers' composition, and having a printing-face secured thereto and provided with the ornamental design to be transferred, said printing-face having an irregular or undulating surface and permanently shaped to fit upon the irregular surface to be decorated, the die being arranged to bring every part of the printing-surface simultaneously into direct contact with the surface to be decorated with a uniform and even pressure throughout, and means for holding stationary an article to be decorated, substantially as described.

2. Means for decorating earthenware, china and glass, comprising a suitable table or support, clamps for securing the article to be decorated upon the table, a plate or pad upon the support for containing the decorating ma-

terial, a pivoted lever, a die depending from said lever, and means also depending from the lever for centering the die while descending upon the article to be decorated, substantially as described.

3. Means for decorating earthenware, china or glass, comprising a suitable table or support, clamps for securing the article to be decorated, upon the table, a plate or pad upon the support for containing the decorating material, a lever pivoted to the support, a die depending from said lever, and a centering device projecting yieldingly beyond the face of the die, substantially as described.

4. Means for decorating earthenware, china or glass, comprising a suitable table or support, clamps for securing the article to be decorated, upon the table, a plate or pad upon the support for containing the decorating material, said pad having a surface substantially the shape of that part of the article to be decorated, a lever pivoted to the support, carrying a centering device and a plurality of pivoted levers provided with printing-dies and means for automatically bringing the printing-dies in contact with the pad containing the decorating material or with the article to be decorated as the lever is depressed, whereby all of the dies may be inked simultaneously and different portions of the article may be decorated simultaneously, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

WILLIAM F. SILVERMAN.

Witnesses:

ELIJAH W. HILL,  
CHESTER C. HILL.