May 30, 1944. H. C. HEBENSTREIT 2,350,033

STAMP FOR DECORATING NONPLANAR SURFACES

Filed Nov. 29, 1941 3 Sheets-Sheet 1

Fig. 1

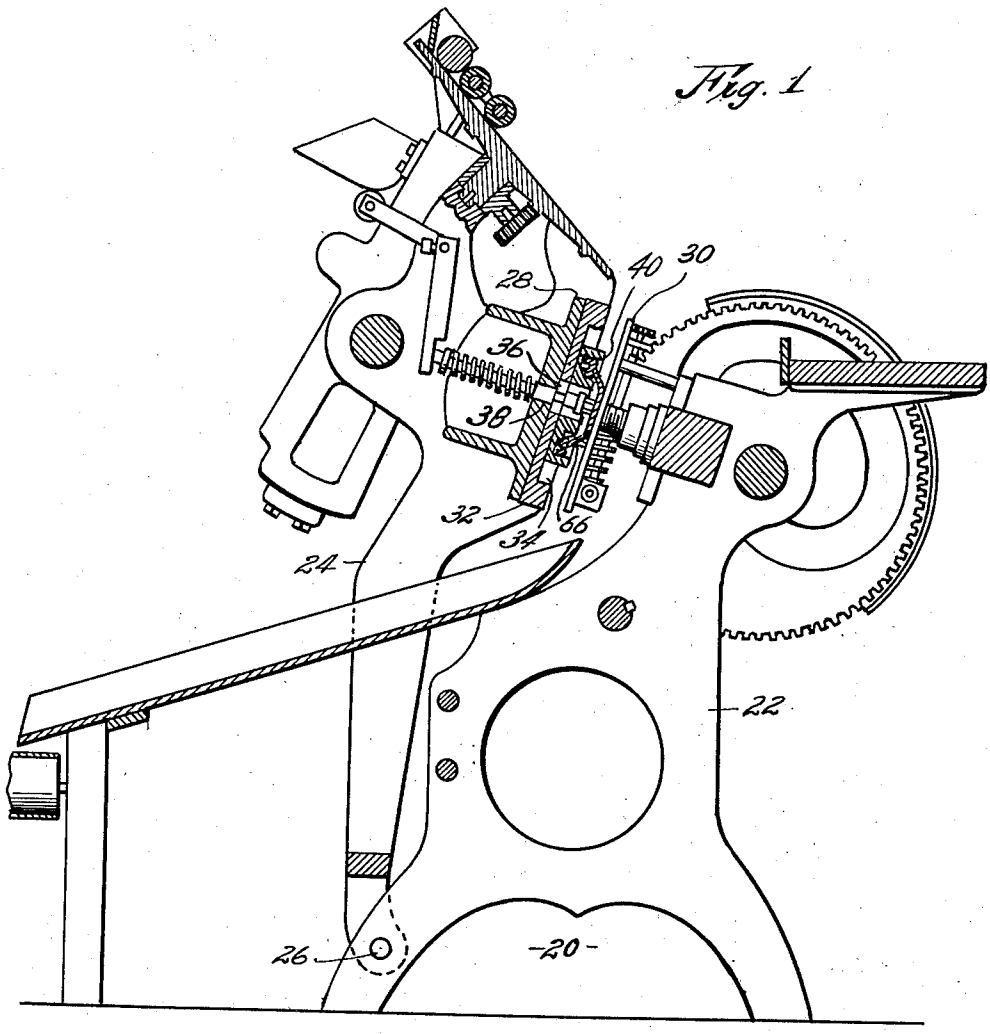
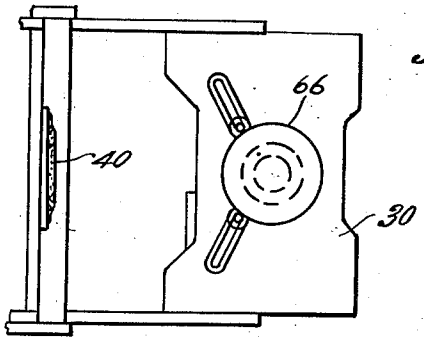


Fig. 2



INVENTOR,
Harry C. Hebenstreit.
BY
Roy E. Hamilton,
ATTORNEY.

May 30, 1944. H. C. HEBENSTREIT 2,350,033

STAMP FOR DECORATING NONPLANAR SURFACES

Filed Nov. 29, 1941 3 Sheets-Sheet 2

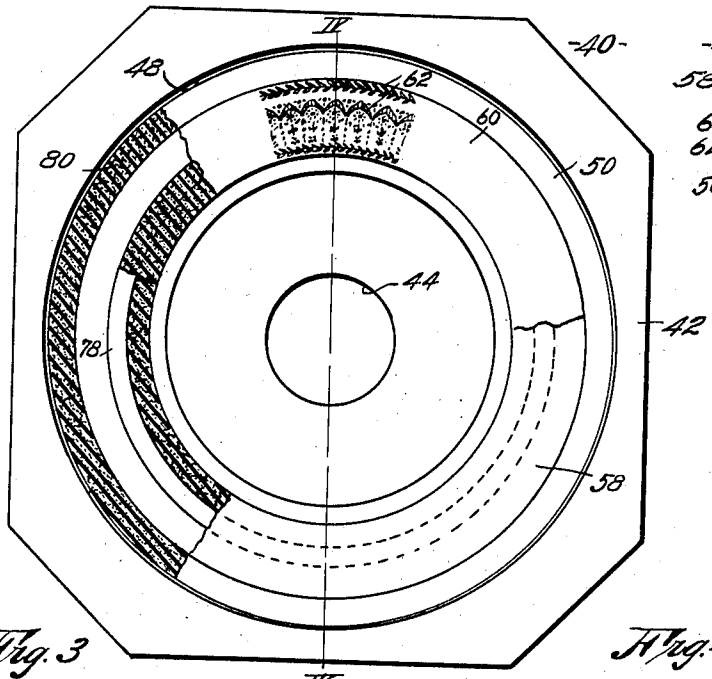


Fig. 3

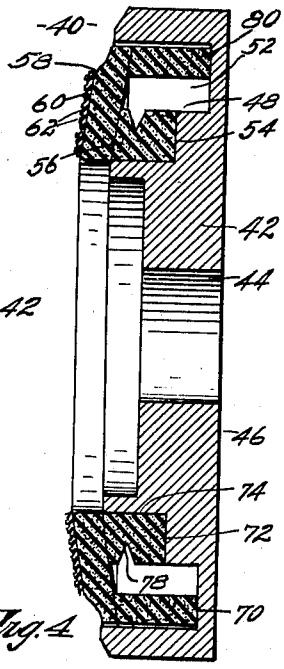


Fig. 4

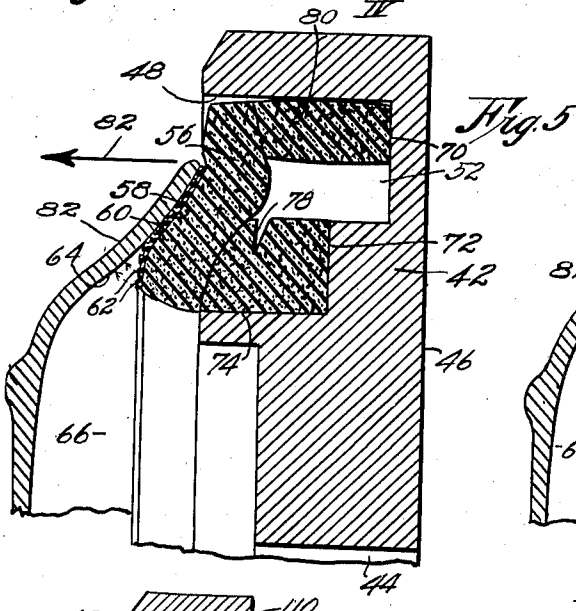


Fig. 5

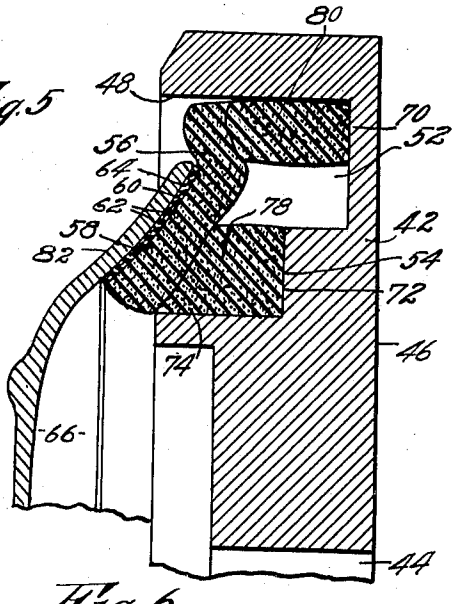


Fig. 6

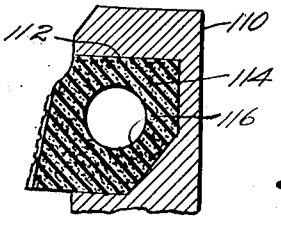


Fig. 11

INVENTOR,
Harry C. Hebenstreit.
BY
Roy E. Hamilton,
ATTORNEY.

May 30, 1944. H. C. HEBENSTREIT 2,350,033

STAMP FOR DECORATING NONPLANAR SURFACES

Filed Nov. 29, 1941 3 Sheets-Sheet 3

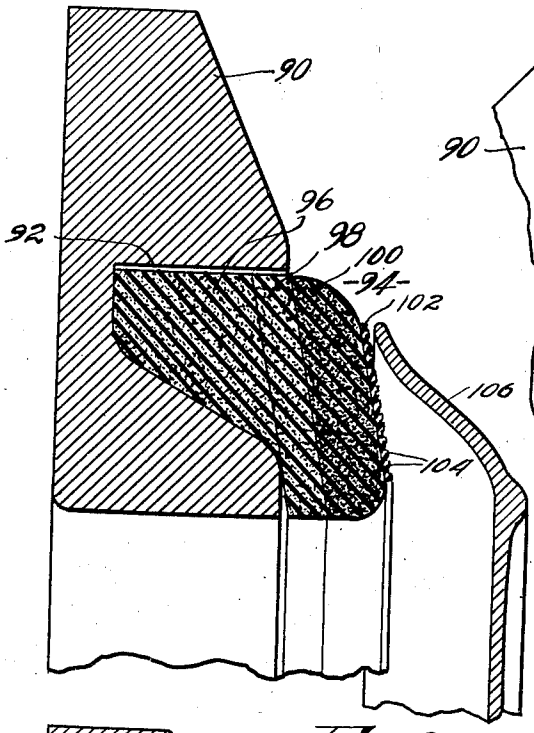


Fig. 8

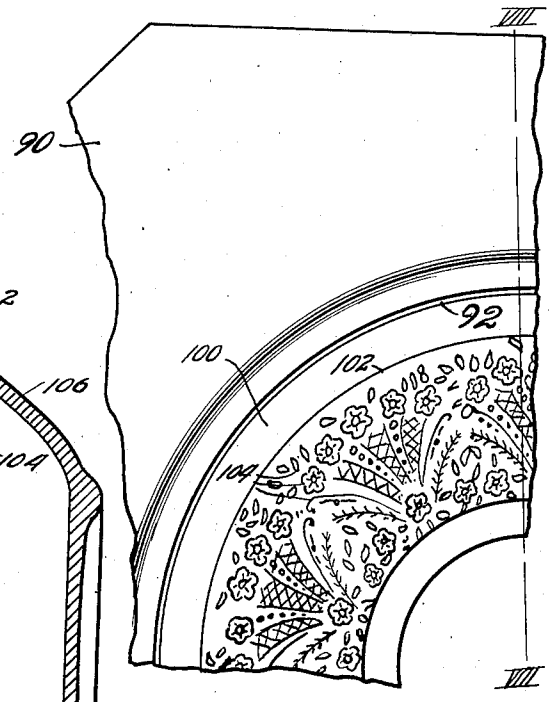


Fig. 7

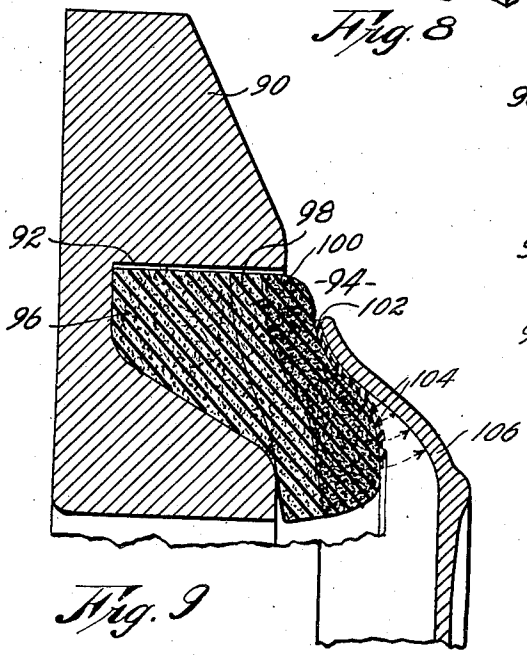


Fig. 9

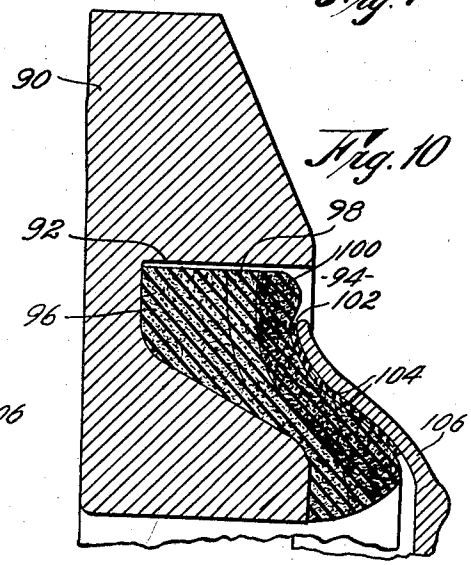


Fig. 10

INVENTOR,
Harry C. Hebenstreit.
BY
Roy E. Hamilton,
ATTORNEY.

Patented May 30, 1944

2,350,033

UNITED STATES PATENT OFFICE

2,350,033

STAMP FOR DECORATING NONPLANAR SURFACES

Harry C. Hebenstreit, Alliance, Ohio

Application November 29, 1941, Serial No. 420,946

8 Claims. (Cl. 101—379)

This invention relates to improvements in stamps for and a method of decorating non-planar surfaces and has particular reference to stamp and method suitable for decorating various types of dish-ware.

The principal object of the present invention is the provision of a method of decorating the inner non-planar surfaces of relative deep dish-ware by first contacting the outer portion of the dish surface to be decorated with a resilient stamp and then forcing this stamp inwardly against the surface whereby it is compressed and distorted so as to meet the inclined surface of the dish at substantially right angles.

Another object of this invention is the provision of a method of decorating non-planar surfaces of dish-ware wherein the outer portion of the surface of the dish to be decorated is first contacted by a resilient stamp and then the inner portion of said surface is decorated by rolling the inner portion of the stamp thereagainst under tension.

Still another object of the invention is the provision of a stamp for decorating non-planar surfaces having a printing face disposed at a greater angle to the direction of travel of the stamp than the angle of the non-planar surface to be decorated is to said direction of travel.

A further object of the invention is the provision of stamp for decorating non-planar surfaces comprising a base member of relatively rigid structure and a cushion member secured therein and provided with material of greater thickness at the portions where greater depressions of the cushion member are to be made.

A still further object is the provision of a stamp constructed with graduated thickness of cushioning sections whereby the outer surfaces of deep dishes may be first printed then the printing face of the stamp may be rolled into position to properly contact the more inclined surfaces of the dish.

Another object of this invention is the provision of a resilient stamp so constructed that it will successively contact the portions of the non-planar dish surface to be decorated with a substantially equal pressure against all portions of the dish surface at the completion of the impression stroke of the stamp.

Other objects are durability and simplicity of construction, ease and accuracy of operation and adaptability for use in decorating the various types of non-planar surfaces.

With these objects as well as others which will appear during the course of the specification, in view, reference will now be had to the drawings wherein:

Figure 1 is a vertical section of a printing press (of the Gordon type) suitable for carrying out the method of decorating non-planar surfaces, and embodying the novel stamp of this invention.

Fig. 2 is a fragmentary plan view of a portion of the press.

Fig. 3 is a plan view of the stamp with parts broken away to disclose the various features.

Fig. 4 is a cross sectional view taken on line IV—IV of Fig. 3.

Fig. 5 is an enlarged sectional view of a portion of the stamp with the dish positioned in the partially contacting position.

Fig. 6 is a view similar to that shown in Fig. 5 with the stamp completely contacting the non-planar surface of the dish to be decorated.

Fig. 7 is a fragmentary plan view of a modified form of the stamp.

Fig. 8 is a cross sectional view taken on line VIII—VIII of Fig. 7 with a dish segment in operative relation relative thereto.

Fig. 9 is a view similar to that shown in Fig. 8 with the outer peripheral portion of the stamp contacting a portion of the non-planar surface of the dish to be decorated.

Fig. 10 shows the stamp and dish in complete contacting relation.

Fig. 11 is a fragmentary view of a stamp member wherein the resilient stamp member is shown hollow.

Throughout the several views like reference characters refer to similar parts and the numeral 20 designates a sectional view of a printing press (of the Gordon type) with certain alterations and additions as indicated in my co-pending application, Serial Number 363,832 now patented, No. 2,335,840 dated November 30, 1943.

This press includes a stationary frame 22 to which is pivotally mounted a bed frame 24 by means of pins 26. The bed frame 24 carries a bed plate 28 which is adapted to be oscillated toward and from the platen or impression control table 30 which is adjustably carried by the stationary frame 22. The bed plate 28 carries a printing form 32 which is securely mounted thereon. This printing form includes a chase 34 mounted on the press bed 28 and having a central opening 36 formed through bed plate 28.

The stamp 40 best shown in Figs. 3 and 4, is provided with a block 42, having a central opening 44, or it may be made plane in some instances. The back side 46 of the block 42 is made

planar and can be adjustably mounted against the planar face of bed plate 26. The front or top portion of block 42 is grooved at 48 to form an annular recess or groove in the face of the block for the reception of a resilient cushion member 56.

Since this particular stamp is constructed to be used in decorating non-planar surfaces of relative deep, circular dish-ware the groove 48 is circular in form, however it might be made elliptical or of more or less irregular form to properly conform to dishes of various shapes. It will be noted that this groove is stepped and that the outer portion 52 is of greater depth than the inner portion 54.

A substantially U-shaped cushion member 56 is adapted to be fitted into groove 48 with its outer portion extending above the top surface of block 42 to present a non-planar surface 58 to receive the thin sheet of resilient material 60 formed to present a printing design 62. Surface 58 is substantially frusto-conical in shape and is made of a less degree of inclination than the degree of inclination of the surface 64 of the dish 66 to be decorated. This cushion member 56 can be built-up by using several pieces of sheet sponge-rubber, or some similar material, or may be formed from a single piece of rubber to present the proper shape.

The sheet rubber member 60 having the design 62 formed on its outer surface presents a relief printing face and is made of a close grain rubber suitable for presenting a smooth printing surface and retains its original normal shape for a long period of time.

A suitable adhesive is used to secure the cushion member 56 to the block 42 to prevent its displacement and to permit of proper compression during the printing operation. In the structure shown in Fig. 4 the cushion member is secured at surfaces 70, 72, and 74. To facilitate proper compression of the cushion to obtain the best printing effect the outer wall of the inner leg 76 of the cushion member is V-grooved at 78. The outer leg 80 of the cushion member is secured, only at edge 70, thus permitting it to be comprised to any desired degree.

This stamp is suited for use in decorating deep dish-ware wherein the non-planar surface to be decorated is at a considerable angle to the direction of travel of the stamp relative to the dish during the decorating operation. The fragment of dish 66 shown in Figs. 5 and 6, is a soup dish in which the surface 64 to be decorated is disposed at a relative steep angle to the direction of travel of the stamp indicated by arrow 82.

In the decorating operation the outer peripheral portion of the inked stamp design first contacts the outer rim portion of the dish surface to be decorated. The cushion portion beneath this outer decorating portion of the stamp is gradually compressed as the stamp moves toward the dish thereby setting up sufficient pressure between the dish and stamp to prevent creeping of the stamp on the dish surface. Due to the special properties of the cushion member, the design sheet and the angled relation of the dish surface to the normal position of the stamp printing surface there will be a rolling effect of the stamp printing surface as the decorating operation progresses. It will be observed that the inner periphery of the design sheet 68 moves outwardly as the decorating operation progresses thus causing an increase in the inner diameter of the design sheet.

This slight stretching of the design sheet maintains the design in proper taut form for each operation and with a proper cushion backing will produce a proper contacting pressure against the non-planar dish surface. A cushion member made of materials of different resiliencies may be used to obtain proper pressures of the stamp against the various parts of the dish surface. By using cushion materials of different resiliencies, it is apparent that the shape of the groove in the block 42 will need to be varied to suit the particular cushion.

The rolling movement of the stamp member is shown in Figs. 4, 5 and 6. In Fig. 4 the stamp is in the normal position, Fig. 5 discloses the stamp moved to a partially contacting position and Fig. 6 shows the completed stamping movement. As the stamp is retracted the reverse rolling action is obtained. This rolling action to and from the decorating position produces a movement of the design surface, at substantially right angles to the particular surface to be decorated, thereby insuring a clean-cut impression on the dish surface without any dragging or slipping of the stamp on the dish surface. The distribution of the cushion resilient resistance can be varied to suit the surface of the dish surface to be decorated.

When decorating the outer surface 82 of a dish it is quite evident that the same general method might be used by simply making the printing surface of the stamp concave instead of convex as shown.

The modified form of stamp shown in Figs. 7, 8, 9 and 10 contemplates the rigid block 90 grooved at 92 to receive the cushion member 94 made up of sections 96, 98 and 100. Sections 96 and 98 may be of air foam rubber, and section 100 of a more dense sponge rubber, the outer sheet of rubber 102 is close grained and suitable for receiving the design 104. This stamp is suitable for decorating the small diameter deep dish 106, and may be used, with slight changes to decorate almost any of the various types of dishes.

Figs. 8, 9 and 10 show generally the actions of this stamp during the decorating operation.

Fig. 11 shows a further modified form of a stamp wherein the block 110 is grooved at 112 to receive the hollow cushion member 114, provided with an outer surface printing sheet 116. The recess 116 formed in the cushion may be varied in cross sectional shape and area to meet specific needs.

All printing surfaces of the various stamps are positioned above the outer surface of the supporting blocks so that the coloring material to be used in decorating the dish-ware may be spread thereover in the usual manner.

These types of stamps are suitable for decorating the non-planar surfaces of the various types of dishes, including shallow and deep, dishes of different diameter as dishes having abrupt verges, and dishes of various shapes.

Since many minor changes may be made in the stamp without departing from the spirit of the invention it is desired to be limited only by the scope of the appended claims.

I claim:

1. A stamp for decorating non-planar surfaces comprising a base member having a ring shaped recess formed therein, a resilient ring pad positioned with its outer edge portion in said recess and its inner edge portion resting on said base adjacent said recess and extending above said base member, and a relief design of substan-

tially frusto-conical form carried on the outer surface of said pad.

2. A stamp for decorating non-planar surfaces comprising a base member having a continuous groove formed in the top side thereof, a ring shaped resilient cushion member mounted in said groove and extending thereabove, an upwardly and inwardly inclined printing design carried on the outer surface of said pad.

3. A stamp for decorating non-planar surfaces comprising a base member having an annular groove formed in the top portion thereof and having an inclined inner wall, a resilient cushion member mounted in said groove and extended above the top surface of the base member to present a substantially frusto-conical surface, and a sheet of relatively firm resilient material having a relief design, secured to said frusto-conical surface.

4. A stamp for decorating non-planar surfaces comprising a base member having a transversely stepped annular groove formed in the top portion thereof, a cushion member formed to fit into said stepped annular groove with a portion of the cushion member extending thereabove to rest on the base member adjacent said groove and to present a non-planar surface above said base member, and a thin sheet of resilient material formed to present a relief design mounted on the outer surface of said pad.

5. A stamp for decorating non-planar surfaces comprising a base member having a transversely stepped annular groove formed in the top portion thereof, a hollow rubber cushion member formed to fit into said stepped annular groove with a portion of the cushion member extending thereabove to present a non-planar surface, and a relatively thin sheet of resilient material formed to present a relief design mounted on the outer surface of said pad.

6. A stamp for decorating non-planar surfaces comprising a base member having a transversely stepped annular groove formed in its top portion, a rubber ring member adapted to be fitted into said stepped groove with its outer portion extending thereabove to present a substantially frusto-conical surface, and a sheet of resilient material formed to present a relief printing design mounted on the outer surface of said pad.

7. A stamp for decorating non-planar surfaces comprising a base member having an annular groove formed in the outer face thereof an annular cushion member of substantially U-shaped cross-sectional area positioned with its legs in said annular groove and its leg connecting portion extending therebeyond to present a substantially frusto-conical surface, and a printing design carried by said frusto-conical surface.

8. A stamp for decorating non-planar surfaces comprising a base member having an annular groove formed in its outer surface, said groove being deeper at its outer periphery than at its inner periphery, a cushion member positioned into said groove and extending outwardly therefrom to present a substantially frusto-conical surface, the outer peripheral surface of said cushion member being free to move vertically in said groove and a printing design carried by said cushion member.

HARRY C. HEBENSTREIT.