

Nov. 30, 1943.

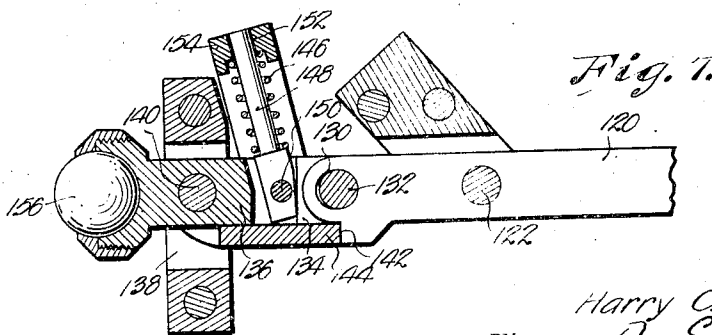
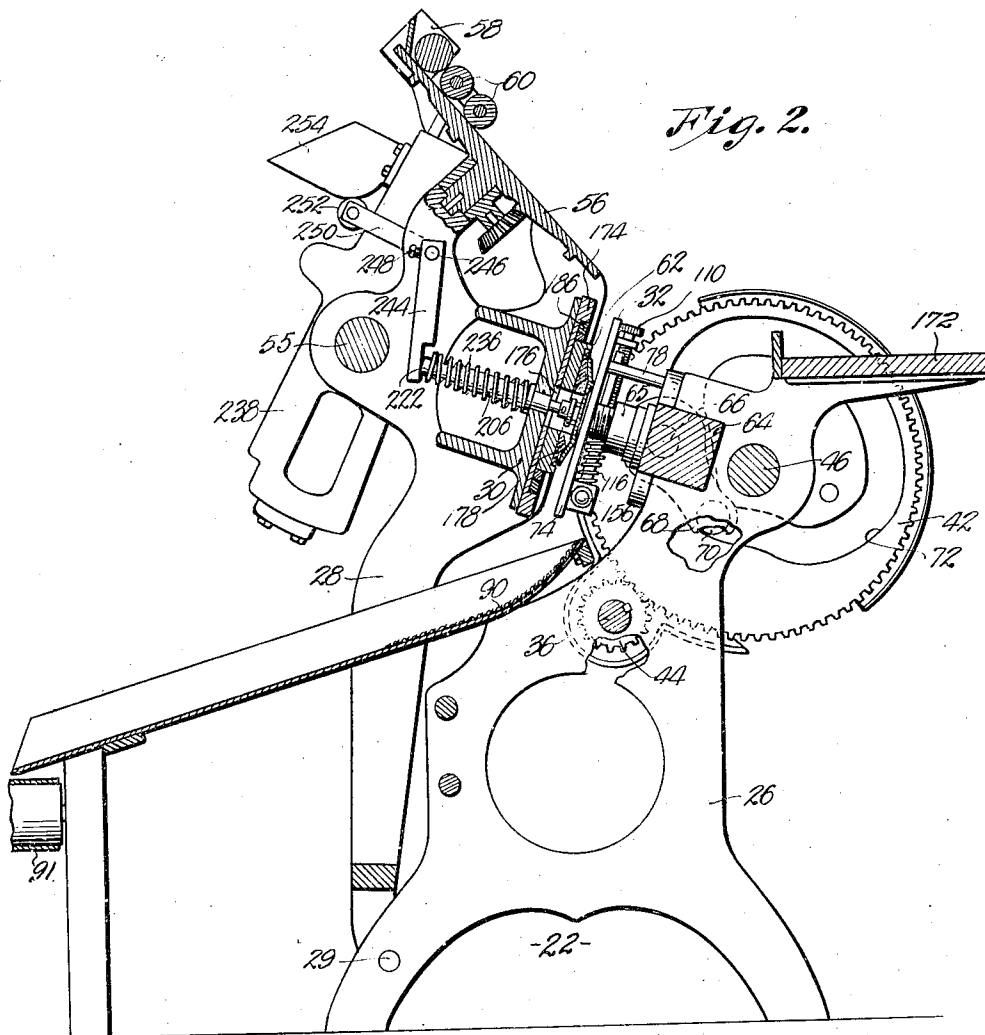
H. C. HEBENSTREIT

2,335,840

DECORATING PRESS

Filed Nov. 1, 1940

5 Sheets-Sheet 2



BY

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5 Sheets-Sheet 3

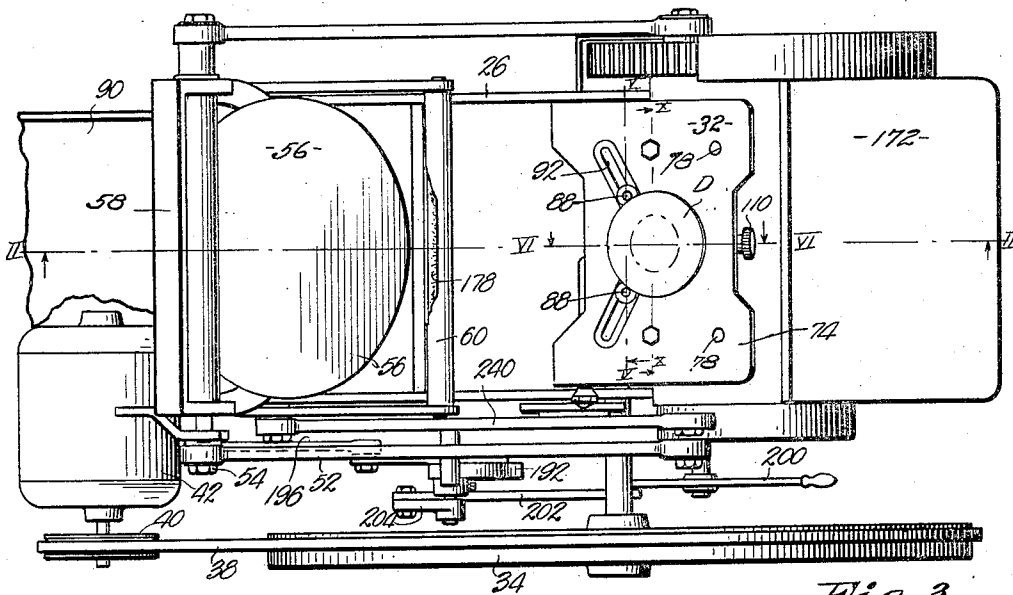


Fig. 3.

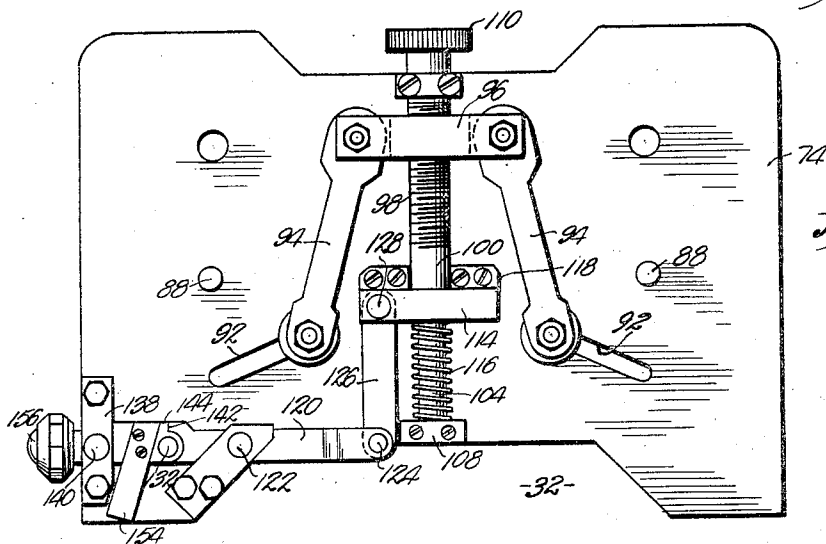


Fig. 4.

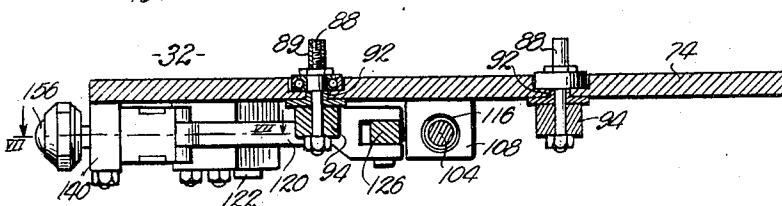


Fig. 5.

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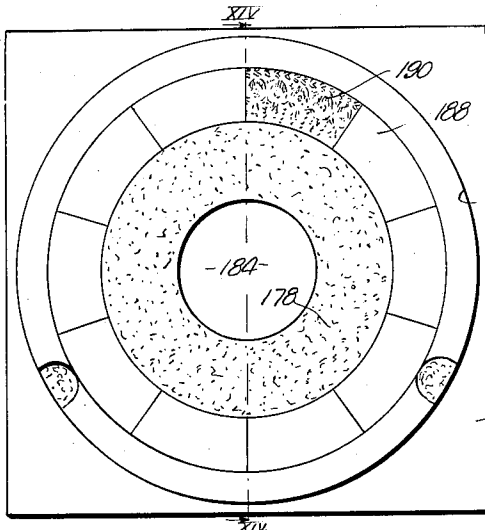


Fig. 13.

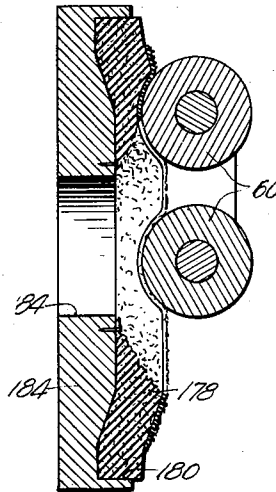


Fig. 14.

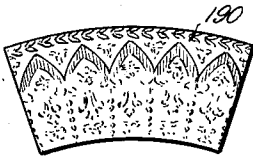


Fig. 15.

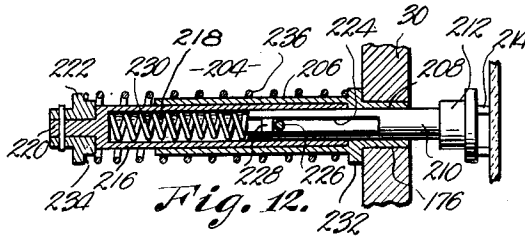


Fig. 12.

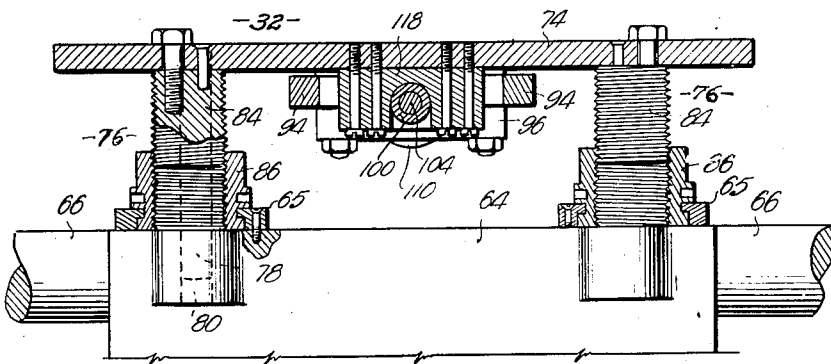


Fig. 10.

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UNITED STATES PATENT OFFICE

2,335,840

DECORATING PRESS

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Application November 1, 1940, Serial No. 363,832

6 Claims. (Cl. 101—44)

This invention relates to improvements in decorating presses and has particular reference to a decorating press suitable for mechanically and automatically stamping decorative designs upon the non-planar surfaces of ceramic, glass, porcelain, and other types of commonly called flatware dishes, etc.

Due to the irregular contour of the various types of dishes it has been found impossible to properly decorate the surfaces thereof by means of presses now in general use.

This decorating work is now being manually accomplished by stamping the design on the dish by several hand operations, and the accuracy of the work depends entirely on the skill of the operator, which at best cannot equal the accuracy of operation of a machine wherein a single stamp containing the complete decoration is stamped on the article by a single stroke of the press. Furthermore, the hand operated stamping is extremely slow as compared with the present machine stamping.

The principal object of the present invention is a provision of novel attachments that will operate in conjunction with one of the common types of printing-press to stamp designs on non-planar surfaces of dishes of various shapes and sizes.

Another object of this invention is the provision of a decorating press having gravity means for centering circular dishes to be stamped.

A further object of the invention is the provision of a decorating press having novel dish releasing means operable to permit the delivery of the dish from the machine by gravity.

Still another object of the invention is the provision of means to automatically separate the dish from the impression stamp when a coloring material having the excessive adhesive qualities is being used.

A still further object is the provision of a press with the parts so constructed and related that designs above and below the verge line of a plate or similar dish may be simultaneously stamped.

Other objects are simplicity and economy of construction, accuracy and speed of operation and adaptability for use in stamping articles of various sizes, having surfaces of various contours to be decorated.

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

Figure 1 is a side elevation of a printing press (of the Gordon type) with additions and altera-

tions, partly broken away, embodying this invention.

Fig. 2 is a vertical central section of the press taken on line II—II of Fig. 3, with the parts shown in the stamping position.

Fig. 3 is a plan view of the press with the parts in the open position as shown in Fig. 1.

Fig. 4 is an enlarged inverted plan view of the impression control table, with the parts in the normal position.

Fig. 5 is an enlarged longitudinal sectional view of the impression control table taken on line V—V of Fig. 3.

Fig. 6 is an enlarged cross sectional view of the impression control table taken on line VI—VI of Fig. 3.

Fig. 7 is an enlarged sectional view of a portion of the trip lever taken on line VII—VII of Fig. 5.

Fig. 8 is a fragmentary section showing the relative relation of the strike plate or cam and the impression control table and the down movement.

Fig. 9 is a view of the parts shown in Fig. 8 as the impression control table is moved upwardly after the stamping operation is completed.

Fig. 10 is an enlarged longitudinal section of the impression control table and associated parts taken on line X—X of Fig. 3.

Fig. 11 is a vertical sectional view of the strike plate and the upper portion of the supporting standard.

Fig. 12 is an enlarged central sectional view of the kick-off plunger assembly.

Fig. 13 is a plan view of the stamp mounted in the base.

Fig. 14 is a cross sectional view taken on line XIV—XIV of Fig. 13 with the medium rollers positioned thereon.

Fig. 15 is a plan view of a section of design strip enlarged.

Fig. 16 is a sectional view of a modified form of base and stamp member.

Throughout the several views like reference characters refer to similar parts and the numeral 20 designates a printing press patterned, in general after the Gordon printing press now in general use. This Gordon press comprises a stationary frame 22 having spaced apart side frames 24 and 26, to which is pivotally mounted the bed frame 28 by means of pins 29 carrying the bed plate 30. This bed plate is adapted to move to and from the platen or impression control table 32, carried by frame 22. A drive fly-wheel 34 rigidly mounted on transverse shaft 36 journaled

in frame 22 is driven by a belt 38 which operatively engages the drive pulley 40 of motor 42. Mounted on shaft 36 and in mesh with the gear cam wheel 42 is a spur pinion 44. This gear cam wheel 42 is rigidly secured to shaft 46 which is disposed in parallel relation to shaft 36 and is journaled for rotation in the frame members 24, 26. Mounted on shaft 46 outside of frame 22 is a small head and lock cam member 48 having an eccentrically disposed pin 50 on which an end of the side arm 52 is pivoted while the other end thereof is pivoted on the eccentrically disposed trunnion 54 which is integral with the rocker shaft 55 rotatably mounted in bed frame 28. This connection of the parts insures the full movement of the bed plate to and from the platen at each revolution of shaft 46.

Above the bed of the press, and at an angle thereto is positioned an inking-disc 56 which is carried by bed frame 28 to facilitate proper spreading of the coloring material fed from the fountain 58 mounted adjacent the upper edge of disc 56. The inking rollers 60 pass over the inking-disc 56 then downwardly over the printing form 62 to ink the stamp for each impression.

The platen or impression control table is mounted for oscillation on rocker bar 64 which is mounted on axially disposed trunnions 66 in frame members, 24 and 26. The outer extremity of one of said trunnions is provided with a fixed crank arm 68 carrying at its free end a roller 70 which is adapted to operatively engage in cam slot 72 to oscillate the rocker bar 64 and cause the platen to be properly positioned relative to the printing stamp at each revolution of shaft 64 to which cam wheel 42 is securely attached.

Cam slot 72 is so constructed that it will cause the platen to move gradually to the stamping position to avoid any tendency for the dish or ware to be thrown from its centered position on the platen as hereinafter set forth.

The impression control table 32 best illustrated Figs. 3, 4, 5 and 6 shows the platen or plate 74 mounted by means of screw jacks 76 to rocker bar 64 and secured in proper parallel relation thereto by means of guide pins 78 which are slidably mounted in holes 80 formed in ears 82 which are integral with the rocker bar 64.

The jack screw 84 rigidly secured to the under side of the plate 74 is threaded into adjusting nut 86 which is mounted for rotation on rocker bar 64, by flanged ring 65 so that by simply rotating the nuts 86 the height of the platen is controlled, and may be set to accommodate the different sizes and types of dishes or articles being stamped. The two extreme operative positions of the platen are shown in Figs. 1 and 2 and it will be noted that in Fig. 1 which shows the platter in the raised position it is near a horizontal position and is adapted to support a dish thereon without sliding, however as the press operates and the rocker bar moves the platen to the printing position shown in Fig. 2 the inclination of the platen will be increased so that any dish carried thereon will have a tendency to slide therefrom by the action of gravity to overcome the frictional action of the dish against the platen. This gravity action of the dish on the platen as its inclination is increased is utilized to facilitate proper positioning and centering of the dish for the stamping operation.

Referring to Fig. 3 wherein a plan view of the platen is shown it will be noted that two stop pins 88 extend upwardly from the face of the

platen to engage the periphery of a circular dish D. These stop pins receive and support the dish as the platen is moved to the stamping position. The operator need not place the dish against the stop pins, but can place it in any position thereabove on the platen so that as it slides downwardly it will eventually move to a stamping position against the pins.

When the stamping operation is complete it is necessary to release the dish from engagement with pins 88 so that it can pass downwardly to chute 90 for delivery to the conveyor belt 91 by means of which it is delivered from the press. The pins 88 are also adjustable to and from each other to accommodate dishes of different diameters. This adjusting and releasing means for the stop pins is accomplished by the following mechanism. Referring to Fig. 5 it will be observed that pin 88 extends through an obliquely disposed slot 92 formed through platen 74, and is securely attached to an arm 94 therebelow. To facilitate smooth operation of the pin through the slot a ball bearing carried by the pin engages the walls of the slot as the pin is moved. Both pins are mounted in like manner and the arms 94 are pivoted to a common block 96 which is screw threaded to receive the adjusting threads 98 of sleeve member 100. To avoid marring of the edge of the ware each of the pins 88 is provided with a rubber sleeve 89.

Sleeve 100 is splined at 102 to guide shaft 104 which is rotatably mounted in bearing blocks 106 and 108 secured to the under side of platen 74. Shaft 104 is provided at its front end with a hand knob 110 by means of which it is rotated to move the block 96 therealong. The inner end of sleeve 100 is flanged at 112 and mounted for rotation in a pull block 114. Mounted on shaft 104 intermediate bearing 108 and sleeve 100 is a compression spring 116 which normally holds the block 114 against a stop plate 118 which is securely attached to the under side of platen 74. The movement of block 114 along shaft 104 will cause the sleeve 100 to move therewith to move the stop pins 88 in their respective slots relative to each other for releasing the dish.

This stamping press is especially designed to stamp circular flat ware of various diameters. Each time a run is to be made it is necessary to properly position the supporting pins 88 in slots 92.

The following mechanism is provided to cause an automatic longitudinal movement of sleeve 100 against the actions of spring 116 to cause the stop pins to be moved apart to release the dish whereby it may pass downwardly between the pins 88 to the chute 90. An operating lever 120 pivoted intermediate its ends at 122 to platen 74 is pivoted at its inner end by pin 124 to link 126 which in turn is pivoted to block 114 by pin 128 see Figs. 4, 5, 8 and 9.

The outer end of lever 120 is slotted at 130 to receive the pin 132 by means of which it is operatively connected with pawl block 134 which in turn is pivoted together with release pawl 136 to bearing 138 by pivot pin 140. A knife joint at 142 between lever 120 and the cross bar 144 permits of relative movement of these parts in but one direction.

Referring to Fig. 7 it will be noted that the release pawl 136 is so positioned that it normally rests against the inner side of cross bar 144 to move the pawl block 134 in the direction to break the knife joint 142 and cause the lever arm 120

to oscillate to move the block 114 through the interconnecting parts. The release pawl is free to move in one direction against the action of compression spring 146 which is mounted on the rod 148, pivoted at 150 to the inner end of release pawl 136, and extended through an opening 152 formed through the bracket 154 mounted on pawl block 134.

The outer end of release pawl 136 is provided with rotatably mounted spherical operating ball 156 which is positioned to contact the stationary strike plate 158 which is adjustably mounted on standard 160 securely attached to side frame 24 of the press.

In the operation of the press the ball 156 will contact the strike plate 158 on the down stroke (see Fig. 8) to move the release pawl 136 about its pivot 140 to compress spring 146, so that on the downward stroke of the impression control table 32 there will be no action of lever arm 120 to actuate the mechanism to force apart the dish holding pins 88. After the stamping operation is complete and the platen 32 starts on its upward movement the release pawl will be moved in the other direction shown in Fig. 9 thereby causing a separation at the knife joint 142 and a resultant movement of levers 120 thereby moving block 114 and sleeve 100 lengthwise of guide shaft 104 to cause the pin shifting mechanism to operate to release the dish, and permit it to move by gravity from plate 74 to the chute 90, see Fig. 3.

It will be noted that on the downward movement of the platen the operating ball 156 will move across and below the strike plate 158 so that the release pawl parts will again move to their normal position, so that on the upward movement of the platen the stop pins will be moved to the extended position as described above.

Since it is desired to support the dish to facilitate proper stamping, without smearing it is necessary to release the dish at just the proper time and while the plate 74 is sufficiently inclined to cause the dish to move by gravity therefrom. The time of release is determined by the vertical position of the strike plate 158. This plate 158 is provided at its back side with an integral block 162 which is slidably mounted in a slot 164 formed in standard 160 and has a vertically disposed threaded hole 166 which receives a threaded rod 168 secured against longitudinal movement in cap bar 170. As rod 168 is rotated the block and strike plate will be moved vertically and will remain in any desired pre-determined position.

The dishes such as plates, saucers, etc., to be stamped vary in size and in order to properly support a given size dish in centered relation for stamping it is necessary to adjust the pins 88 by rotating the guide shaft 104. A few trial stampings are made to make the proper adjustments before the regular run is started. All similar dishes of substantially the same diameter can be stamped at one setting of the machine and should dishes of different diameters and depths be stamped the same general adjusting of the pin supports and strike plate will be necessary.

The operator feeds the dishes from stack B, mounted on the stationary table 172 which is positioned in front of the platen. An automatic dish feeding device might be provided without necessitating any change in the press construction. The printing form 62 comprises a chase

174 mounted on press bed plate 30 and having a central opening 176 formed therethrough. A stamp 178 made of a soft resilient material such as sponge rubber or any other material having similar qualities, is formed to substantially conform to the contour of the ware to be stamped by cementing or otherwise securing in a recess 180 formed in a wood or metal base 182 to conform to the contour of the surface to be stamped.

This base in some instances is provided with a central opening 184 which is positioned in axial alignment with opening 176 in plate 30. This base is clamped in position in the chase 174 by means of the usual clamping means 186.

It will be noted that the resilient stamp extends outwardly from the chase and base so that as the inking or medium rollers 60 move thereover as clearly shown in Fig. 14 all surfaces of the stamp will be properly covered with a thin coat of the stamping material.

The stamp surface 188 containing the design 190 is usually made on a thin rubber sheet shaped to properly fit the soft resilient form. It may be formed in one piece or may be made up in sections so that when it is cemented to the sponge rubber section it will be a continuous regular design. Most of the printing or stamping faces are of general frusto-conical form such as would be found on the rims of plates, saucers, etc.

In the standard Gordon printing press the throw-off parts 192, 194, 196 and 198 are normally positioned adjacent the center plane between the side frames, however without changing their functions in the present press they are shown moved to a position between side frame 24 and fly wheel 34 to be operated by throw-off lever 200 through link 202 and lever 204. The only reason for changing the position of said parts was to provide sufficient room for the discharge chute 90 between the side frame members 24 and 26.

Reference will be had to Figs. 2 and 12 wherein the dish kick-off mechanism is best shown. This kick-off mechanism is used only when an adhesive coloring medium is used to stamp the ware. Gold is one of the adhesive or sticky stamping mediums which has a tendency to lift the dish from the platen as stamping parts separate. It is found convenient, when gold is being used, to provide means to force the ware against the platen with sufficient force to permit the stamp to be withdrawn from the surface of the ware.

The kick-off plunger assembly 204 comprises an outer sleeve 206 rigidly secured to bed plate 30 through opening 176. The bore 208 of the end portion of sleeve 206 passing through bed plate 30 is reduced in size to receive the plunger rod 210 which is provided at its outer extremity with head 212 having spaced apart knobs 214 adapted to contact the surface of the ware being stamped. This rod passes through the central opening formed through block 182. A rod 216 slidably mounted in the rear end portion of sleeve 206 is recessed at 218 to receive the inner end of rod 210 for relative sliding movement therewith. The exposed end of rod 216 is reduced at 220 and provided with a strike button 222. The plunger rod 210 is bifurcated at its inner end to form a slot 224 through which a transverse pin 226 carried by rod 216 passes. Between the inner end of rod 210 and the pin 226 is a pin 228 which closes slot 224 and limits the movement of the pin 226 therein. A compression spring 230 positioned between the end of rod 210 and the end of recess 218 con-

stantly urges the rod 210 outwardly so that pin 228 rests against pin 226. Sleeve 206 is provided with flange 232 and strike button 222 also has a similar flange 234. Between flanges 232 and 234 is mounted a compression spring 236 which normally held the head 212 in the retracted position to permit the inking rollers to pass thereover without contacting the knobs 214.

The timing of the operation of this kick-off plunger is determined by the movement of the inking roller frame 238 which is controlled in the usual manner by the action of the bed frame 28 and roller arm 240 which is secured at its one end to the stationary frame 22 and at its other end to a lug 242 integral with roller arm 24.

A lever arm 244, mounted on rod 246 which is rotatably mounted in bed frame 28, is secured thereto by means of set-screw 248 and is so positioned that the free end thereof will contact the strike button 222. Securely attached to rod 246 is another lever arm 250 having a roller 252 at its free end positioned to be contacted by a fiber cam 254 which is carried by roller frame 238. When the parts are in the position shown in Fig. 2 and the stamping operation is being performed, the rod 216 will be forced farther into sleeve 206 to compress springs 236 and 230. It will be understood that the longitudinal compression movement of spring 236 is always greater than that of the smaller and weaker spring 230 in order to provide a free adjustable movement of knobs 214 to contact dishes of different thicknesses. As the stamp leaves the ware in the normal operation of the press the knobs 214 will rest against the ware with sufficient pressure to insure the separation of the stamp and ware without any movement of the ware relative to the platen. When a non-adhesive coloring material is being used there will be no need for the kick-off mechanism and the lever 244 can be moved along rod 246, out of alignment with strike button 222 by releasing set screw 246 so that it will not operate to compress the springs of the kick-off assembly.

In the modified view of the base and stamp member it will be noted that the base 243 is free from center openings and is therefore adapted for use with a stamp 250 which rests in recess 252 formed in the base. With this type of stamp the center stamp section 254 as well as the rim section shown at 256 may be used. When using a coloring medium which does not adhere to dish and stamp sufficiently to lift the dish from the platen this type of base and stamp may be used.

While this stamping press has been shown as conforming to the general structure of the well known Gordon printing press, however it is apparent that it could be constructed to conform to other types of printing presses, wherein the stamp and platen are relatively moved toward each other, without material changes in the structure and without departing from the spirit of the invention which is set forth in the appended claims.

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

1. A decorating press of the type described wherein a stamp is movable toward and from an oscillating platen; upstanding pins carried by said platen to support an article to be decorated in a pre-determined position thereon, as the platen is moved downwardly to a substan-

tially vertically inclined position; and means operable to position said pins to permit said article to pass therebetween by gravity as the platen is moving upwardly from said inclined position.

2. A decorating press of the type described wherein a stamp is movable toward and from an oscillating platen; spaced apart pins carried by said platen to support an article to be decorated in a pre-determined position thereon, as the platen is moved downwardly to a substantially vertically inclined position; and means carried by said platen automatically operable as said platen is moved upwardly from said substantially vertical position, whereby said pins are moved farther apart to release said article.

3. A decorating press of the type described wherein a stamp is movable toward and from an oscillating platen to decorate an article therebetween; two spaced apart pins carried by said platen to support the article to be stamped on an inclined plane therebetween; means in engagement with said pins whereby they are relatively adjustable to vary the distance therebetween; and means operable as the stamp moves from the platen to increase the distance between said pins where the article supported therebetween is released and delivered by gravity from said platen.

4. A decorating press of the type described wherein a stamp is movable toward and from an oscillating compression control table to decorate circular flat dish ware therebetween; two spaced apart pins extending through slots formed in said table, adapted to engage the rim of said dish to support and center it in a pre-determined position for stamping as the table is moving downwardly to the stamping position; means for adjusting said pins to vary the distance therebetween and means adapted to operate as the stamp moves from the stamping position to separate said pins a sufficient distance to permit the stamped dish to pass therebetween.

5. A decorative press wherein a stamp is movable toward and from an oscillating compression control table to stamp circular flat dishware therebetween; a pair of spaced apart pins adapted to support and center dishware on said table as the table is moved to a substantially vertically inclined position for stamping; and means operable, as said table is being moved upwardly from said stamping position, to force said pins farther apart to permit the dishware to move therebetween by gravity.

6. A decorative press of the class described wherein a stamp is movable toward and from an oscillating platen; means carried by said platen to support and center a circular dish on the platen as it is moved to an acutely inclined angle for stamping; said means including two spaced apart pins extending through slots formed in said platen to engage the rim of said dish to support and center it in a pre-determined position for stamping on said platen as the platen is moving downwardly to the stamping position; means for adjusting said pins to vary the distance therebetween; means adapted to operate as the stamp is moved from the stamping position to separate said pins a sufficient distance to permit the stamped dish to pass therebetween.

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