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(54) **Machine for decorating metal plaquettes**

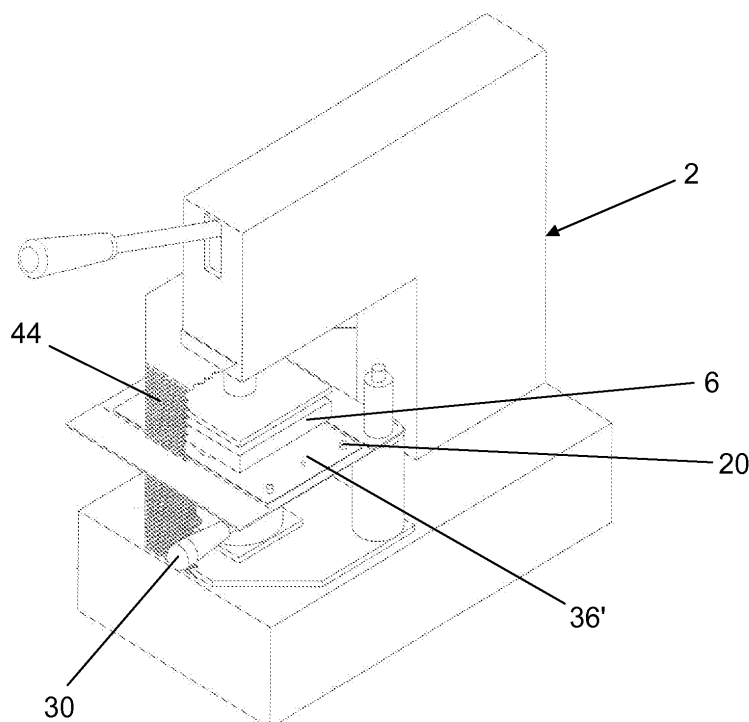
(57) A machine for decorating metal plaquettes, characterised by comprising:

- a base (2) supporting two vertically superposed horizontal heating plates, one of said plates being provided with means for its movement relative to the other plate.
- a support panel for a pre-creased sheet of sublimation

paper carrying impressed images to be transferred onto the plaquette, said panel being movable in a horizontal plane for its removable insertion into the gap defined by said superposed plates,

- reference means (20), provided on said panel, for removably securing a template provided with at least one seat for housing the plaquette to be decorated.

FIG. 3



Description

[0001] The present invention relates to a machine for decorating metal plaquettes.

[0002] Decorating machines for metal plaquettes are known consisting substantially of two heating plates hinged together along an edge. A removable template comprising a plurality of holes corresponding to the shape of the plaquettes to be decorated rests on one of the heating plates.

[0003] The decoration step involves resting on the lower plate a sheet on which the decorations to be transferred are printed, positioning the template on said sheet, placing the plaquettes in the template holes, applying a further sheet provided with decorations, and then rotating the other plate to transfer the decorations onto the plaquette coating.

[0004] However these known machines are designed for large production and are therefore unsuitable for decorating a small number of plaquettes, and consequently unsuitable for small activities such as shops.

[0005] These machines also present the drawback of unreliable precision during the closure of the heating plates due to the wide opening of the hinged plates.

[0006] Finally these machines are difficult to adapt to different plaquette thicknesses because of their hinging.

[0007] An object of the invention is to eliminate these drawbacks by providing a decorating machine for metal plaquettes which is of very simple use, including for small quantities.

[0008] Another object of the invention is to provide a decorating machine able to decorate plaquettes of different thickness.

[0009] These and other objects which will be apparent from the ensuing description are attained according to the invention by a decorating machine for plaquettes as described in claim 1.

[0010] A preferred embodiment of the present invention is further clarified hereinafter with reference to the accompanying drawings, in which:

- Figure 1 is a perspective view of a decorating machine according to the invention during application of the decorative sheet,
 Figure 2 shows it in the same view as Figure 1 during application of the plaquette,
 Figure 3 shows it in the same view as Figure 1 during decoration.

[0011] As can be seen from the figures, the decorating machine of the invention comprises substantially a base 2 provided with a column 4 supporting a first heating plate 6 via a rack device (not shown in the figures) and operable vertically by a lever 8. A second heating plate 10 is provided in a position below the heating plate 6 to form a gap 12 with the overlying heating plate 6.

[0012] A support panel 16 comprising two pegs 20 on its upper surface is hinged to the base 2 about a pin 14

and is provided with an operating handle 18 for its insertion into the gap 12.

[0013] The invention also comprises a template 22 provided with two elliptical seats 24 provided on its edge with protuberances 26 the function of which is clarified hereinafter.

[0014] The template 22 is provided with holes 28 spaced apart by a distance corresponding to the distance between the pegs 20 of the panel 16 and comprises an operating handle 30.

[0015] The invention uses a sheet of sublimation paper 32 with a pre-creasing line 34 forming two portions 36, 36', each of which is provided with two pairs of holes 38 which, when the two portions face each other, are coaxial, their distance apart corresponding to the distance between the pegs 20.

[0016] One of the surfaces of the sheet 32 is provided with pairs of images 40 obtained by sublimation image printing techniques and positioned relative to the holes 38 in the same manner as the elliptical seats 24 are positioned relative to the holes 28 in the plate 22.

[0017] The plates 6 and 10 are protected by a protection grid 44.

[0018] At the rack there is also provided a screw adjustment system (not shown in the drawings) to define the position of a lower stop for the upper heating plate, in this position a switch being provided for activating the heating plates.

[0019] In using the decorating machine of the invention, the panel 16 is rotated about the pin 14 to position it outside the range of action of the plates 6 and 10, then the sheet is applied to it with the two portions 36, 36' at 180° apart by inserting the pegs 20 into the holes 38 of the portion 36. The plate 22 is then mounted on the portion 36 by inserting the pegs 20 into the holes 28, and the plaquettes 42 to be decorated, previously treated with a special coating, are inserted into the seats 24.

[0020] The portion 36' is then rotated through 180° so that the portions 36 and 36' face each other. Then after rotating the lever 18 to insert the panel 16 into the gap 12 the plate 6 is lowered by the lever 8, then as soon as the plate 6 interferes with the activation switch both the plates 6, 10 are heated.

[0021] As a result of the heating action of the plates 6 and 10 the images 40 impressed into the sheet 32 are transferred by sublimation onto both surfaces of the plaquettes 42, the ink also being transferred onto the plaquette edges by virtue of the presence of the protuberances 26 present on the edge of the seats 24 which create an empty annular space.

[0022] From the foregoing it is apparent that the decorating machine of the invention presents certain advantages, and in particular:

- it enables metal plaquettes such as key fobs, key heads etc. to be decorated in a personalized manner,
- it enables reliable centering,
- it enables the plaquette edges to be decorated,

- it is of high reliability during use,
- it enables plaquettes of different thickness to be decorated.

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Claims

1. A machine for decorating metal plaquettes, **characterised by** comprising:

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- a base (2) supporting two vertically superposed horizontal heating plates (6, 10), one of said plates being provided with means (8) for its movement relative to the other plate.

- a support panel (16) for a pre-creased sheet of sublimation paper carrying impressed images (40) to be transferred onto the plaquette (42), said panel being movable in a horizontal plane for its removable insertion into the gap (10) defined by said superposed plates,

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- reference means (20), provided on said panel (16), for removably securing a template (22) provided with at least one seat (24) for housing the plaquette to be decorated.

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2. A machine as claimed in claim 1, **characterised in that** the movement means consist of a rack operable by a lever (8).

3. A machine as claimed in claim 1, **characterised in that** the reference and securing means consist of two pegs (20).

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4. A machine as claimed in claim 1, **characterised in that** the panel (16) is hinged to the base (2) about a pin (14).

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5. A machine as claimed in claims 1 and 3, **characterised in that** the template is provided with two holes cooperating with the pegs (20).

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6. A machine as claimed in claim 1, **characterised in that** the seat (24) is provided with protuberances (26).

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7. A machine as claimed in claim 1, **characterised in that** the rack is provided with a screw adjustment system for the position of the upper plate (6).

8. A machine as claimed in claim 1, **characterised by** comprising a protection grid (44) for the plates (6, 10).

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FIG. 1

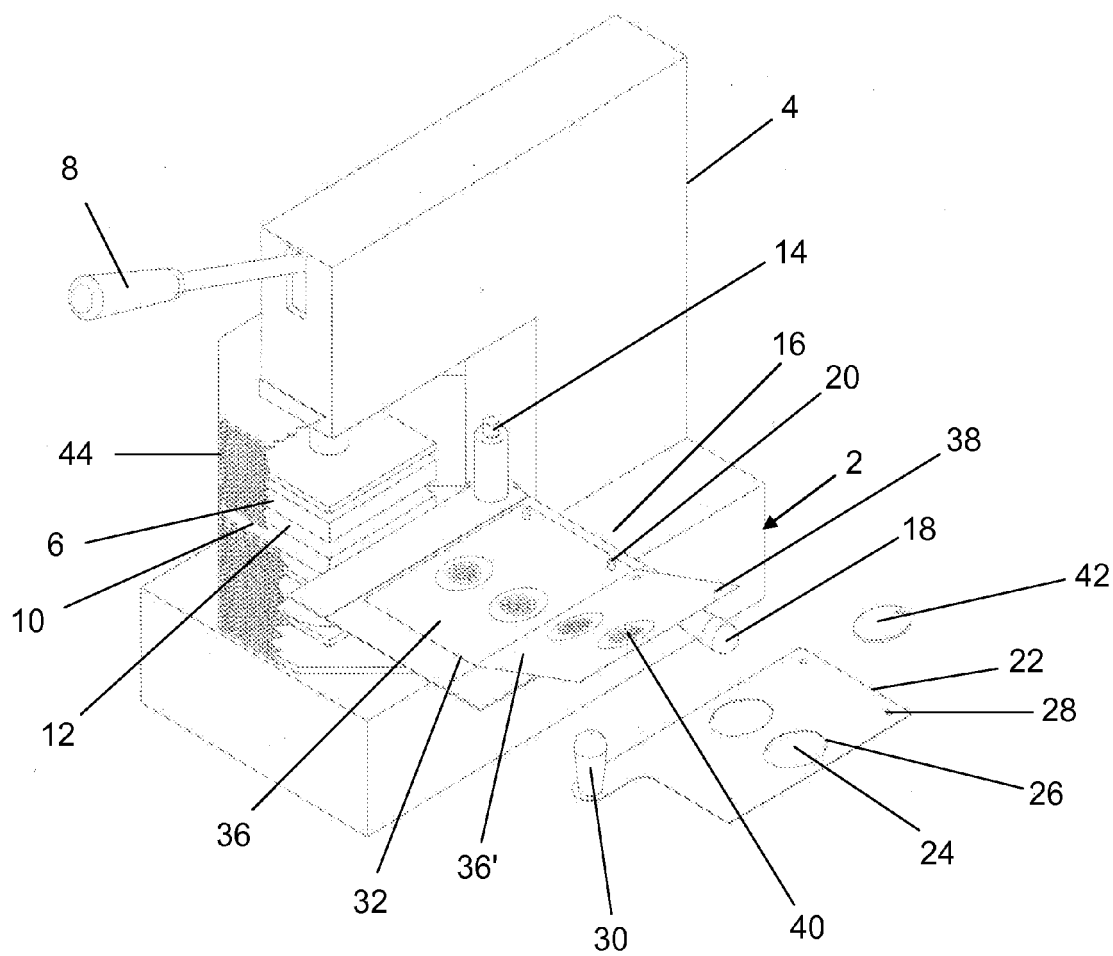


FIG. 2

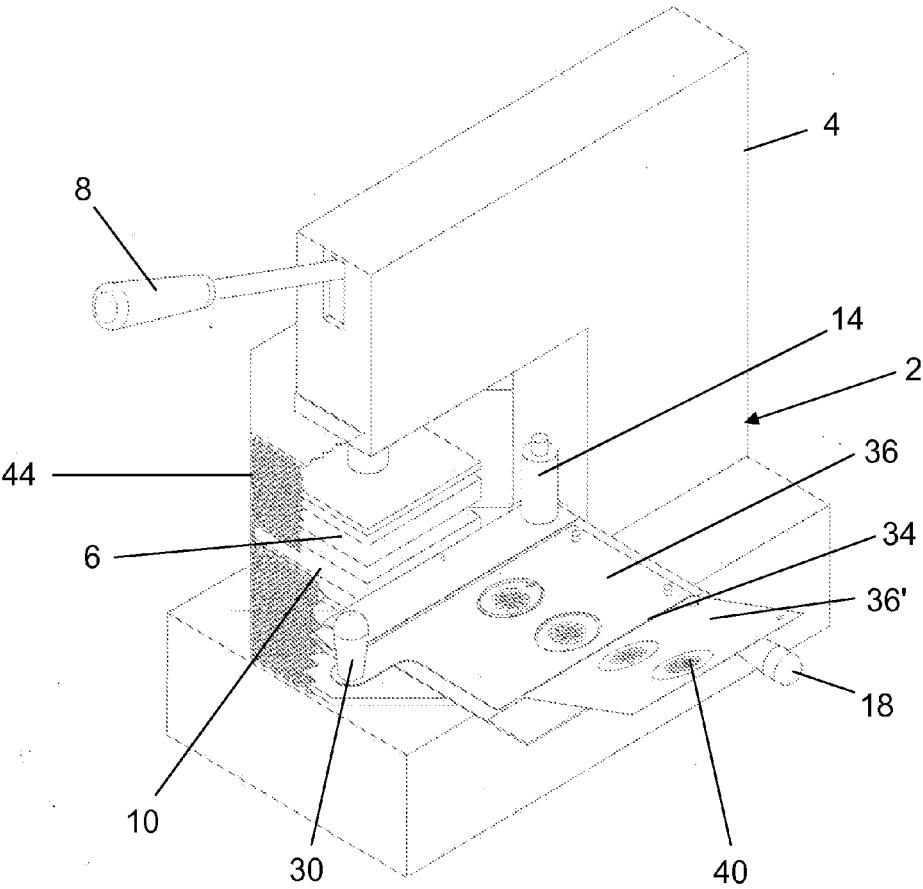
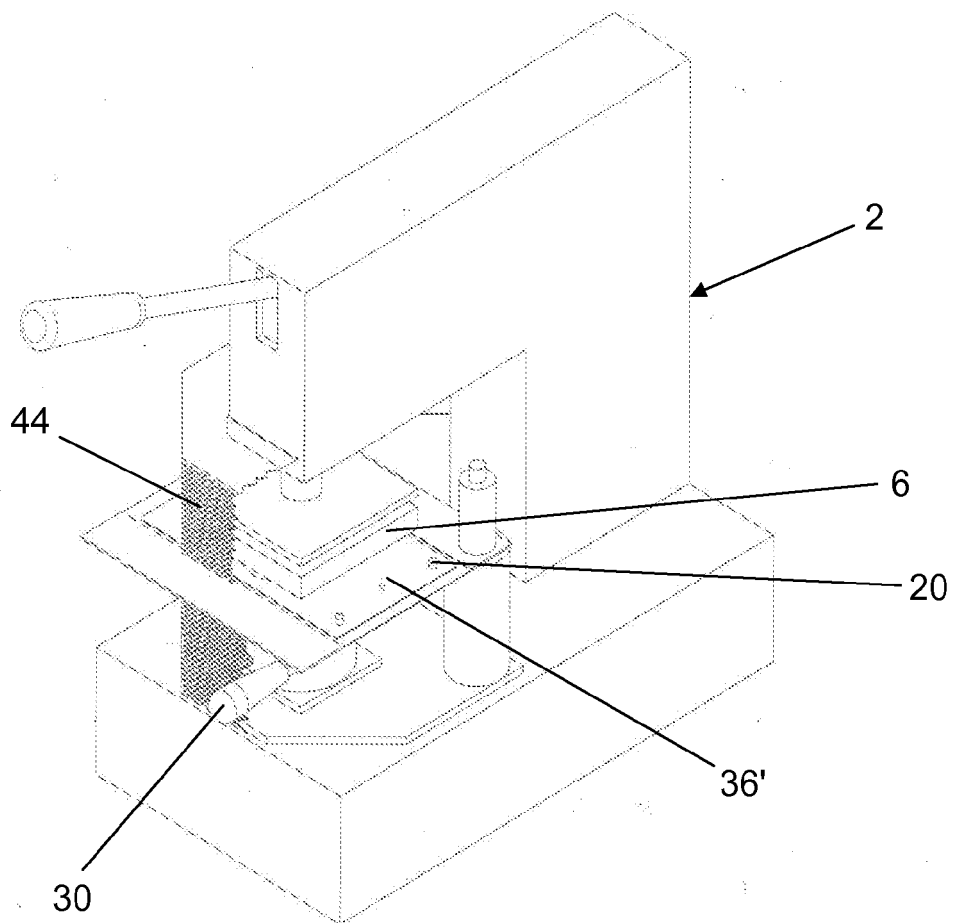


FIG. 3





EUROPEAN SEARCH REPORT

Application Number
EP 08 15 6953

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 664 672 A (KRAJEC OTMAR [DE] ET AL) 12 May 1987 (1987-05-12)	1,2,4,7,8	INV. B41F16/00
Y	* column 2, line 46 - line 54 * * column 7, line 25 - line 57; figure 1 *	3,5,6	
Y	US 2002/069772 A1 (CORRADO STEPHEN [US]) 13 June 2002 (2002-06-13) * paragraph [0009] * * paragraph [0029] - paragraph [0036]; figures 2,3 *	3,5,6	
Y	US 4 922 816 A (NEIL BRIAN K [US]) 8 May 1990 (1990-05-08) * column 2, line 12 - line 30 * * column 5, line 45 - column 6, line 38 * * column 7, line 34 - line 43; figures 1,4 *	3,5	
A	US 6 616 983 B1 (MCCAULEY DONALD JOSEPH [US]) 9 September 2003 (2003-09-09) * column 2, line 46 - line 53 * * column 3, line 62 - column 4, line 3 * * column 4, line 20 - line 32; figures 6,7 *	1-8	TECHNICAL FIELDS SEARCHED (IPC) B41M B41F B44C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 26 September 2008	Examiner Sigurd, Karin
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 15 6953

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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26-09-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4664672	A	12-05-1987	EP 0110220 A2	13-06-1984
US 2002069772	A1	13-06-2002	NONE	
US 4922816	A	08-05-1990	NONE	
US 6616983	B1	09-09-2003	NONE	