July 3, 1962 G. GÜTTEL 3,042,175

MACHINE FOR EMBOSSING PRINTING PLATES

Filed June 26, 1959

Fig. 1

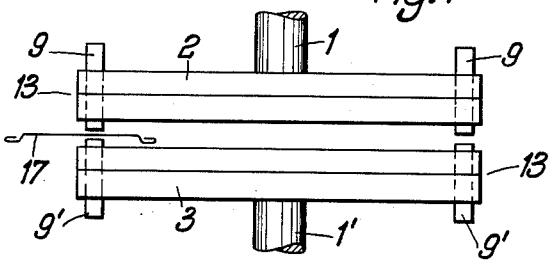
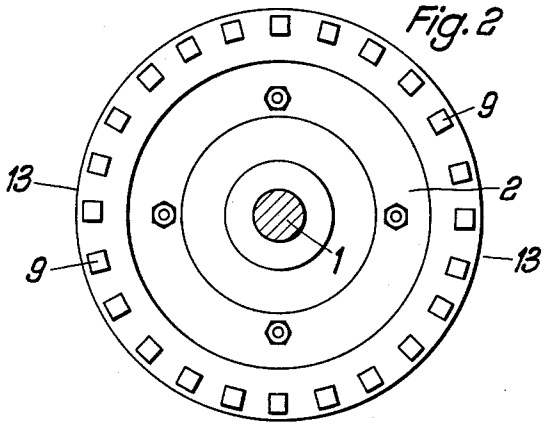


Fig. 2



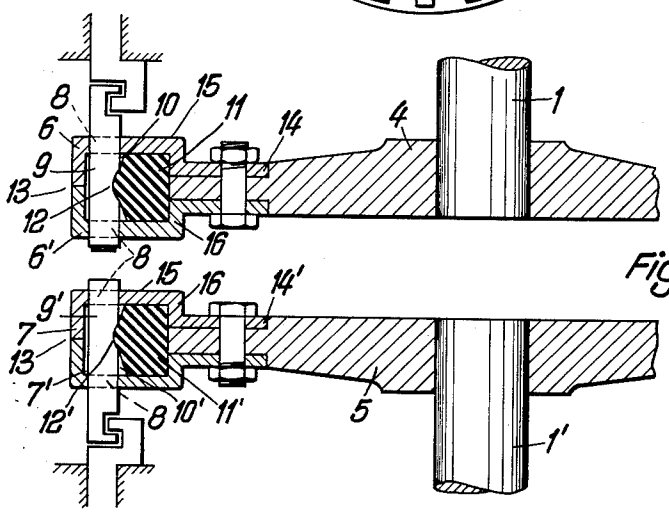


Fig. 3

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MACHINE FOR EMBOSSING PRINTING PLATES

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The invention relates to a type wheel for embossing machines for embossing letter plates, more particularly address-printing plates with types and type-securing elements mounted on the wheel. It is already known in such embossing machines to make the type wheel in one piece and to mount the types in holes of rectangular cross-section arranged parallel to the axis of the wheel. To reduce manufacturing costs, it has already been proposed to make to type wheel of plates spaced apart. The space left between the plates, however, is in that case unprotected. There is therefore a danger that the types and particularly the type guides will become fouled and therefore prematurely worn.

An essential feature of the invention is that the wheel edge receiving the types is formed as a closed, annular chamber, preferably extending over the entire wheel periphery, the type-securing elements being mounted in said chamber. Such a construction is comparatively simple and, in addition, is reliable in operation. The type wheel according to the invention is also very particularly suitable for manufacture from plastic because it does not warp on account of its favourable cross-section.

According to a preferred embodiment, the annular chamber of the type wheel is formed by two profiled rim rings, which are fixed to the hub directed towards each other in such a manner that the two half-profiles of the rim rings form the annular chamber. A resilient ring, as type-securing element, may be inserted in the annular chamber. According to another feature of the invention, the rim rings are made of plastic which can be injection moulded.

Further essential features of the invention will appear from the following description.

The drawing shows a form of construction of type wheels according to the invention by way of example. In this drawing:

FIGS. 1 and 2 show side view and plan of a type head consisting of two type wheels, diagrammatically, and

FIG. 3 shows a cross-section through the left-hand half of the type wheels according to FIG. 1 on a larger scale.

Type wheels 2 and 3, respectively, are fast on shafts 1 and 1' mounted in the frame of an embossing machine, not shown. For attachment to the shafts 1 and 1', the type wheels 2 and 3 each have a hub part 4 and 5. Fixed by bolts or rivets to the periphery of the hub parts 4 and 5 are rim rings 6, 6' and 7, 7', respectively. The rim rings 6, 6' and 7, 7' in the vicinity of their outer periphery have holes or chambers 8 of substantially rectangular cross-section, into which embossing types 9, 9' are slidably inserted. Each pair of rim rings directed towards each other forms a closed chamber 10 and 10', respectively, which may extend over the entire wheel periphery. The annular chambers, however, could be subdivided by partitions. Mounted in each of the annular chambers is a ring 11 and 11' made of resilient plastic, bearing with light pressure against the types 9 and 9' and thereby preventing unwanted displacement of the types in the inoperative position. For better security, the types each have a notch 12 or 12' engaged by a projection on the resilient ring 11 or 11'.

The rim rings 6, 6' and 7, 7' are bent towards each other on the periphery, preferably through 90°. The annular walls thereby formed lie firmly on one another on the facing ends and form a surface 13 which is closed

radially outward. The rim rings 6, 6' and 7, 7' are attached by means of flanges 14 and 14', which are bent from the surfaces 15 and thereby form annular walls 16, serving as supports for the resilient rings 11 and 11'.

The devices for striking the types against each other for embossing characters on a letter plate or address-printing plate 17 placed between them are not shown, since they do not pertain to the invention.

Instead of the resilient rings 11 and 11' acting as type-securing elements, it would also be possible to provide springs or pawls of some other material. The use of resilient rings of rubber, plastic or the like has the advantage of special simplicity.

Due to the invention, any accumulation of dust on the type guides is prevented with certainty. The type-securing elements are also protected from becoming fouled. Due to the novel configuration and structure of the rim rings, it is also possible to make the latter from plastic by injection moulding. In this case, the use of plastic, in addition to the advantage of low weight, also affords the advantage that noise production is only slight, even when the type wheels are rotated rapidly. By means of the injection casting mould, the type guiding holes, which must have very exact dimensions, can now be provided in the rim rings in an extremely easy manner and suitably for the operating conditions.

I claim:

1. In a device for embossing die plates, the combination of a rotatable die carrier, said carrier including a pair of round discs arranged in coaxial spaced relation to one another, an annular ring disposed about the edge of each of said discs, said ring having a hollow interior providing an annular chamber, said ring having a plurality of openings establishing communication with said chamber, a plurality of sets of complementary embossing dies removably mounted in said openings in the annular ring, annular clamping means disposed within said annular chamber, and said clamping means having portions for engaging and retaining said dies in said ring openings.

2. A device according to claim 1, wherein said annular ring comprises a pair of opposed concave channel members connected together to form said hollow chamber.

3. A device according to claim 1, wherein said annular ring comprises a pair of opposed concave channel members with their outer edges connected to one another and their inner edges connected to said disc edge to thereby form said hollow chamber, and said clamping means comprising rubber strip means fitted within said chamber.

4. A device according to claim 3, wherein the dies are movable longitudinally of each other and wherein said rubber strip means acts also as a brake to limit the relative longitudinal movement of the dies.

5. In a device for embossing die plates, the combination of a rotatable die carrier, said carrier including a pair of round discs arranged in coaxial spaced relation to one another, an annular ring disposed about the edge of each of said discs, said ring having a hollow interior providing an annular chamber, said ring having a plurality of openings establishing communication with said chamber, a plurality of sets of complementary embossing dies removably mounted in said opening in the annular ring, clamping means disposed within said annular chamber, said clamping means comprising an annular rubber ring, said dies each being provided with a notch intermediate their length, said rubber ring being disposed closely adjacent said dies, and projecting into said die notches to engage said dies and thereby tend to resiliently retain the dies in their respective positions, said annular ring comprising a pair of opposed concave channel members with their outer edges connected to one another and their inner edges connected to said disc edge to thereby form said hollow chamber.

6. In a device for embossing die plates, the combination of at least a pair of rotatable die carriers, each of said die carriers comprising a single relatively central disc portion mounted in coaxial relationship to one another, each of said die carriers further including an enlarged hollow annular ring member projecting upward and downwardly along and circumferentially about the outer annular edge of said central disc member to provide an enlarged annular chamber, said annular ring member comprising an upper and lower portion, said upper portion forming an enlarged inverted annular channel and said lower portion comprising an enlarged annular channel of complementary size and disposed in opposed relationship to one another, said upper inverted annular channel portion having a stepped-down annular inner flange disposed generally parallel to said central disc member and overlapping the outermost annular edge of said disc member, said lower channel member having a stepped-up annular flange underlying said outermost annular edge of said central disc member and generally parallel thereto, and means to mount said stepped-down and stepped-up flange to said outer edge of said disc member, said upper inverted channel member further including a raised annular roof portion and a downward depending outer annular wall extending downward adjacent the plane of said disc member, said lower channel member including a depressed annular bottom portion and an upwardly extending outer annular wall extending upward adajcent the plane of said disc member to thereby form said enlarged annular chamber, said raised roof portion of said upper inverted channel member and said depressed bottom portion of said lower channel member each being provided with a plurality of circumferentially spaced apertures in direct alignment with each other along axes parallel to the central axis of said disc member, a plurality of dies mounted in each of said apertures of the opposed channel portions with said upward and lower apertures forming an upper and lower guideway for each of said dies, an annular rubber ring member mounted within said annular chamber formed by said upper and lower channel members and acting to retain said dies in their mounted position in said upper and lower channel portions forming said annular chamber, said dies in said chambers of said upper and lower die carriers being movable within said guideway apertures along a path generally parallel to the central axis of the central disc member toward and away from one another to perform an embossing operation.

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