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(54) **Die ejector for deep drawing**

(57) The invention relates to improved die ejectors for deep drawing press, formed from a body (1) which adopts the configuration of the graphical element (2) to be deep drawn and is incorporated in the hollow of said graphical element in the female part (3) of the die, the incorporation of a plurality of longitudinal flanges (5) in the upper surface of said body (1) being contemplated,

which flanges are arranged separated from one another such that all of them have the same orientation, said orientation being horizontal, i.e., parallel with respect to the horizontal axis (2a) of the graphical element (2) to be deep drawn. The longitudinal flanges (5) are arranged equidistantly from one another and all of them are identical in shape and size.

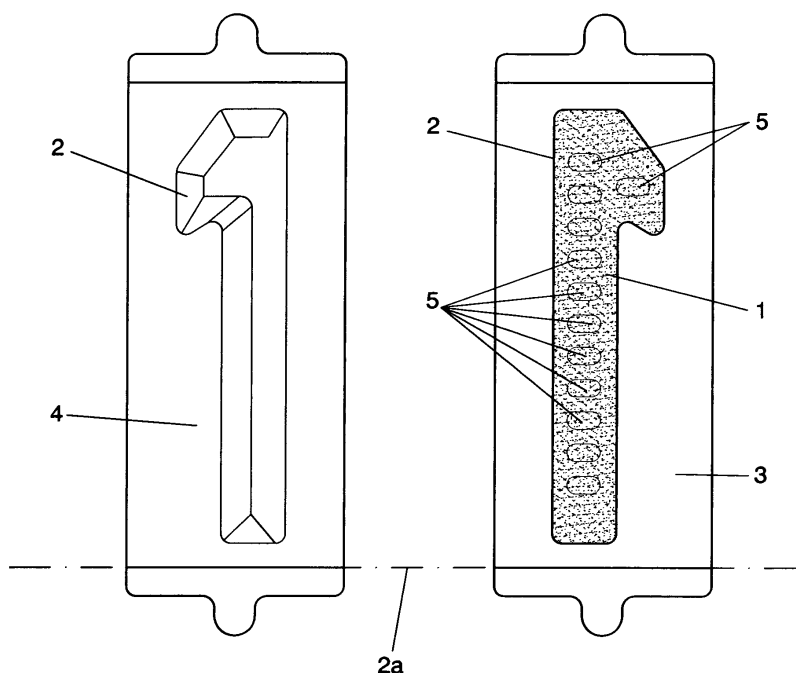


FIG. 1

Description

Object of the Invention

[0001] As expressed in the title of the present specification, the invention relates to improved die ejectors for deep drawing by pressure, providing the function for which they are intended with novelty features and advantages which improve those already known on the market for the same purpose.

[0002] More particularly, the object of the invention is focused on die ejectors for deep drawing by means of pressure, especially dies of the type intended, suitably positioned in a compression element, for deep drawing license plates and/or similar elements, which incorporate a series of thickened portions or flanges which substantially improve the effectiveness thereof.

Background of the Invention

[0003] As is known, once the license plate or similar element to be made has been deep drawn, both parts of the die must be separated, for which one of them has the so-called ejectors, formed by elements or bodies made of polyurethane which facilitate said operation, preventing both parts of the die from being adhered or hooked to the plate during the application of the pressure.

[0004] In conventional dies, these ejectors are located in the area perimetric to the cavity or flanges, i.e., externally to the graphical element, causing the drawback that, when the press applies pressure thereon, there are marks in the plate around the graphical elements, which are obviously anti-aesthetic.

[0005] To solve said problems, the applicant himself is the proprietor or a utility model with number U200600425, which relates to die ejectors for deep drawing by pressure, in which said ejectors are formed by small independent elements suitable for being incorporated or inserted inside the hollow area created especially for such purpose in the central area of the male part of the die, adapting to the different shapes that said graphical element has in each case, which elements furthermore have at their upper part a flange or lug intended to absorb the pressure exerted by the press.

[0006] Although said solution improves the effectiveness of conventional ejectors, it still has certain aspects which can be improved, especially those relating to the complexity and laboriousness required to place such ejectors, since they are individual elements which are positioned according to the shape of each graphical element, and in addition, upon being arranged in different orientations, according to the form of said graphical element, they do not always allow lifting the plate with the same ease.

[0007] The objective of the present invention is therefore to develop a new type of improved ejectors which solve the drawbacks described above in a practical manner, allowing a much quicker and simpler placement

thereof in the die and improving the effectiveness at the time of removing the plate after the deep drawing operation.

Description of the Invention

[0008] Thus, the improved die ejectors for deep drawing by pressure proposed by the present invention are configured as a novelty within their field of application, since, according to their implementation, the objectives indicated above as suitable are reached satisfactorily and specifically, the characterizing details making it possible and distinguishing them from what is already known on the market being extensively described below and suitably included in the final claims attached to the present specification.

[0009] Specifically, the ejectors proposed with the present invention are formed from a body made of polyurethane, rubber or any other elastic material which, adopting the configuration of the graphical element to be deep drawn to allow the placement thereof in the hollow of said graphical element in the female part of the die, have on their upper surface a plurality of longitudinal flanges separated from one another, preferably in an equidistant manner, and preferably identical, which are always arranged with the same orientation and in a horizontal position, i.e., parallel with respect to the horizontal axis of the graphical element to be deep drawn.

[0010] Thus, since said flanges consist of elevations on the ejector part, all of them arranged in same horizontal direction, they facilitate to a great extent the extraction of the license plate, because since the latter is generally a rectangular landscape plate, more long than wide, it can be extracted in the same direction of the mentioned flanges, the time invested in such operation being advantageously reduced, which logically affects the final cost of the product. Furthermore, even though the plate to be deep drawn presents any other configuration, knowing the horizontal orientation of the mentioned flanges of the ejectors, the operator will speed up the operation of extracting the plates to a great extent.

[0011] The described improved die ejectors for deep drawing by pressure therefore represent an innovative structure with structural and constitutive features unknown up until now for such purpose, which reasons, added to their practical usefulness, provide them with sufficient grounds for obtaining the exclusivity privilege which is sought.

Description of the Drawings

[0012] To complement the description which is being made and for the purpose of aiding to better understand the features of the invention, a set of drawings is attached to the present specification as an integral part thereof, in which the following has been depicted with an illustrative and nonlimiting character:

[0013] Figure 1 shows a plan view of the two parts,

male and female, of a deep drawing die, in which female part there has been incorporated an ejector of the type forming the object of the present invention, the configuration and elements that it has being observed.

Preferred Embodiment of the Invention

[0014] In view of the sole Figure 1 described, and according to the numbers adopted therein, a preferred embodiment of the invention can be observed, which comprises the parts and elements indicated and described in detail below.

[0015] Thus, as observed in said Figure 1, the ejectors in question are formed from a body (1) made of polyurethane, rubber or any other elastic material which, adopting the configuration of the graphical element (2) to be deep drawn, is incorporated in the hollow of said graphical element in the female part (3) of the die, which normally consists of said female part and another male part (4) in which the same graphical element (2) is made inversely in relief.

[0016] The incorporation of a plurality of longitudinal flanges (5) in the upper surface of said body (1) is contemplated, which flanges are arranged separated from one another, preferably in an equidistant manner, all of them preferably being identical in shape and size and arranged such that all of them have the same orientation, said orientation being horizontal, i.e., parallel with respect to the horizontal axis (2a) of the graphical element (2) to be deep drawn.

[0017] Having sufficiently described the nature of the present invention, as well as the way of putting it into practice, it is not considered necessary to further extend its description for any person skilled in the art to understand its scope and the advantages derived therefrom, stating that, within its essence, it can be put into practice in other embodiments which differ in detail from the one indicated by way of example, and which are also covered by the protection which is sought provided that its fundamental principle is not altered, changed or modified.

orientation being horizontal, i.e., parallel with respect to the horizontal axis (2a) of the graphical element (2) to be deep drawn.

- 5 **2.** The improved die ejectors for deep drawing by pressure according to claim 1, **characterized in that** the longitudinal flanges (5) of the body (1) are arranged equidistantly from one another.
- 10 **3.** The improved die ejectors for deep drawing by pressure according to claim 1, **characterized in that** the longitudinal flanges (5) of the body (1) are all identical in shape and size.

Claims

1. Improved die ejectors for deep drawing by pressure, of the type intended to facilitate the uncoupling of the plate to be deep drawn and of the female part (3) and male part (4) forming the die, formed by parts made of polyurethane, rubber or another elastic material, **characterized in that** they are formed from a body (1) which adopts the configuration of the graphical element (2) to be deep drawn and is incorporated in the hollow of said graphical element provided in the female part (3) of the die, the incorporation of a plurality of longitudinal flanges (5) in the upper surface of said body (1) being contemplated, which flanges are arranged separated from one another such that all of them have the same orientation, said

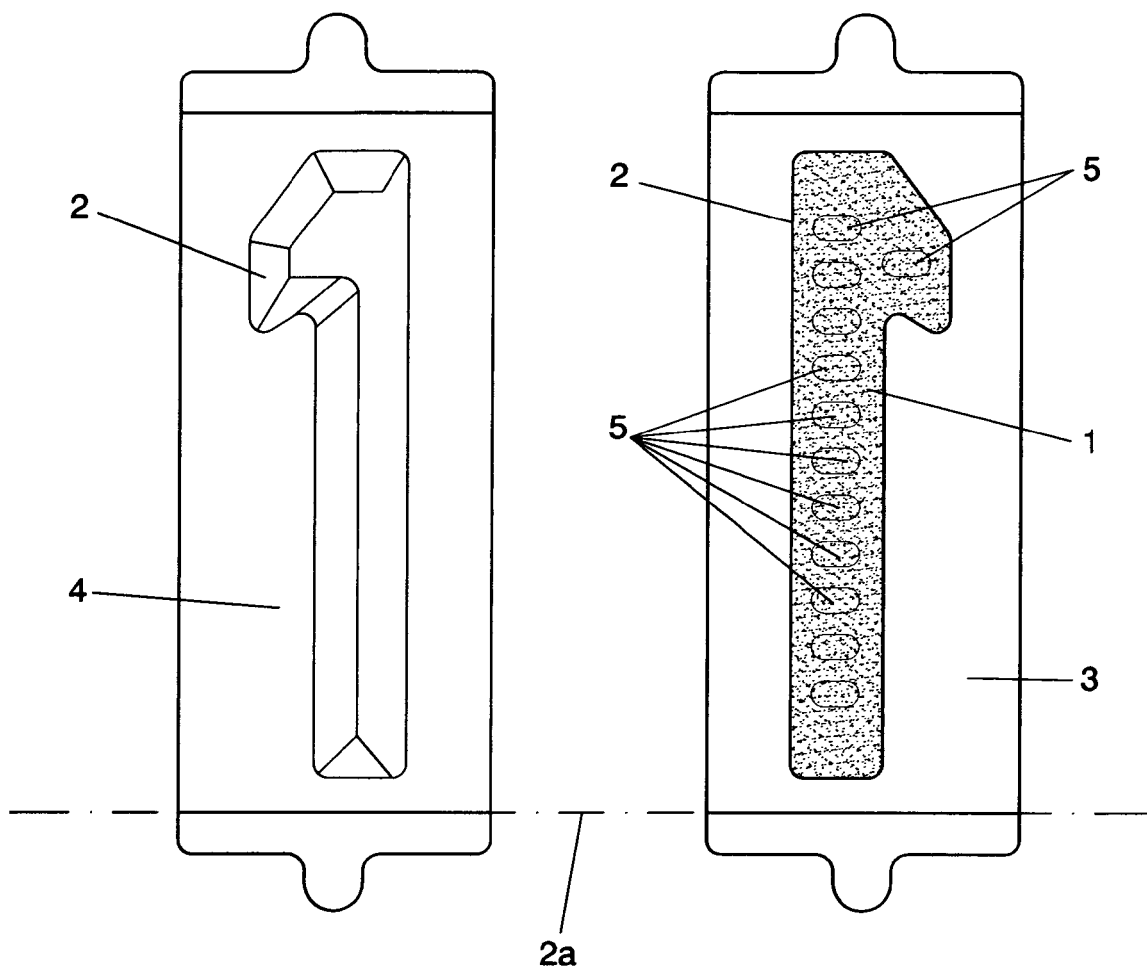


FIG. 1



EUROPEAN SEARCH REPORT

Application Number
EP 10 38 2212

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	FR 2 191 952 A1 (HALFON PIERRE [FR]) 8 February 1974 (1974-02-08) * the whole document *	1-3	INV. B21D45/02 B44B5/02
Y	FR 2 541 914 A1 (ESSARAUTO 2000 [FR]) 7 September 1984 (1984-09-07) * the whole document *	1-3	
Y	FR 2 636 867 A1 (BORNAREL GUY [FR]) 30 March 1990 (1990-03-30) * the whole document *	1-3	
A	US 4 741 197 A (SPUHLER EDWIN H [US] ET AL) 3 May 1988 (1988-05-03) * the whole document *	1-3	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B21D B44B
Place of search		Date of completion of the search	Examiner
Munich		13 January 2011	Vinci, Vincenzo
CATEGORY OF CITED DOCUMENTS 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 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			

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

EP 10 38 2212

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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13-01-2011

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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