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(54) **Hole punch**

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Perforateur

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Description

[0001] THE PRESENT INVENTION relates to a hole puncher, and more particularly relates to an adjustable hole-puncher according to the preamble of claim 1.

[0002] It has been proposed previously to provide an adjustable hole-puncher in which the position of at least some of the plungers provided to punch holes are adjustable, to enable hole combinations having different spacings to be punched using the hole-puncher.

[0003] With a hole-puncher of this type it is difficult to place the plungers in the correct positions. EP0540827A1 discloses an adjustable hole-puncher according to the preamble of claim 1 provided with an elongate cylinder which is pivotally mounted at each of its ends adjacent its plungers, and which is provided with a plurality of scales on its surface. A user of the hole-puncher may rotate the elongate cylinder to reveal a scale against which the plungers may be aligned to configure the spacing between the plungers.

[0004] The present invention seeks to provide an improved hole-puncher of this type.

[0005] According to this invention there is provided an adjustable hole-puncher, the hole-puncher comprising a base, the base carrying a plurality of plunger assemblies, each incorporating a plunger and a co-operating die defining an aperture to receive the plunger, at least one of the plunger assemblies being adjustably mounted in position so that the spacing between that plunger assembly and an adjacent plunger assembly may be adjusted, there being an actuating handle mounted to the base, and actuable to drive the plunger of each plunger assembly into the corresponding aperture provided in the die thereof, there being an element rotatably mounted adjacent a slot formed in the base of the punch adjacent the plunger assemblies, the element being an elongate element of polygonal form presenting a plurality of flat faces, said faces carrying markings or indicia thereon, the element being rotatable between positions in which each said face is exposed within the slot adjacent the said plunger assemblies.

[0006] Preferably there are four plunger assemblies.

[0007] Conveniently each of the four plunger assemblies is adjustably mounted in position.

[0008] In one embodiment the elongate element is of triangular section.

[0009] In an alternative embodiment the elongate element is of square section.

[0010] In a further embodiment the elongate element is of pentagonal section.

[0011] Conveniently one of said faces is provided with indicia constituting a ruler, and others of said faces are provided with indicia indicating the appropriate positions of the plunger assemblies for different conventional types of paper.

[0012] In order that the invention may be more readily understood, and so that further features thereof may be appreciated, the invention will now be described, by way

of example, with reference to the accompanying drawings in which:

FIGURE 1 is a front perspective view of a hole-puncher in accordance with the invention,

FIGURE 2 is a rear perspective view of the hole-puncher of Figure 1,

FIGURE 3 is an underneath view of the hole-puncher, and

FIGURE 4 is a view of a component forming part of the hole-puncher of Figure 1, and

[0013] Referring initially to Figures 1 and 2, a hole-puncher 1 is provided which is of the adjustable type. The hole-puncher 1 comprises a base 2 to which is pivotally connected an actuating handle 3. A plurality of plunger assemblies 4, 5, 6, 7 are provided, which are slidably mounted within appropriate slots 8 formed in the base. Each plunger assembly includes a plunger 9 which can move downwardly in response to a downward movement of the actuating handle 3, and a paper-cutting die 10, located beneath the base of the plunger, which defines an aperture of the same diameter as the plunger. Each assembly has a clamping screw 11.

[0014] The base 2 is provided with a retractable paper-guide 12 of conventional design.

[0015] The four plunger assemblies 4, 5, 6, 7 may be selectively positioned by releasing the clamping screw 11 on each assembly which operates a clamping mechanism to retain the assembly in place, and then sliding the assemblies along the slot 7. When the assemblies have been positioned, a piece of paper may be located so that the edge of the paper is received between the die 10 defining the aperture and the plunger 9 of each of the plunger units 3, 4, 5, 6. The handle 3 may then be depressed driving the plungers downwardly to form perforations in the paper. The paper-punchings or chads fall into a tray which catches them, the tray being mounted to the under-side of the base 2.

[0016] In order to assist in the correct location of the plunger units 4, 5, 6, 7 the base 2 of the punch 1 is provided with a ruler arrangement 13 which is provided in the base 2 immediately in front of the plunger units 4, 5, 6, 7. The ruler arrangement 13 comprises an elongate element 14 of generally triangular cross-section provided at one end with a mounting trunnion 15, and provided at the other end with a mounting axle 16, which is co-aligned with the trunnion 15, the mounting axle 16 terminating with an actuating wheel 17. The actuating wheel 17 may have a knurled outer periphery 18.

[0017] The element 14 is of equilateral triangular form, but in an alternative embodiment may have another polygonal form such as, for example, a pentagonal form.

[0018] The element 9 is received within an elongate slot 19 formed in the base 2 of the punch 1, with the

control wheel 17 projecting through its own slot 20 which is at one end of the elongate slot 19. The mounting mechanism includes a friction fitting which permits a positive "stop" when any one of the three flat faces of the element 9 is substantially co-aligned with the upper surface of the base 2 surrounding the slot 19.

[0019] Each of the three faces is provided with different markings thereon. The markings may comprise indications as to where the adjacent plunger assemblies 4, 5, 6, 7 should be located to punch different types of paper so that the paper, when punched, may be stored in conventional files. One face may include a ruler to facilitate the positioning of the plunger units at nonconventional, but precisely predetermined spacings.

[0020] It is to be appreciated, therefore, that in using the hole-puncher of the invention as described above, initially one would determine the nature of the paper to be punched, or the specific spacing to be provided between plunger assemblies, and secondly one would rotate the elongate element 14, using the actuating wheel 17 until an appropriate face of the elongate element 9 is present within the slot 19, and is substantially parallel with the upper surface of the base 2 surrounding the slot 19. The plunger assemblies 4, 5, 6, 7 would then be moved either to be aligned with specific markings provided on the exposed face of the element 14, or to have specific spacings therebetween as determined by a ruler present on the exposed face of the element 14. The hole-puncher will then be used in the usual way to punch paper.

[0021] In the present Specification "comprises" means "includes or consists of" and "comprising" means "including or consisting of".

[0022] The features disclosed in the foregoing description, or the following Claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof, as long as the feature or combination of features falls within the scope of the claims (i.e. it must at least have all the features of claim 1).

Claims

1. An adjustable hole-puncher (1), the hole-puncher (1) comprising a base (2), the base (2) carrying a plurality of plunger assemblies (4, 5, 6, 7), each incorporating a plunger (9) and a co-operating die (10) defining an aperture to receive the plunger (9), at least one of the plunger assemblies (4, 5, 6, 7) being adjustably mounted in position so that the spacing between that plunger assembly and an adjacent plunger assembly may be adjusted, therebeing an actuating handle (3) mounted to the base (2), and actuable to drive the plunger of each plunger assembly

bly into the corresponding aperture provided in the die thereof, there being an element (14) rotatably mounted adjacent a slot (19) formed in the base (2) of the punch adjacent the plunger assemblies (4, 5, 6, 7), the element (14) being an elongate element (14) of carrying markings or indicia thereon, the hole-puncher (1) being **characterised in that:** the elongate element (14) is polygonal form presenting a plurality of flat faces, said faces carrying die markings or indicia thereon, the element (14) being rotatable between positions in which each said face is exposed within the slot adjacent the said plunger assemblies:

2. A hole-puncher according to Claim 1 wherein there are four plunger assemblies (4, 5, 6, 7).
3. A hole-puncher according to Claim 2 wherein each of the four plunger assemblies (4, 5, 6, 7) is adjustably mounted in position.
4. A hole-puncher according to any one of the preceding Claims wherein the elongate element (14) is of triangular section.
5. A hole-puncher according to any one of Claims 1 to 3 wherein the elongate element (14) is of square section.
6. A hole-puncher according to any one of Claims 1 to 3 wherein the elongate element (14) is of pentagonal section.
7. A hole-puncher according to any one of the preceding Claims wherein one of said faces is provided with indicia constituting a ruler, and others of said faces are provided with indicia indicating the appropriate positions of the plunger assemblies for different conventional types of paper.

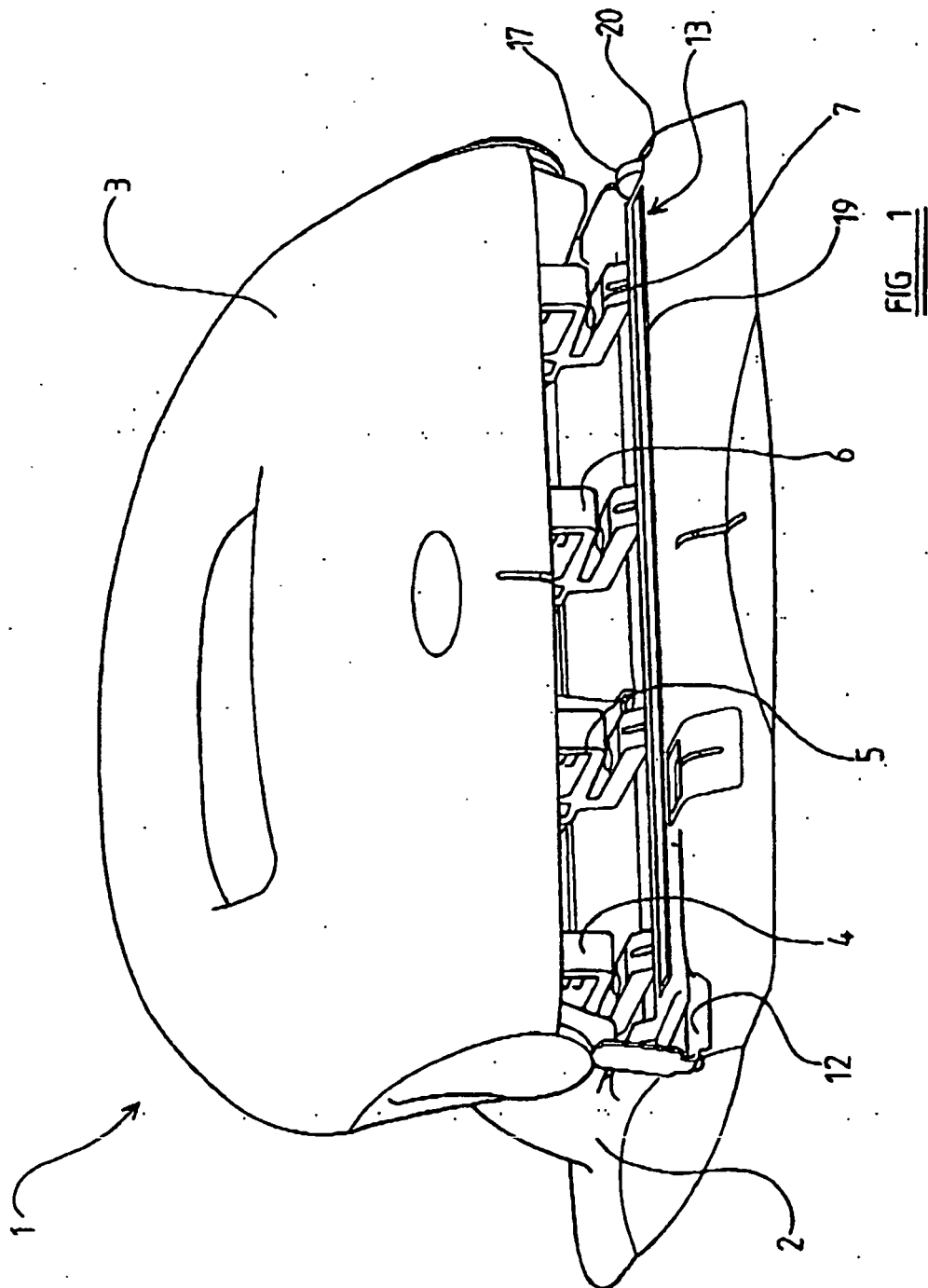
Patentansprüche

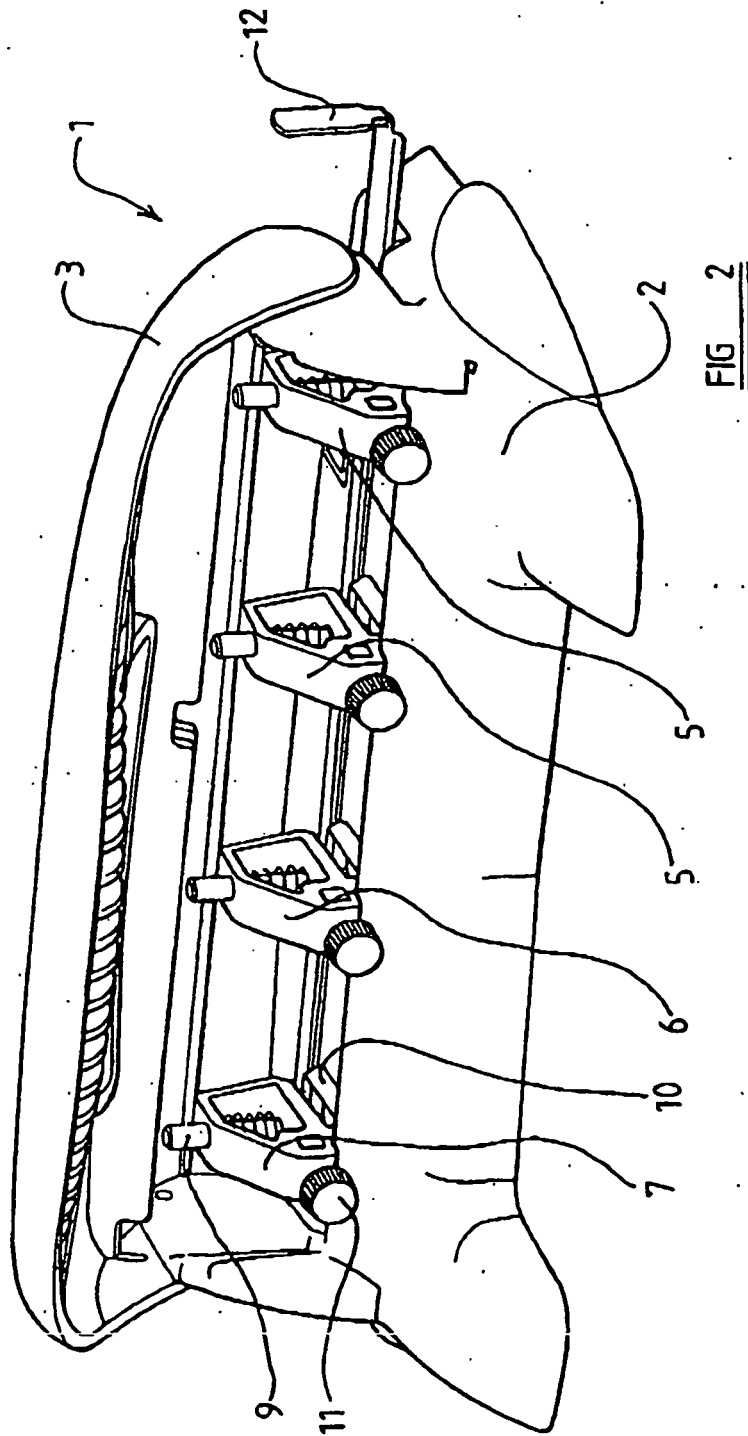
1. Einstellbarer Locher (1), wobei der Locher (1) eine Basis (2) umfaßt, wobei die Basis (2) eine Mehrzahl von StöÙeleinheiten (4, 5, 6, 7) trägt, die jede einen StöÙel (9) und eine damit zusammenhängende Platte (10) umfaßt, die eine Öffnung definiert, um den StöÙel (9) aufzunehmen, wobei wenigstens eine der StöÙeleinheiten (4, 5, 6, 7) einstellbar in ihrer Position so angebracht ist, daß der Zwischenraum zwischen dieser StöÙeleinheit und einer benachbarten StöÙeleinheit eingestellt werden kann, wobei ein Betätigungsgriff (3) vorliegt, der an der Basis (2) angebracht und betätigbar ist, um den StöÙel jeder StöÙeleinheit in die entsprechende Öffnung, die in der Platte derselben vorgesehen ist, hineinzutreiben, wobei ein Element (14) vorliegt, das drehbar benach-

- bart zu einem Schlitz (19) angebracht ist, der in der Basis (2) des Lochers benachbart zu den Stößeinheiten (4, 5, 6, 7) ausgebildet ist, wobei das Element (14) ein längliches Element (14) ist, das Markierungen oder Striche darauf trägt, wobei der Locher (1) **dadurch gekennzeichnet ist, daß** das längliche Element (14) polygonale Form aufweist, die eine Mehrzahl von ebenen Flächen präsentiert, wobei besagte Flächen Plattenmarkierungen oder -striche darauf tragen, wobei das Element (14) zwischen Positionen drehbar ist, in denen jede besagte Fläche innerhalb des Schlitzes benachbart zu den besagten Stößelanordnungen exponiert ist.
2. Locher nach Anspruch 1, **dadurch gekennzeichnet, daß** vier Stößeinheiten (4, 5, 6, 7) vorliegen.
3. Locher nach Anspruch 2, **dadurch gekennzeichnet, daß** jede der vier Stößeinheiten (4, 5, 6, 7) einstellbar in ihrer Position angebracht ist.
4. Locher nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** das längliche Element (14) dreieckigen Querschnitt aufweist.
5. Locher nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, daß** das längliche Element (14) quadratischen Querschnitt aufweist.
6. Locher nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, daß** das längliche Element (14) fünfeckigen Querschnitt aufweist.
7. Locher nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** eine von besagten Flächen mit Strichen versehen ist, die ein Lineal darstellen, und andere von besagten Flächen mit Strichen versehen sind, die die geeigneten Positionen der Stößeinheiten für unterschiedliche herkömmliche Arten von Papier anzeigen.
- ment (14), étant monté pour tourner, de manière adjacente à une fente (19), formée dans la base (2) du poinçon adjacent aux ensembles de poinçons (4, 5, 6, 7), l'élément (14) étant un élément allongé (14) portant des marques et des indices, le perforateur (1) étant **caractérisé en ce que** : l'élément allongé (14) est de forme polygonale présentant une pluralité de faces plates, lesdites faces portant des marques et des indices de matrice, l'élément (14) pouvant tourner entre des positions dans lesquelles chaque dite face est exposée à l'intérieur de la fente adjacente auxdits ensembles de poinçons.
2. Perforateur selon la revendication 1, dans lequel se trouvent quatre ensembles de poinçons (4, 5, 6, 7).
3. Perforateur selon la revendication 2, dans lequel chacun des quatre ensembles de poinçons (4, 5, 6, 7) est monté en position de manière réglable.
4. Perforateur selon l'une quelconque des revendications précédentes, dans lequel l'élément allongé (14) est de section triangulaire.
5. Perforateur selon l'une quelconque des revendications 1 à 3, dans lequel l'élément allongé (14) est de section carrée.
6. Perforateur selon l'une quelconque des revendications 1 à 3, dans lequel l'élément allongé (14) est de section pentagonale.
7. Perforateur selon l'une quelconque des revendications précédentes, dans lequel l'une desdites faces est munie d'indices constituant une réglette, et d'autres dites faces sont munies d'indices indiquant les positions correctes des ensembles de poinçons pour les différents types classiques de papier.

Revendications

1. Perforateur réglable (1), ledit perforateur (1) comprenant une base (2), la base (2) portant une pluralité d'ensembles de poinçons (4, 5, 6, 7), chacun intégrant un poinçon (9) et une matrice (10) coopérante, définissant une ouverture destinée à recevoir le poinçon (9), au moins l'un des ensembles de poinçons (4, 5, 6, 7) étant monté de manière réglable en position, de telle sorte que l'espacement entre cet ensemble de poinçons et un ensemble de poinçons adjacent peut être réglé, une poignée d'actionnement (3) se trouvant montée sur la base (2), et pouvant être actionnée pour entraîner le poinçon de chaque ensemble de poinçons dans l'ouverture correspondante fournie dans la matrice de celui-ci, un élé-





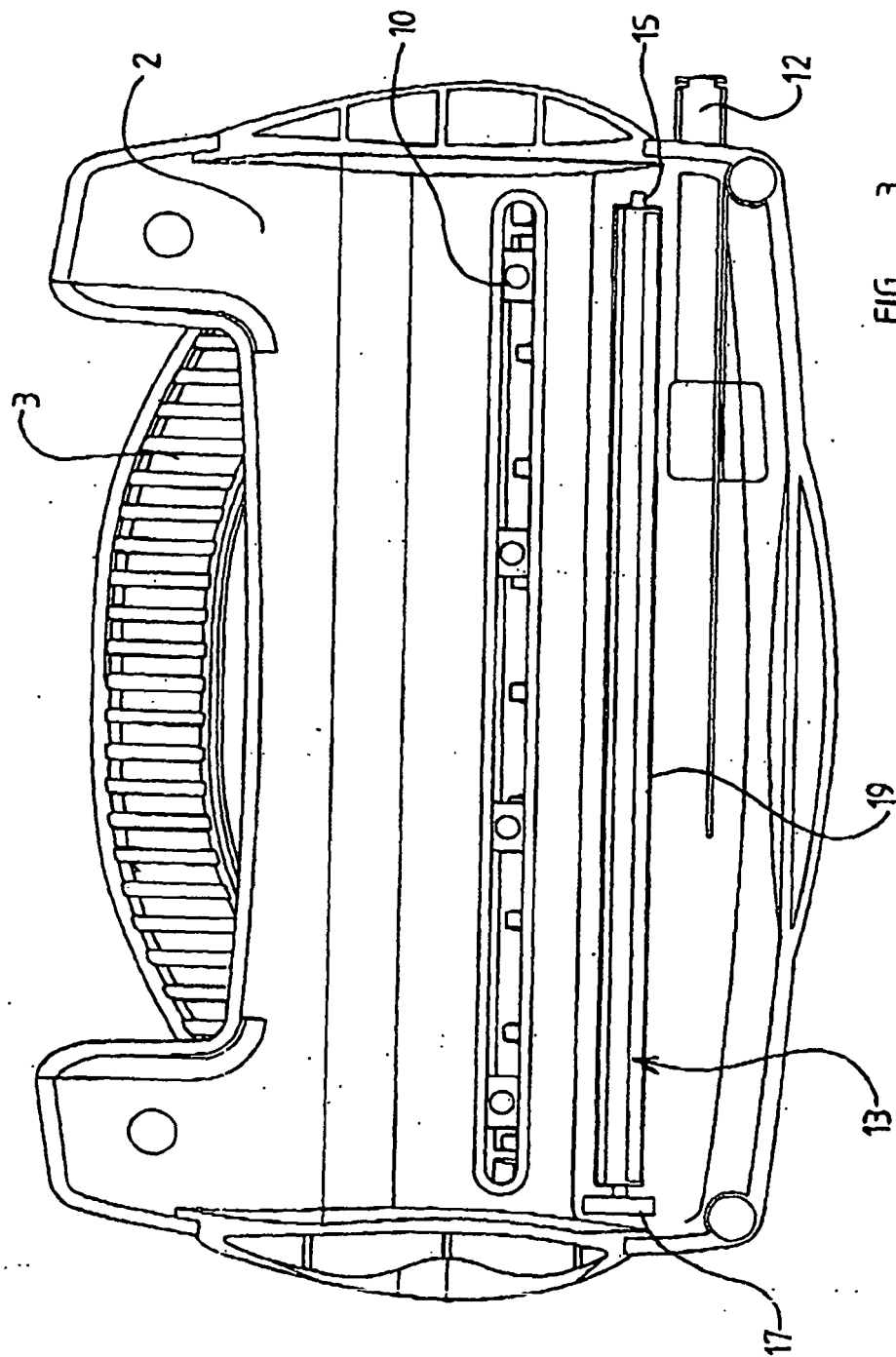


FIG 3

