

C. GEFFERS.
 MEANS FOR PRESSING HOLLOW BODIES HAVING DEPRESSIONS OR CAVITIES AT THEIR OUTER SIDES.
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900,276.

Patented Oct. 6, 1908.

Fig. 1.

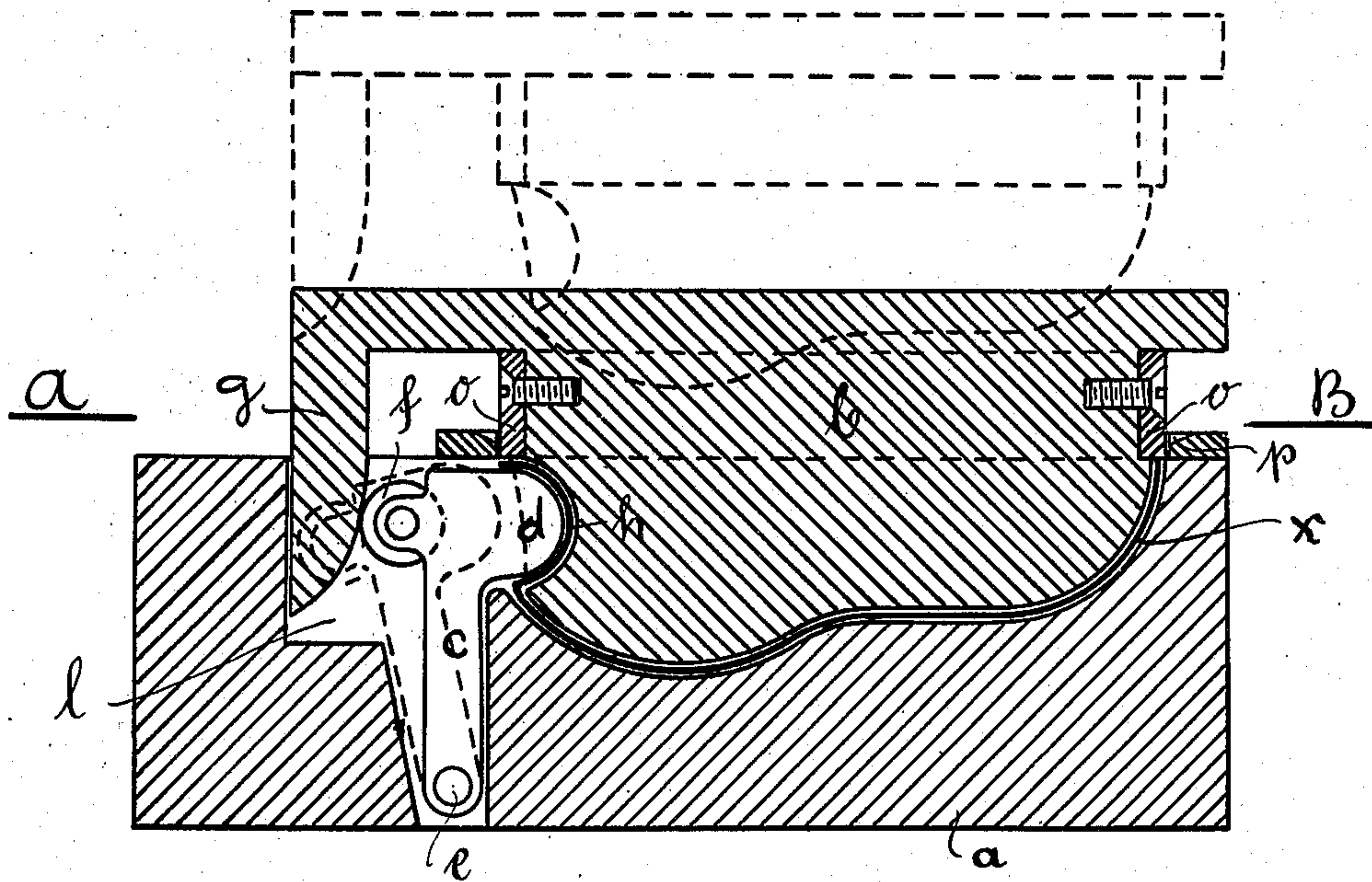
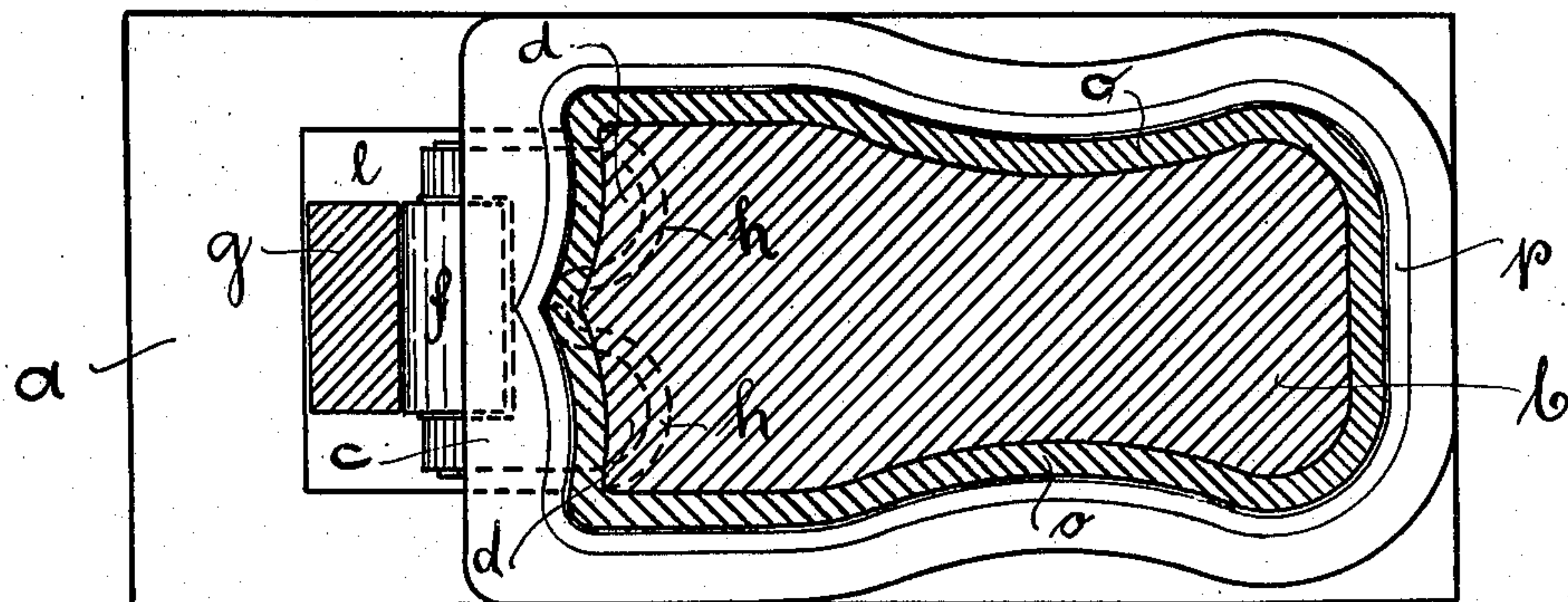


Fig. 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

CARL GEFERS, OF ERFURT, GERMANY.

MEANS FOR PRESSING HOLLOW BODIES HAVING DEPRESSIONS OR CAVITIES AT THEIR OUTER SIDES.

No. 900,276.

Specification of Letters Patent.

Patented Oct. 6, 1908.

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To all whom it may concern:

Be it known that I, CARL GEFERS, manufacturer, a subject of the King of Prussia, German Emperor, and residing at Erfurt, in the Kingdom of Prussia, German Empire, have invented an Improved Means for Pressing Hollow Bodies Having Depressions or Cavities at Their Outer Sides, of which the following is a specification.

Hollow bodies such as the bodies of dolls, toy-animals, or seeming imitations of other objects (so-called "atrappen") are generally manufactured from paste-board or another yielding material, of which pieces of suitable shape and size are pressed so as to form portions of the hollow body to be produced, which then are put together, and united. This mode of manufacture is possible, however, only where there are not required, in the outer side of the hollow body, depressions or cavities of such a depth, configuration and size that this would prevent the respective part from being removed from the mold. Where depressions or cavities of such a kind are necessary, the respective part must be manufactured in two stages, the first stage consisting in producing the respective part either without any depressions or cavities at all or only with such small ones that do not prevent that part from being removed from the mold; and the other stage consisting in either completely producing the cavities or depressions required or deepening those already made, employing special tools in either case. These modes of procedure are circumstantial as well as troublesome, because the material when pressed into shape and thus put partially under tension offers a great resistance to any further deformation. My novel means therefor devised allow of manufacturing the parts in question for hollow bodies in one stage, and in order to make my invention more clear I refer to the annexed drawings, in which

Figure 1 shows by way of example a vertical longitudinal section through one form of execution of a combined mold and apparatus employed for carrying out my novel process. Fig. 2 is a vertical section in line A—B of Fig. 1.

The mold proper consists of the matrix *a* and the patrix *b*, the former having the cavity or recess corresponding to the configuration of the part *x* of the hollow body to

be produced, the other having a projection or kind of stamp of corresponding shape. The problem to be solved is: how to produce depressions of a kind equal or similar to those shown at *h*. This is brought about as follows: There is in the matrix *a*, besides the cavity for the material *x*, a recess *l* containing a lever *c* fulcrumed at *e* and having at its free end projections or stamps *d* corresponding to the depressions *h*, and opposite thereto a roll *f* adapted to be acted on by a lug *g* forming part of the patrix *b*. When forming the part *x* by pressing the patrix *b* into the matrix *a*, also the depressions *h* are formed, because at the same time the lever *c* is turned by the action of the lug *g* upon the roll *f*, thus forcing the material in front of the stamps *d* into the recesses *h* provided for these stamps in the patrix *b*. When the patrix is removed, the stamps *d* leave the depressions formed either voluntarily, *i. e.* merely owing to the shape of the parts in contact, or springs or a counter-poise may be provided for that purpose. Of course, where the shape of the part *x* does not allow of letting the stamps *d* form parts of, or attaching them to, a lever such as *c*, the stamps *d* may be moved rectilinear in suitable guides; and where they cannot be removed, from the same reason as before stated, *i. e.* want of place, by means of a lug such as *g*, a specially provided lever, a bell-crank lever, or other suitable means may be chosen.

The matrix and the patrix may be furnished with knives, as often times done, but instead of providing the patrix with a flat knife or flat knives, as usual, I prefer upright knives, such as *o*, Fig. 1. Irrespective of how the shape of the patrix may be, the upper portion of it can now be completely flat or horizontal, and the upper die of the press which acts upon that portion can contact with the upper surface of that portion in the whole extent of same. By thus arranging the knives not upon the patrix, but laterally at the same, the upper knives can be more correctly adjusted with respect to the lower ones, coöperating with respect to the cut practically like the blades of a pair of scissors.

To prevent the material to be pressed from being torn while being cut I provide the lower knives with oblique surfaces *p* forming at the same time a kind of guide in case the

adjustment of the patrix with respect to the matrix should not have been sufficiently correct.

What I claim is:

- 5 1. As a means for producing, in shaped portions for hollow bodies such as employed for dolls, imitations of animals, and the like, cavities extending into the hollow space of the respective portion at an angle with re-
10 spect to the open side of the same, the combination with a matrix; a recess in the same, a stamp located in said recess and adapted to be moved in the same in the direction to and from the material under treatment; a patrix
15 fitting into said matrix; a recess in said patrix adapted to receive said stamp, and means for moving the latter into the last-named recess, for the purpose as described.
- 20 2. As a means for producing cavities in shaped portions for hollow bodies, such as employed for dolls, imitations of animals and other objects, and the like, the combina-
25 tion with a matrix, a recess in the same, a stamp located in said recess and adapted to be moved in the same in the direction to and from the material under treatment, a patrix
30 fitting into said matrix, and a lug of said patrix adapted to enter said recess and to move the said stamp, substantially and for the purpose as described.
- 35 3. As a means for producing in shaped portions for hollow bodies such as employed for dolls, imitations of animals, and the like, cavities extending into the hollow space of
40 the respective portion at an angle with respect to the open side of the same, the combination with a matrix; a recess in the same, a stamp located in said recess and adapted to be moved in the same in the direction to
and from the material under treatment; a
patrix fitting into said matrix; a recess in
said patrix adapted to receive said stamp,

and means for moving the latter in to the last-named recess; lateral cutting-knives pro-
45 vided at said patrix, counter-knives provided upon the matrix, and oblique surfaces provided at the inner edges of said counter-
knives, substantially and for the purpose as described.

- 50 4. As a means for producing cavities in shaped portions for hollow bodies, such as employed for dolls, imitations of animals and other objects, and the like, the combination
55 with a matrix, a recess in the same, a stamp located in said recess and adapted to be moved in the same in the direction to and from the material under treatment, a patrix
fitting into said matrix, and a lug of said
60 patrix adapted to enter said recess and to move the said stamp, lateral cutting-knives provided at said patrix, counter-knives pro-
vided upon the matrix, and oblique surfaces
65 provided at the inner edges of said counter-knives, substantially and for the purpose as described.

5. As a means for producing depressions in shaped portions for hollow bodies, such as employed for dolls, imitations of animals and other objects, and the like, the combination
70 with a matrix, a recess in the same, a stamp located in said recess and adapted to be moved in the same in the direction to and from the material under treatment, a patrix
fitting into said matrix, and a lug of said
75 patrix adapted to enter said recess and to move the said stamp, substantially and for the purpose as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CARL GEFFERS.

Witnesses:

PAUL TEICHMANN,
MAX THIOR.