March 26, 1935. A. N. BLUM 1,995,959

DIE FOR CUTTING PUZZLES AND LIKE CUT-OUTS

Filed March 18, 1933 2 Sheets-Sheet 1

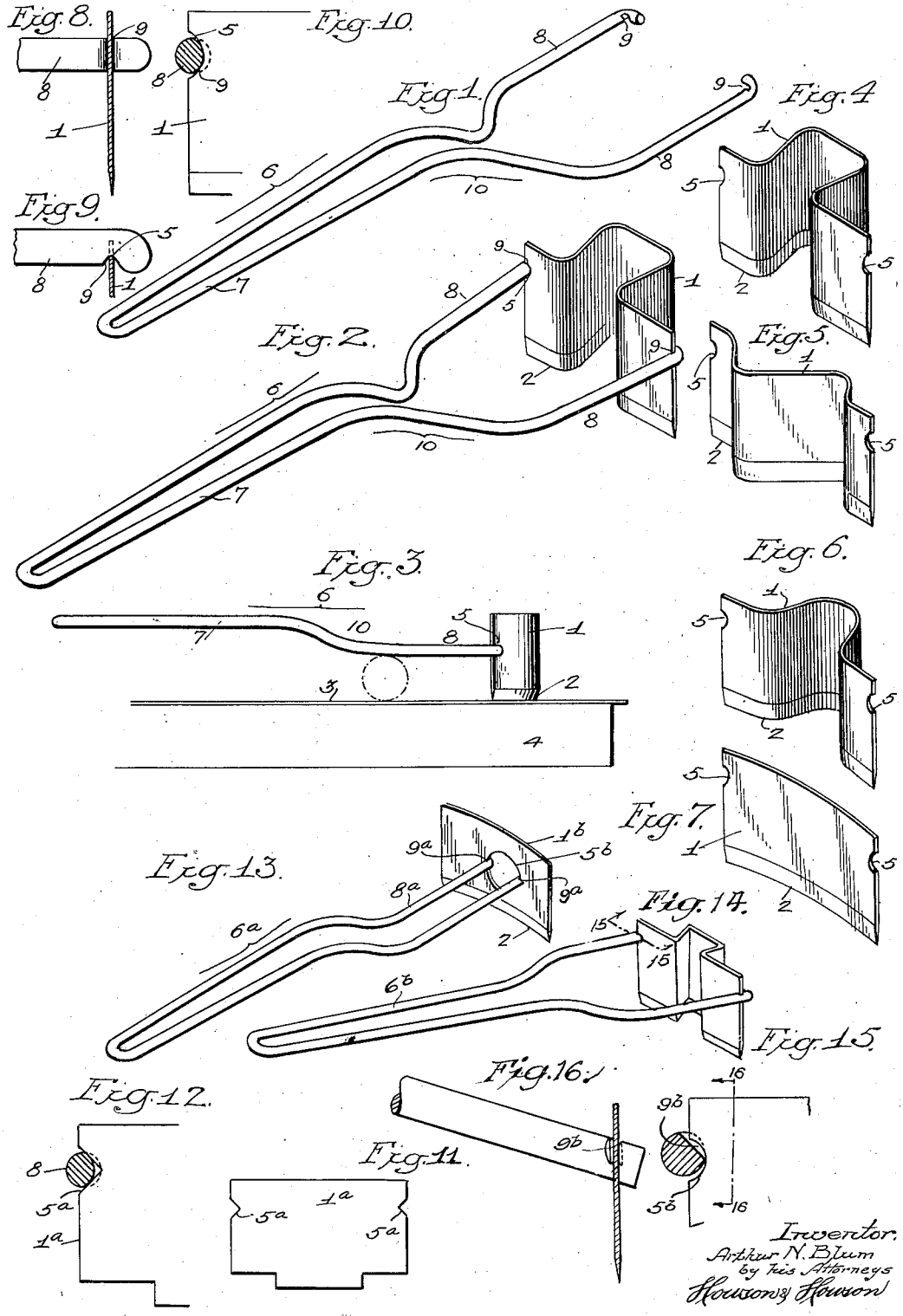

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Fig. 17.

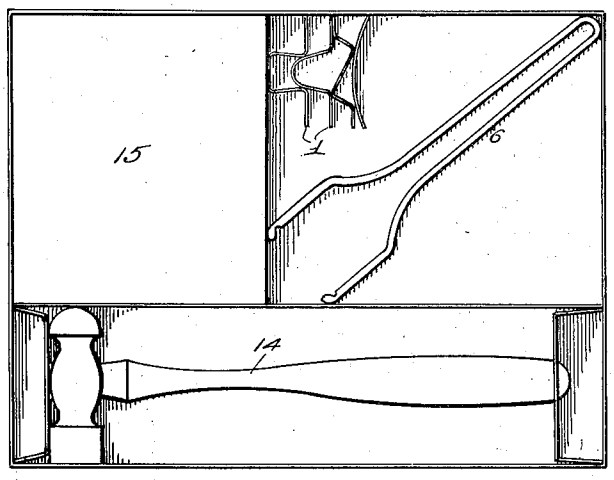


Fig. 18.

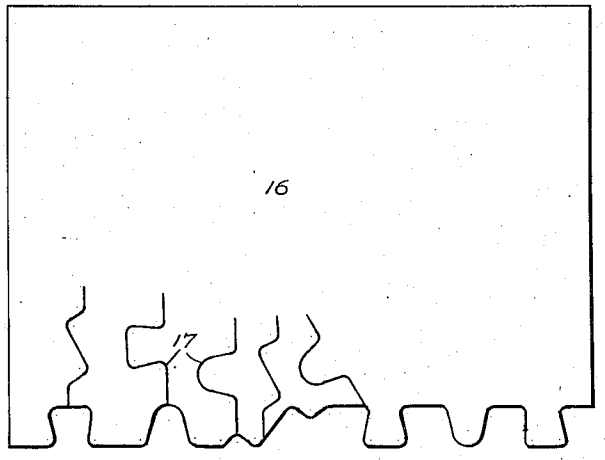
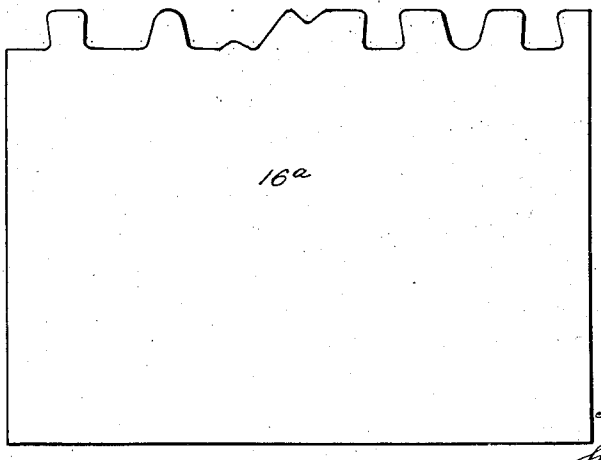


Fig. 19.



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DIE FOR CUTTING PUZZLES AND LIKE CUT-OUTS

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4 Claims. (Cl. 164—80)

The main object of my invention is to provide an outfit for cutting out jigsaw puzzles and the like, which can be readily manipulated and which will accurately cut puzzle sections from a blank in any form decided upon by the person manipulating the cutting dies.

A further object of the invention is to provide means for detachably holding the thin steel rules or cutting blades which form the dies, so that the cutting blades can be held properly in position while being struck by a hammer.

A still further object of the invention is to make the connection between the arms of the handle and the edges of the cutting blades in such a manner that the blade may rest firmly on the blank to be cut regardless of slight variations in the relative positions of the handle and the blank.

A still further object is to so design the handle that it can be used as a lever for withdrawing the blade from the blank being cut.

A kit is preferably provided for the equipment which includes one or more puzzle blanks, said blanks being divided into one or more parts along lines corresponding sectionally in contour to the dies of blades contained in the kit, whereby blanks of considerable size may be included in relatively small containers of a size consistent with the space required by the equipment; and whereby also the dividing lines of the sections of blank may constitute a visible indication to the purchaser of how the tool is used. To this latter end I preferably form in at least one section of the blank and intersecting one edge thereof, a series of cuts of a form produceable by the dies, all as hereinafter more fully set forth.

In the accompanying drawings:

Fig. 1 is a perspective view of the cutting blade holder;

Fig. 2 is a perspective view showing a blade clamped to the holder;

Fig. 3 is a side view of the blade and holder;

Figs. 4, 5, 6 and 7 are perspective views of different forms of cutting blades;

Figs. 8, 9 and 10 are enlarged views showing the construction of the arm of the holder and the blade which allows the blade to rest firmly on the blank to be cut;

Figs. 11 and 12 are views of a modification of the cutting blade;

Fig. 13 is a perspective view of a modification of the invention;

Fig. 14 is a view in perspective of a still further and preferred embodiment of my invention;

Fig. 15 is a fragmentary section on the line 15—15, Fig. 14;

Fig. 16 is a section on the line 16—16, Fig. 15;

Fig. 17 is a plan view of the box with equipment for cutting jig saw puzzles; and

Figs. 18 and 19 are plan views of two sections of a blank which is to be cut to form a jig saw puzzle.

Referring to Figs. 1 to 7, 1 is a sheet steel cutting blade, made in any desired shape and having a cutting edge 2. The upper edge of the blade is flat or blunt so that the blade can be struck by a hammer or other tool when the blade is in position on the cardboard puzzle blank 3 which is mounted upon a cutting block 4. The cutting edge of the blade will, when the blade is struck, cut through the cardboard blank, severing the blank.

The blades may be of any shape desired. Some of the shapes are shown in Figs. 4 to 7, inclusive.

Each blade has a notch 5 in each side as shown in Fig. 4, preferably of the shape shown in Fig. 10.

A holder 6, Fig. 1, is preferably made as shown from a single piece of spring metal, and has a hand-hold 7 formed by bending the bar into loop form. The two ends of the bar are spread apart, forming clamping members 8—8 which are notched at 9 to engage the notched portions of the dies as shown in Fig. 2. The holder is bent downwards at 10, Fig. 3, so as to elevate the hand-hold sufficiently above the cardboard blank, to allow the hand to firmly grasp the hand-hold.

This construction retains the blade in the clamping members of the holder, so that it can be held in position above the bank when the blade is struck by a hammer, insuring a clean cut, which is essential in securing a neat fit of the several sections of the puzzle. When the cut has been made, the blade can be readily withdrawn by grasping the hand-hold, and if desired the holder can be used as a lever by placing the head of the hammer under the holder as shown by dotted lines in Fig. 3, accurately withdrawing the blade without mutilating the edges of the cut.

A die can be readily removed from the holder by simply spreading the clamping members of the holder apart to clear the notches 5 of the blade, and another blade can be placed in position and engaged by the clamping members of the holder.

It is essential that the blade rests firmly on the blank to be cut, so that when the blade is struck by a hammer the cut will be clean and sever the blank on the line of the blade. To accomplish

this, I form the notched ends of the the arms 8 of the holder and the notches 5 in the blade as shown in Figs. 8, 9 and 10. The curve of the notches 5 is greater than the bearing face of the arms 8 at the notches 9, so that the arms bear upon the blade at a single point and the notches 9 are wider than the blade as shown in Fig. 9. This provides a limited freedom of movement between the holder and the blade, so that downward pressure exerted through the holder upon the blade results in a true seating of the cutting edge of the blade upon the blank, regardless of the exact relative position of the holder with respect to the blank surface.

In Figs. 11 and 12, I have shown a blade 1*a* having a short straight cutting edge used for connecting other cuts made by the other dies. In this instance the notches 5*a* are angular and the arms of the holder rest against the two walls of the notches, holding the blade firmly in the holder.

In Fig. 13, I have shown a modification of the invention. The blade 1*b* in this instance has a hole 5*b* of any shape, and the holder 6*a* has two parallel clamping members 8*a*, each having an external notch 9*a*. When not engaging the blade, the spring clamping members are spread apart, and are forced towards each other to enter the hole in the blade, and when released they will engage the edges of the hole as shown.

In Fig. 14, I have illustrated a preferred embodiment of my invention. In this instance, the holder 6*b* is, in effect, straight except for the transversely offset extremities which provide the holder with the necessary capacity to embrace the width of the cutting blade. The extremities of the holder in this instance and as shown in Figs. 15 and 16 are provided with slots 9*b* for reception of the opposite edges of the cutting blades. These slots, see Fig. 16, are of greater width than the thickness of the blade, and are also formed in the holder at an angle affording between the plane of the holder and the plane of the clamped dies an angle somewhat in excess of 90°, this angular relation between the holder and the blade being clearly shown in both Figs. 14 and 16. It is this angularity of the slot 9*b* which permits the holder 6*b* to be made straight, as distinct from the holders 6 and 6*a* shown in the preceding figures. This has a considerable manufacturing advantage, in that it reduces the cost of production.

It will further be noticed by reference to Fig. 15 that the slot 9*b* is formed so that only the lower edge thereof engages in the notch 5*b* of the cutting blade, which gives, in effect, a point contact between the holder and the cutting blade. This, in conjunction with the extra width of the slot 9*b* in excess of the thickness of the blade, affords the desired flexibility or freedom of adjustment between the blade and the holder previously described. The fact that the holder tends to engage the extreme bottom of the notch 5*b* in the blade insures in this case that the sharp edge of the holder at the bottom of the notch will engage the blade at the bottom of the notch 5*b*, as shown in Fig. 15, which insures the greatest possible firmness of grip between the holder and the blade. Relatively heavy pressures may be applied to the blade through the holder without danger of displacing the holder from the notches.

In Fig. 17 a rectangular box 13 is shown which contains the holder 6, a series of cutting blades 1, a hammer 14, and a cutting block 15. The several elements are so arranged as to fit in a comparatively small box as shown.

The box also contains one or more blanks divided into sections, such as 16—16*a*, of a size permitting insertion thereof within the box. These sections as illustrated are divided along lines corresponding sectionally in contour to the dies or cutting blades contained in the box, and provide a visible indication to the purchaser of the manner in which the dies are employed. In order further to aid the purchaser in this respect, I may form in at least one of the blank sections and intersecting the divided or marginal edge thereof a series of cuts of a form produceable by the said dies. By providing a blank divided as described, I not only am able to include in the kit a puzzle blank of considerably greater size than the limited dimensions of the box otherwise would permit, but also provide a visible example of the manner in which the dies are used to produce the puzzle.

I claim:

1. The combination of a cutting blade having a notch at each edge; and a holder having two notched clamping edges arranged to engage the blade at the notches, the holder being less in diameter than the notches in the blade to allow the blade to seat accurately upon the blank to be cut irrespective of any slight pivotal movement of the holder.

2. The combination of a cutting blade of shaped sheet metal having notches in opposite edges thereof; and a holder having bifurcations adapted to engage in said notches, said bifurcations having recesses for reception of the edges of said blade, and said recesses being of greater width than the thickness of said blade; and means providing for substantially point contact between said bifurcations and the blade respectively, whereby said blade is afforded a limited freedom for rocking movement between the bifurcations of the holder.

3. The combination with a cutting blade of shaped sheet metal having notches in opposite edges, of a holder having bifurcations adapted to engage in said notches, and said bifurcations having recesses for reception of the edges of the blade, the bifurcations of said holder being formed to occupy a common plane, and said recesses being formed at a slight angle to said plane whereby the blade is held in the holder at a corresponding angle to the plane of the latter.

4. The combination of a cutting blade of shaped sheet metal having a cutting edge and a blunt striking edge, and a holder having notched arms arranged to engage the blade at two points, said arms engaging the blade at points between the cutting edge and the striking edge, the arms being the sole support of the blade, the connection between the holder and the blade providing a limited relative movement between the blade and the holder, to insure the true seating of the cutting edge of the blade upon the blank, regardless of the exact relative position of the holder with respect to the blank surface.

ARTHUR N. BLUM.