(No Model.)

S. CRUMP.

DIE FOR CUTTING PAPER, &c.

No. 348,548. Patented Sept. 7, 1886.

Fig. 1.

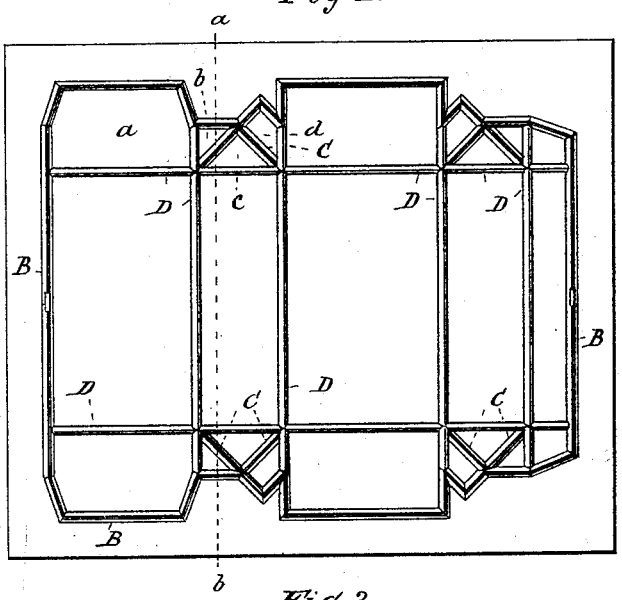
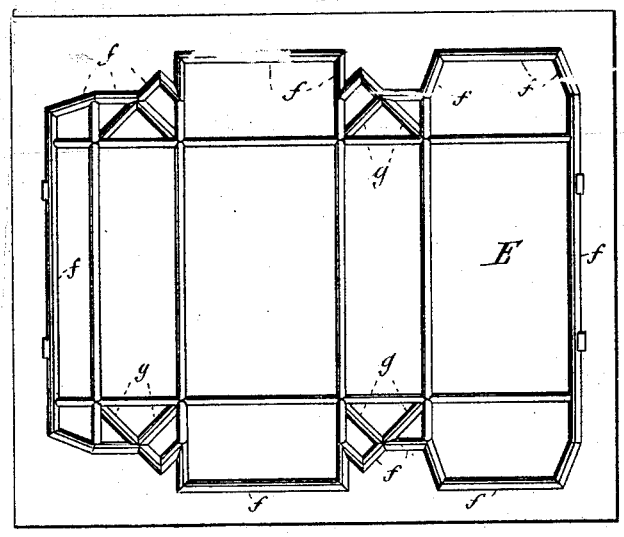


Fig. 2.

Fig. 3.



WITNESSES:

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SAMUEL CRUMP, OF MONTCLAIR, NEW JERSEY.

DIE FOR CUTTING PAPER, &c.

SPECIFICATION forming part of Letters Patent No. 348,548, dated September 7, 1886.

Application filed March 20, 1886. Serial No. 195,933. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL CRUMP, a citizen of the United States, and resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Dies for Cutting Paper, &c., of which the following is a specification.

My invention relates to an improvement in dies for cutting paper or other material, the object being to provide a die which will at one operation cut the material, half cut the same on certain lines, and score it on others, on which it is to be folded in forming a box or other article.

A further object of my invention is to construct a die of practically one piece, and obviate the necesssity of forming separate blocks wherewith to hold the several sections of the cutting-knives and scoring-pieces together.

A further object of my invention is to provide a die which shall be simple and economical in construction, capable of being easily and readily formed, and which shall be durable and efficient in use; and with such ends in view my invention consists in certain novel features of construction, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of my improved die. Fig. 2 is a sectional view thereof on the line *a b* of Fig. 1. Fig. 3 is a top plan view of the templet.

For the sake of illustration I will describe my invention constructed to cut blanks for paper boxes; but I would have it understood that I in nowise limit my invention to such application, as dies constructed in accordance with my improvement might be used for cutting veneers, labels, show-cards, placques, &c.

Referring to the drawings, A represents the base-plate of the die, on which rest the cutting-wires B, arranged to impart to the material being cut the proper outline. On the plate A also rest the cutting-wires C, the edges of which are located in a plane somewhat below that of the edges B, the purpose of the cutting-wires C being to partially cut through the material of which the blank is formed on certain lines on which the box is to be folded. These cutting-wires B C are preferably made of hardened steel, in order to prevent losing their sharpened edges when they come in contact with the metallic plate on which the material being cut rests.

D represents brass wires arranged to score the blank on the lines on which it is to be folded, the upper edges of these wires being located in about the same plane as that of the wires C.

Upon the surface of the plate A is a coating of metal, A′—celluloid or other material—serving to hold the cutting and scoring wires in position on the plate, the said metal or celluloid serving as an anchorage for the wires, and also practically forms the die of one piece. This arrangement I have found far superior to the ordinary cutting-dies, which have generally been constructed of metal blades arranged in accordance with the outline to be given the blank and the brass scoring-rods all held in their proper relative positions by blocks, the whole being set up similar to a form of type and then bound or locked together. It is very evident that the construction of this form of die involves a great expenditure of time and labor—as, for instance, in constructing a die of the form shown in the drawings—it was first necessary to arrange the metal blades similar to the wires B and C, then the scoring-pieces D, and then to form blocks to fit in between the blades and scoring-pieces.

It will be readily seen that to form blocks similar in contour to the polygon *a*, the triangle *b*, the triangle *c*, quadrilateral *d*, &c., in order to hold the blades in position added materially to the cost and time of producing the die, and that by my improved device these objections are entirely overcome.

In forming my improved die I first construct the templet E, which consists of a plate having grooves formed therein for the reception of the cutting and scoring wires, the grooves being formed to hold the wires in positions to impart to the blank the proper outline. In cutting these grooves, which is preferably done by a ruling-machine, care should be taken to form them of proper depths, the grooves *f*, for the reception of the cutting-wires B, being of such depths as to receive wires slightly thicker than the material of which the blank is made, and the grooves *g*, for the reception of the wires C, being of such depth as to receive wires of such thickness as will partially cut through

the material. The cutting and scoring wires are placed within their respective grooves and a coating of metal, celluloid, or other suitable substance spread over the templet and wires, the sharp edges of which latter are turned downwardly, the surface of the templet being first coated, if necessary, with a suitable material, as soapstone or plumbago, to prevent the metal from adhering thereto. The upper edges of the groove formed in the templet are beveled, for the purpose of allowing the metal or celluloid or other substance to partially enter the grooves and take a firm hold of the wires. A plate, A, is then placed on the layer or coating A′, and the whole subjected to heat and pressure, either or both, according to the material of which the coating is composed until said coating has entered the grooves and grasped the wires, and also taken hold of the plate A. After this operation the die is allowed to cool and then raised from the templet, the scoring and cutting wires having their base-edges embedded in the substance of which the anchorage is composed, and by virtue thereof held firmly to the base-plate, and, having scraped away the excess of metal, if any, from around the cutting-wires, the die is ready for use.

It will now be seen from the above description that my improved die can be constructed much quicker and much cheaper than ordinary dies used for the same purpose, and is not so liable to get out of order, as the anchorage of metal or other material forming one piece with the plate and wire is more effective in holding the latter in position than the blocks heretofore described.

Several of these dies may be used conjunctively, and a corresponding number of blanks cut from a sheet of material at one operation, the edges of the cutting-wire being preferably provided with a notch or notches to prevent said blanks from being entirely severed from the sheet of material.

I do not wish to have it understood that I in anywise limit myself to any particular metal or substance for forming the anchorage of the wires, as I might use any of the metals, celluloid, or other substances; but in forming my improved die I would recommend the use of the composition described in the patent granted to me, assignee, No. 336,590, and dated February 23, 1886, which may be spread on the templet in a powdered form, and by the aid of heat and pressure be transformed into a solid metal; nor do I wish it understood that I make any claim in this application to the method of forming my improved die, as I reserve unto myself the right to make such the subject-matter of a separate application.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A die for cutting paper or other material, constructed of cutting-wires arranged in proper relative positions, having their base-edges embedded in a plastic substance hardened to form a solid anchorage for the wires, substantially as set forth.

2. A die for cutting paper and other material, constructed of a base-plate, scoring and cutting wires arranged in suitable relative positions, and a coating or anchorage attaching itself to the base-plate and embedding the base-edges of the wires and securing them in position, substantially as described.

Signed at New York, in the county of New York and State of New York, this 16th day of March, A. D. 1886.

SAMUEL CRUMP.

Witnesses:
GEORGE COOK,
HERMAN GUSTOW.