Oct. 16, 1923. 1,471,169

F. KAYE

APPARATUS FOR THE PRODUCTION OF DESIGNS IN PAPER, MILLBOARD, VEGETABLE LEATHER SUBSTITUTE, AND LINOLEUM SUBSTITUTE

Filed Dec. 9, 1922 2 Sheets-Sheet 1

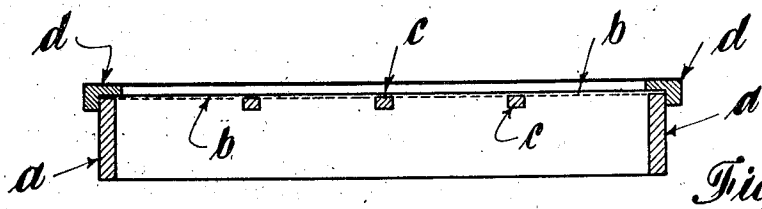


Fig. 1.

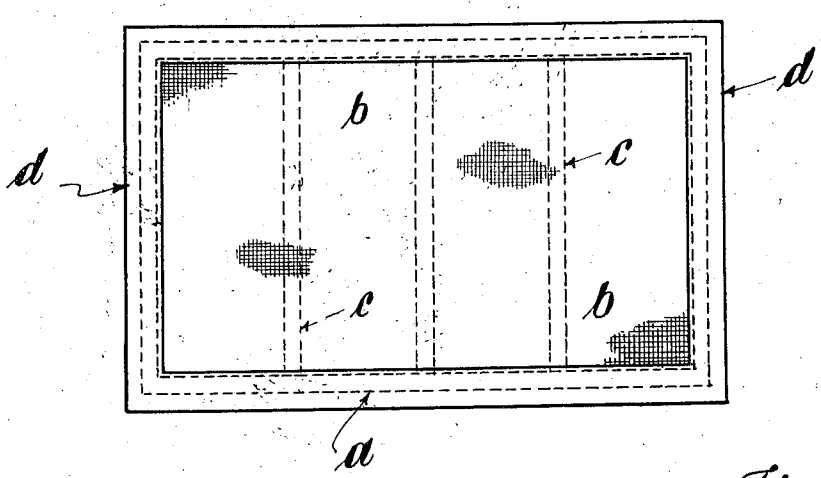


Fig. 2.

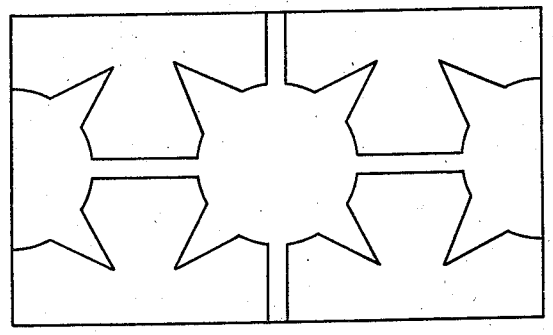


Fig. 6.

Inventor:-
Frederick Kaye
By his Attorney:- Walter Gunn

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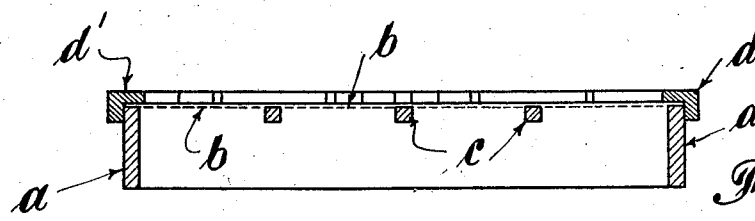


Fig. 3.

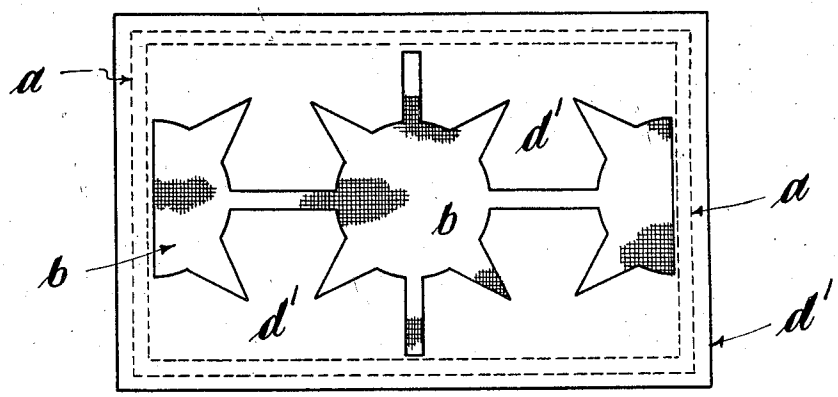


Fig. 4.

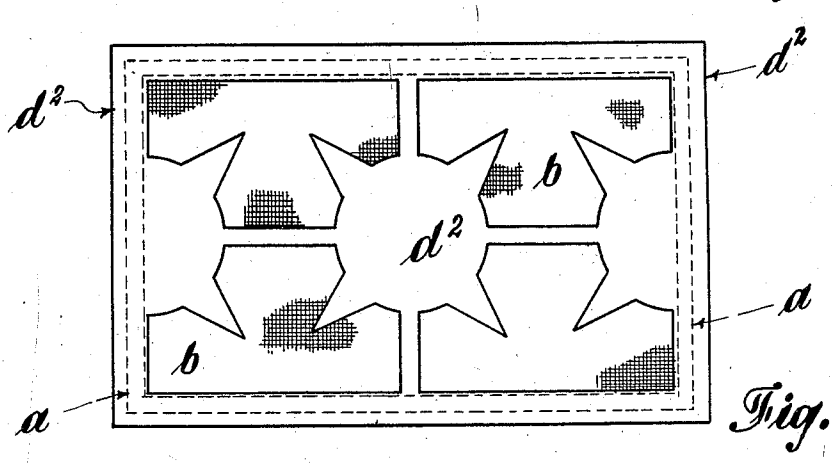


Fig. 5.

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Patented Oct. 16, 1923. 1,471,169

UNITED STATES PATENT OFFICE.

FREDERICK KAYE, OF ASHTON-UPON-MERSEY, ENGLAND.

APPARATUS FOR THE PRODUCTION OF DESIGNS IN PAPER, MILLBOARD, VEGETABLE LEATHER SUBSTITUTE, AND LINOLEUM SUBSTITUTE.

Application filed Dececber 9, 1922. Serial No. 606,006.

To all whom it may concern:

Be it known that I, FREDERICK KAYE, a subject of the King of Great Britain and Ireland, residing at Ashton-upon-Mersey, in the county of Chester, England, have invented a new and useful Apparatus for the Production of Designs in Paper, Millboard, Vegetable Leather Substitute, and Linoleum Substitute (for which application has been filed in Great Britain, No. 25,100, September 22, 1921), of which the following is a specification.

This invention refers to and consists of new or improved apparatus for carrying out a process of producing inlaid pattern effects in hand-made paper, millboard, vegetable leather substitute and linoleum substitute, the said process consisting in super-posing layers of coloured pulp or pulp material upon a foundation layer of pulp (which may be white or coloured), the several layers being amalgamated, while moist, by pressure and drying, into a single article.

The improved apparatus is illustrated on the accompanying drawings, wherein:

Fig. 1 illustrates a longitudinal sectional elevation, and

Fig. 2 a plan view of a mould and deckle as used in the making of hand-made paper.

Fig. 3 illustrates a further longitudinal section of the mould and one of the deckles used therewith in producing the desired inlaid pattern.

Fig. 4 illustrates a plan view of Fig. 3.

Fig. 5 illustrates a plan view of a further deckle, which is the complement of the deckle shown in Fig. 4.

Fig. 6 illustrates a plan of the final product, i. e., a sheet of paper with an inlaid two-colour pattern.

a is the usual wood frame of a paper mould as used for making paper by hand. On its top side said frame is covered with a layer of wire gauze *b*, the transverse bars *c* of the frame helping to support the gauze. *d* is the usual wood deckle adapted to rest upon the frame *a* and surround the space immediately above the gauze, thereby producing a shallow tray-like mould. On floating the mould in the pulp vat, a laver of pulp fills the mould and such layer after shaking the mould in the usual way, is left on the wire gauze in the form of a sheet of wet paper, which is subsequently removed and drained or semi-dried on a felt. This semi-dried paper forms the foundation for the intended inlaid paper.

After producing such first layer, the deckle *d* is removed from the frame, and the deckle d^1 shown in Figs. 3 and 4 is substituted. The deckle comprises a sheet of wood or other suitable material in which is cut the intended design, or part of such design. The mould is then again floated in a pulp vat, but containing a different coloured pulp to that forming the foundation layer aforesaid, whereupon a layer of said coloured pulp fills the space surrounded by the sheet of wood, which after the usual shaking of the mould and removing of the deckle, remains on the gauze in the form of a layer of coloured paper corresponding in outline to the design in the deckle. This layer of wet coloured paper, after draining on the felt, is placed upon the said foundation sheet of semi-dried paper and under pressure amalgamated therewith.

The further deckle d^2 shown in Fig. 5 is then substituted for the deckle d^1 shown in Fig. 4, which also comprises a sheet of wood or other suitable material in which a design is cut exactly agreeing in outline with and forming the complement of the design cut in the deckle d^1. The mould is then floated in a further vat of pulp different in colour from that of the pulp just referred to, whereby a further layer of pulp is produced which after removal from the mould and after draining on the felt is placed upon, and under pressure amalgamated with, the foundation layer, in exact register with the second named layer, the several layers when set, forming one example of inlaid paper. Further deckles are used and further layers of pulp of different colour are produced when the design calls for more than a two-colour design.

Instead of the opening or openings in one deckle being cut to form the complemental outline of the opening or openings in the preceding deckle, the openings in the several deckles may be merely cut to different sizes or forms, and the differences in the sizes or forms of the coloured layers, when laid one upon another, and upon the foundation layer, produce the desired pattern.

In order that the contour, or edges, of the coloured design may be more sharply defined, when the different coloured pulps are laid over the foundation, the under-surface

of the sheet of wood or other material out of which the design, or portion of the design, is cut, may be coated with a thin layer of rubber cut out exactly as the sheet of material with the design. When, therefore, the deckle frame, with its cut out design sheet, is pressed very closely upon the wire gauze, the creeping of the wet pulp beyond the line of the figure of the design is prevented.

A separate mould may be used with each deckle, or as aforesaid, a series of deckles may be used with the same mould.

What I claim is:—

1. Apparatus for carrying out a process for producing inlaid pattern effects in paper, millboard, vegetable leather substitute and linoleum substitute, consisting of a hand-making mould and a deckle therefor having a sheet-like part which overlies the wire gauze of the mould, and has formed in it a design as in fret work, and a layer of rubber applied to the underside of the said sheet-like part, with its inner edge agreeing in outline with that of the design in the said sheet-like part, as set forth.

2. Apparatus for producing designs in paper, millboard, and the like, comprising a hand mold and a deckle therefor, a second deckle having a sheet like part covering the wire gauze of the mold and having a design cut therefrom to expose the gauze whereby the pulp will assume the contour of the design, and a third deckle formed similarly to the last mentioned deckle and having the design thereof complemental to the design of the said last mentioned deckle, the first deckle being adapted to form a foundation layer and the other deckles adapted to form complement design layers which are superposed on the foundation layer in abutting relation, so that a single sheet containing a multi-colored design is produced.

In testimony whereof I have signed my name to this specification.

FREDERICK KAYE.