A. L. GRAMMER.

MAKING SIGNATURES.

APPLICATION FILED MAR. 24, 1919.

1,326,859. Patented Dec. 30, 1919.

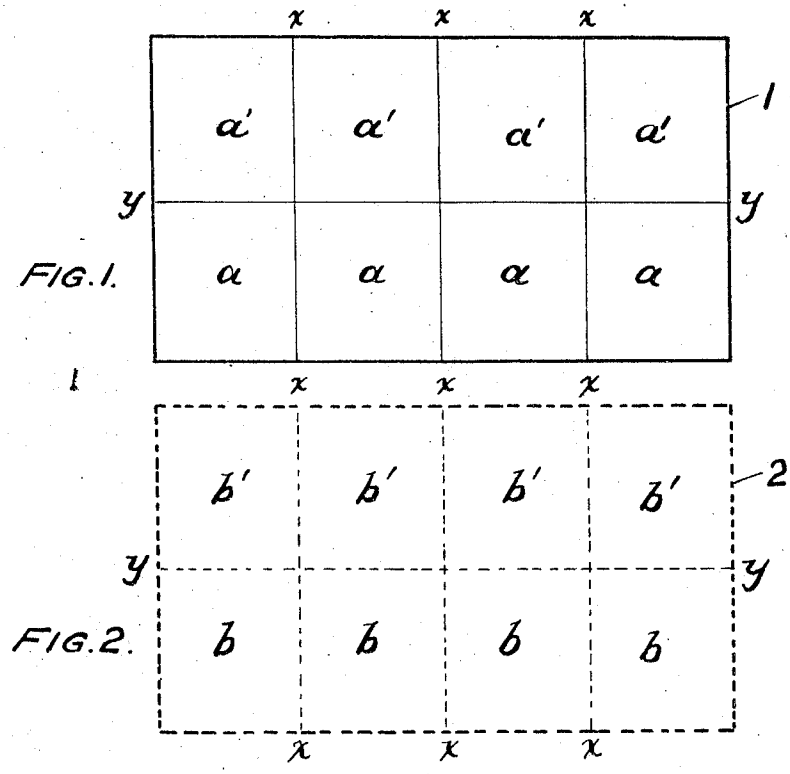


FIG. 1.

FIG. 2.

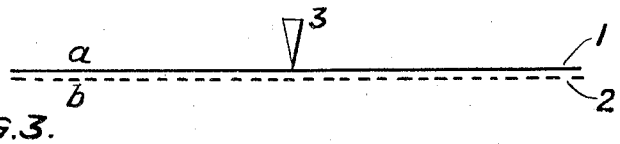


FIG. 3.

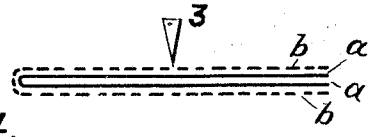


FIG. 4.

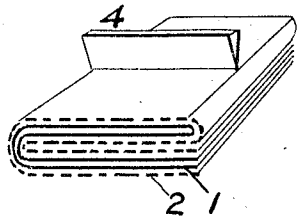


FIG. 5.

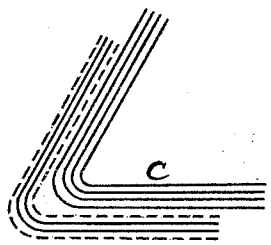


FIG. 6.

WITNESS:

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MAKING SIGNATURES.

1,326,859. Specification of Letters Patent. Patented Dec. 30, 1919.

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To all whom it may concern:

Be it known that I, ALLEN L. GRAMMER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Making Signatures, of which the following is a specification.

A signature is a section of a book or magazine, and may comprise a sheet, printed in many pages, after it has been folded. The making and assembly of signatures is complicated by the introduction of color, for, with the possible exception of a color spread or two pages treating of the same subject, it is a rule or custom that color should not face color but should be distributed among the black pages. Compliance with this rule or custom heretofore required the sheet upon which the color pages were necessarily printed to be cut into pages or groups of pages and these were separately folded into smaller color signatures and then interleaved between black signatures so as to distribute color pages among the black pages and not face color with color.

Again to provide enough black signatures to separate the color signatures required the sheet upon which black pages were necessarily printed to be cut into pages or groups of pages and these were separately folded into smaller black signatures and then interleaved between the color signatures so as to distribute the black pages among the color pages so that no color page faced color with the possible exception of a spread containing two pages of the same subject. In this way the number of signatures required to make a book were multiplied many times over the number the book would contain if all black or if color pages could face color. Black sheets are printed upon presses designed to print one color, whereas color pages are printed upon presses designed to print two or more colors. The number of pages printed upon each sheet depend upon the size of the sheet and the pages printed upon it. If the rule or custom explained did not exist these sheets could be folded into signatures without cutting, and the process of assembling into books greatly simplified.

The making and assembly of signatures because of the introduction of color has:

1st. Made it necessary to cut printed sheets before folding.

2nd. Increased the number of separate signatures to be folded.

3rd. Made it necessary to provide equipment to fold and handle all sizes of signatures.

4th. Increased the amount of waste caused by additional handling.

5th. Complicated the assembling process, as it is more difficult to handle small signatures than large ones and by increasing the number to be collected.

6th. Increased the cost of moving from folding to collating process.

7th. Greatly increased the floor space required.

8th. Greatly increased the labor required to fold and assemble.

9th. Limited the production of the folder, since it operated upon a single sheet, or part of a sheet at a time.

Objects of the present invention are to obviate the above mentioned defects and disadvantages, to increase the production or capacity of the folder, to assemble more books or magazines by reducing the number of signatures to be handled, and to provide that color shall come opposite black with the possible exception of a color spread.

In describing the invention reference will be made to the accompanying drawings in which—

Figure 1, illustrates one face of a sheet printed in black.

Fig. 2, illustrates one face of a sheet printed in color.

Figs. 3 and 4, are views illustrative of a folding operation.

Fig. 5, is a view illustrative of a cutting operation, and

Fig. 6, illustrates an assembly.

In the drawings 1, is a detached sheet printed on both faces with eight pages of black, and pages a and a^1, are duplicates. 2, is a sheet similar to sheet 1, and printed on both faces with eight pages of color and pages b and b^1, are duplicates. The detached sheets described are selected for illustration because they are the usual product

of modern presses, but the invention is not necessarily confined to sheets having sixteen printed pages nor to sheets having duplicate pages, nor to sheets in color on both sides, nor to colored sheets. However, the invention is confined to detached sheets. The sheets 1 and 2, are superposed so that pages a and pages b, and pages a^1 and b^1, overlie each other. The superposed sheets are then folded in the same direction, twice in the present instance, as illustrated in Figs. 3 and 4, between the side edges of duplicate pages, or on the lines x—x in Figs. 1 and 2. 3, indicates a folding means. The folded sheets are then cut transversely of the folds and between the tops and bottoms of the duplicate pages, or along the lines y—y, in Figs. 1 and 2. 4, indicates a cutting means in Fig. 5. By the described operations there are produced duplicate signatures in each of which color faces black and in each of which there is a spread at the center or in other words, two color pages face each other which is permissible under the rule or custom if both treat of the same subject.

The described duplicate signatures can be assembled with other signatures, all black or black and colored, in accordance with the well known practice or variations thereof. One assembly is shown in Fig. 6. One point of the present invention is that color is brought opposite black, the production of the folder is doubled, and the assembly is simplified in respect to the number of signatures to be handled.

If a spread is not desired in duplicate signatures or if fewer color pages are desired in a signature of given size, one side of one of the sheets, for example, the lower side of the sheet 2, should be in black. If duplicate signatures are not required, the pages on each sheet need not be duplicates and some may be in color or in black, and if large size signatures are required the cutting operation is omitted and the first fold is as described but the second fold is at right angles to the first and the third fold is at right angles to the second fold or parallel with the first, and so on according to the number of pages on a sheet. Obviously more than two sheets can be treated as described.

I claim:

1. The method of making duplicate signatures which consists in making an assemblage of detached printed sheets of duplicate pages by superposing single printed sheets of duplicate pages from black and color presses in any desired order and manner prior to folding, folding the assemblage in the same direction between the side edges of duplicate pages, and cutting the folded assemblages transversely of the folds and between the tops and bottoms of the duplicate pages, substantially as described.

2. The method of simultaneously making two signatures which consists in making an assemblage of detached printed sheets of pages by superposing single printed sheets of pages from black and color presses in any desired order and manner prior to folding, folding the assemblage in the same direction between the side edges of the pages, and cutting the folded assemblage transversely of the folds and between the tops and bottoms of the pages, substantially as described.

ALLEN L. GRAMMER.