Aug. 17, 1937. F. O. SMITH 2,090,158

METHOD FOR PRODUCING BLEED FORMS

Original Filed July 7, 1933 2 Sheets-Sheet 1

Fig. 1.

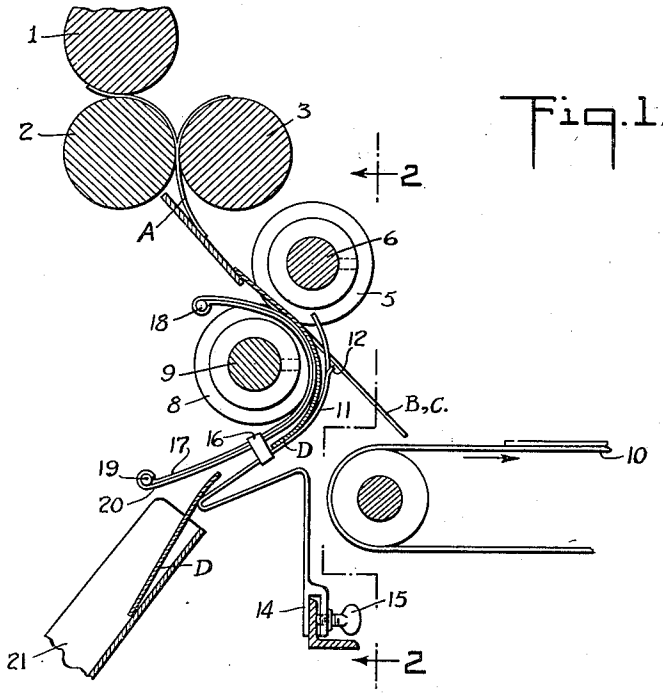
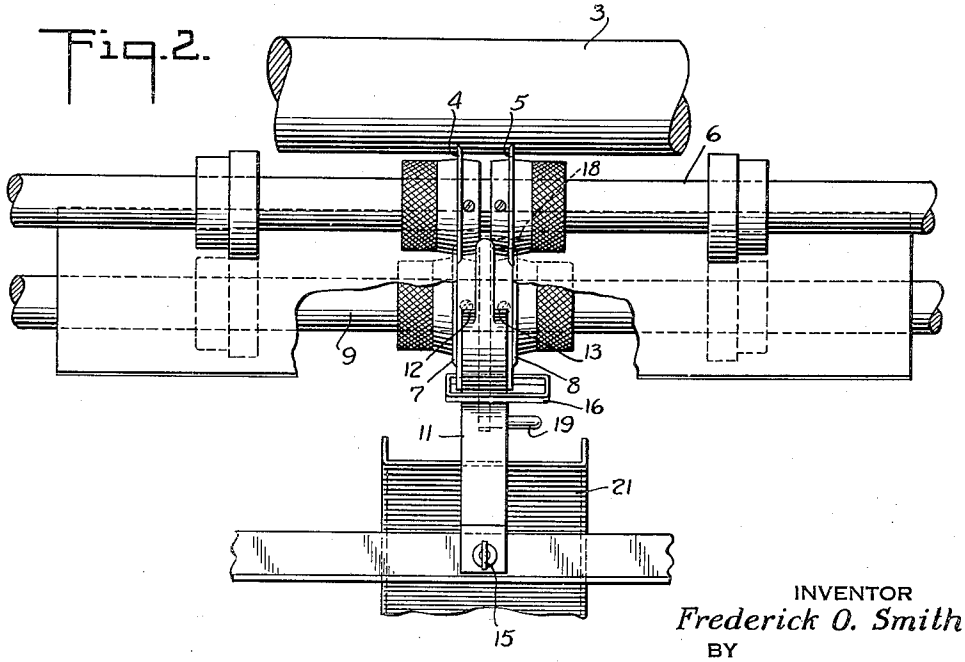


Fig. 2.



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Fig. 3.

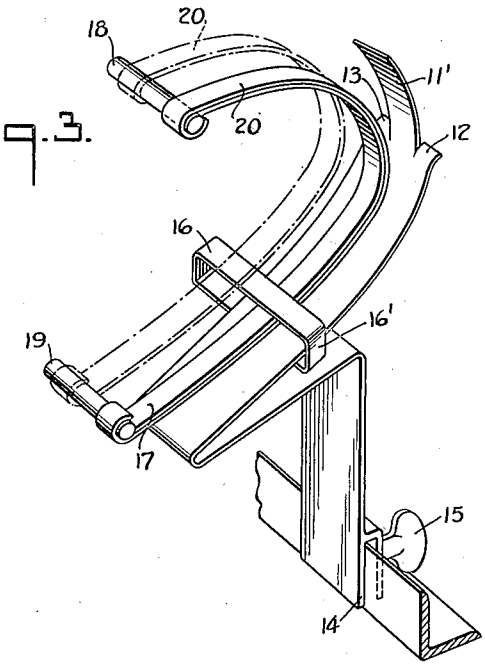
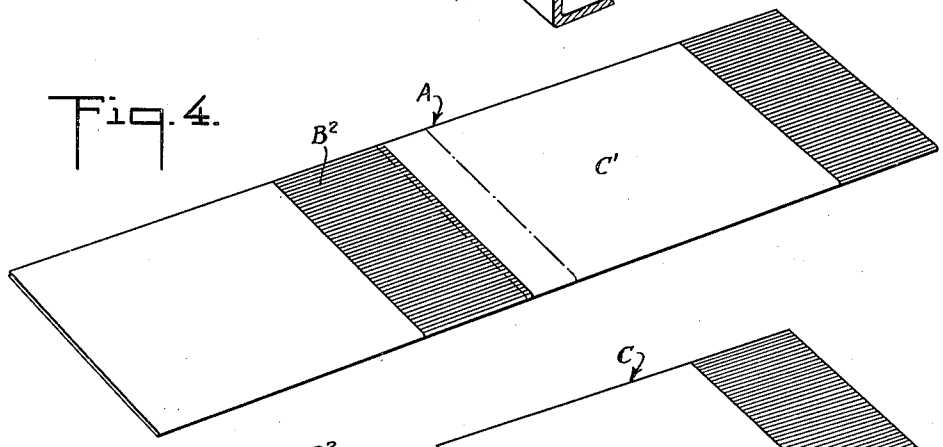


Fig. 4.



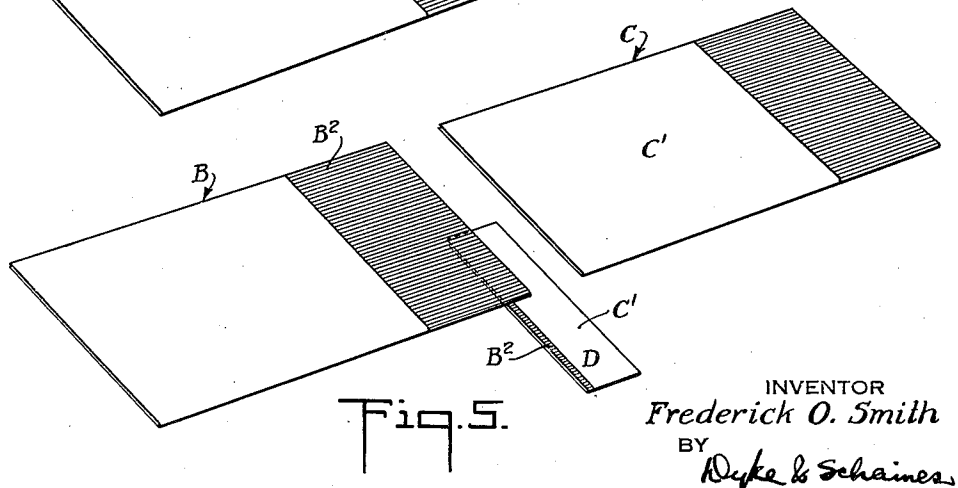


Fig. 5.

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2,090,158

METHOD FOR PRODUCING BLEED FORMS

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Original application July 7, 1933, Serial No. 679,289. Divided and this application June 4, 1936, Serial No. 83,455

4 Claims. (Cl. 101—226)

This application is a division of my application Serial No. 679,289, filed July 7, 1933, which has matured into Patent No. 2,052,519, issued Aug. 25, 1936.

This invention is concerned with the production of single items of printed matter in bleed form, that is, with printing matter running all the way to the edge of the sheet with no blank margin at all, which are first printed in multiple layouts, that is, with a plurality of complete forms printed on a single sheet, and particularly those which have contrasting color or design effects at the edges which are originally joined. In practice heretofore, when it has been desired to secure the advantages of multiple layout printing, and to produce a booklet or the like with a design having opposite edges of contrasting color, shade, or design, for example, one half red and one half white, there have been two alternatives open to the printer. He could use the cutter which is frequently built into a folding machine. If he did this, due to the limitations of human accuracy, he would find the cut going a little into the red, leaving a hair-line of red on the white edge, or vice versa. This spoils the effect of the design. His other alternative was to retrim the product in a separate operation, with consequent added expense and consumption of time. By the present invention, both edges can be trimmed perfectly and automatically in the folding machine.

The solution offered by the present invention involves making the color portion and the adjoining plain portion in the multiple layout each a little wider than desired in the finished product, and cutting out a strip which includes the juncture and extends a little to each side of it, as shown in Figs. 4 and 5.

This may be absolutely necessary in order to cut perfectly clean edges in the one operation, as where in the finished product the north and south edges are contrasting and the east and west edges are also contrasting. Or it may be desirable where only two opposite edges are different from each other, but the exigencies of layout require that those two edges be joined in the multiple form.

It will often be more satisfactory to cut out a waste strip with two spaced cutters than to make a single cut even where the ends of the form do not contrast, because this allows more scope for adjusting measurements, and, also, if the form of cutter used leaves a clean cut at one side but a rumpled edge at the other, the waste strip can be the side to take the rumpled edge and no harm will be done.

The usual folding machine has one or more pairs of opposed circular knives included in it, for cutting up multiple forms as they pass through in the folding operation. The above described method of cutting apart the forms introduces the problem of how to handle the waste strip. I have accordingly devised specific structure to handle it. This structure can be applied as an accessory to the conventional folding machine, its knives being reset or additional ones added as may be necessary.

Referring more particularly to the drawings:

Fig. 1 is a vertical sectional view showing how the multiple forms pass through the cutters and the single forms pass onto a receiving belt, while the waste strips are deflected into a waste chute;

Fig. 2 is an elevational view on the broken line 2—2 of Fig. 1, showing the cutters and the guide for the cut-out strip;

Fig. 3 is a perspective view showing the guide to receive and discharge the narrow waste strip;

Fig. 4 is a perspective view showing a pair of printed forms made up together by multiple layout printing; and

Fig. 5 is a perspective view showing the pair of printed forms after being cut apart to their final single form, the cut-out strip also being seen here.

According to my invention I first print a plurality of layouts of the final bleed form on a larger sheet with ultimate edges of different design effects adjacent each other, the multiple form A in Fig. 4 illustrating this step.

The multiple printed form A then goes through folding rolls 1, 2, 3, and passes between spaced circular knives 4 and 5 mounted on shaft 6, and cooperating knives 7 and 8 mounted on shaft 9. These knives cut the form into two finished products B and C and a waste strip D, which waste strip D will include the juncture between parts C1 and B2 of contrasting color or design, when the form is so gotten up, thus leaving clean edges as explained above.

The finished forms B, C pass on to a belt conveyor 10 for further folding or for stacking.

The waste strips D are engaged by the projecting tongue 11′ of a deflector 11 which curves around the lower cutter shaft 9 and whose tongue extends into the path of travel of the paper fed through. This deflector is narrowed at its tip 11′ to the smallest desired width of the waste strip, and widens at a point just below the path of the paper, serving to catch the waste strips and guide them around and deposit them in a waste receptacle or trough 21. Where the de-

flector widens the shoulders 12, 13 are curled back so that the waste strips will not catch on them. The deflector at its lower end is bent back on itself to terminate in a socket 14 secured to a part of the frame of the machine as by a set screw 15. It can thus be fastened to the frame of the ordinary folding machine.

Between the deflector 11 and the lower cutter shaft 9, there is disposed a stripper 18 which, at the point where the cutting takes place, is within the periphery of the lower cutters 7 and 8. This stripper extends both forwardly and rearwardly, curving out beyond the periphery of the knives, and thus acts to clear the waste strips from between the lower cutters.

The stripper 18 is supported by a generally rectangular bracket strap 16 which extends around both deflector 11 and stripper 18, each of those members being secured to the inside of the bracket strap. Thus, a clear unobstructed channel, of any desired width, is left for the waste strips to pass through, since the bracket-strap extends sideways first before traversing the distance between the deflector and stripper. The short sides 16' of the bracket-strap help guide the waste strips in that they prevent their falling or sliding out to the side.

In a preferred embodiment, the stripper arrangement is made adjustable as to width. As shown in Fig. 3, tongue 17 has parallel rods 18, 19 affixed to its ends, and a second tongue 20 has ends bent part way around these rods. Thus, this tongue 20 can be pushed directly over tongue 17 if the cut-out strip is to be narrow, as shown in full lines in Fig. 3, or can be slid to the side along rods 18, 19 if the strip is to be wider, as shown in dotted lines in Fig. 3.

It is to be understood that I have described and illustrated a particular form of my invention, but the inventive concept can obviously be made use of in various embodiments, so I wish to be limited only by the scope of the claims. Where I have referred to "printed matter", I mean to use that expression generically, to include the products of lithography, embossing, and every other process by which paper, cloth, leather, fabric, metal foil, or the like may have dissimilarities in appearance imparted to parts of its surface.

It is to be understood also that apparatus of my invention may be installed on a press, so that as the printed product comes out of the press, it will pass through my cutters. Such installation could be made on any press, as, for example, web newspaper, gravure, and lithographic presses, in addition to the ordinary printing press. The cutters could be driven from the same power source as the press and in unison therewith.

I claim:

1. The method of producing pieces of printed matter which are to have a portion right up to one edge of a different design effect from the portion at the opposite edge of the article, consisting of printing a plurality of layouts on a larger sheet, with the two edges of different design effects adjacent each other, and cutting out a strip which includes part of each of the two adjacent portions of different design effects.

2. The method of producing pieces of printed matter having dissimilar surfaces extending to opposite edges which consists of printing a plurality of forms on each sheet and then cutting out strips of material which bear thereon the junctures between the dissimilar surfaces of adjacent individual pieces and a narrow portion to each side of said juncture.

3. The method of producing pieces of printed matter having dissimilar surfaces extending to opposite edges which consists of printing a plurality of forms on each sheet, with dissimilar surfaces adjacent each other, and then making two narrowly spaced simultaneous cuts one to each side of the juncture between the dissimilar surfaces.

4. The method of producing pieces of printed matter having dissimilar surfaces extending to opposite edges which consists in printing a plurality of forms on each sheet, with dissimilar surfaces adjacent each other, and then passing the sheet between pairs of narrowly spaced coaxial cutting discs, thereby cutting out a narrow strip which includes an edge portion of each of the said dissimilar surfaces, and leading this waste strip out of the path of the trimmed pieces of printed matter.

FREDERICK O. SMITH.