G. A. MAYER AND H. E. MURRAY.

METHOD OF PRODUCING MULTICOPY FORMS OR BLANKS.

APPLICATION FILED JAN. 21, 1920.

1,385,569. Patented July 26, 1921.

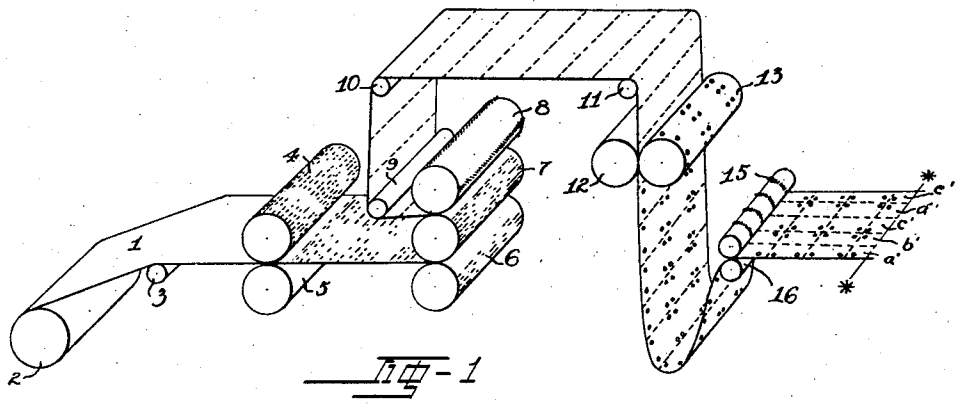


Fig. 1



Fig. 2

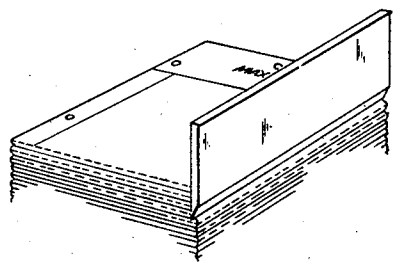


Fig. 3

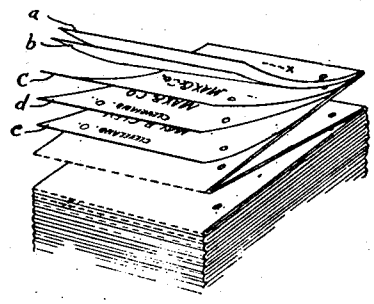


Fig. 4

Inventors

George A. Mayer and

Herbert E. Murray.

By Hull, Smith, Brock & West

Attys

UNITED STATES PATENT OFFICE.

GEORGE A. MAYER AND HERBERT E. MURRAY, OF CLEVELAND, OHIO, ASSIGNORS TO THE MANIFOLD PRINTING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

METHOD OF PRODUCING MULTICOPY FORMS OR BLANKS.

1,385,569. Specification of Letters Patent. Patented July 26, 1921.

Application filed January 21, 1920. Serial No. 353,101.

To all whom it may concern:

Be it known that we, (1) GEORGE A. MAYER, (2) HERBERT E. MURRAY, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Methods of Producing Multicopy Forms or Blanks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention pertains to a method of producing that style of multi-copy forms or blanks comprised of a series of superimposed strips that are folded together in zig-zag fashion for compactness and convenience of handling and that are intended for use with that class of typewriters wherein carbon sheets are permanently supported and through which the forms of blanks may be fed in such manner that the carbon sheets are disposed between adjacent strips so that in writing the bill, order, or whatever the blank may carry, the type impressions on the original copy will be transferred to the subordinate copies. After the forms or blanks are properly filled in upon the typewriter they are withdrawn from the machine and torn from the strip, leaving the next set of blanks or forms in a position to be typewritten, with the carbon sheets in proper place.

Our improved method of producing the forms or blanks of the nature above mentioned consists in, first, dividing a web of paper into longitudinal and transverse sections by creasing or perforating the same lengthwise and crosswise; next, folding it along the longitudinal creases or rows of perforations, as in "fan-fold" fashion, to superimpose the longitudinal sections; then folding it crosswise on the transverse creases or rows of perforations in a zig-zag manner to form a packet; and, preferably, finally in trimming off the lateral folded edges of the superimposing sections to produce independent strips. Any desired ruling or subject matter may be printed upon the rectangular spaces bounded by the longitudinal and transverse creases or rows of perforations prior to or during the foregoing process; and if for any reason it is desired to punch the blanks or forms, as for the purpose of binding them, this may also be done while said process is being carried out.

In the accompanying drawing, we have shown diagrammatically how our improved method may be performed. Figure 1 includes elements of an apparatus wherein the web of paper may be printed, perforated (or creased, if preferred) and punched; Fig. 2 (which may be regarded as a continuation of Fig. 1) shows the web as it is folded first along the longitudinal rows, and then on the transverse rows of perforations; Fig. 3 illustrates the step of trimming the folded edges of the packet; and Fig. 4 is a perspective view of the completed article in readiness for use.

In the drawing, the web of paper is designated 1, and it is shown as fed from a supply roll 2, over a guide roller or bar 3, between a type cylinder 4 and platen 5 (where a series of "forms" are printed upon it), between a second type cylinder 6 and its cooperating platen 7 (where a second series of "forms" are printed upon the reverse side of the web between the column of the first series so that when the web is subsequently folded longitudinally between the columns all the printed forms will face in the same direction). As the web is fed about the platen 7 it is subjected to the action of a perforating drum 8 which perforates it crosswise between adjacent transverse rows or series of rows of "forms." From here the web is led over guide rollers or bars 9, 10 and 11 to the punching cylinders 12 and 13 (which may or may not be included as circumstances require), and thence to the perforating roller 15, which has a coöperating platen 16, where it is perforated longitudinally between the columns of "forms" to produce the strips a', b', c', etc.

Next, the web is folded on the longitudinal rows of perforations in "fan-fold" fashion, then similarly on the transverse rows, as shown in Fig. 2. The forms may be used in this state, if desired, as they are adapted to the method of typewriting hereinbefore referred to; but a more finished form or blank is produced by trimming the lateral edges of the packet. A manner of doing this is suggested in Fig. 3 where the longitudinal folds are shown as being severed from the bodies of the forms by a suitable knife 17, which may be that of a standard paper cutting machine; and the final result is shown in Fig. 4.

When the forms or blanks are completed

they consist of a series of superimposed strips *a*, *b*, *c*, *d* and *e* which are formed by the prior longitudinal columns *a'*, *b'*, *c'*, *d'* and *e'*, respectively, of the web, and each leaf of the packet, so to speak, may contain one or more complete "forms", one being shown on each leaf in the present instance. The transverse rows of perforations are spaced apart a distance to produce a convenient size packet, and the number of "forms" on each leaf is determined by the size of the "form."

While we have shown the web perforated for the purpose of facilitating folding, it will be understood that creasing shall be regarded as a full equivalent thereof, wherefore means for creasing the web may be employed in lieu of the perforating means herein illustrated.

The claims should be read with this equivalency in mind.

Having thus described our invention, what we claim is:

1. The method of producing multi-copy forms or blanks in superimposed continuous series which consists in dividing a web into longitudinal and transverse sections by perforating the same lengthwise and crosswise and folding the web on the longitudinal rows of perforations and in zig-zag manner on the transverse rows of perforations, and trimming off the lateral folded edges.

2. The method of producing multi-copy forms or blanks in superimposed continuous strips which consists in dividing a web of paper longitudinally and transversely by perforating the same lengthwise and crosswise at spaced intervals and folding the web on the longitudinal and transverse rows of perforations, and then trimming off the lateral folded edges of the packet thus formed.

3. The method of producing multi-copy forms or blanks in superimposed continuous strips which consists in dividing a web of paper into longitudinal and transverse sections by perforating the same longitudinally at equally spaced intervals across the web and perforating it crosswise at equally spaced intervals along the web, folding the web in fan-fold fashion on the longitudinal rows of perforations and in zig-zag manner on the transverse rows of perforations and trimming off the lateral folded edges.

4. The method of producing multi-copy forms or blanks in superimposed continuous strips that are punched for binding or other purposes, the method consisting in dividing a web of paper into longitudinal and transverse sections by perforating the same lengthwise at equally spaced intervals across the web and by perforating it transversely at equally spaced intervals lengthwise of the web, punching the rectangular sections bounded by the longitudinal and transverse rows of perforations, folding the web on the longitudinal rows of perforations and in zig-zag manner on the transverse rows of perforations, and trimming off the lateral folded edges.

5. The method of producing multi-copy forms or blanks in superimposed continuous strips which consists in printing longitudinal columns of "forms" on reverse sides of a web of paper, the columns on one side occurring between adjacent columns on the other, the forms so printed occurring in transverse rows, dividing the longitudinal columns and transverse rows or series of rows of "forms" by perforating the web longitudinally and crosswise between the columns and rows or series of rows, folding the web on the longitudinal creases or rows of perforations and in zig-zag manner on the transverse creases or rows of perforations, and in trimming off the lateral folded edges.

In testimony whereof, we hereunto affix our signatures.

GEORGE A. MAYER.
HERBERT E. MURRAY.