June 19, 1923.

1,459,151

A. S. GILMAN ET AL

MANIFOLD PRINTED FORM

Filed May 11, 1920

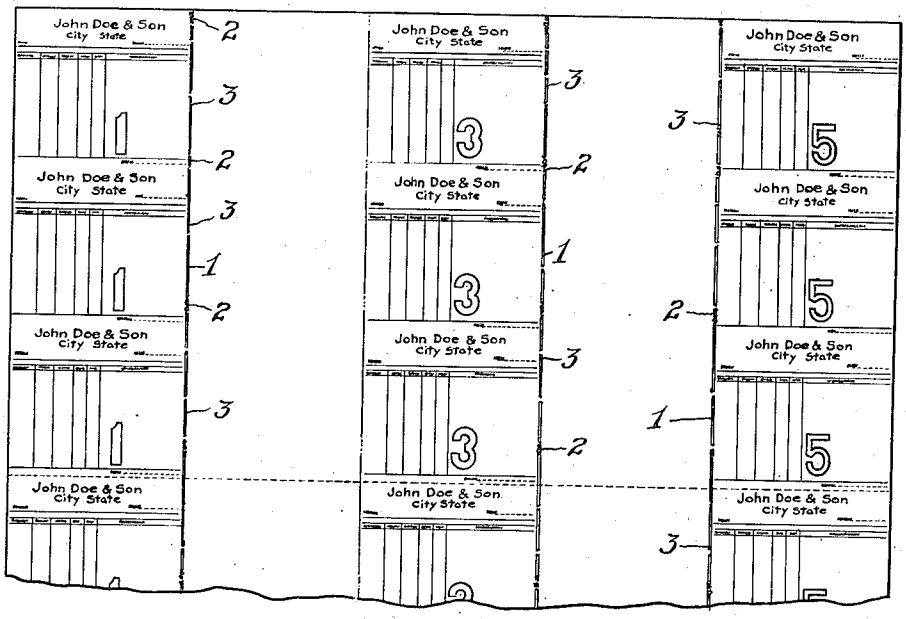

FIG. 1.

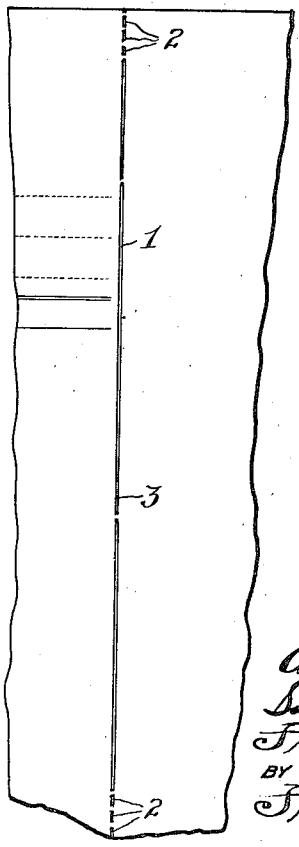

FIG. 2.

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UNITED STATES PATENT OFFICE.

ARTHUR S. GILMAN, SAMUEL C. BENNETT, AND FRED W. KIESLING, OF CLEVELAND, OHIO, ASSIGNORS TO THE A. S. GILMAN PRINTING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

MANIFOLD PRINTED FORM.

Application filed May 11, 1920. Serial No. 380,446.

To all whom it may concern:

Be it known that we, ARTHUR S. GILMAN, SAMUEL C. BENNETT, and FRED W. KIESLING, citizens of the United States, residents of Cleveland, county of Cuyahoga, and State of Ohio, have invented new and useful Improvements in Manifold Printed Forms, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

Our invention relates to manifold form sheets such as are used in making a plurality of records upon a duplicating typewriting machine and which are provided with lines of perforations by means of which the separation of sections of the sheet is effected after the record is made, its object being to provide means whereby such separation of contiguous forms or sections of the sheets may be readily effected, and at the same time provide sufficient connection between the said forms or sections to hold them in accurate registration while the records are being typed.

Heretofore it has been customary in the class of manifold form sheets, to designate and provide the lines of separation by means of short perforations of uniform length and separated from each other by spaces of equal or uniform length. Such arrangement has resulted in two objectionable features, first: such a large amount of paper is unsevered or connected that the tearing operation requires the application of an amount of force such as not infrequently results in tearing the sheets at other places than along the line of the perforation, and second: when properly torn along the perforated line, the resultant edge is rough and hence objectionable.

The specific object therefore of our invention is to provide an arrangement whereby the separation will always be effected along a definitely located line in which the resultant edge will not be of objectionable roughness.

In the annexed drawing:

Figure 1 represents a plan of part of a manifold form sheet embodying our invention.

Figure 2 represents upon an enlarged scale a fragmentary portion of such sheet.

In carrying out our invention we provide as is customary, lines 1, at perforations which define the lines in which the separation of the forms is to be effected. Instead however, of being formed in the usual and conventional manner, each of these lines consists, Figure 2, of groups 2, each consisting of three or four short perforations each about $\frac{1}{16}$ inch in length and separated from each other by spaces of similar length; and groups of long slits or perforations 3 extending about six inches; these groups of perforations and slits occurring alternately as shown in Figure 1.

It will be noted from the above that the adjacent perforations and slits are separated from each other by a very small quantity of paper, and by reason of the employment of the long slits and the small groups of short perforations, the number of connections between the adjacent forms is small. The contiguous sections are therefore detached from each other throughout the very great major portion of their sides, so that a small amount of force is necessary to effect their complete separation, as will be readily understood.

The perforations are formed by means of suitable cutting devices, well known to those skilled in the art, such as rotary knives, so that the edges of the slits are made smooth. These slits constitute the major portion of the edges of the sections and hence the general character of these edge portions will be smooth as is required.

What we claim is:

1. A multiple form sheet comprising a multiplicity of forms, said forms being of varying character transversely but of recurrent character longitudinally, the recurrent longitudinal forms being separated from each other laterally by means of lines of perforations and slits, each line consisting of a plurality of long slits, the material between the slits being perforated by groups of short perforations.

2. A multiple form sheet comprising a multiplicity of forms, said forms being of varying character transversely but of recurrent character longitudinally, the recurrent longitudinal forms being separated from each other laterally by means of lines of perforations and slits, each line consisting of a plurality of long slits arranged in groups, the material between each group of

slits being perforated by groups of short perforations, the groups of short perforations and slits occurring alternately.

3. A multiple form sheet comprising a multiplicity of forms, said forms being of varying character transversely but of recurrent character longitudinally, the recurrent longitudinal forms being separated from each other laterally by means of lines of perforations and slits, each line consisting of alternately occurring long slits and short perforations, the adjacent slits and perforations being separated from each other by a very small amount of the material on which the forms are printed.

Signed by us, this 24th day of April, 1920.

ARTHUR S. GILMAN.
SAMUEL C. BENNETT.
FRED W. KIESLING.