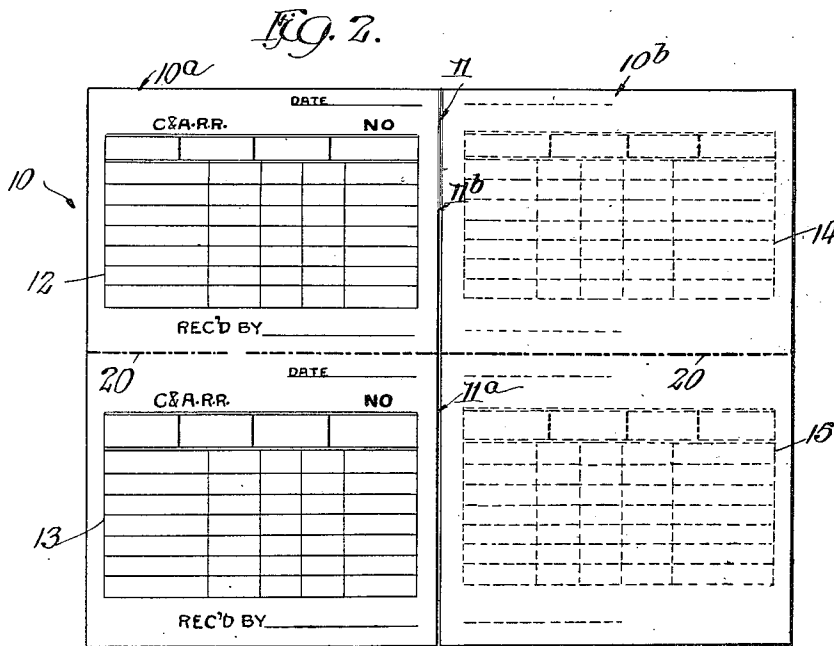
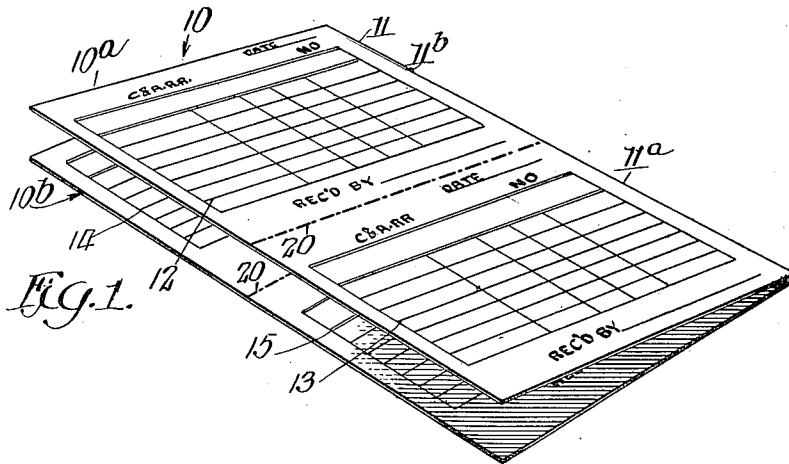


E. Z. LEWIS.
MULTIFORM BILLING SHEET.
APPLICATION FILED OCT. 21, 1910.

1,017,298.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.



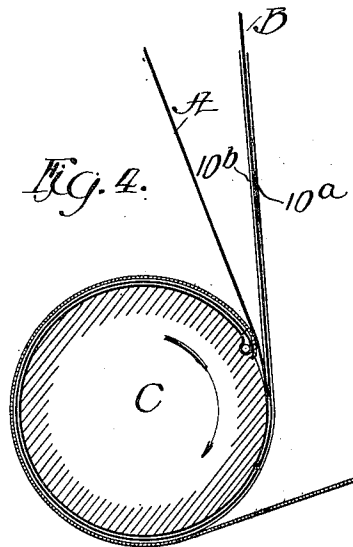
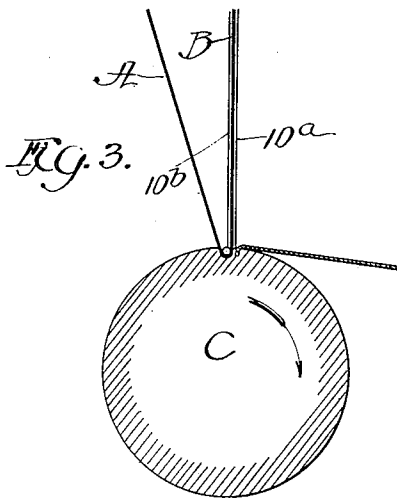
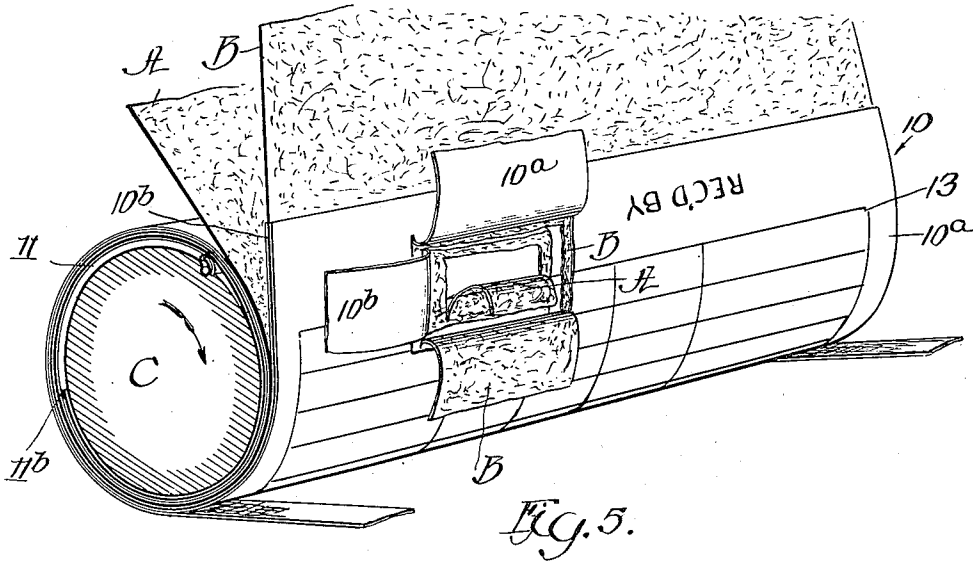
Witnesses:
H. H. Hede
E. Q. Wilkins

Inventor:
Edward Z. Lewis
by Pole & Brown
Attys

1,017,298.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 2.



Witnesses:
J. H. Alfede
J. R. Wilkins

Inventor
Edward Z. Lewis
by *Pool & Brown*
Attys

UNITED STATES PATENT OFFICE.

EDWARD Z. LEWIS, OF CHICAGO, ILLINOIS.

MULTIFORM BILLING-SHEET.

1,017,298.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed October 21, 1910. Serial No. 538,306.

To all whom it may concern:

Be it known that I, EDWARD Z. LEWIS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Multiform Billing-Sheets; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a multiform billing sheet containing a number of printed forms upon one of which is to be typewritten the original, and upon the others of which are to be imprinted carbon copies of said original.

The invention relates particularly to a form of billing sheet comprising two sections, folded one upon the other, and adapted for use in connection with an attachment for typewriters, substantially such as that described in Letters Patent No. 940,336, granted to me on November 16th, 1909, in which is provided a carbon ribbon comprising two sections attached to the platen of the typewriter and adapted to be wound together thereon with the sections of the folded billing sheet interfolded with said sections of carbon ribbon.

The invention consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a perspective view of my improved multiform billing sheet. Fig. 2 is a plan view of the same showing the sheet opened out along its longitudinal medial fold line. Fig. 3 is a sectional view showing the beginning of the operation when the multiform billing sheet is wound with the carbon ribbons upon the platen. Fig. 4 is a similar view showing the billing sheet partially wound on the platen. Fig. 5 is a perspective view showing the billing sheet and ribbon almost completely wound on the platen, with parts of the sheet torn away to show the forms underneath the outer form.

10 indicates the billing sheet as a whole. Said sheet is folded along its longitudinal medial line 11 forming superposed sections 10^a, 10^b, and is provided with a plurality of printed forms 12, 13, 14, and 15, the forms 12 and 13 being printed on the obverse side of one section 10^a of the sheet, while the

forms 14 and 15 are printed on the reverse side of the section 10^b of the sheet. The forms are so arranged on the sheet that when the section 10^b is folded under the section 10^a the forms 14 and 15 will fall under the forms 12 and 13. The two sections of the sheet are divided by a cut 11^a along the longitudinal medial line 11, said cut extending from the bottom of the sheet to a point 11^b near the top thereof. The purpose of this construction will presently appear. The sheet is made long enough so that when folded, with its sections interfolded with the carbon ribbon, it may be wound around the platen once for each form on the sections 10^a, 10^b.

My improved billing sheet is adapted for use with a typewriter attachment in which there is secured to the surface of the platen C, two sections of carbon ribbon A, B, such as are illustrated in Figs. 3, 4 and 5, and one arrangement of which is described in the patent hereinbefore referred to. To place the sheet in position on the typewriter attachment the folded sheet is reversed and inverted and, grasping it near the folded edge with the right hand, the section 10^b is inserted between the two sections of carbon ribbon, while the section 10^a is placed back of the carbon ribbon B. It is then brought down until its top edges engage against the platen C. With the sheet arranged in this manner when the platen is rotated in the direction of the arrow, the ribbon A will be wound next to the platen surface in the first rotation of the platen, and above this will come the section 10^b of the sheet; next above this will fall the ribbon B and above that the section 10^a of the sheet. After the platen has made one complete rotation the ribbon A will, on the second rotation, then be wound above the section 10^a of the sheet and the arrangement of the parts will follow in the same order as before. As to the order in which the forms will fall on the platen, it will be apparent that the form 14 will be nearest the platen, the form 12 next, then the form 15 and on the outside the form 13 (see Fig. 5). If the several forms were all of the same height and the vertical spacing of the printed items or lines were the same, it is apparent that on account of the increased length of the circumference of the roll about the platen, due to the thickness of the paper and of the interposed carbon ribbons, the successive forms would

not register with each other, but the corresponding items or horizontal lines on any form lying below an outer form would register above the same item or line on said
 5 outer form. To overcome this difficulty I make the several forms progressively of increased vertical dimensions substantially as described in Letters Patent No. 963,713,
 10 granted to me on August 31st, 1909. In this case taking the form 13 as the standard, the forms 15, 12 and 14, in the order named, are successively reduced in vertical spacing and in addition, are placed on the sheet at suc-
 15 cessively increasing distances above the positions which they would occupy if all the forms were vertically spaced the same. By this arrangement, any line or item will register exactly with the corresponding line or
 20 item of the other forms so that the carbon copy of what is written on the outer form, the date for example, will fall on the proper line of all the forms. The degree of difference required in the vertical spacing will vary with papers of different thicknesses,
 25 and for carbon ribbons of different weight, but with the same paper and the same thickness of carbon ribbon, the proper vertical spacing may be accurately determined, and then strictly adhered to.
 30 The cut 11^a is provided in the sheet so that the two sections of the sheet will wind smoothly with the ribbon about the platen which will not be the case unless the cut is provided.
 35 So that the forms may be readily separated it is preferable to provide transverse score marks 20, 20 extending across the sections 10^a, 10^b of the sheet and dividing the several forms on each section. Said score
 40 marks may be located in the same place that they would occupy if the forms were all spaced uniformly since the variation in the position of any form simply means a variation of the width of the margin at the
 45 top and bottom of the form.

I claim as my invention:—

1. A multiform billing sheet embracing a sheet folded along its longitudinal median
 50 line to form superposed sections and adapted to be wound two or more times about the platen of a typewriter, each section being

provided with one or more vertically arranged printed forms, said forms being of such size and so arranged that when in position in a typewriter, the forms will register,
 55 the forms on the top section being printed on the obverse side of the sheet and the forms on the bottom section being printed on the reverse side of the sheet, said forms being successively reduced in vertical spac-
 60 ing starting with the bottom form on the top section, and proceeding with the forms of both sections taken in alternation toward the top of the sheet, and the successive forms after the first form mentioned, in the
 65 order named, being spaced at successively increasing distances above the position they would occupy if uniformly spaced.

2. A multiform billing sheet embracing a sheet folded along its longitudinal median
 70 line to form superposed sections, and adapted to be wound two or more times about the platen of a typewriter, each section being provided with one or more vertically arranged printed forms, said forms being of
 75 such size and so arranged that when in position in a typewriter the forms will register, the forms on the top section being printed on the obverse side of the sheet and the forms on the bottom section being
 80 printed on the reverse side of the sheet, said forms being successively reduced in vertical spacing starting with the bottom form on the top section and proceeding with the forms of both sections taken in alternation
 85 toward the top of the sheet, and the successive forms after the first form mentioned, in the order named, being spaced at successively increasing distances above the position they would occupy if uniformly
 90 spaced, the two sections of the sheet being divided by a cut extending from the bottom of the sheet to a point near the top thereof.

In testimony, that I, claim the foregoing as my invention—I affix my signature in the
 95 presence of two witnesses, this 14th day of October A. D. 1910.

EDWARD Z. LEWIS.

Witnesses:

GEORGE R. WILKINS,
 T. H. ALFREDS.