

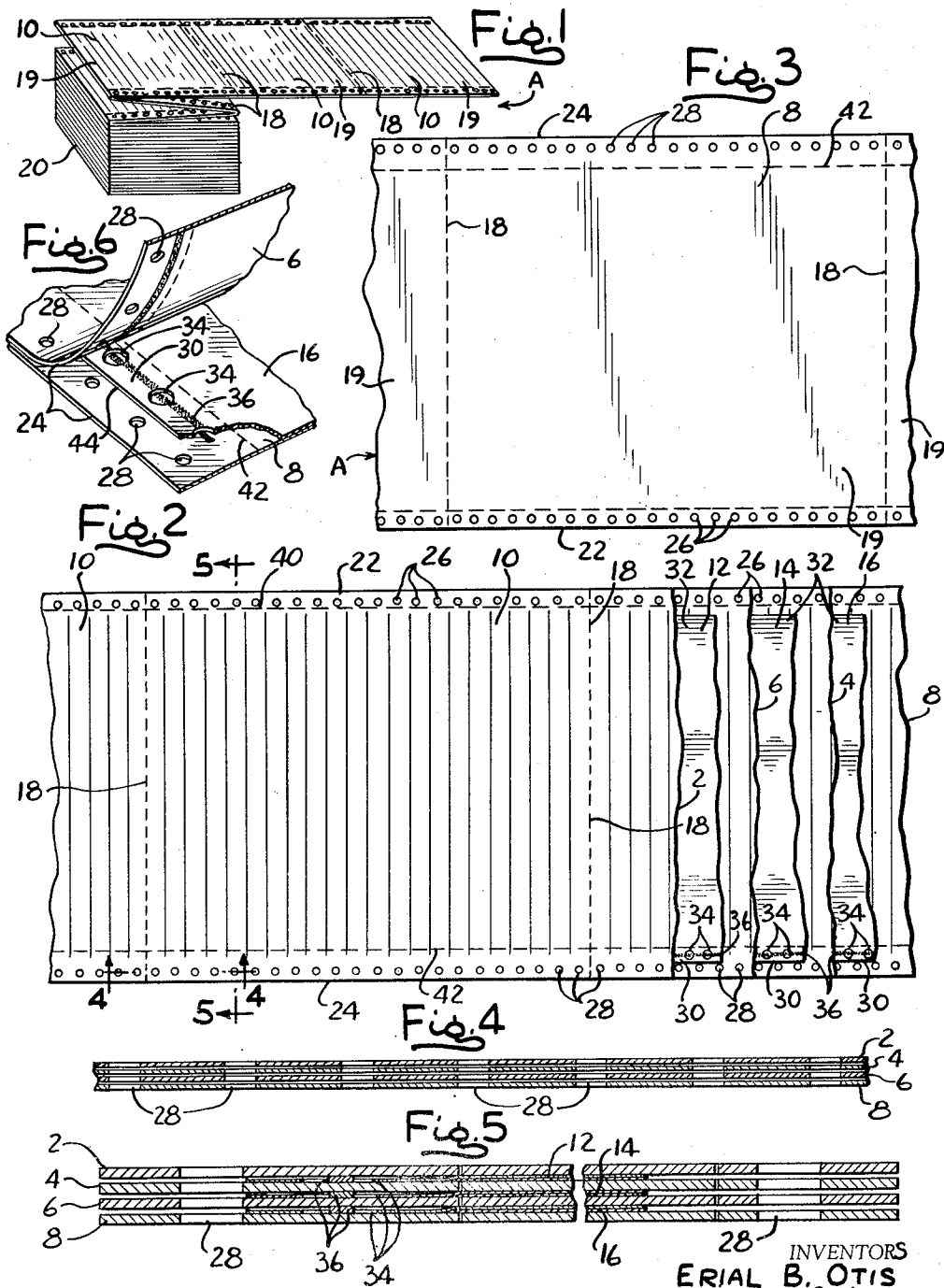
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CARBON INTERLEAVED BUSINESS MACHINE FORMS

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CARBON INTERLEAVED BUSINESS MACHINE FORMS

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This invention relates to carbon interleaved business machine forms and more particularly to such forms as are marginally punched to facilitate the feeding of the forms into and through a business machine.

It is one of the objects of the present invention to provide methods and means whereby the carbon sheets are secured in place between successive sheets having the forms and wherein the securing arrangement is such as to provide a minimum increase in thickness and stiffness of the interleaved form and carbon sheets at the place or along the line where the sheets are secured together.

It is an object of the present invention to provide a sheet assembly wherein the same line of glue that secures the form sheets together also secures the interleaved carbon sheets in place. A single line of glue or adhesive is provided between adjacent form sheets. Each of the intervening carbon sheets has a plurality of slots or holes therein which are along the line of the adhesive. By this arrangement one margin of the carbon paper is adhered along one margin of an adjacent bond sheet and, where the carbon paper has the holes or perforations, the glue extends through the holes or perforations and secures together the two form sheets on opposite sides of the intervening carbon sheet. As a result, a single line of glue secures one sheet of form paper and one sheet of carbon paper to an adjacent sheet of form paper. This reduces the total amount of glue required to secure the sheets together and thereby reduces the thickness and the stiffness of the assembled sheets along the line of gluing. This is of importance in connection with interleaved business machine forms of the continuous type wherein the forms are advanced in the printing machine by mechanism that cooperates with perforations in the forms to move them along and around rollers where they are positioned during the printing operations.

It is a further object of the present invention to provide an arrangement wherein the gluing margin of the interleaved carbon sheet is devoid of carbon material. As a result of this arrangement the glue that is later applied has a greater tenacity for the paper and, in addition, there is no tendency to blacken the glue-applying device or to leave a line of carbon on any portion of the form sheet upon ultimate separation of the sheets.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawing forming a part thereof.

In the drawing:

FIG. 1 is a perspective view of carbon interleaved business machine forms constructed in accordance with and embodying the present invention;

FIG. 2 is a fragmentary top plan view, partly broken away and on an enlarged scale, of the assemblage of FIG. 1;

FIG. 3 is a bottom plan view of the assemblage of FIG. 1;

FIGS. 4 and 5 are fragmentary sectional views taken along lines 4—4 and 5—5 of FIG. 2; and

FIG. 6 is a fragmentary perspective view of the assemblage and showing the manner in which the sheets are secured together.

Referring now in more detail and by reference charac-

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ters to the drawing, which illustrates the preferred embodiment of the present invention, A designates a sheet assembly of carbon interleaved business machine forms. The assembly A comprises a plurality of form sheets 2, 4, 6, 8 having repeating printed patterns 10 that may consist of transverse lines or any other patterns to be used in conjunction with the business machine into which the assembly is fed. Interleaved between the form sheets 2, 4, 6, 8 are carbon paper sheets 12, 14, 16. In the embodiment illustrated four form sheets 2, 4, 6, 8 and three carbon paper sheets 12, 14, 16 are shown, but it will be apparent that a greater or lesser number of form sheets and carbon paper sheets may be used in the assembly A. The form sheets 2, 4, 6, 8 and carbon paper sheets 12, 14, 16 have perforated tear lines 18 running from one longitudinal margin of the assembly A to the other longitudinal margin thereof, intermediate the repeating patterns 10, to enable a group 19 consisting of carbon paper sheets and form sheets containing complete patterns to be separated as a unit from the remainder of the assembly. Furthermore, the perforated lines 18 enable groups of sheets 19 to form a stack 20 from which the sheets may be withdrawn and fed into a business machine.

The form sheets 2, 4, 6, 8 each have longitudinal margins 22, 24 that are punched out to provide holes 26, 28 which cooperate with a conventional feeding mechanism on the machine to enable the assembled sheets to be fed through the machine. The carbon paper sheets 12, 14, 16 also each have longitudinal margins 30, 32 which are adjacent to the longitudinal margins of the form sheets but inwardly of the holes 26, 28.

At the longitudinal margin 30 each of the carbon paper sheets 12, 14, 16 has a series of longitudinally spaced holes 34. As best seen in FIG. 6, a longitudinally extending narrow band or line of glue or other suitable adhesive 36 is disposed at the spaced holes 34 for bonding together one form sheet, as for example, the sheet 6 and the adjacent carbon paper sheet 16. However, the adhesive 36 also penetrates the holes 34 in the carbon paper sheet 16 so that when the form sheets 6, 8 are pressed together, the two form sheets 6, 8 will be bonded together at the holes 34. As best seen in FIG. 6 the adhesive band 36 may be considerably narrower than the diameter of the holes 34. Thus, by the present invention, a single line of glue may secure together two form sheets and an interleaved carbon paper sheet. Successive carbon paper and form sheets may be secured together in a similar manner, except that one of the form sheets will be comprised of carbon and form sheets that have been previously secured together in the manner just described. Consequently, when four form sheets and three carbon paper sheets are used, only three lines of glue are required, thereby reducing the stiffness of the assembly at the glued margins over that which would be present if glue were applied to both sides of each carbon paper sheet.

In connection with the present invention it should be noted that the glue-applying device and associated apparatus is conventional and is, therefore, not shown and described in detail herein.

The carbon paper and form sheets also have longitudinally extending perforated lines 40, 42, the latter line inwardly of the holes 34 and adhesive line 36. The perforated lines 40, 42 enable all of the sheets of a unit 19 to be separated from each other after those sheets have passed through the business machine. Moreover, the portion of the carbon paper sheets between the perforated lines 42 and the edges 44 (FIG. 6) are preferably free of carbon paper, this being accomplished during the manufacture of the carbon paper sheets. By having the aforesaid portions devoid of carbon material, the glue-

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applying device is not smudged and better adhesion is obtained between the sheets.

In compliance with the requirements of the patent statutes we have herein shown and described a preferred embodiment of the invention. It is, however, to be understood that the invention is not limited to the precise construction herein shown, the same being merely illustrative of the principles of the invention. What is considered new and sought to be secured by Letters Patent is:

1. In a method of making a sheet assembly that includes business machine form sheets having adjacent margins and in which the longitudinal margins of the form sheets have punched out portions to facilitate feeding of the assembly through a business machine, and a sheet of carbon paper interleaved between adjacent form sheets and with a margin of each carbon paper sheet being adjacent to the margins of the form sheets and with there being a series of spaced holes adjacent to said margin of each carbon paper sheet; applying between one side of a carbon paper sheet and one of the form sheets and between and over the spaced holes a single application of adhesive that penetrates the holes to bond together the two form sheets on opposite sides of the carbon paper sheet by mutual contact of the two form sheets with the adhesive that penetrates the holes and at the same time bond the carbon paper sheet to the form sheet that faces said one side of the carbon paper sheet by the mutual contact of the last mentioned form sheet and the carbon paper sheet with the rest of the adhesive.

2. In a method of making a sheet assembly that includes business machine form sheets and a carbon paper sheet interleaved between adjacent form sheets and in which the longitudinal margins of the form sheets have punched out portions to facilitate feeding of the assembly through a business machine, said method comprising pro-

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viding a carbon paper sheet with a series of longitudinally spaced holes adjacent to one longitudinal margin thereof, placing together a first form sheet and the carbon paper sheet with one longitudinal margin of the first form sheet adjacent to said one margin of the carbon paper sheet such that said longitudinal margin of the carbon paper sheet is inwardly of the punched out portions and the holes in the carbon paper sheet expose portions of the first form sheet, applying a single application of adhesive over the exposed face of the carbon paper sheet at said longitudinal margin thereof between and over said holes so that the adhesive penetrates the holes and is deposited on said first form sheet at the holes, assembling with the first form sheet and carbon sheet a second form sheet so that the second form sheet is on the side of the carbon paper sheet that has the band of adhesive and overlies the holes and is in substantial longitudinal marginal registration with the first form sheet, and pressing together the two form sheets in the region of the adhesive to bond the two form sheets together by mutual contact of each with the adhesive that has penetrated the holes and at the same time bond the carbon paper sheet to the second form sheet by mutual contact of each with the rest of the adhesive.

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