June 9, 1942. V. C. HOLLINGSWORTH 2,286,094

SELECTIVE PRINTING

Filed Aug. 5, 1939 2 Sheets-Sheet 1

Fig. 1.

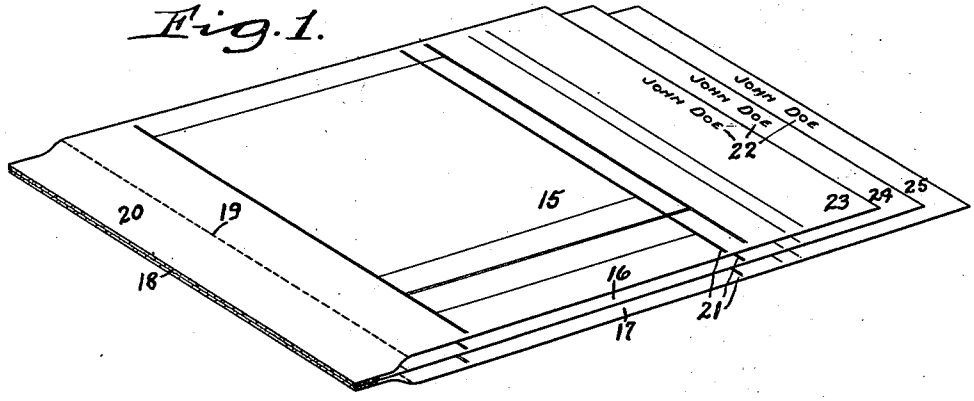


Fig. 2.

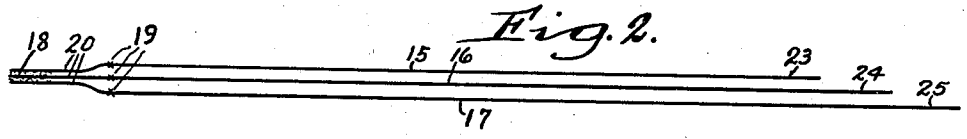


Fig. 3.

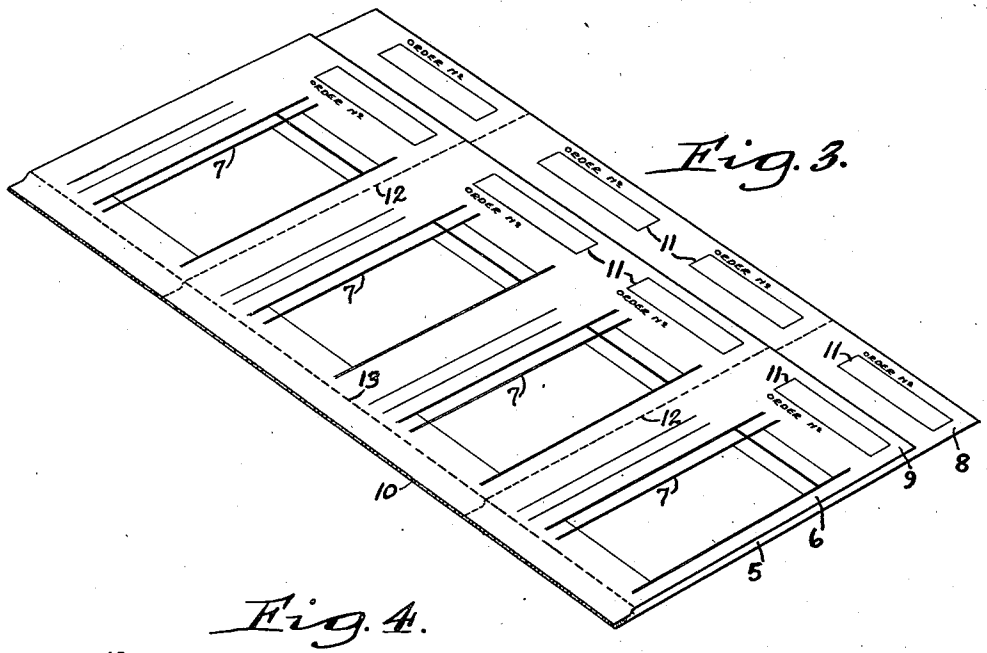
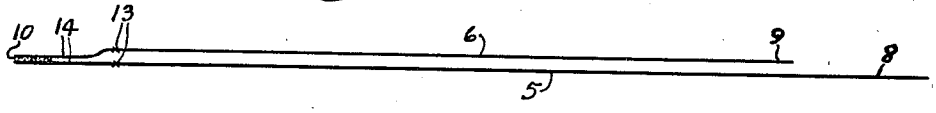


Fig. 4.



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Fig. 5.

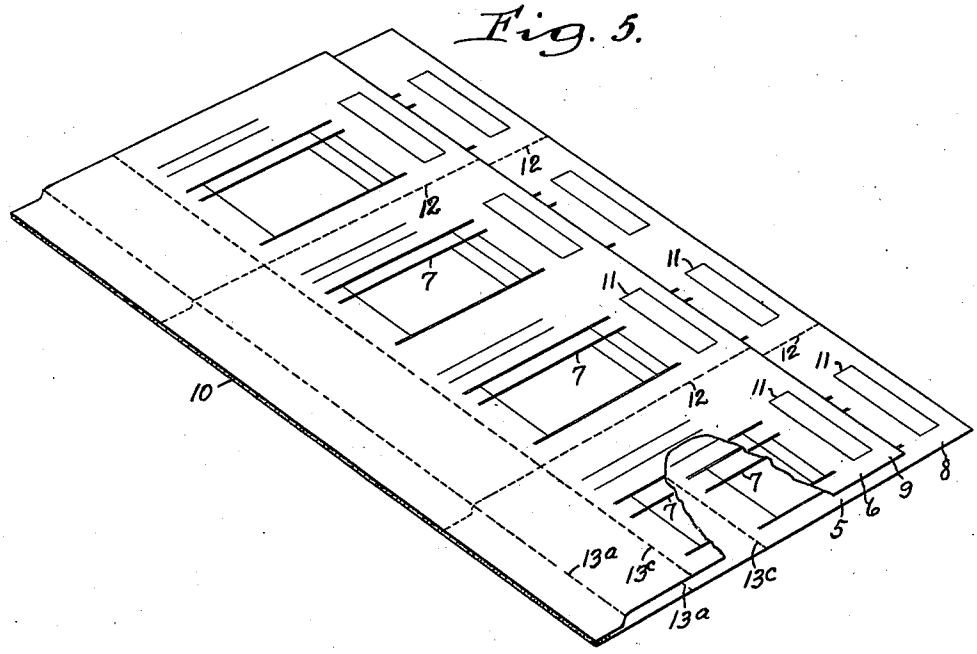


Fig. 6.

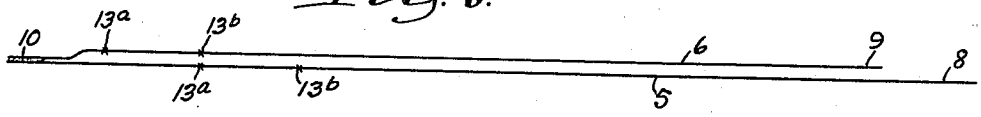


Fig. 7.

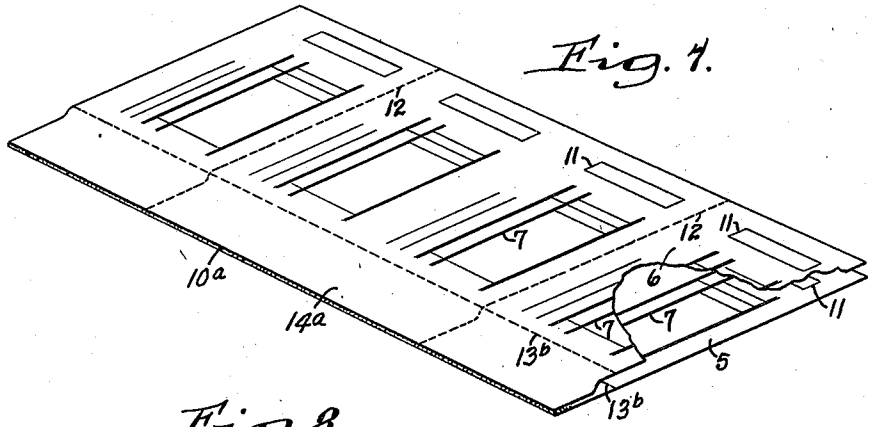
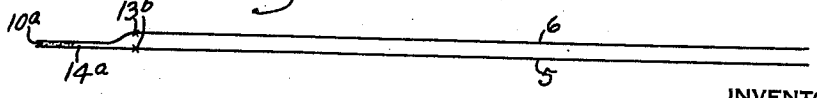


Fig. 8.



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2,286,094

SELECTIVE PRINTING

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Application August 5, 1939, Serial No. 288,630

4 Claims. (Cl. 270—1)

This invention relates to improvements in methods of printing and assembling strips or sheets of paper or the like to form sets of superposed printed sheets or leaves for receiving inscriptions, and also to an improved assembly of printed record sheets.

It is a general object of the invention to provide an improved method of selective printing whereby assemblies of superposed printed sheets may be produced at decreased production costs, and at the same time providing an improved arrangement of superposed printed leaves arranged in a unitary assembly.

A further object of the invention is to provide an improved method of selective printing whereby forms for receiving inscriptions and having conventional or standard printed data, such as blank forms with accompanying explanatory matter, may be produced in large quantities by means of rapid automatic presses, and whereby specialized printed data or forms such as headings, firm names, serial numbers and the like, can be imprinted later by auxiliary presses on a plurality of sheets at the same time and at a single printing operation, thus materially reducing production costs.

Other objects of the invention will be in part pointed out in the following detailed description of certain illustrative but preferred embodiments of the invention, and will be in part obvious as the description proceeds.

The invention accordingly comprises the several steps and the relation and order of one or more of such steps with respect to each of the others, and the article possessing the features, properties, and the relation of elements, which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a more comprehensive disclosure of the nature, objects and advantages of the invention, reference is had to the following detailed description of the illustrative embodiments, and to the accompanying drawings in which:

Fig. 1 is a perspective view of a record assembly of superposed leaves and made in accordance with the invention;

Fig. 2 is a side elevation of Fig. 1;

Fig. 3 is a perspective view similar to Fig. 1 but showing a longitudinal series of attached superposed long continuous sheets or webs of paper or similar material arranged in leaf sets;

Fig. 4 is an end elevation of the assembly shown in Fig. 3;

Fig. 5 is a perspective view similar to Fig. 3 but showing a slightly modified embodiment of the invention;

Fig. 6 is an enlarged end elevation of the assembly shown in Fig. 5;

Fig. 7 is a perspective view of the embodiment shown in Fig. 5 after the printing has all been applied and the record webs reassembled; and

Fig. 8 is an enlarged end elevation of the assembly shown in Fig. 7.

In the manufacture of sets of record leaves for the reception of records of various business or other transactions it has been found in practice that the same general types of forms or printed data are adapted for a large variety of purposes, whereas special data such as individual headings, firm names, serial numbers, and the like, are also almost always required. The data of a general nature ordinarily includes standard or conventional printed matter, such as blank forms with accompanying explanatory matter and the like. This general data ordinarily constitutes the bulk of the printed matter, whereas the specialized matter is ordinarily much smaller in volume. If the specialized printed matter is printed on the sheets at the same time that the general matter is printed thereon, it is necessary to make a special printing job for each order. Therefore, in order to save a great deal in production costs this improved method of selective printing has been devised. By means of this improved method all of the matter of a general nature may be printed upon the sheets of paper or similar material at one printing operation and by use of high speed presses. These printed sheets will serve for a great variety of special orders, it only being required that the specialized data be applied. Thus, a large quantity of sheets may be printed with the general data and kept in stock for the subsequent printing of the specialized data in accordance with the specifications of orders received.

The improved method of selective printing will first be described in connection with the disclosure of Figures 3 and 4. As shown in these figures there are a plurality of long continuous sheets or webs of paper or similar material, such as the lower sheet **5** and the upper sheet **6**. There may be three or four or more of these sheets as required, two being shown for illustrative purposes. Also, the length of the sheets may be as great as desired, and the long continuous sheets or strips may be supplied to the printing presses from supply rolls or in any other convenient manner.

Each of the sheets of the assembly is printed

with a longitudinal series of blank forms 7 arranged for receiving data to be written or inscribed thereon. These blank forms may have accompanying explanatory or other matter printed thereon. All of this data is of a general or conventional nature so as to be adapted for the accommodation of a great variety of different business transactions or for other purposes. Therefore, large quantities of these sheets or long continuous webs may be printed in gangs on high speed presses with this general data and kept in storage for later receiving the specialized printed data as later described.

It will be noted that the sheets 5 and 6 are of different widths, lower sheet 5 being wider than the upper sheet so as to provide a longitudinally extending marginal portion 8 lying beyond the edge of the upper sheet 6 when the two sheets are arranged in superposed relation as shown, with the left longitudinal edges in registry. In cases where the assembly is to have more than two relatively superposed sheets, three, four or more, each successively lower sheet will be made wider than the overlying sheets so as to provide a longitudinally extending exposed marginal portion corresponding to the exposed marginal portion 8 of the sheet 5. The longitudinal marginal portion 9 of the sheet 6 will also be exposed because this is the top sheet of the assembly. This arrangement which may be referred to as a shingled relation of the marginal sheet parts, provides exposed marginal parts of all of the strips for reception of supplemental specialized printed matter.

If a two-part assembly is to be made, as shown in Figures 3 and 4, the two long continuous strips 5 and 6 with the conventional or standard data printed thereon will be taken from stock in which they are stored ordinarily in the form of large rolls or zigzag folded packs, and placed in superposed relation as shown. They are secured in this relation with the left edges in alignment and also preferably with the blank forms 7 and other standard printed matter in superposed registry respectively with each other in each leaf set. It is convenient for some purposes to attach the strips 5 and 6 together in this superposed relationship but in some cases the direct attachment is unnecessary and may be omitted. As shown for illustrative purposes, the long continuous strips or webs 5 and 6 are attached together along their left marginal portions as by application of an adhesive attachment 10, preferably extending throughout the longitudinal extent of the webs. It is often feasible to apply these attachments 10 at the time of printing by the high speed presses, by means of automatic mechanism. The blank forms 7 divide each web 5 and 6 into a longitudinal series of form sheets or leaves which are arranged in superposed sets of leaves throughout the length of the long continuous assembly. The attachments 10 will ordinarily be positioned at each set of leaves so as to remain effective for attaching the leaves together after the respective sets have been severed from the complete assembly.

When the long continuous webs or strips 5 and 6 have thus been assembled to form the long continuous web assembly, the specialized printed matter may be applied to the longitudinal marginal portions 8 and 9 thereof by a supplemental printing operation, usually by means of auxiliary presses. At this supplemental printing the specialized data 11 is applied along the margins 8 and 9 and is repeated along the sheets at each of the leaf sets. This specialized data may be a firm name, character of business, serial number, or data of some other specialized nature that is appropriate only for some special purpose and, therefore, could not be applied to the stock form sheets.

When the general and specialized printed data have been selectively applied as described and the required number of sheets attached together in superposed relation, the forms are ready to be prepared for shipment to the customer. If single sets of superposed record leaves are desired the printed assembly or strip will be severed transversely into single sets along transverse lines positioned between the blank forms. For this purpose the strips 5 and 6 may be formed with transverse weakened severance lines 12 longitudinally spaced along the assembly and formed by perforating, scoring or slitting or by similar known means. The weakened severance lines 12 may therefore be positioned between each adjacent pair of blank forms and the assembly may be zigzag folded along these lines into a zigzag folded supply pack. The assembly shown in Fig. 3 is intended to be divided or cut into units of two form lengths each, each unit having one of the sets of superposed weakened severance lines 12. In order to provide these double length units the length of assembly shown in Fig. 3 would be severed or cut transversely midway of its length so as to provide two double length units. It will, of course, be understood that the assembly may be shipped to the customer in double length units as described, in single length units as shown in Fig. 1, or in units of a larger number of form lengths.

As shown the printed sheets 5 and 6 may be provided with longitudinal weakened severance lines 13 formed by perforating, slitting, scoring, etc., and extending along a longitudinal marginal portion of each strip so as to provide binding stubs 14 at which the attachments 10 are located. When the sheets 5 and 6 are attached together, as shown, the blank forms 7 of both sheets 5 and 6 may be and ordinarily are in superposed relation with each other in each of the leaf sets so that inscriptions entered on the top form 7 may be transferred by appropriate transfer means, such as carbon sheets to the proper spaces of the underlying blank form. After entry of the inscriptions the sheets may be detached from each other by severance along the longitudinal weakened lines 13. If loose carbon sheets are to be inserted between the sheets or leaves 5 and 6, the shingled relation of the margins 8 and 9 will assist in the insertion of the carbon sheets by acting as guides for the entering edges of the carbon sheets. If it is desired to have the carbons attached in transfer relation in the assembly, they may be attached in the binding margin 10 and have their opposite edges inset from the adjacent edges of the printed record sheets as described in the Phillips and Allan Patent No. 2,149,544 issued March 7, 1939.

For some purposes it is desirable to assemble the sheets or webs of the assembly with the standard or general printed matter 7 thereof displaced from registry in the superposed sheets, the displacement being laterally of the assembly, or in the same direction as the displacement of the shingled marginal sections 8 and 9. This displacement of the printed matter 7 as shown in Figs. 5 and 6 of the drawings will be substantially the same in extent as the displacement of the specialized printed matter 11 on the margins

8 and 9. After all of the general and special printed matter has been applied, the sheets or webs 5 and 6 will be severed or cut apart along longitudinal lines parallel to the longitudinal assembly edge. The upper sheet 6 will thus be severed along a line 13a laterally spaced to the left from a similar line of severance 13a of the lower sheet 5, this lateral spacing being substantially the same distance as the lateral offsetting from registry of the printed matter 7 of the sheets 5 and 6. After the sheets have been thus cut or torn apart they are recollated or reassembled as shown in Figs. 7 and 8 with the forms 7 and 11 of the respective leaf sets in superposed registry, respectively, with each other. The sheets can then be reattached along their longitudinal margins by attaching means 10a similar to the attachment 10 and similarly arranged thus forming a binding stub 14a similar to the stub 14 of the embodiment of Figs. 3 and 4. The severance of the sheets or webs along longitudinal lines to free them from each other may be accomplished by providing longitudinal weakened severance lines 13b similar to the lines 13, but with the severance line 13b of the lower sheet 5 offset laterally of the assembly from the severance line 13b of the upper sheet 6, the offsetting being substantially equal to the displacement from superposed registry of the printed matter of the upper and lower sheets. When the webs 5 and 6 have thus been reassembled, as shown in Figs. 7 and 8, the blank forms 7 and 11 of the upper and lower webs, as well as the longitudinal severance lines 13b, will be in substantially superposed registry. Hence, inscriptions made upon the upper web can be transferred by appropriate transfer material into the proper spaces of the blank forms of the lower web as described above in connection with Figs. 3 and 4. Also, the assembly formed by the reassembled webs 5 and 6 may be zigzag folded into a supply pack, divided into units along the transverse lines 12, stored and shipped and otherwise handled as described above in connection with the embodiment of Figs. 3 and 4.

The embodiment of the invention shown in Figures 1 and 2 has three relatively superposed printed record sheets or leaves 15, 16 and 17 attached together in the assembly by an adhesive binding 18 similar to the binding 10 already described. Also, weakened severance lines 19 similar to the severance lines 13 are formed in the printed sheets thus providing the binding stubs 20 similar to the binding stubs 14. Also, the record sheets are provided with conventional or standard printed data, such as the blank forms 21 and each sheet also has the specialized data in the form of the headings 22. The marginal portions 23, 24 and 25 of the printed record sheets 15, 16 and 17, respectively, are arranged in shingled relation as are the marginal portions 8 and 9 of the embodiment of Figures 3 and 4 and for a similar purpose.

It will be understood that the general or standard printed matter 21 and the specialized printed matter 22 of the embodiment of Figures 1 and 2 are applied by the improved method of selective printing as described above in connection with Figures 3 and 4. This printing, as before described, will be applied to the long continuous sheets at a series of points therealong, and the long continuous printed assembly is severed along transverse lines to produce leaf sets or units like the unit shown in Fig. 1.

Since certain changes in carrying out the above method, and certain modifications in the product may be made without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A method of producing printed record form sets, including: printing a plurality of long continuous webs or sheets with standard form data repeated at a multiplicity of intervals along each web, assembling in superposed relation the long continuous webs thus printed to form a long continuous web assembly, with marginal parts of the underlying web or webs extending beyond overlying web or webs in shingled relation from top to bottom of the assembly so as to expose longitudinal marginal parts of each web throughout substantially the entire length of the assembly, and then printing at a single printing operation at each of said intervals of the standard form data specialized form data at the exposed shingled marginal parts of the assembled webs throughout substantially the full length of the assembly.

2. A method of producing printed record form sets, including: printing a plurality of long continuous webs or sheets with standard form data repeated at a multiplicity of intervals along each web, assembling in superposed relation the long continuous webs thus printed to form a long continuous web assembly, with marginal parts of the underlying web or webs extending beyond overlying web or webs in shingled relation from top to bottom of the assembly so as to expose longitudinal marginal parts of each web throughout substantially the entire length of the assembly, and then printing at a single printing operation at each of said intervals of the standard form data specialized form data at the exposed shingled marginal parts of the assembled webs throughout substantially the full length of the assembly, and severing the long continuous web assembly along transverse lines to form a multiplicity of separate sets of superposed leaves each having the standard and specialized data printed thereon.

3. A method of producing printed record form sets, including: printing a plurality of long continuous webs or sheets with standard form data repeated at a multiplicity of intervals along each web, assembling in superposed relation the long continuous webs thus printed to form a long continuous web assembly, with marginal parts of the underlying web or webs extending beyond overlying web or webs in shingled relation from top to bottom of the assembly so as to expose longitudinal marginal parts of each web throughout substantially the entire length of the assembly, attaching the superposed webs together along longitudinal marginal portions thereof to maintain them in said shingled relation throughout the length of the long continuous assembly, and then printing at a single printing operation at each of said intervals of the standard form data specialized form data at the exposed shingled marginal parts of the assembled webs throughout substantially the full length of the assembly.

4. A method of producing printed record form sets, including: printing a plurality of long continuous webs or sheets with standard form data repeated at a multiplicity of intervals along each web, assembling in superposed relation the long

continuous webs thus printed to form a long continuous web assembly, with marginal parts of the underlying web or webs extending beyond overlying web or webs in shingled relation from top to bottom of the assembly so as to expose longitudinal marginal parts of each web throughout substantially the entire lentgh of the assembly, attaching the superposed webs together along longitudinal marginal portions thereof to maintain them in said shingled relation throughout the length of the long continuous assembly, and then printing at a single printing operation at each of said intervals of the standard form data specialized form data at the exposed shingled marginal parts of the assembled webs throughout substantially the full length of the assembly, severing the webs along laterally spaced longitudinal lines extending along the attached margins to free the webs from each other throughout the assembly length, and re-collating the webs into a long continuous assembly with the standard and specialized data of the different webs in substantially superposed registry.

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