June 1, 1937. C. W. BRENN 2,082,730

MANIFOLDING DEVICE

Filed Sept. 26, 1927

Fig. 1

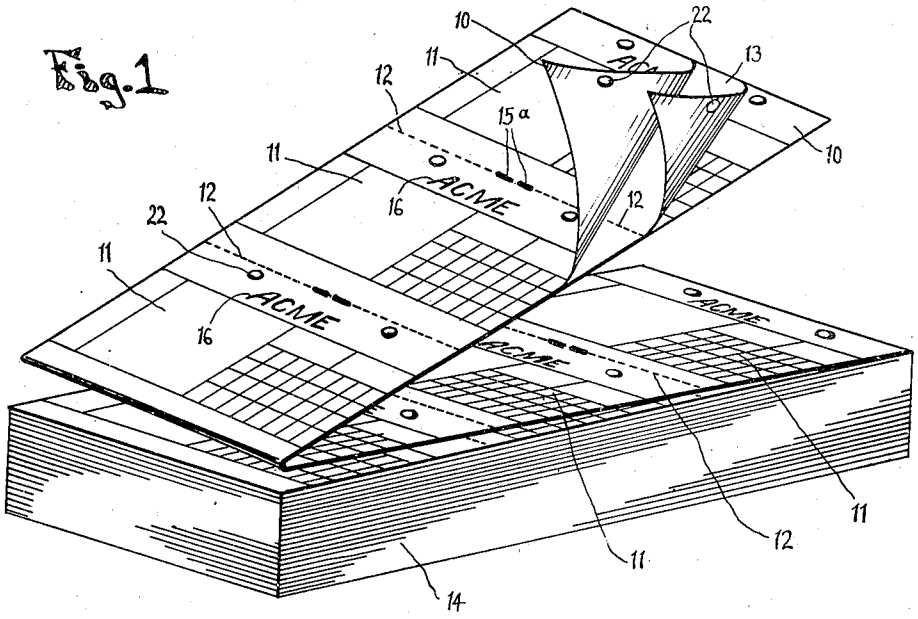



Fig. 2

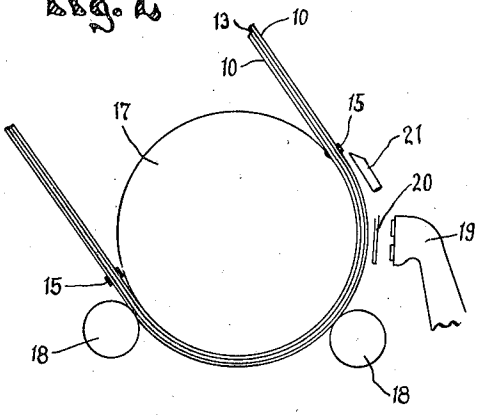



Fig. 3

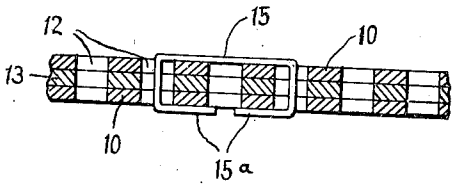
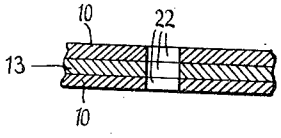



Fig. 4




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## MANIFOLDING DEVICE

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Application September 26, 1927, Serial No. 221,912

12 Claims. (Cl. 282—12)

This invention relates to manifolding, and more particularly to a pack of worksheets to be used in making originals and duplicates thereof.

An object of this invention is to provide a manifolding pack comprising a plurality of superposed printed worksheet strips with interleaved carbon or transfer strips so improved that the separate printed worksheet strips are held in accurate registration with each other, and the carbon or transfer strips are held in operative position between the worksheet strip.

Another object of this invention is to so provide the means for holding the strips in registration that the operation of severing or separating one set of written forms from the pile of strips automatically renders the holding means inoperative, whereby the operation of severing or disassociating the individual forms of a written set is obviated.

Other objects and advantages will hereinafter appear.

In the accompanying drawing which illustrates one embodiment of this invention, that at present preferred—

Figure 1 is a perspective view of a manifolding pack made in accordance with this invention.

Fig. 2 is a diagrammatic view of a typewriting machine platen and related parts, showing the manner in which the pile of worksheets of the present invention is fed therearound.

Fig. 3 is an enlarged view, partly exaggerated, showing the means provided by the present invention for holding the separate strips of a pile of worksheets together.

Fig. 4 is an enlarged section view showing the aligning apertures in the strips by means of which the latter are brought into registration with each other.

In a copending application, Serial No. 72,921, filed December 3, 1925, now matured into United States Patent No. 2,036,960, granted April 7, 1936, there is disclosed a manifolding pack comprising a plurality of worksheet strips secured together at their side edges and holding captive between them by their secured side edges, carbon or transfer strips. This pack has proven to be very advantageous, but considerable cost is involved in its production. Moreover, under extremely unfavorable conditions, it has been found that the strips sometimes become separated and hence fail to maintain the accurate registration which is desired.

The improved manifolding pack of the present invention, like that above referred to, comprises a plurality of worksheet strips 10 each of which has a succession of printed forms 11 preferably separated by lines of perforations 12. And, located between the strips 10 is a carbon or transfer strip 13 through the medium of which original writing (either by hand or by typewriting machine) performed on the top strip 10 is reproduced on the under strip 10. So as to facilitate the separation of one set of forms from that following, the carbon strip 13 is also provided with lines of perforations 12 in register with those in the worksheet strips 10.

The pile of strips 10 and 13 may be folded zig-zag at form length intervals. However, for reasons stated below, it is preferable to fold the strips at every second or third form to make a pack 14 such as is shown in Fig. 1.

In order to hold the forms of the superposed strips 10 together in registration so that work performed on the top strip 10 will be reproduced in exactly the same place on the lower strip 10, the present invention, instead of securing the strips together at their side edges, fastens them together by means of staples 15 which preferably are of the type formed of wire and bent in U-shape for insertion through the paper and subsequently bent to bring their legs 15a to engage the opposite side of the pile, as shown in Fig. 3. This staple 15 may be provided at the adjacent side edges of the strips 10, but, according to the present invention, it is placed preferably in the longitudinal center of the pile and not only fastens the two or more worksheets 10 together, but also fastens the carbon or transfer strip 13 against movement relative to the worksheet strip 10 so that the latter cannot slip out sidewise or shift longitudinally. By means of this staple 15, the sheets are held firmly together against relative movement not only previous to receiving the writing operation, but after it.

The staple 15 may be placed in the body of the form, for instance, directly over the heading 16, but when this is done it is necessary to remove the staple from the set of superposed worksheet and carbon sheet when the forms have been written upon and are to be distributed to different places.

To obviate the necessity of removing the staple, the present invention provides the staple 15 on the line of perforations 12 which, as above stated, separates one form from the next. Hence, after a set of forms have been written upon and when they are torn from the set following along the line of perforations 12, the staple being freed from the worksheets falls out of engagement

therewith without requiring any attention on the part of the user. The staple 15 being so positioned may, therefore, be said to automatically render itself inoperative when the forms are severed along the lines of perforations 12.

It should be understood that in those cases where a line of perforations 12 is not provided between forms, the staple 15 is nevertheless preferably located at the point where one form stops and the next one starts. Even in such case where the form is torn or cut at the intended place, which may be indicated by the presence of the staple there, in which case the staple will act as a guide, the staple will become free from the worksheets, for the cut or tear produced will be at that point in the paper where the staple is located or so close to it that the staple will not have sufficient material between it and the line of cut to permit it to remain in the paper.

It has been found in using the staple to secure the worksheets in registration that when the worksheets are folded in a zig-zag pack 14, such as shown in the drawing, it is preferable to omit the staple between forms at the places where the folds occur, for at these places there is a slight buckling of the strips due to the fact that the strips cannot all occupy the same space and the inner strips must accommodate themselves within the fold of the outer strip.

As shown in Fig. 2, when the manifolding material of the present invention is used with a typewriter, the pile of strips is led around the usual typewriter platen 17 where it is engaged by pressure rollers 18 and receives impressions from a type bar 19 through a ribbon 20 which produces writing on the top worksheet strip 10. It has been found that when the manifolding material is to be used in a typewriter, the staples 15 should be so placed in the pile of strips that the legs 15a of the staple face the front of the sheet, so that the smooth or continuous portion of the staple engages with the typewriter platen 17.

When the pack of manifolding material is used in a typewriter, the latter is provided with a tearing blade 21 against which the written form is drawn when the line of perforations 12 reaches the blade. When the pack is used in a manifolding machine, the line of perforations 12 is so disposed as to be located opposite a tear-off knife when the form to be written upon is in proper writing position on a platen provided in such machine.

In making the pack, the worksheets 10 and carbon sheets 13 are brought into registration with each other by means of a pin or other aligning implement which is placed in apertures 22 at the head of each form. When the forms are thus aligned, the staple is set in the pile of strips on the line of perforations 12 by any suitable stapling machine or device.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new and for which it is desired to obtain Letters Patent, is:—

1. A manifolding pack comprising a plurality of superposed worksheet strips each comprising a succession of printed forms separated by lines of perforations; and a wire staple for securing said strips together in registration, said staple being located in said lines of perforations so as to become free of the strips when the strips are severed along said lines.

2. A manifolding pack comprising a plurality of superposed strips each comprising a succession of form lengths separated by lines of perforations; and means located directly on the line of perforationss for securing all of said strips together, said means being adapted to be rendered inoperative to hold the form-lengths of the pile together after severance thereof from the strips along said lines of perforations.

3. A manifolding pack comprising a plurality of superposed continuous worksheet strips each comprising a succession of superposed printed forms separated by a line of severance; and means located at intervals along said strips for securing said strips together in registration, said means being located on said line of severance between two adjacent forms so as to be rendered inoperative to hold the forms together when the strips are severed in form lengths along said line of severance.

4. A manifolding pack comprising a plurality of superposed worksheet strips; means located at intervals along said strips for holding said strips together in registration; and a line of perforations extending inwardly from the side margin of said strips to said means whereby when the strips are severed along said line of perforations said means becomes inoperative to hold the severed worksheets together.

5. A manifolding pile comprising a plurality of superposed continuous strips, at least one of said strips being a worksheet strip having a succession of form lengths between each adjacent two of which there is a designated tear-off line, and means located on the tear-off lines of the worksheet strip for holding said strip against relative lateral movement, said means being rendered inoperative to hold the severed portions when said worksheet strip is severed along said tear-off line.

6. A manifolding pile comprising a plurality of superposed strips each having a continuous succession of form-lengths separated by transversely extending lines of perforations, the superposed form-lengths constituting a set which, after being written upon simultaneously, may be severed en bloc from the pile of strips by being torn along said lines of perforations; and means located at intervals along the pile of superposed strips at the lines of perforations for securing the strips of the pile together in desired relation with the lines of perforations of the several strips in registration, said means being successively rendered inoperative to hold the strips of the pile together or to hold the form-lengths of the severed sets together, as the sets of form-lengths are severed successively from the pile, and as a result of said severing operations.

7. A manifolding pile comprising a plurality of superposed worksheet strips each having a continuous succession of form-lengths separated by transversely extending lines of perforations; a continuous strip of transfer material interleaved between each two adjacent worksheet strips, the superposed form-lengths and interleaved transfer material constituting a set which, after being written upon simultaneously, may be severed en bloc from the pile of strips by being torn along said lines of perforations; and means located at intervals along the pile of superposed strips at the lines of perforations for securing the strips of the pile together in desired relation with the lines of perforations of the several strips in registration, said means being successively rendered inoperative to hold the strips of the pile to-

gether or to hold the form-lengths of the severed sets together, as the sets of form-lengths are severed successively from the pile, and as a result of said severing operations.

8. A manifolding pack comprising a plurality of superposed worksheet strips at least two of which contain a succession of printed forms divided by lines of perforations; and means located on the lines of perforations between two adjacent sets of forms and passing through the strips for securing said strips together with the printed forms in registration preparatory to and during the writing operation.

9. Multiform stationery comprising a plurality of superimposed strips having lines of perforations for tearing them into a plurality of sets of multiplicate forms, and means passing through said strips at said lines of perforations for securing said strips together before division along said lines of perforations.

10. Multiform stationery comprising a plurality of superimposed strips interleaved with carbon sheets and having lines of perforations for tearing them into a plurality of sets of multiplicate forms, and means passing through said strips and carbon sheets and located on said lines of perforations for securing the strips and sheets together before division along said lines of perforations.

11. A record including a plurality of superposed strips each formed with transverse lines of weakening along which they are to be separated into piles of sheets, and means extending through the bodies of said strips and in line with said transverse lines of weakening to retain said strips against relative displacement and whereby said means will be rendered inoperative upon said strips being severed along said lines of weakening.

12. A manifolding pack comprising a plurality of superposed continuous worksheet strips each having a succession of printed forms; and wire staples for securing said strips together in registration, said strips having perforations and the legs of said staples passing freely through, and having a diameter smaller than, said perforations and being bent over at one side of the pack to hold the said superposed strips together.

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