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MANIFOLDING PILE

Original Filed March 22, 1930

Fig. 1

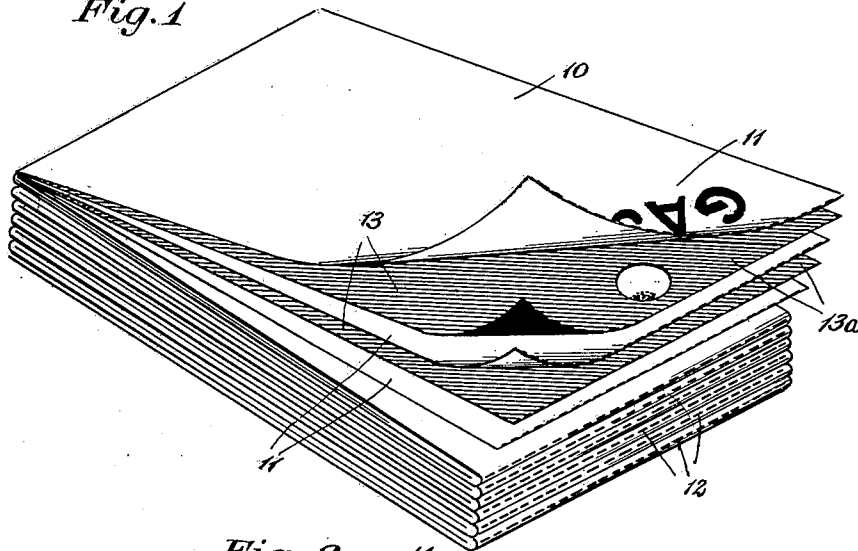


Fig. 2

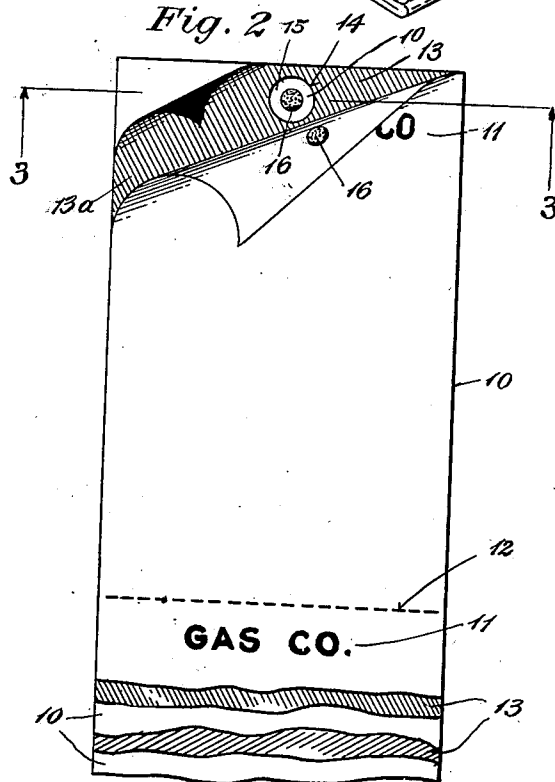
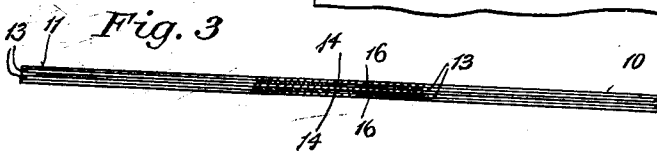


Fig. 3



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MANIFOLDING PILE

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Original application March 22, 1930, Serial No. 438,063. Divided and this application March 12, 1937, Serial No. 130,439

5 Claims. (Cl. 282—12)

This invention relates to manifolding means, and more particularly, to a manifolding pile comprising a plurality of superposed continuous worksheet strips and a continuous carbon sheet strip interposed between each two adjacent worksheet strips.

Heretofore, it has been suggested that the carbon sheet strip be held captive in the pile against lateral shifting movements and that the worksheet strips of the pile be held together in registration by securing means such as staples extending through all of the strips of the pile.

In cases where it is merely desired to hold the carbon strip to the worksheet strip, it was proposed to employ spots of gum between the adjacent faces of the carbon strip and worksheet strip.

An object of this invention is to provide a manifolding pile in which the worksheet strips are held together surface-to-surface in registration by means which, while it does not engage the carbon strip, does, however, hold the carbon strip captive in the pile against excessive lateral movement.

It is a further object of this invention to so provide the manifolding pile just described that the carbon is held captive between the worksheets both before and after the pile of strips is severed into form-lengths, which operation may be facilitated by transverse perforations in the worksheet strips located between form-lengths, as has been done heretofore.

This application is a division of my copending application Serial No. 438,063, filed March 22, 1930; and according to the invention of the present application the objects aforesaid are attained by providing a carbon strip which is apertured at intervals along the length of the same, and at points inwardly removed from the lateral edges of the manifolding pile. These apertures provide zones of face-to-face direct contact between adjacent worksheet strips, so that these strips may be secured together by suitable securing means located in said zones of direct contact.

Also, according to the present invention, as the same is preferably carried out, the carbon strip apertures through which the devices for securing together the worksheet strips extend are larger than the securing devices, so as to provide for limited relative adjusting movements between a worksheet strip and an adjacent carbon strip.

In the accompanying drawing:

Figure 1 is a perspective view of a manifolding

pile made in accordance with the present invention.

Fig. 2 shows a length of said pile, laid out flat.

Fig. 3 is an enlarged detail view, being a section taken on the line 3—3 of Fig. 2.

The manifolding pile shown in the exemplifying embodiment illustrated in the drawing comprises a plurality of continuous worksheet strips 10, of which there may be two or more, having a succession of printed forms or form-lengths 11 which are divided by lines of perforations 12. Interposed between each two adjacent worksheet strips 10 is a carbon strip 13. If desired, the pile may be folded zig-zag fashion to form a block or pack as shown and the folds may preferably occur on the lines of perforations 12. After a set of forms 11 has been written upon, it is usually severed from the rest of the pile along the lines of perforations 12, whereupon the forms 11 may be separated from each other and from the intervening carbon sheets 13a formed by tearing, to be distributed as desired, or the booklet of forms 11 and carbon sheets 13a may be left intact to receive subsequent writing or notations. The device of the present invention is particularly advantageous when the latter method is employed, for by it the carbon sheets 13a are held captive between the worksheets or forms 11 so that writing on the uppermost form of the booklet will be reproduced on the under forms by the carbon or other transfer material.

Heretofore, it was proposed to fasten the strips together so as to hold the carbon strip captive between the worksheet strips by adhesive applied to the edges of the strips of the pile when the pile is compressed. It was also proposed to secure all of the strips, including the carbon strip or strips, together by staples passing through all of the strips. It was also proposed to hold the carbon strips against shifting relative to the worksheet strips by spots of gum or other adhesive material located between the adjacent faces of the worksheet strips and the carbon sheet strips. This latter proposal has the advantage of permitting the securing means to be applied while collating the worksheet strips and carbon strips, but it has the disadvantage of not holding the worksheet strips in the pile together against lateral shifting movement relative to each other.

According to the present invention, the advantage of being able to apply the securing means during the process of collating the worksheet and carbon sheet strips is retained, but in addition the securing means also serves the function of

holding the worksheet strips against lateral shifting movements relatively and yet permits the carbon strip to be entirely free of adhesive material and avoids subjecting the carbon strip to pressure which is applied to cause the worksheet strips to adhere together or to be secured together by a staple, thus avoiding the marking of the face of the under worksheet as a result of this pressure.

This is accomplished, according to the present invention, by providing a series of apertures 14 in the carbon strip, these apertures inwardly removed from the lateral edges of the pile to provide zones of face-to-face direct contact of the adjacent worksheets with each other, and by locating the adhesive, staple or other worksheet strip securing means in these zones of direct contact.

In the form of the invention illustrated in the drawing, the carbon strips 13 are shown as of the same width as the worksheet strips 10, and with the lateral edges of all the strips in registration, and the apertures 14 are shown as holes in the carbon strips entirely surrounded by the material of these strips. Conveniently, the apertures 14 are located along the central center line of the pile, and they are shown as thus positioned.

The apertures 14 provide zones 15 of face-to-face direct contact between an upper worksheet strip 10 and the worksheet next below.

The securing devices for attaching the worksheet strips together in these zones 15 are shown as spots 16 of adhesive, applied to adjacent faces of adjacent worksheet strips 10. Preferably, the zones 15 and the adhesive spots 16 are so dimensioned that when the worksheet strips are affixed together, the carbon strip 13 is not engaged by the adhesive and is entirely unaffixed to the worksheet strips so as to be easily separated from the worksheet strips when the written booklet of forms 11 and carbon sheets 13a have been severed from the pile, and, after that, it is desired to separate the different sheets of the booklet.

Prior to the sheet separation last referred to, however, each carbon strip 13 is held in place in the pile and against removal from adjacent worksheet strips 11, but without being directly secured to the latter; both in the pile and in a booklet severed from the pile.

It should be understood that the zones of direct contact of the adjacent worksheet strips with each other are placed at intervals along the pile and preferably at least one in each form so that the worksheets may be held together by the securing means after a set of superposed forms has been severed from the pile. It should also be understood that by having the securing means located in a portion of the pile uncovered by the carbon strip, pressure may be employed in applying the securing means, for instance, the gum spots 16, without that pressure causing the underlying worksheets to be marred or soiled by carbon from the carbon strips.

The use of spots of adhesive material is usually preferred for the usual manifolding work such as in ordinary typewriters, since the gum or adhesive may be of a kind having the characteristics of easily being pulled off the paper or of splitting readily. When adhesive is used, typographical errors may be easily erased on the carbon copies by separating the sheets by merely

pulling them apart while they are on the typewriter platen, and then folding back the upper worksheet and carbon strips while the erasure is being made on the lower worksheet strip.

The zones 15 for the securing means may be placed wherever desired in the forms, for instance, as shown, at the tops of the forms, or at the bottoms of the forms, or both at the tops and bottoms of the forms. Even with the securing means at the tops as well as at the bottoms of the forms, such erasures as those just mentioned could be made easily, as the pulling apart of the sheets at the upper ends of a set of forms would break the securement between these sheets.

The result of holding the carbon strip or strips in the pile against substantial lateral movement, while also permitting limited relative adjusting movements between the carbon strips and the worksheet strips, may also be accomplished by the invention, by making the apertures 14 larger than the securing means. As these apertures are shown, they are so dimensioned relative to the securing means, here the spots of adhesive 16, that annular portions of the zone 15 surround the securing means. When such or an equivalent arrangement is provided, the worksheet strips will be secured together, and relative adjusting movements may occur between these strips and the carbon strips 13, and yet the carbon strips will not be free to shift laterally to any substantial or undesirable extent.

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

I claim:

1. A manifolding pile comprising a plurality of continuous worksheet strips and a continuous carbon strip interposed between two adjacent worksheet strips, the carbon strip having apertures arranged at intervals therealong inwardly removed from its lateral edges to provide zones of face-to-face direct contact of adjacent worksheet strips with each other extending longitudinally of the pile; and means located along said pile and in said zones of direct contact for securing the adjacent worksheet strips together and holding the carbon sheet strip captive in the pile.

2. A manifolding pile as in claim 1, wherein said apertures are near the bottoms of the forms.

3. A manifolding pile as in claim 1, wherein said apertures are near the tops of the forms.

4. A manifolding pile as in claim 1, wherein said apertures are near the tops and bottoms of the forms.

5. A manifolding assembly, including in combination, a plurality of relatively superposed continuous strips including a plurality of continuous record strips and at least one continuous transfer strip interleaved in transfer relation with the record strips, said transfer strip having a plurality of longitudinally spaced apertures formed therein and being inwardly removed from the longitudinal edges thereof, and a plurality of securing devices having direct attachment with said record strips and extending respectively through said transfer strip apertures so as to secure all of the strips together in the assembly, said apertures being larger than the respective securing devices passing therethrough so as to provide for limited relative adjusting movements between the record and transfer strips.

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