March 6, 1934. R. H. RITZHAUPT 1,949,625

MANIFOLDING ASSEMBLY

Filed Feb. 13, 1932

Fig. 1.

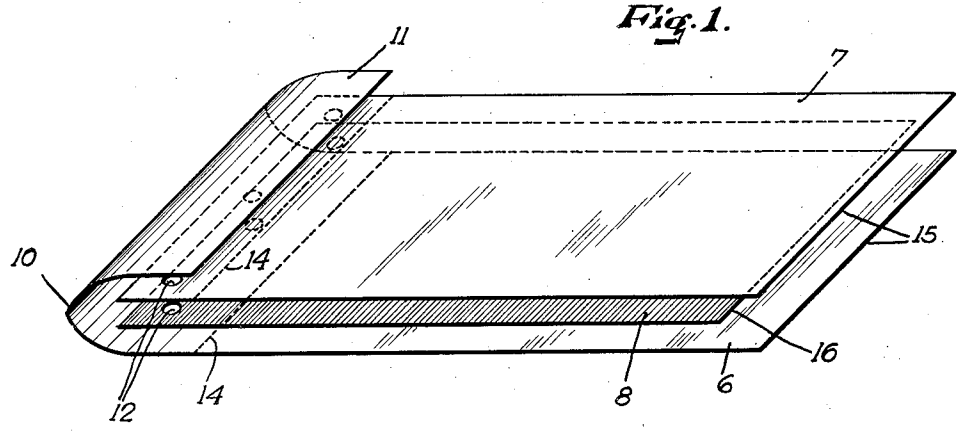


Fig. 2.

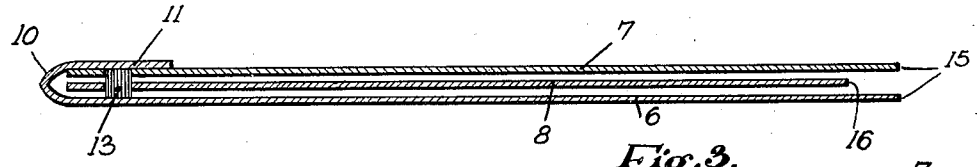


Fig. 3.

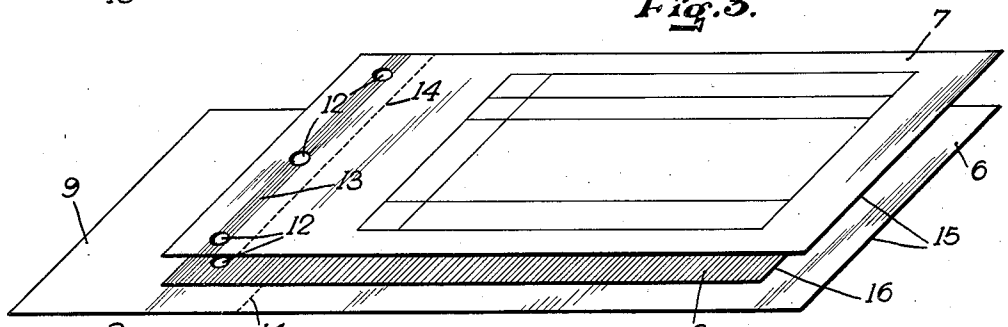
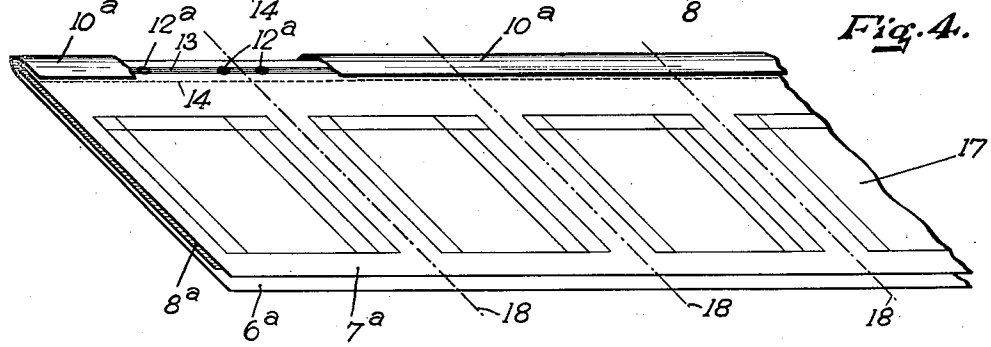


Fig. 4.



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MANIFOLDING ASSEMBLY

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Application February 13, 1932, Serial No. 592,682

6 Claims. (Cl. 282—22)

This invention relates to improvements in manifolding sets or assemblages of record and transfer leaves and with relation to more particular features thereof it relates to improvements in unitary flexible manifolding assemblages attached together in a complete separate unit susceptible of handling and transportation as such and adapted for manifold inscription either manually or in various forms of manifolding machines such as typewriters, autographic registers and the like. The invention also relates to an improved method of making the improved manifolding assembly.

It is a general object of the invention to provide an improved unitary manifolding assemblage of record and carbon leaves having an improved binding for holding the leaves together in relatively superposed manifolding relation and having an improved means for separating the record leaves from the transfer leaves after the inscriptions have been made.

Another object of the invention is to provide an improved binding construction for securing record and transfer leaves together in a unitary manifolding assemblage, said binding not only being very simple in structure and designed to satisfactorily retain the leaves together in the assembly without the use of objectionable attaching devices, but at the same time being susceptible of manufacture at very small production costs.

According to a more particular feature of the invention, an improved binding arrangement is provided whereby a single application of adhesive is utilized for attaching together several record and transfer leaves, while at the same time the adhesive is entirely concealed in the finished product.

Another feature of the invention resides in the improved manner of assembling the plurality of record and carbon sheets, attaching them all together to form a composite web and then cutting the web up into individual manifolding sets, each including record and transfer leaves attached together in a unitary assemblage.

Other objects of the invention will, in part, be pointed out in connection with an illustrative but preferred embodiment of the invention and will be, in part, obvious in connection therewith.

The invention accordingly comprises the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a more complete understanding of the nature and objects of the invention, reference is had to the following detailed description of the illustrative embodiment and to the accompanying drawing, in which

Fig. 1 is a partially diagrammatic perspective view of a manifolding assembly embodying invention, the plies being separated to facilitate the disclosure;

Fig. 2 is a longitudinal vertical section substantially on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary perspective of one end of a partially completed unit, and

Fig. 4 is a perspective view of a long continuous composite web showing an intermediate stage in forming the manifolding unit of Fig. 1.

Referring to the drawing for a detailed description, one of the complete unitary manifolding assemblages is shown in Fig. 1, this assemblage including a lower record sheet or leaf 6, an upper or original leaf 7 and an intermediate transfer or carbon leaf 8. Although but two record leaves with a single interposed transfer leaf are shown in this illustrative embodiment, it will be understood that the record leaves may be multiplied as desired to make any required number of copies and that the transfer leaves may be correspondingly multiplied and arranged in a manner similar to that shown so as to transfer the inscriptions made upon the original leaf to each of the underlying record leaves to which the inscriptions are to be transferred. The record and transfer leaves are arranged in interleaved manifolding relation with each other, or, in other words, they are positioned in relatively superposed overlapping relation. The original leaf 7 as well as each of the copy leaves may be provided with appropriate blank forms for receiving the inscriptions, said forms being positioned to register with each other. In this manner inscriptions written upon the original form will be transferred by the carbon leaf to the corresponding form of the copy leaf.

One of the terminal leaves of the assembly, that is either the top or the bottom leaf thereof, is provided at one edge with a projection or extension 9, the purpose of which is to provide a binding to bind all of the leaves together in a unitary assemblage. This binding extension is shown as a continuation of the lower or terminal leaf 6 which forms the backing leaf of the assembly. This backing leaf 6 is herein shown as forming one of the record leaves to which the inscriptions are transferred by the carbon sheet 8, but it will be understood that if desired the backing leaf may be used as a backing or support for the other

leaves without receiving the inscriptions, in which case, of course, the other leaves of the assemblage will be correspondingly multiplied to provide the requisite number of copies.

In order to provide the binding loop for the assemblage as indicated at 10 the binding strip or extension 9 is folded about the ends of the leaves so that the upper ply 11 of the loop overlies and rests against the face of the other terminal sheet which is the original 7 as shown. While the binding strip 9 is shown as a tab or extension formed integrally with the terminal leaf 6, it could for some purposes be made of a separate piece of material which could be attached to the lower terminal sheet as desired. The adjacent edges of the remaining leaves of the assembly are received and enclosed within the binding loop 10 and each is provided with one or a plurality of apertures or holes 12 extending all the way through each leaf. As many of these apertures as desired for properly holding the leaves are formed in each leaf and the respective apertures of the different leaves are aligned with each other so as to receive an adhesive substance as indicated at 13 in the drawing. When these apertures are thus aligned, it will be observed that a passageway for the adhesive is formed continuously through all of the leaves enclosed within the binding loop 10. The upper ply 11 of the binding loop overlaps the apertures 12 and thus is positioned in adhesive contact with the adhesive 13. Also, this adhesive extends into contact with the edges or margins of the apertures and with the inner surface of the lower ply of material. In this manner all of the leaves of the assembly are securely attached together along one edge thereof when the adhesive is placed in position in the apertures as described and the binding strip 9 folded into contact with the upper terminal strip and pressed down into adhering contact. All of the leaves of the assembly are thus secured together as a unit at one edge thereof, while the other edges remain free from attachment with each other.

Weakened severance lines 14 are provided in certain of the leaves preferably extending adjacent to and parallel to the binding. These severance lines are selectively positioned in the leaves. That is they are positioned only in certain of the leaves and omitted from the other leaves. They are herein shown as being formed only in the record leaves 6 and 7, while the transfer leaf 8 is unprovided with a corresponding weakened line, thus being of the full strength of the original material into the binding connection. By this means, the record leaves may be selectively severed from the binding along the lines 14, while the transfer leaf remains attached to the binding.

For facilitating selective severance of the record strips from the binding, the outer edges 15 of the record leaves may extend slightly beyond the adjacent edge 16 of the transfer leaf. In other words, these edge portions of the record and transfer leaves are offset slightly from each other, thus providing a selective grip device whereby the record leaves may be simultaneously gripped to the exclusion of the transfer leaf. Of course, this offsetting need not continue for the entire width of the assemblage as shown, but this is a convenient manner of constructing the selective grip.

After the inscription has been made, the assemblage may be grasped at the binding and at the opposite selective grip and a tearing pull exerted upon the leaves whereupon the record leaves will be severed along the weakened lines whereas the carbon leaf or leaves will remain attached to the binding, thus making a very convenient means for selective separation of the record leaves from the remainder of the assembly.

An improved and commercially practical method of constructing the unitary manifolding assembly as above described has been devised. As shown in the drawing this method contemplates the assemblage of a plurality of long continuous strips of record and transfer material to form a long compound web indicated generally at 17. The width of this web is made substantially equal to the desired length of the leaves of the manifolding unit and it may be made as long as desired or conditions will permit.

For making a manifolding unit like that above described, this composite web 17 includes the lower or terminal record strip 6*a* for forming the record leaf 6 and the upper or terminal strip 7*a* to form the upper terminal leaf 7. The intermediate carbon strip 8*a* forms the transfer leaves 8. Either prior to or after the assembly of these strips in this manner, certain of them corresponding to the leaves 7 and 8 enclosed within the binding loop 10, above described, are each formed with a series of apertures 12*a* positioned near one longitudinal edge thereof but preferably not opening through the adjacent edge. When assembled as shown in the drawing the respective apertures 12*a* of the strips are positioned in alignment with each other. The apertured strips are assembled with the terminal strip 6*a* with the edge of the latter projecting outwardly beyond the adjacent apertured edges of the other strips. This projection corresponds to the binding strip or extension 9, above described.

With the strips assembled in this manner, an adhesive is applied on the terminal strip along the line of the apertures 12*a*. This adhesive thus enters the apertures passing therethrough into contact with the lower ply and also with the edges or margins of the apertures, thus adhesively attaching the strips. To complete the binding attachment the binding strip or projecting edge of the strip 6*a* is then folded or turned over the adjacent edges of the other strips to form the binding loop 10*a* corresponding to the binding loop 10 above described. The upper ply of this loop is then pressed against the other strips of the assembly and into contact with the adhesive. Thus the lower ply 6*a* and the upper ply of the loop 10*a* are attached together through the apertures by means of the adhesive. The composite web thus constructed is then cut in any appropriate manner along the transverse lines as indicated at 18. The distance between the adjacent lines 18 corresponds to the width of the leaves of the unitary assembly or set. The apertures 12*a* will ordinarily be spaced apart so that two or more such apertures will appear in each unitary set thus providing sufficient binding anchorage for the leaves.

One of the important features of the manifolding assembly constructed in accordance with this invention is that the binding is at the forward end of the assembly, this binding moreover being compact and free from loose edges and thin and free from bulky or projecting attachments. This is accomplished by virtue of the binding loop or fold 10 which encloses the forward ends of the leaves so as to avoid any extending or loose leaf edges. Also, the thickness or bulk of the assembly

at the forward end thereof is made very small by virtue of the improved manner of attaching the sheets or leaves together by the single line of adhesive passing through the attaching apertures 12 or 12a as above described. In fact the thickness of the assembly at this forward bound end thereof is very little if any greater than the combined thickness of the several plies. (It should be kept in mind that the thickness of the assembly is exaggerated in the drawing so as to facilitate the disclosure.) This arrangement therefore is of marked advantage for use in writing machines such as typewriters wherein the assembly is entered with the bound end thereof in leading position. This improved binding structure when thus used is very satisfactory since, due to its small bulk, flexibility and other attributes mentioned, it may be freely entered into writing position in the machine without any tendency to jamming or catching of loose edges. It can thus be inserted in machines employing cylindrical platens without any objectionable obstruction, while at the same time the leaves of the assembly are always maintained in correctly aligned manifolding relation with each other.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

For example, the adhesive may be applied to the extending tab or projection 9 before the latter is folded over the edges of the assembly instead of applying it to the upper surface of the upper sheet. In any case, however, the adhesive will be applied along the line of the apertures so as to be entered therein when the folds are pressed into their final condition.

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

1. A unitary manifolding assembly including, in combination, a plurality of record leaves overlapping each other in manifolding relation, at least one transfer leaf in interleaved transfer relation with said record leaves, one of the terminal leaves of the assembly having an extension forming a binding tab and being folded to form a loop positioned outside and over the adjacent edges of the other leaves and onto the face of the opposite terminal leaf each of the leaves within said loop having at least one aperture and the apertures of the different leaves being respectively aligned with each other to form a continuous passageway through the loop-enclosed leaves in which an adhesive is received, said tab and terminal leaf having portions overlapping the passageway and engaging the adhesive to form a binding for all of the leaves, said leaves having weakened severance lines selectively positioned thereon near the binding, and said leaves having relatively offset marginal portions providing a selective grip for selectively gripping the leaves at a point remote from the binding.

2. A unitary manifolding assembly including, in combination, a plurality of record leaves overlapping each other in manifolding relation, at least one transfer leaf in interleaved transfer relation with said record leaves, one of the terminal leaves of the assembly having an extension forming a binding tab and being folded to form a loop positioned outside and over the adjacent edges of the other leaves and onto the face of the opposite terminal leaf each of the leaves within said loop having at least one aperture and the apertures of the different leaves being respectively aligned with each other to form a continuous passageway through the loop-enclosed leaves in which an adhesive is received, said tab and terminal leaf having portions overlapping the passageway and engaging the adhesive to form a binding for all of the leaves.

3. A unitary manifolding assembly including, in combination, a plurality of record leaves overlapping each other in manifolding relation, at least one transfer leaf in interleaved transfer relation with said record leaves, a binding strip folded to form a loop positioned to enclose record and transfer leaves at one of the edges thereof leaving the other edges free from each other, one ply of said loop being secured to one terminal leaf of the assembly and another ply thereof overlapping the outer face of the other terminal leaf, each of the leaves enclosed in said loop having at least one aperture and the apertures of the different leaves being respectively aligned with each other to form a continuous passageway through the loop-enclosed leaves in which adhesive is received and which leads to said overlapping loop ply, said overlapping ply having a part adhesively engaged by the adhesive in said passageway to form a leaf binding.

4. A unitary manifolding assembly including, in combination, a plurality of leaves overlapping each other in manifolding relation, a binding strip positioned transversely at the leading end of the assembly and folded backwardly over forward leaf ends to provide a binding loop, each of the forward leaf ends enclosed in said loop having at least one aperture and the apertures of the different leaves being respectively aligned with each other to form a continuous passageway through the loop-engaged leaves, in which adhesive is received and which extends to the backwardly folded part of the binding loop, said backwardly folded part having a part adhesively engaged by the adhesive in said passageway.

5. A unitary manifolding assembly including, in combination, a plurality of record leaves and a transfer leaf overlapping each other in manifolding relation, and adhesively secured together at one end of the assembly, one or more of said leaves each having a passageway through which the securing adhesive passes, and a folded binding strip adhesively secured to said leaves at said end of the assembly and in which the adjacent ends of said leaves are received.

6. A unitary manifolding assembly including, in combination, a plurality of record leaves and a transfer leaf overlapping each other in manifolding relation, and adhesively secured together at one end of the assembly, one or more of said leaves each having a passageway through which the securing adhesive passes, and a folded binding strip adhesively secured to said leaves at said end of the assembly and in which the adjacent ends of said leaves are received, edge portions of said record leaves remote from said binding being offset relative to said transfer leaf to provide selective grip portions, said record leaves having weakened severance lines positioned adjacent said binding strip.

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