E. W. COOPER.

MANIFOLDING WEB.

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1,362,231. **Patented Dec. 14, 1920.**

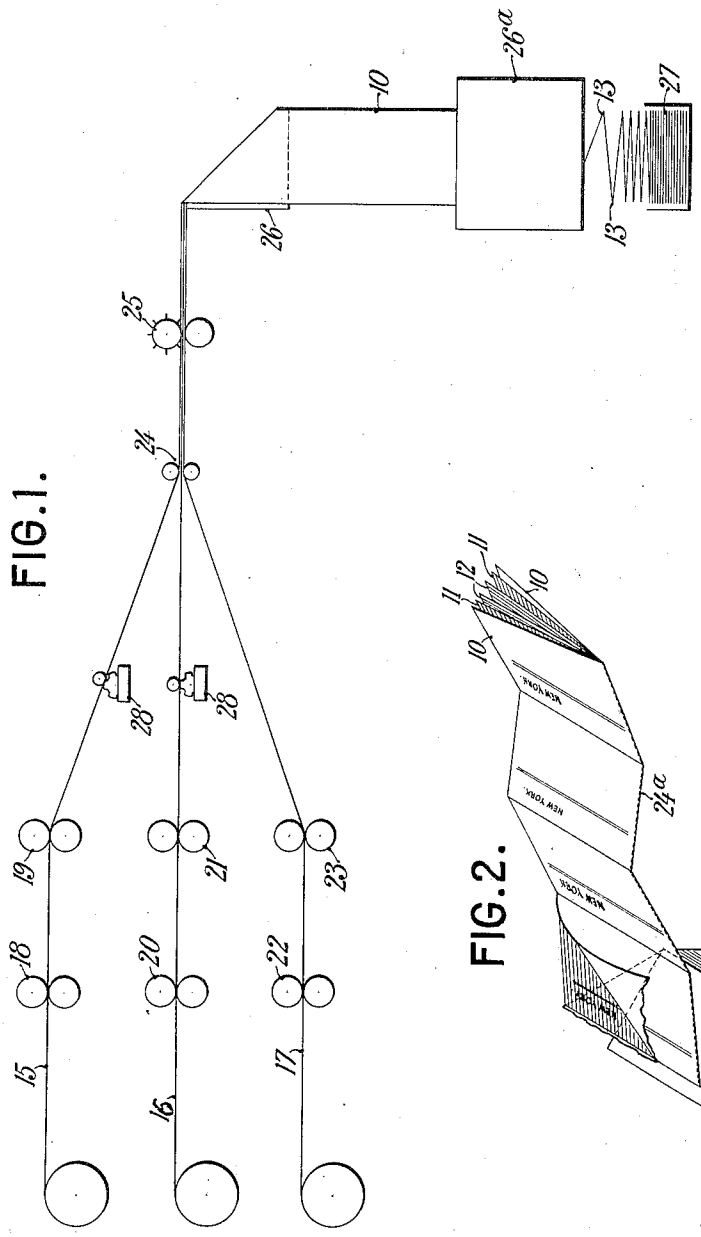


FIG. 1.

FIG. 2.

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MANIFOLDING-WEB.

1,362,231. Specification of Letters Patent. Patented Dec. 14, 1920.

Original application filed October 18, 1917, Serial No. 197,373. Divided and this application filed January 25, 1919. Serial No. 273,185.

To all whom it may concern:

Be it known that I, ELLIS W. COOPER, a citizen of the United States, residing in Manhattan borough, New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Manifolding-Webs, of which the following is a specification.

This invention relates to typewriter manifolding by the use of webs, and, in certain respects, hereinafter set forth, is in the nature of an improvement on the fan-fold web shown in the Wernery and Smith Patent, No. 1,132,055. As in the case of the fan-fold web, one object of the present invention is to prevent the creeping of the web plies as they are fed about the platen of a typewriter.

The fan-fold web is relatively slow and expensive to manufacture. Moreover, the cost of the material is prohibitive in many instances, for the reason that where an extra fine quality of rather heavy paper is desired for the original copy, that is, for the outermost ply, it is necessary to use the same expensive grade of paper for all the remaining plies, of which there may be as many as six or more. Expensive paper is not needed for such remaining plies, which are merely carbon copies and merely intended for employees' assistance. Moreover, the carbon copies are not clear where so many plies of expensive heavy paper are used. Owing, therefore, to the item of the paper cost and the lack of clearness of the carbon copies, the field for fan-fold machines has heretofore been limited to a cheap class of work, using inexpensive and thin paper. Moreover, all of the plies are of the same color, so that the expedient, which is favored in many offices, of having different copies made on different colors of paper, cannot be adopted.

The principal object of my invention, therefore, is to enable an economy to be effected in the cost of the paper, and to secure clean carbon copies, without resorting to the necessity of supplying different qualities of paper from different spools to the typewriting machine, with its attendant liability of creeping and disalinement of the forms on the different plies, and also to permit the use of different colors or qualities of paper in the assemblage. In other words, the object of my invention is to preserve all the advanages that accrue from supplying the webs from separate spools simultaneously to the typewriting machine, and at the same time preserve all of the advantages accruing from the use of a fan-fold web, while eliminating the principal disadvantages of both.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a diagram of means for printing the separate original webs each upon both sides so that the forms will all correspond, means for applying adhesive material (or otherwise providing for adhesion of superposed webs) to the webs along the fold line, which is usually about central of the web, means for assembling the printed and adhering webs (the adhesion may be omitted in many cases), means for perforating the assembled webs longitudinally and centrally at the line of the subsequent fold, means for folding the assembled webs to make a single multiple-ply web, and means for zigzag cross-folding the web to make a pack.

Fig. 2 is a perspective diagram of a web pack, showing the registering forms printed upon the various plies thereof, and showing the use of interior plies of different material and preferably different color from the exterior; the inner plies being preferably much thinner than the container web.

This application is a division of my prior application, Serial No. 197,373, filed October 18, 1917, (now Patent No. 1,330,786, dated Feb. 17, 1920,) disclosing the above described web pack and means for producing the same. Although the means for producing said pack has been illustrated and described herein, in order that the disclosure of the product may be adequately set forth, the claims for said means have been retained in said prior application, the claims of this divisional application being confined to the product.

In place of the web spools and the fan-fold web, I employ a multiplex web comprising two main elements, the first of which is a container 10, and the second of which is a web or webs 11, 12 within the container; the whole being cross-folded back and forth as at 13 to form a convenient package 14

to be led directly into a typewriting machine, the pack, as a whole, being inverted, as illustrated in Fig. 2.

In manufacturing this web, I lead the various elements thereof through a printing machine to print the forms in the necessary relationship on both sides of the various webs. These webs 15, 16, 17, after passing through the printing couples 18, 19, 20, 21, 22, 23, are brought to an assembled condition one upon another at 24, and preferably each web is then perforated centrally longitudinally at 24[a] by perforating means 25. The web is then led to a V-shaped or other suitable folding device 26, which longitudinally folds the assembled webs into one multiple web. This then passes to a cross-folder at 26[a], which zigzags or makes back and forth folds in the web to reduce it to convenient package form at 27.

The outer folded element 10 of the multiple web performs the important function of a container for the other elements, holding the same against relative endwise displacement, and may be made, when desired, of much higher grade paper than the inner plies. Said inner plies 11, 12 are also folded and lie snugly within the fold of the container, and are held thereby and by one another against relative creeping among the webs; the friction of the contacting web surfaces upon one another at and near the folded margin being sufficient to prevent such creeping as the unit passes through the typewriting machine. The inner webs may be of cheap paper, and each web may be colored differently from the others, 11 and 12 being shown as differently colored from each other and from the container 10.

When desired, a modicum of adhesive material may be applied by toothed devices 28 at intervals at the fold lines of the inner webs, to hold them to one another and to the container even more securely against the possibility of relative creeping; although the adhesive material (or other tacking device) may be dispensed with in many cases, as the possibility of creeping is practically eliminated by the described expedient of having the inner webs folded snugly one within the other and both within the fold of the container web. Moreover, the fact that the webs are folded back and forth in the final package precludes any possibility of creeping in those portions of the web that constitute the package itself. The portion of the web extending in unfolded condition from the package to the rolls of the typewriter is short, so that the opportunity for creeping is limited, and owing to the snugly folded arrangement of the plies and the pressure of said plies together by the devices of the typewriting machine, the possibility of creeping or disalinement becomes negligible, so that the forms are always in register or in their relative places when at the printing point of the typewriter.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. A web pack of work-sheets adapted for use in manifolding, said pack comprising a plurality of separate strips of extensive length superposed one upon another, longitudinally folded and nested in snug relation one within another, and zigzag cross-folded into compact form.

2. A web pack of work-sheets adapted for use in manifolding, said pack comprising a plurality of separate strips of extensive length, having corresponding forms printed thereon, said strips being superposed one upon another with the forms in register, longitudinally folded and nested in snug relation one within another, and zigzag cross-folded into compact form.

3. A composite web of work-sheets adapted for use in manifolding, said web comprising a plurality of separate strips of extensive length superposed one upon another, and longitudinally folded and nested in snug relation one within another.

4. A web pack of work-sheets adapted for use in manifolding, said pack comprising a plurality of separate strips of extensive length superposed one upon another, longitudinally folded and nested in snug relation one within another, and zigzag cross-folded into compact form, said strips being weakened as by perforations along their longitudinal folds.

5. A composite web of work-sheets adapted for use in manifolding, said web comprising a plurality of separate strips of extensive length superposed one upon another, and longitudinally folded and nested in snug relation one within another, said strips being weakened as by perforations along their folds.

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Witnesses:
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R. W. PITTMAN.