

Aug. 20, 1940.

C. W. BRENN

2,212,174

MANIFOLDING

Filed Sept. 3, 1930

3 Sheets-Sheet 1

Fig. 1

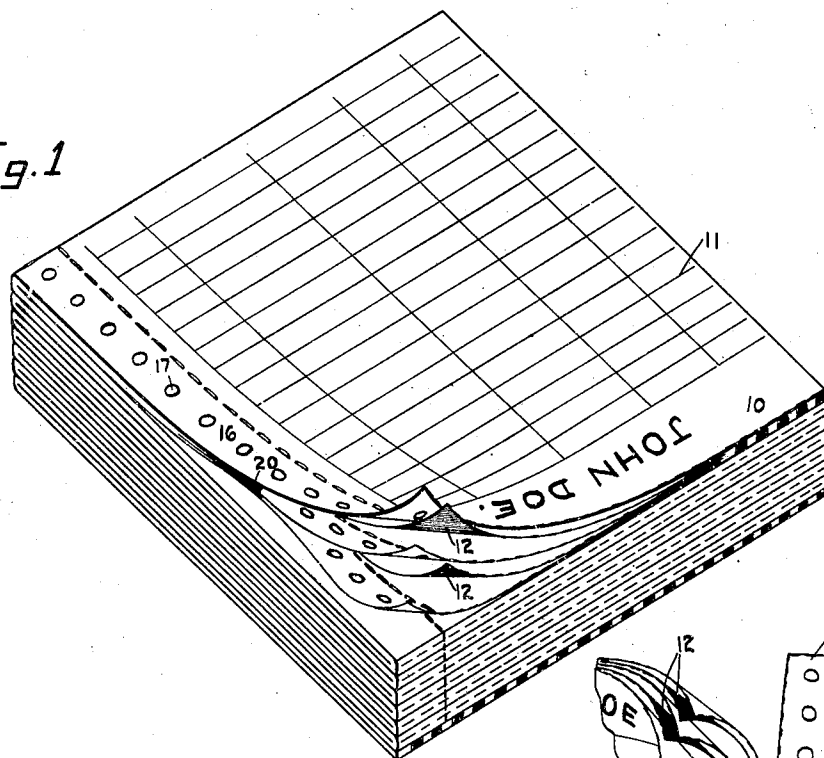


Fig. 2

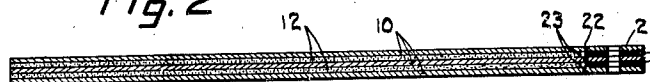


Fig. 3

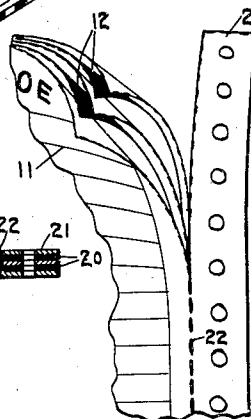
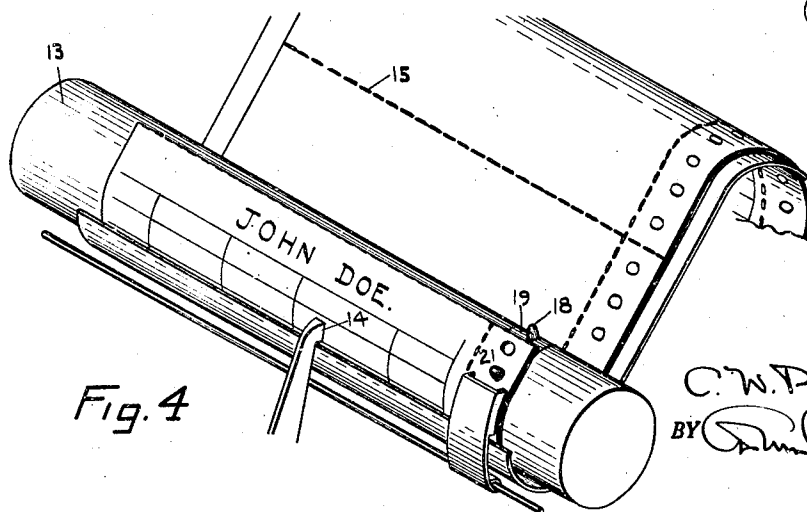


Fig. 4



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3 Sheets-Sheet 2

Fig. 5

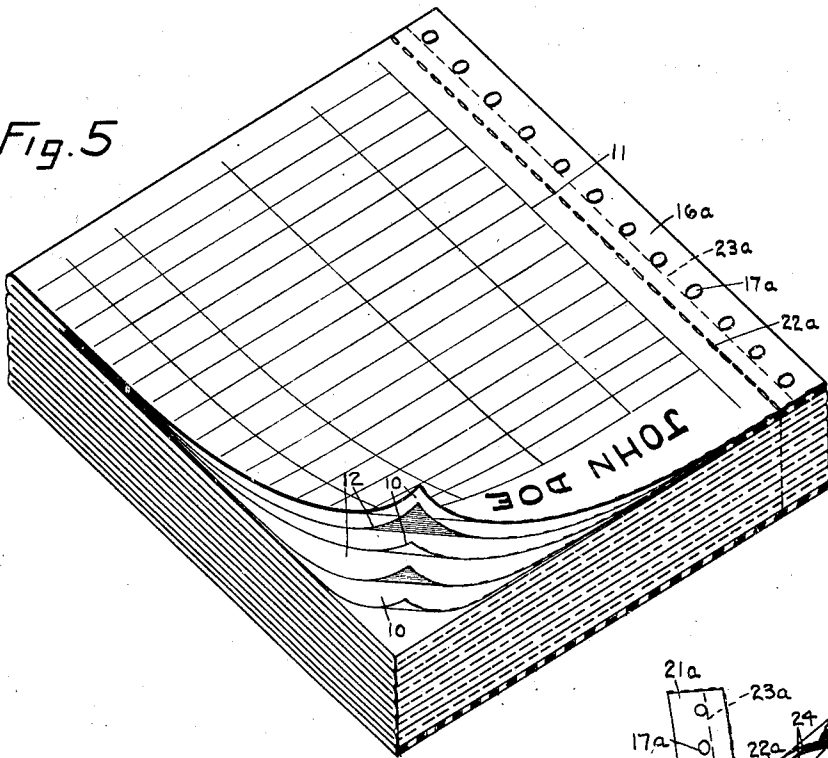


Fig. 6

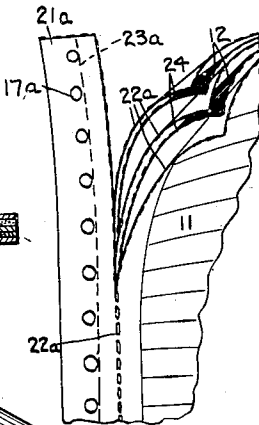
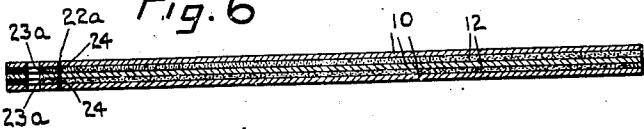
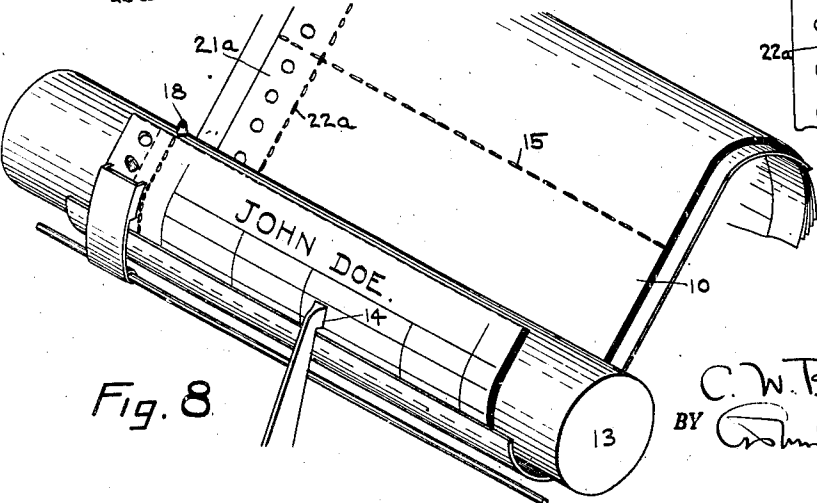


Fig. 7

Fig. 8



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3 Sheets-Sheet 3

Fig. 9

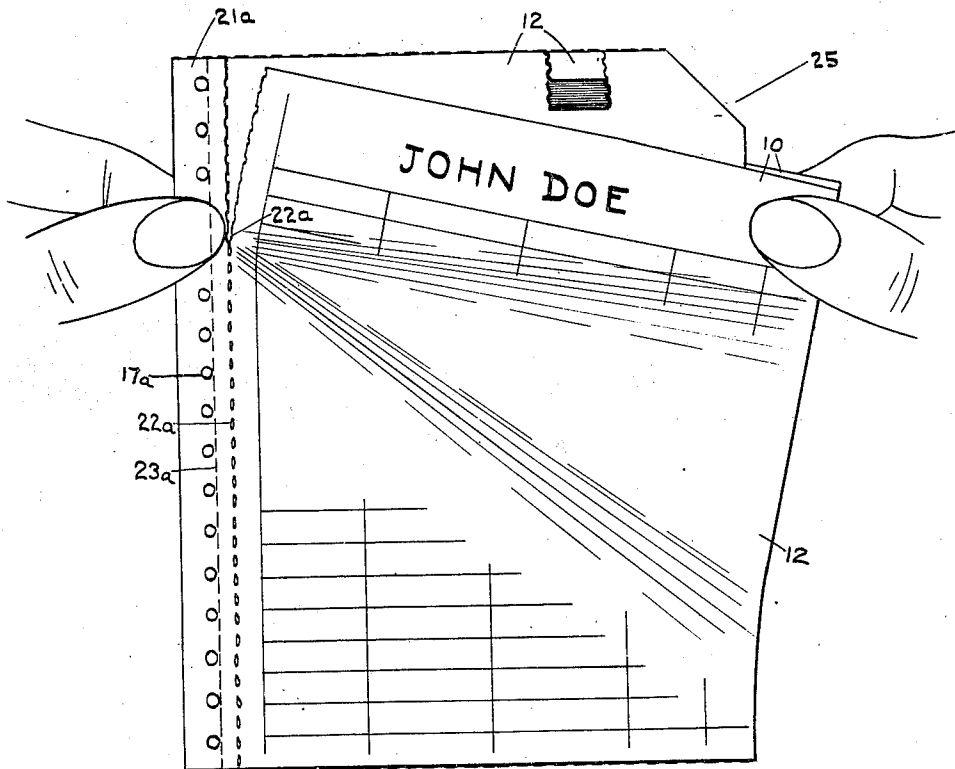
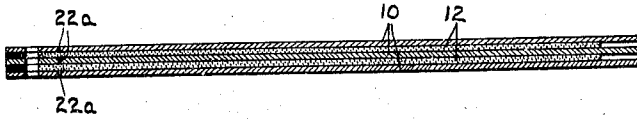


Fig. 10

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UNITED STATES PATENT OFFICE

2,212,174

MANIFOLDING

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Application September 3, 1930, Serial No. 479,463

7 Claims. (Cl. 282—12)

This invention relates to manifolding, and more particularly, to a manifolding pile adapted for use in a typewriter.

Prior to my invention, it was customary in providing a manifolding pile comprising a plurality of superposed worksheets and carbon sheets for use in telegraphic typewriters, with a row of apertures at each side margin for engaging pin-wheels at each end of the typewriter platen, so that the pile of strips would be fed in strict coordination with the rotation of the pin-wheels under the control of the telegraphic typewriter. These pin-wheel apertures were located in margins which could serve no other useful purpose, and the arrangement referred to required that if a pile having a different width of strip was desired to be used with the typewriter, the pin-wheels thereon would have to be adjusted toward or from each other to accommodate the new width of the strip.

To avoid this, the present invention arranges the manifolding pile and the typewriter so that manifolding piles having different widths of worksheet strips may be used in the typewriter without necessitating any adjustment or change of the typewriter (of course, within the capacity of the typewriter). For instance, according to the present invention, in a typewriter designed to take a strip 10" wide, strips from 10" down may be used without necessitating any change being made in the typewriter.

This is accomplished by providing the typewriter with only one pin-wheel located at the end of a platen and providing a pile of worksheet strips with pin-wheel apertures at only one side edge.

Several embodiments of this invention are shown herein. In one of these, the pins and the pin-wheel apertures are located on the left side of the typewriter and pile respectively, when it is desired to write close to the right-hand edge of the strips, and in the other the pin-wheels and pin-wheel apertures are located on the right-hand side of the typewriter and pile respectively, when it is desired to write close to the left-hand edge of the pile.

In the accompanying drawings—

Figure 1 is a perspective view of a manifolding pile made in accordance with this invention and having the feeding band with its row of apertures at the right-hand side of the pile when viewed from the front.

Fig. 2 is a transverse sectional view of the pile shown in Fig. 1.

Fig. 3 is a fragmentary view showing how the feeding band may be removed from the pile.

Fig. 4 is a perspective view showing the pile in position on a typewriter platen.

Fig. 5 is a view similar to Fig. 1, but showing the pile arranged with the band and feeding apertures at the left-hand side of the pile when viewed from the front.

Fig. 6 is a transverse sectional view of the pile shown in Fig. 5.

Fig. 7 is a fragmentary view showing how the feeding band may be removed from the pile of strips.

Fig. 8 is a perspective view of the pile shown in Figs. 5 to 7 on a typewriter platen.

Fig. 9 is a transverse sectional view of a modification of this invention wherein the carbon strips remain attached to the feeding band when the worksheet strips are detached therefrom, thereby facilitating removal of the carbon sheets from the worksheets.

Fig. 10 is a plan view showing the carbon sheets and worksheets in the act of being separated.

As indicated in the accompanying drawings, the manifolding pack of the present invention comprises a plurality of continuous worksheet strips 10 each containing a succession of printed forms 11. The worksheet strips 10 are interleaved with continuous carbon strips 12 so that when the pile of strips is supported upon a platen 13, or other writing surface, writing operations, as, for instance, impressions of types 14, will be transferred to the underlying worksheet strips 10 by the carbon strips 12. The pile of strips is preferably provided with transverse perforations 15 between printed forms 11 so that when one set of forms 11 has been written upon, it may be severed from the remaining portions of the strips by tearing along the line of perforations 15.

In order to keep the worksheet strips in registration with each other and in strict coordination with the feed mechanism of the typewriter, it was customary heretofore to provide the pile of strips in each side margin with feeding bands, each containing a row of apertures to be engaged by pin-wheels on the typewriter platen or associated with the writing surface and controlled by the feed mechanism. This necessitated the provision of a margin on each side of the pile which could serve no other useful function than to constitute feeding bands, and thus represented an added expense so far as the function of making written records is concerned. It also necessitated provision of pin-wheel feeding devices at each end of the platen and at predetermined places

thereon and would only permit the use of different widths of paper in the same machine by changing the location of the pin-wheels, usually by the substitution of a new platen with the pin-wheels located at desired distances apart.

It has been found by the present invention, however, that the registration of the strips and their coordination and aligning with the typewriter feeding devices may be satisfactorily effected with only one row of pin-wheel engaging apertures and one pin-wheel, preferably at one side or the other of the pile and platen, respectively.

Accordingly, in the manifolding piles illustrated herein, the worksheet strips 10 are provided at one side edge only with a longitudinally extending margin 16 having a row of apertures 17 adapted to engage pins 18 on pin-wheels 19 attached to the typewriter platen 13. As usual, there are a sufficient number of pins 18 around the platen so that at all times a plurality of pins engages the apertures 17 and thereby hold the pile of strips in alignment with the typewriter platen and cause it to move coordinately with the platen in its feed-movements. By having a single pin-wheel 19 located at or near one end of the platen, the pile of strips may be of any desired width within the range for which the platen is constructed without necessitating any adjustment or rearrangement of the platen or the pin-wheel.

According to the present invention, I secure the worksheet strips together throughout the length of the feeding bands 16 when making the pile, as, for instance, by gum 20 (see Fig. 2), while at the same time I accurately register the worksheet strips with each other. By so doing, there is formed a laminated feeding band 21, made up of the several margins 16 of the worksheet strips, which is comparatively stiff and strong and not readily tearable by the pins 18 during the feeding of the pile.

When the strips 10 are so secured together, after the forms have been written upon and a set has been severed from the remaining portion of the pile, the laminated feeding band 21 may be removed from the body portion of the worksheets or forms 11 by being torn along a line of perforations 22 extending longitudinally of the worksheet strips and defining the inner boundary of the feeding margins 16. This operation is indicated in Fig. 3, and by it the worksheets are not only separated from the feeding band, but also from each other.

As stated above, the feeding bands 16 and pin-wheels 19 may be located at either the right-hand or left-hand end of the pile and typewriter platen, respectively, the former arrangement is shown in Figs. 1 to 4 inclusive, while the latter is shown in Figs. 5 to 8, inclusive.

The carbon strips 12 may be unattached to, and structurally separate from, the worksheet strips or the bands 16 thereon, as shown in Fig. 2, in which case the lateral edge 23 of each carbon strip is nested in the pocket formed between the surfaces of the adjacent worksheet strips at the junction thereof with the feeding bands which are held together by the adhesive or gum 20, and thus the carbon strips are held in the pile against lateral movement in one direction. When this arrangement is used, it is preferable that the laminated feeding band 21 be provided on the right-hand side of the pile as shown in Figs. 1 to 4, because when thus arranged, any tendency for the carbon strips to shift laterally of the pile as a result of the abrupt stopping of

the typewriter platen in returning direction, only causes the lateral edge 23 of the carbon strip to more snugly fit into the pocket above referred to between the surfaces of the adjacent worksheet strips.

In this case, when the laminated feeding band 21 is torn off, the sheets resulting from the carbon strips 12 and the forms 11 are structurally separate and may be removed from each other in the usual manner.

In some cases, however, it is preferable to have the carbon strips secured to the worksheet strips to be drawn along thereby and to prevent the carbon strips from shifting laterally independently of the worksheet strips. This is accomplished in the form shown in Figs. 5 to 8, in which the lateral edge 23a of each carbon strip is caused to extend into super-position with the feeding bands 16a preferably so that the edge 23a is tangential with the pin-wheel apertures 17a, and in this way the carbon strip is caught between the gummed-together feeding bands 16a of the worksheet strips and secured thereto by the gumming operation. In this manner there is formed a laminated feeding band 21a which contains not only the worksheet strips but also margins of the carbon strips.

If desired, the carbon strips could extend for the full width of the feeding bands 16a, in which case it would be necessary to provide in the carbon strips pin-wheel apertures like the apertures 17-17a in the worksheet strips. However, this is avoided by having the edge 23a fall short of the line of apertures 17a. By having the edge 23a of each carbon strip tangential with the pin-wheel apertures, accurate positioning of the carbon strips in the pile can be obtained during the operation of collating and pasting the worksheet strips, for the edges of the pins used in collating the strips may then constitute guides for controlling the position of the lateral edge 23a of the carbon strip.

In the embodiment of this invention shown in Figs. 5 to 8, the worksheet strips are provided with longitudinally extending lines of perforations 22a at the junction of the feeding bands 16a with the main body of the strips so that one or more of the written worksheets may be torn from the book-like set of written forms and so that the laminated feeding band 21a may be removed from the worksheet strips, as described in connection with the form shown in Figs. 1 to 4.

In the embodiment of this invention shown in Figs. 6 and 7, the carbon strips also have longitudinally extending lines of perforations 24 so that the carbon sheets may become separate and capable for use for other purposes by the operation of tearing the laminated feeding band 21 from the pile of sheets.

However, it is advantageous where conditions permit such an arrangement, to provide the pile as shown in Figs. 9 and 10, wherein only the worksheet strips are provided with the longitudinally extending perforations 22a, and the carbon strips which are secured to the laminated feeding band are not provided with such perforations. When this is done, the worksheet strips at the edge opposite the laminated feeding band 21a are preferably made to extend beyond the adjacent edge of the carbon strip. This may be done by making the carbon strips narrower than the worksheet strips as shown in Fig. 9, or, by having the corner 25 of the carbon strip cut out as shown in Fig. 10.

When the pile is so made, the operator may

grasp the laminated feeding band with the fingers of one hand while the fingers of the other hand may grasp the portions of the worksheets which have no underlying carbon, and by moving the hands apart the worksheet strips are torn from the feeding band along the lines of perforations 22, and at the same time the carbon sheets are separated from the worksheets by remaining attached to the laminated feeding band 21a, as indicated in Fig. 10.

I desire it to be understood that I may make changes in the construction, combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

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

1. A manifolding pile comprising a plurality of continuous worksheet strips containing a succession of printed forms, and continuous carbon strips interleaved with the worksheet strips, the worksheet strips having superposed margins at one only of the lateral edges of the pile gummed together to form a feeding band, registering pin-wheel engaging apertures in said gummed margins of the worksheet strips, said carbon strips having one lateral edge tangential to the pin-wheel engaging apertures and being secured to the worksheet strips of the pile within said gummed margins of the worksheet strips.

2. A manifolding pile comprising a plurality of continuous worksheet strips containing a succession of printed forms, and continuous carbon strips interleaved with the worksheet strips, the worksheet strips having superposed margins at one only of the lateral edges of the pile secured together to form a feeding band, and the carbon strips being secured in the pile by each having one lateral edge caught between the secured-together margins of the adjacent worksheet strips, longitudinally extending lines of perforations in each worksheet strip between the secured margin and the body of the strip along which the latter may be torn for removal, said carbon strips having no such perforations and remaining attached to the feeding band upon removal of the worksheet strips.

3. A manifolding pile comprising a plurality of continuous worksheet strips containing a succession of printed forms, and continuous carbon strips interleaved with the worksheet strips, said pile having at one only of its lateral edges a continuous row of pin-wheel engaging apertures, the worksheet strips having superposed margins at the left-hand lateral edge only of the pile secured together to form a feeding band, said feeding band having a continuous row of apertures to engage pin-wheels on a typewriter platen, and the carbon strips each having one lateral edge caught between the secured margins of the work-

sheet strips to hold them in the pile against the tendency to shift laterally of the worksheet strips when the platen stops abruptly in its movement from left to right.

4. A manifolding pile comprising a plurality of continuous worksheet strips containing a succession of printed forms, and continuous carbon strips interleaved with the worksheet strips, the worksheet strips having superposed margins at the right-hand lateral edge of the pile gummed together to form a feeding band, said feeding band having a continuous row of apertures adapted to engage pin-wheels on the right-hand end of a typewriter platen, the carbon strips each having a lateral edge nested in the pocket formed between adjacent worksheet strips by the gumming of the margins thereof, the tendencies of the carbon strip to shift laterally as a result of the abrupt stopping of the movement of the platen from left to right being counteracted by the engagement of the lateral edge of the carbon strip with the gummed margins of the adjacent worksheet strips.

5. A manifolding pile comprising a plurality of continuous worksheet strips containing a succession of printed forms, and continuous carbon strips interleaved with the worksheet strips, the worksheet strips having superposed margins at one only of the lateral edges of the pile secured together to form a feeding band, and the carbon strips being secured in the pile by each having one lateral edge caught between the secured-together margins of the adjacent worksheet strips, longitudinally extending lines of perforations in each worksheet strip between the secured margin and the body of the strip along which the latter may be torn for removal, said carbon strips having no such perforations and remaining attached to the feeding band upon removal of the worksheet strips, marginal portions of the worksheet strips opposite said secured margins projecting beyond the adjacent edges of the carbon strips to provide finger grip areas to facilitate said removal of the worksheet from the pile.

6. The invention defined in claim 2, wherein the feeding band formed only at one lateral edge of the pile by the secured-together worksheet strips includes a continuous row of pinwheel engaging apertures to engage pinwheels on a typewriter platen.

7. The invention defined in claim 2, wherein the feeding band formed only on one lateral edge of the pile by the secured-together margins of the worksheets is provided with feed controlling apertures and the free marginal portions of the worksheets opposite said feed band project beyond the edges of the carbon strips to provide finger-grip areas to facilitate stripping of the worksheet from the pile.

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