April 30, 1940. A. A. JOHNSON 2,199,359

MANIFOLDING

Filed Jan. 19, 1931 2 Sheets-Sheet 1

Fig. 1.

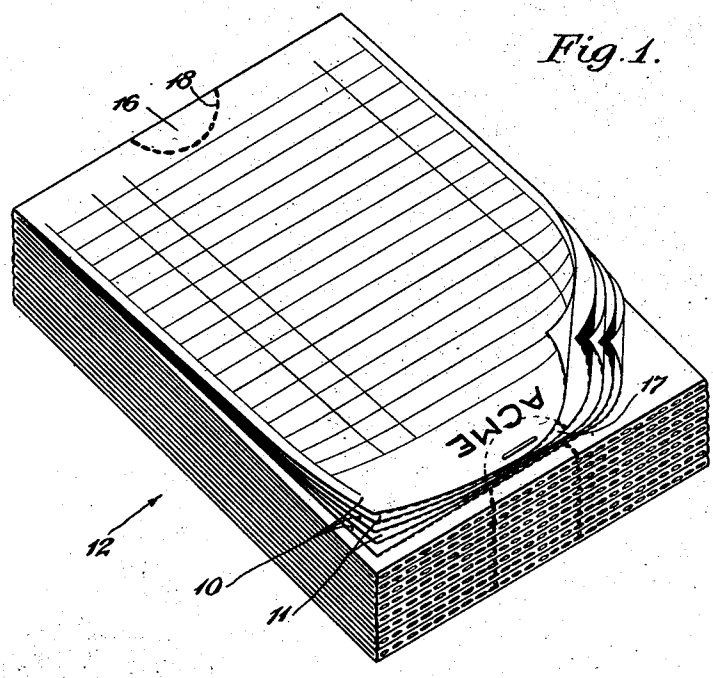


Fig. 2.

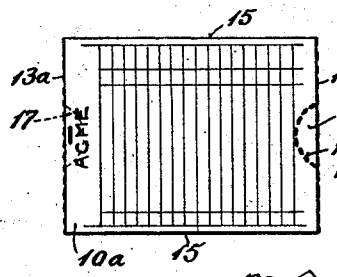


Fig. 3.

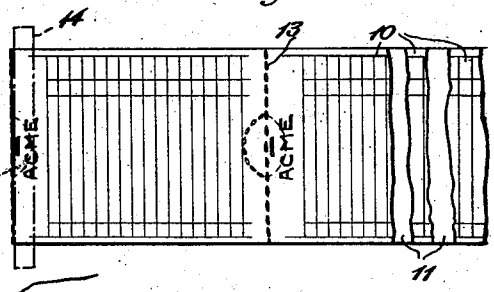


Fig. 4.

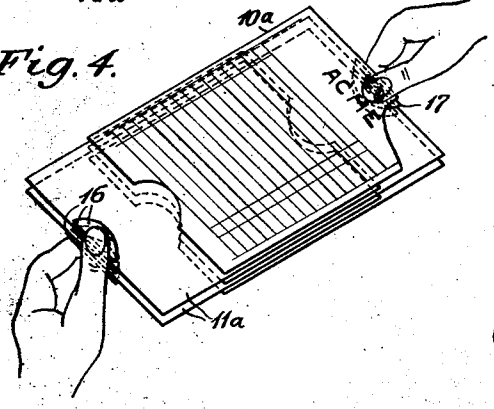
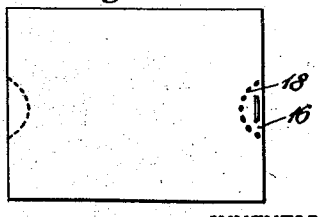
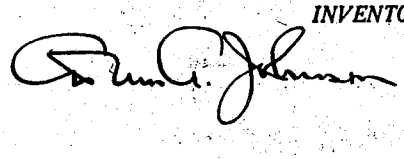


Fig. 9.



INVENTOR.



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MANIFOLDING

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Fig. 5.

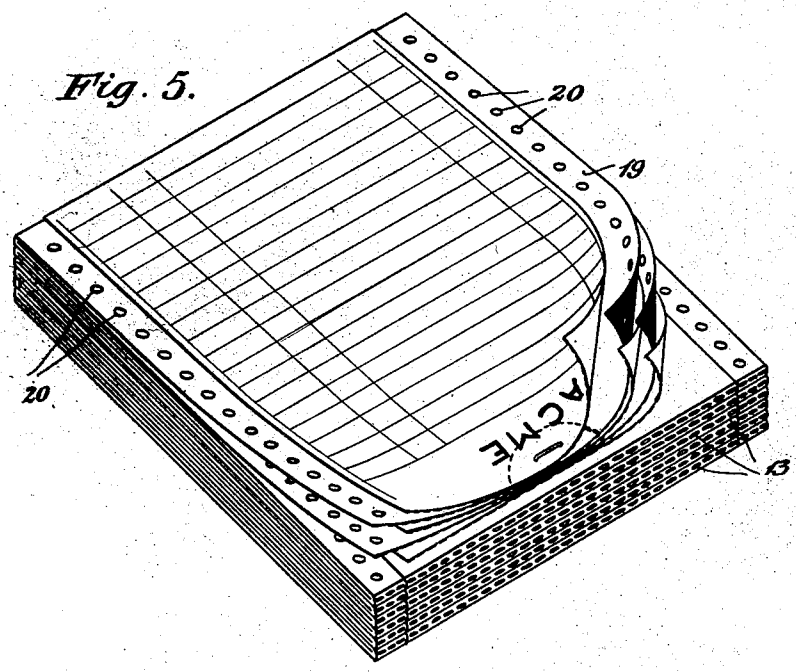


Fig. 6.

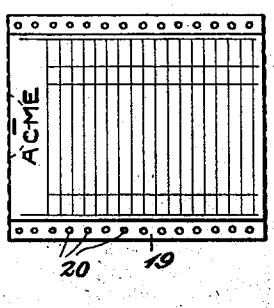


Fig. 7.

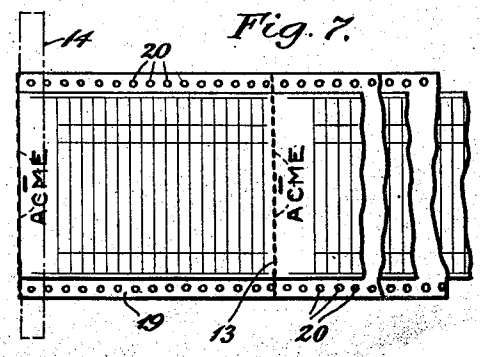
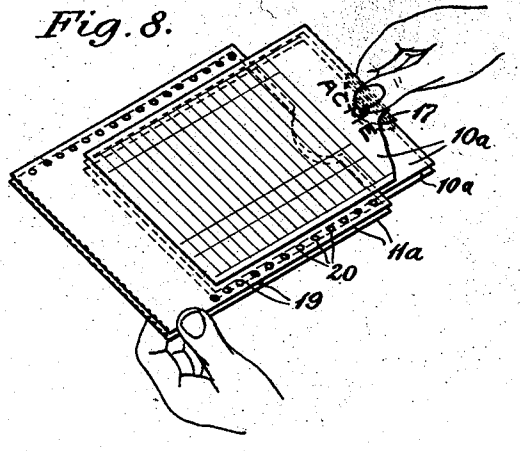


Fig. 8.



INVENTOR.

Geo. A. Johnson

Patented Apr. 30, 1940 2,199,359

UNITED STATES PATENT OFFICE

2,199,359

MANIFOLDING

Arthur A. Johnson, Bridgeport, Conn., assignor to Autographic Register Company, Hoboken, N. J., a corporation of New Jersey

Application January 19, 1931, Serial No. 509,639

7 Claims. (Cl. 282—12)

This invention relates to manifolding, and more particularly, to a pile of continuous superposed record and transfer strips for use in a typewriting or other writing machine. Such a manifolding pile is usually divided into form lengths by transverse weakening lines along which the strips of the pile are torn to produce superposed record and transfer sheets.

Heretofore it was proposed by me to provide the lines of severance in the record strips and transfer strips respectively so that when the strips are severed along the weakening lines finger grip portions are produced on the transfer sheets at one margin of the pile of sheets while the transfer strips have grip-escaping portions under another margin of the record sheets. Hence, the record sheets and transfer sheets may be easily stripped from each other by gripping the transfer sheets with the fingers of the one hand and the record sheets with the fingers of the other hand and drawing the hands apart.

An object of this invention is to provide the record and transfer strips so that the lines of severance thereon may be in registry all the way across the pile and so may be separated along a straight edge knife or the like, and yet provide for facilitating the separation of the record strips from the transfer strips.

This is accomplished in the form of the invention herein disclosed by providing in the form or sheet lengths of one or both of the groups of strips, that is the record strips or the carbon strips, or both the record and carbon strips, supplemental lines of weakness underlying a grip portion on the other of the two groups of strips and adapted to separate from the movement of the body of the form or sheet lengths when force is exerted to strip the record sheets from the transfer sheets.

According to the present invention, the record and transfer strips are held in registration by fastening means located within the boundaries of the detachable section and when so located not only serves to hold the strips together but also serves to hold the detachable portion or segment of the transfer strip to the record strip or vice versa if the arrangement is reversed during the carbon stripping operation.

Other features and advantages will hereinafter appear.

In the accompanying drawings which illustrate two species of my invention—

Figure 1 is a perspective view of a manifolding pack in which both the record strips and the transfer strips are provided with sections which become detached in the carbon stripping operation.

Fig. 2 is a plan view of a pile of record and transfer sheets showing the form of the invention disclosed in Fig. 1.

Fig. 3 is a plan view of a pile of strips from which the pile of sheets shown in Fig. 2 is torn.

Fig. 4 is a perspective view showing the transfer sheets and record sheets in the act of being stripped.

Fig. 5 is a perspective view similar to Fig. 1 of another specie of this invention wherein only the carbon strips are provided with sections which become detached in the carbon stripping operation, the record sheet accordingly being a plain rectangular sheet.

Fig. 6 is a view similar to Fig. 2 of the form of the invention shown in Fig. 5.

Fig. 7 is a plan view of a pile of strips from which the pile of sheets shown in Fig. 6 is severed.

Fig. 8 is a perspective view showing the record sheets and transfer sheets of the form of the invention shown in Figs. 5, 6 and 7 in the act of being stripped from each other.

Fig. 9 is a plan view of the pile of strips shown in Figs. 1 to 4, but shows the staple located to hold the transfer strips together, and not the record strips, after the final severance operation.

As shown in the accompanying drawings, the pile of manifolding strips may comprise record strips 10 and interleaved carbon strips 11 which are continuous in form and which are placed one above the other in superposed relation. For convenience in shipping and handling, this pile of strips may be zig-zag folded to form a pad or block 12 as shown in Figs. 1 and 5 from which the leading end may be lifted and inserted in a typewriting machine or the like. The zig-zag folding of the pile of strips 10 and 11 is facilitated by transverse weakening lines 13 and these further serve as lines of severance along which the pile of strips may be severed to produce sets of interleaved record sheets 10*a* and carbon sheets 11*a*.

After the form has been filled out or written upon and is severed from the pile along the lines of severance 13, it is usually desired to separate the carbon sheets 11*a* from the record sheets 10*a* either immediately or at some later time.

In order to facilitate the separation or stripping of the transfer sheets 11*a* from the record sheets 10*a*, I have previously proposed that the lines of severance 13 in the strips 10 and 11 respectively be at such variance with each other that tabs are formed on the transfer sheets 11*a*

at one end while grip-escaping apertures are formed in the transfer sheets at the other end, so that the carbon strips may have their tabs gripped together by the fingers of the one hand while the parts of the record sheets which are free of underlying carbon strips are gripped with the fingers of the other hand, permitting the sheets to be stripped from each other by the act of moving the two hands apart.

According to my present invention, however, I have provided for facilitating the stripping of the transfer sheets from the record sheets without the necessity of having the lines of severance 13 out of register, and in so doing I have made it possible to assist the severing operation by means of a knife or straight edge 14 shown in dot-and-dash lines in Figs. 3 and 7. The use of a straight edge in many cases is extremely desirable and advantageous for when such use is feasible the perforations 13 need not be so deep as when the strips are to be torn by a pulling or snapping action. These "snap" perforations, as they are called, are perfectly satisfactory with some kinds of paper and under some conditions of printing and handling, but in other cases if the perforations are too wide or too cleanly cut, the strips are liable to become separated in the feeding operation and if not cut so deep or so cleanly will not sufficiently weaken the strips to permit the written strips to be snapped from the remainder of the strips.

Hence, according to the present invention, the lines of perforations 13 extend all the way across the pile of strips and when the set of sheets is severed from the strips as shown in Figs. 2 and 6, the leading edge 13*a* and the back edge 13*b* are continuous, straight and perpendicular to the lateral edges 15 of the sheets.

To facilitate the separation of the carbon sheets from the record sheets, the present invention provides on either the former or the latter or both, sections or portions 16 and 17 which are defined by weakening lines 18 preferably formed of perforations of the "snap" or easily ruptured type. In the embodiment of the invention shown in Figs. 1 to 4, the portions 16 are located in the record strips 10 at the foot end of each form while the portions 17 are located in the carbon strips 11 at the head of each form and the lines of perforations 18 defining these portions 16 and 17 intersect the transverse lines of severance 13. The portions 16 and 17 in the record strips 10 and carbon strips 11 respectively are preferably opposite each other and of sufficient size or area so that after the set of sheets 10*a* and 11*a* are severed from the rest of the strips as shown in Fig. 2, the record strips may be grasped by the fingers of the one hand directly over the portions 17 on the carbon sheets 11*a* while the portions 16 and the interposed marginal edges of the carbon sheets 11[a] are gripped with the fingers of the other hand. As shown in Fig. 4, when the strips are thus severally gripped and drawn apart, the portions 16 and 17 break away from the bodies of the sheets to which they are normally attached and thus permit the carbon sheets 11*a* to be stripped from between the record sheets 10*a*, the portions 16 of the record sheets coming away with the transfer sheets 11*a* while the portions 17 of the transfer sheets remain with the record sheets 10*a*.

To hold the strips in registration preparatory to and during the operation of writing thereon, it has heretofore been proposed that the strips be secured together by staples passing through the entire pile of the strips. According to the present invention, the staple may be located either in the portions 16 of the record strips 10 or in the portions 17 of the carbon strips 11. In either case, of course, the staple may pass through the interposed margins of the other strips. When, as shown in Figs. 1 to 4, the staple is located in the portions 17 of the carbon strips, the record sheets will remain held together even after severance and after the transfer sheets have been stripped therefrom. When, as shown in Fig. 9, the staple is located in the portions 16 of the worksheet strips, it becomes separated from the record sheets 10*a* during the act of stripping the carbon sheets 11*a* with the result that the record sheets become separated for desired distribution to various places.

In the form of the invention shown in Figs. 1 to 4 and 9, the record sheet becomes mutilated by the removal of the portion 16 therefrom during the carbon separating operation. This is avoided in the form of the invention shown in Figs. 5 to 8 in which the carbon strips 11 are provided with projecting lateral margins 19 which may be gripped by the fingers of the one hand while the sheets 11*a* may be gripped at the portions overlying the detachable segments or portions 17 in the transfer sheets 11*a*, as indicated in Fig. 8, to separate the record sheets 10*a* and transfer sheets 11*a*.

The projecting margins 19 may be continuous as shown or may be otherwise, but when they are continuous it is advantageous to employ these as feeding bands to feed the pile of strips through the writing machine or otherwise control the pile. Accordingly, as shown, the lateral margins 19 are provided with pin-wheel engaging apertures 20 for cooperation with pin-wheel feeding devices in a typewriting or like machine.

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. Superposed record strips and a transfer strip between each two adjacent record strips, all of said strips being divided by straight weakening lines to form outer boundaries of registered rectangular sheets, each transfer sheet having a marginal portion divided from the remainder of the sheet by weakening lines and forming a separable finger grip portion, and said transfer sheets having other marginal portions extending beyond the adjacent edges of the record sheets by means of which the carbon sheets may be gripped without gripping the record sheets.

2. Superposed record strips and a transfer strip between each two adjacent record strips, all of said strips being divided by straight weakening lines to form outer boundaries of registered rectangular sheets, each transfer sheet having a marginal portion divided from the remainder of the sheet by a weakening line and forming a separable finger grip portion, and means for securing the strips together in registration preparatory to, and during the operation of, writing upon the superposed strips, said means being located in the separable finger grip portion of the transfer sheets.

3. A unitary manifolding assembly including in combination a single set of record sheets having a portion in which said set is bound, and at least one transfer sheet bound in with

said portion and positioned in overlapping superposed manifolding relation with said record sheets, said transfer sheet or sheets having weakening lines defining the portion in which the set of sheets is bound, and the record sheets being non-weakened at corresponding parts thereof.

4. A unitary manifolding assembly including in combination a single set of record sheets having a portion in which said set is bound, and at least one transfer sheet bound in with said portion and positioned in overlapping superposed manifolding relation with said record sheets, at least one of said transfer sheet or sheets having weakening lines defining the portion in which the set of sheets is bound, and the record sheets being non-weakened at corresponding parts thereof.

5. A unitary manifolding assembly including in combination a single set of record sheets having a portion in which said set is bound, and at least one transfer sheet bound in with said portion and positioned in overlapping superposed manifolding relation with said record sheets, some of said transfer sheets having weakening lines defining the portion in which the set of sheets is bound, and the record sheets being non-weakened at corresponding parts thereof.

6. Superposed record strips and interposed carbon strips divided at intervals by registered weakening lines to form successive sets of record and transfer sheets, said transfer sheets each having a supplementary weakening line forming a marginal detachable portion, the sheets of a set being fastened together by securing means located within the boundaries of said marginal portion, and the record sheets each having a supplementary weakening line forming a marginal detachable portion offset with relation to the marginal detachable portions in the transfer sheets.

7. Superposed record strips and interposed carbon strips divided at intervals by registered weakening lines to form successive sets of record and transfer sheets, the record sheets having a supplementary weakening line forming a marginal detachable portion, the sheets of a set being fastened together by securing means located within the boundaries of said detachable portion of the record sheets and the transfer sheets each having a supplementary weakening line forming a marginal detachable portion offset with relation to the marginal detachable portions of the record sheets.

ARTHUR A. JOHNSON.