May 21, 1940. C. F. WOLTERS ET AL 2,201,950

INDEX STRIP

Original Filed July 6, 1935 2 Sheets-Sheet 1

Fig. 1.

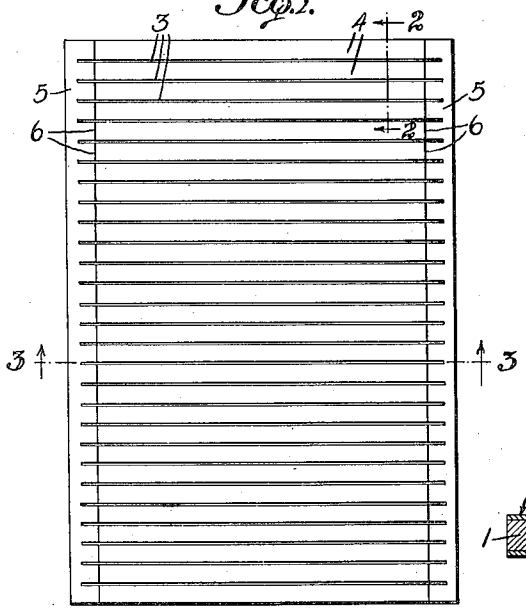


Fig. 2.

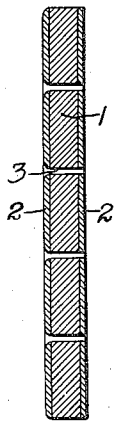


Fig. 3.

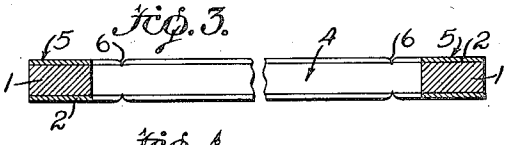


Fig. 4.

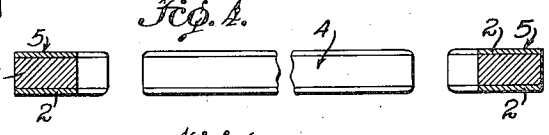


Fig. 5.

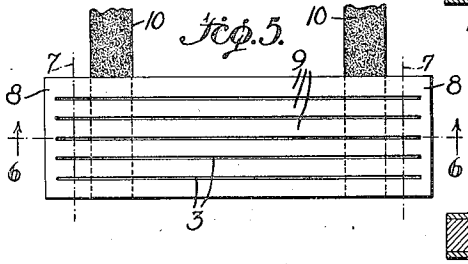


Fig. 6.

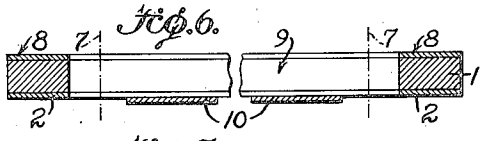


Fig. 7.

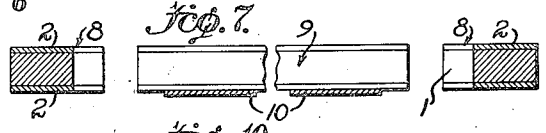


Fig. 8.

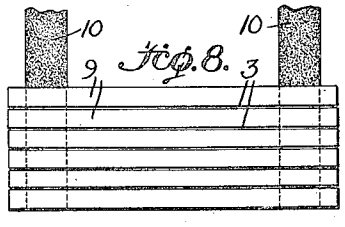


Fig. 10.

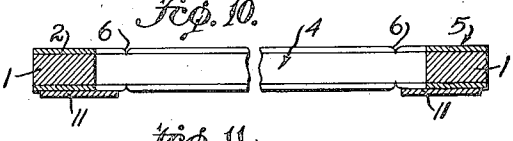


Fig. 11.

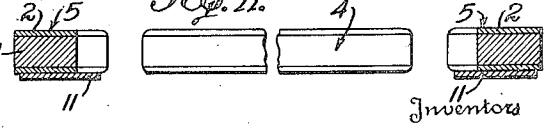
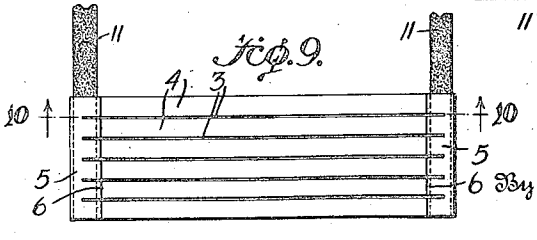


Fig. 9.



Inventors

Carl F. Wolters,

Robert M. Ellis

By

Attorneys

May 21, 1940. C. F. WOLTERS ET AL 2,201,950

INDEX STRIP

Original Filed July 6, 1935 2 Sheets-Sheet 2

Fig. 12.

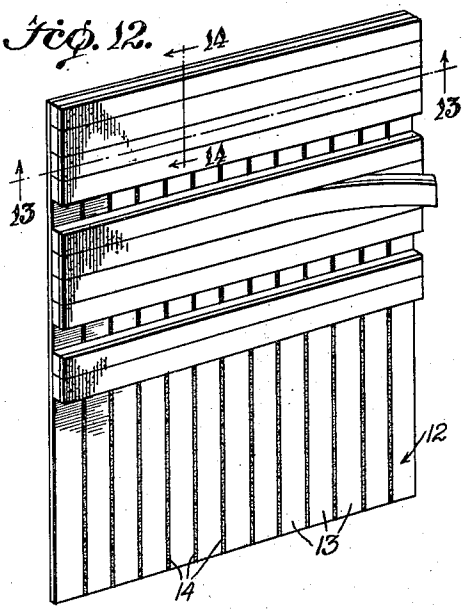


Fig. 15.

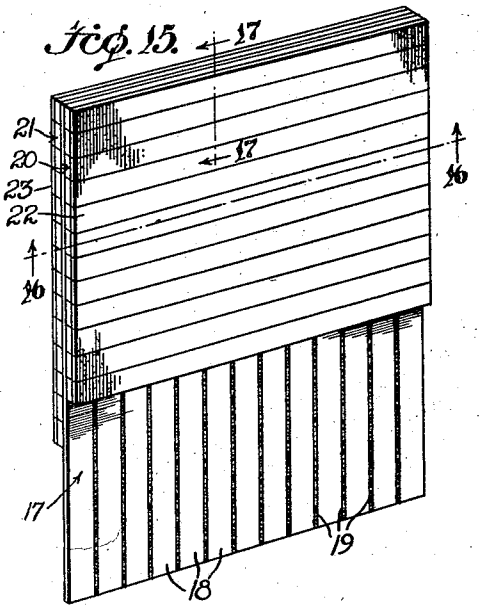


Fig. 13.

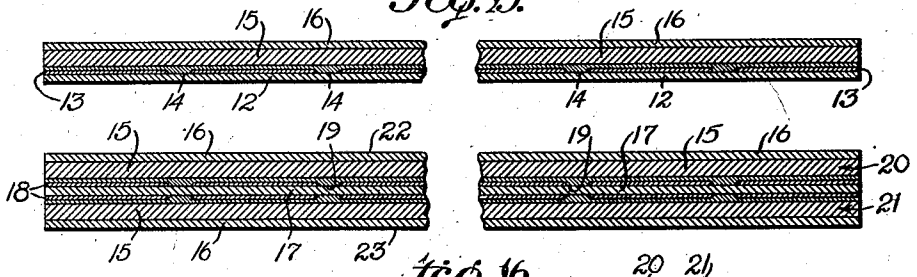


Fig. 16.

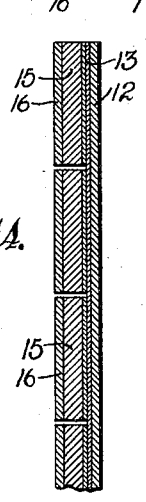
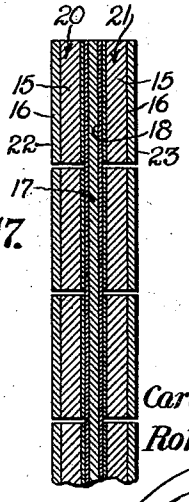


Fig. 14.

Fig. 17.



Inventors
Carl F. Wolters,
Robert M. Ellis

By

Attorney

Patented May 21, 1940

2,201,950

UNITED STATES PATENT OFFICE

2,201,950

INDEX STRIP

Carl F. Wolters, Kenmore, N. Y., and Robert M. Ellis, Bound Brook, N. J., assignors to Remington Rand Inc., Buffalo, N. Y.

Application July 6, 1935, Serial No. 30,104
Renewed October 6, 1938

7 Claims. (Cl. 154—43)

This invention relates to improvements in index strips and particularly flexible index strips of narrow width and substantial length adapted for mounting in groups in adjacent relation on a support sheet in such a way as to provide for the ready removal of individual strips from the sheet.

The invention comprehends improvements in the construction of index strips and support sheets having said strips each made of laminated form in which an intermediate or supporting layer of wood veneer, fiber, cardboard or other suitable material is provided with an outer layer of paper glued on one or both faces thereof so that one of said layers provides a writing surface and wherein a series of these laminated strips are secured together in edge-to-edge relation having suitable means that may be disposed at the ends or at the back of the separate, but adjacent index strips for securing them together in an independently detachable manner.

The invention comprehends the provision of novel means for securing a series of separate index strips in groups in adjacent relation by having the material from which the laminated strips are formed, of a size larger than that used to make the strips so that the portions of the sheet forming the separated strips may be constructed by slitting the sheet along spaced parallel lines, or by slotting spaced parallel portions of the sheet, to form the separate strips but leaving the portions of the sheet at the ends of the strips intact in the form of marginal portions along opposite sides of the sheet that may be detached from connection with the ends of the strips so that individual strips may be detached from one another.

The invention also contemplates the formation of a sheet of suitable laminated material to provide a series of separated index strips connected at their ends to marginal portions with a suitable backing or strip securing means in the form of tapes of suitable material glued to the backs of the index strips at spaced intervals or a backing sheet of suitable waxed paper, cardboard or other coated material having spaced parallel portions from which the wax or coating material is either omitted or removed so that the strips may be glued to these spaced parallel portions of the backing sheet on which there is no coating, the marginal portions at the ends of the strips either being omitted or removed when the strips or backing sheet is used to hold the separate index strips in adjacent edge-to-edge relation.

The invention comprehends a new method of manufacturing index strips in sheet form by first forming the laminated sheet structure, by gluing the outer layer or layers of paper that form the writing surface onto the intermediate supporting layer and then slitting the sheet to form separate independent index strips connected by marginal portions at one or both ends with the application of suitable retaining strips or a backing sheet to the slitted sheet structure with the subsequent removal of the marginal portions to form assembled index strips having backing strips or a sheet connected to the index strips at spaced intervals for holding them together and in edge-to-edge relation uniformly in such a way that the strips may be readily typed with index information and then be independently removable from the sheet structure.

The index sheet structure of this invention may also be constructed by using a suitably coated or waxed backing sheet having the wax omitted at spaced intervals and then applying a laminated sheet formed by first treating wood veneer, fiber or other suitable sheet material with glue and applying a paper facing on one or both faces, one of the faces of the sheet being provided with a suitable glue coating to attach the laminated sheet to the waxed backing sheet so that the said glue will cooperate with the spaced parallel portions from which the wax is omitted in order to secure the laminated sheet and backing sheet together, the laminated sheet being subsequently slitted at right angles to the spaced parallel securing portions that are free from wax resulting in the provision of a sheet structure having a series of independent index strips connected at spaced intervals to said waxed or coated backing sheet.

The invention comprehends several other improvements in the method of making groups of assembled index strips and the index strips themselves that are more particularly pointed out in the following description and claims directed to the preferred forms of the invention.

In the drawings:

Fig. 1 shows a sheet of laminated index strips secured together in sheet form at the ends by marginal portions.

Fig. 2 is a cross section taken on line 2—2 of Fig. 1.

Fig. 3 is a cross section taken on line 3—3 of Fig. 1.

Fig. 4 is a cross section similar to Fig. 3 showing the marginal portions detached from the index strips.

Fig. 5 illustrates a laminated sheet similar to that shown in Fig. 1 and the manner of applying securing tape to the back faces of the index strips

at spaced intervals to hold the strips in assembled relation after the marginal portions are detached.

Fig. 6 is a cross section taken on line 6—6 of Fig. 5.

Fig. 7 is a view similar to Fig. 6 showing the marginal portions of the laminated sheet detached from the index strips which are held together by the tape.

Fig. 8 is a plan view of a portion of a group of assembled separate index strips secured together by tapes at spaced intervals.

Fig. 9 shows a group of assembled index strips secured together by marginal portions at the ends which are separated from the ends of the index strips by score lines, the marginal portion being reinforced with tape strips of suitable material on one face.

Fig. 10 is a cross section taken on line 10—10 of Fig. 9.

Fig. 11 is a cross section similar to Fig. 10 showing the marginal portions with their reinforcing tapes detached from the index strips.

Fig. 12 shows a sheet of assembled separate index strips in perspective from which some of the strips have been removed and others are shown in partially removed condition to illustrate the details of construction.

Fig. 13 is a cross section taken on line 13—13 of Fig. 12.

Fig. 14 is a cross section taken on line 14—14 of Fig. 12.

Fig. 15 shows a sheet of assembled separate index strips in perspective having a construction similar to that shown in Fig. 12, but in which index strips are applied to both faces of the backing or support sheet.

Fig. 16 is a cross section taken on line 16—16 of Fig. 15.

Fig. 17 is a cross section taken on line 17—17 of Fig. 15.

The index sheet shown in Figs. 1 to 4 is formed of a sheet of wood veneer, fiber, cardboard or other suitable material indicated at 1 which forms an intermediate layer. A paper facing is applied by suitable glue or other adhesive to both faces of layer 1 as indicated at 2. In facing the intermediate layer 1 with the paper sheets 2, the material forming the intermediate layer is passed through a glue bath and the excess glue squeezed off in a wringer, after which the glued sheet is dried. This gluing treatment is then repeated a second time and the paper facing sheets 2 are then applied before the second coating of glue is dried, the laminated sheets thus formed then being placed in a press for a period of from twelve to twenty-four hours to allow the glue to set and dry, after which they are placed in a drier for twenty-four hours to complete the drying operation.

The sheet is then provided with a plurality of spaced parallel slots 3 that may be formed by a plurality of saws that will remove spaced portions of the laminated sheet between the ends thereof in spaced parallel relation to provide open slots in the sheet so that the index strips 4 are in spaced but adjacent relation to one another. The laminated sheet may be slitted so the index strips 4 will be in close edge-to-edge relation with their edges in substantial contact. The slitting or slotting operations as described above are not extended through the side edges of the sheet and as a result solid marginal portions 5 are left at opposite ends of index strips 4 so as to hold them together in assembled groups. This sheet is then scored along the side margins to define the inner edges of the marginal portions 5 as indicated at 6, and to further define the ends of index strips 4.

One or more of said index strips may be separated from the assembled relation by bending the marginal portions 5 laterally to break the marginal portions along the scored portions 6, and as a result the index strips 4 will be separated, the separated strips and marginal portions being shown in Fig. 4.

Figs. 5 to 8 illustrate a slightly different form of construction using a laminated sheet constructed with the intermediate layer 1, outer paper facings 2 and slitted or slotted at spaced parallel intervals at 3 as above described. The dot and dash lines indicated at 7 in Figs. 5 and 6 illustrate the position of the inner edge of the marginal portion 8 that connects the index strips 9 in assembled relation, holding them in this relation after the slitting or slotting operation has been completed.

Two or more tapes 10 with adhesive on one face have the adhesive face thereof applied to the back of the index strips 9 inside the lines 7 as illustrated in Figs. 5 to 8, the tapes 10 extending transversely across all of the index strips 9 in the sheet so as to secure them together. After applying the tapes in this manner the composite structure is then placed in a slitting machine or suitable cutting mechanism and the marginal portions 8 cut off along the lines 7 to provide a completed assembly of index strips consisting of a plurality of separate and independent strips 9 arranged in edge-to-edge relation adjacent one another held together by tapes 10 as clearly illustrated in Fig. 8.

Figs. 9 to 11 illustrate another form of sheet structure similar to Fig. 1, corresponding numerals illustrating corresponding parts of the structure that are the same as shown in Fig. 1, and in which there is added to the marginal portions 5 reinforcing tapes 11 suitably glued on one face of each of said marginal portions 5 to provide for the rigid securing of the marginal portions together and to hold the index strips in assembled relation particularly where wood veneer is used as the intermediate layer in order to prevent splitting of the wood in the marginal portions which might result in the split extending into the index strips. The tapes 11 are applied on one face of the marginal portions 5 by gluing the same thereon in the manner clearly shown in Figs. 9 to 11. The index strips may be separated from the sheet formed by breaking marginal portions 5 off along score lines 6 at the ends of index strips 4 which will sever the connection between the strips and marginal portions and provide separated index strips 4.

Another form of construction is illustrated in Figs. 12 to 14 having a backing or supporting sheet 12 formed of a sheet of suitable material, such as kraft paper, cardboard or other similar material, that is provided with a coating of suitable material to which glue is not adhesive, such as wax, on the surface thereof at spaced intervals as indicated at 13, the portions between the spaced coated portions indicated at 14 being left uncoated to form a series of parallel strip portions as illustrated in Fig. 12.

The sheet for forming index strips is made in the same manner as described in connection with the sheet shown in Fig. 1 in that a suitable wood veneer or other sheet material for providing an intermediate layer is coated with glue and dried and then provided with a second coating of glue, a paper facing being then applied to one face of

the coated intermediate layer. This intermediate layer is indicated at 15 and the paper facing at 16.

While the second coating of glue on the opposite face of the intermediate layer 15 from that to which the paper sheet 16 is attached is still wet, this sheet is applied to backing or supporting sheet 12 against the face thereof that is provided with the spaced strips of wax or similar coating material. The glue on the intermediate layer will adhere to the uncoated portions 14 of the sheet between the coated strip portions 13 so as to secure the intermediate layer or sheet 15 to the backing sheet at spaced intervals. This sheet is then slitted so that the slitting knives will extend clear through the paper facing 16 and intermediate layer 15 to provide separated index strips in adjacent edge-to-edge relation secured to the backing sheet 12 at spaced intervals as clearly apparent from Figs. 12 to 14. The strips of coating on the backing sheet prevents the glue from adhering to the paper so that it will only adhere at the intervening portions 14 between the strips of coating. This is found to provide a sufficient attachment of the index strips to the backing sheet so that the index strips may be placed in a typewriter and readily operate therein during the typing of information on the strips. The index strips may then be readily removed without difficulty from the backing sheet.

A composite index sheet of the character shown in Fig. 1 may be applied to a waxed backing sheet of the character shown at 12 in Fig. 12. The marginal portions will be trimmed off by a suitable shearing knife so that the completed sheet consists of the backing sheet 12 supporting a series of separated and independent index strips of laminated form secured thereto at a plurality of spaced intervals, so that individual index strips may be removed from the backing sheet when desired. The removal of the index strips from the backing sheet is obtained by bending the marginal portions of the backing sheet and the index strips below a strip to be removed backwardly relative thereto which causes the ends of the index strips to detach from the backing sheet. The strips can then be very readily stripped off of the backing sheet.

Figs. 15 to 17 illustrate a form of construction similar to that shown in Figs. 12 to 14 in which the index strips and the backing sheet are constructed in exactly the same manner. The backing sheet is indicated at 17, the coating strips being indicated at 18 leaving the intervening strip portions 19 that remain free of coating material. In the form of construction as shown in Figs. 15 to 17 both sides of the sheet are provided with the coating strips 18 leaving the uncoated sections 19 on both sides. Two laminated sheets for forming index strips are then applied to opposite faces of backing or supporting sheet 17 which are indicated by numerals 20 and 21.

These two sheets 20 and 21 are formed in the same manner as the sheets shown in Fig. 1, or by omitting one of the paper facings as described in connection with the sheet forming the index strips on the backing 12 as illustrated in Fig. 12, the index strips 22 and 23 on both faces of the backing sheet being separate from one another and held in assembled sheet-forming relation through the means of the glue on the back face thereof being secured to the uncoated strip portions 19 of backing sheet 17.

Index strips of this character have several advantages over previously used sheets of index strips in that the index strips are separate one from the other, and can be individually separated from the backing sheet independent of the other index strips thereon, so that after a series of lines of information are placed upon the different index strips on one backing sheet any one of the strips, that may be desired for independent use, may be removed from the sheet in an obvious manner. In connection with Figs. 12 and 15 the index strips in this type of construction may be readily removed by bending the sheet just below the strip that is to be removed and as a result the narrow lines of glue connecting the strips transversely to the backing sheet will be broken and will permit the end of the strip to be flexed upwardly to strip the index strip off of the backing sheet. This is illustrated by one of the strips being shown in partially removed position in Fig. 12. It is then only necessary to continue the removal of the strip by pulling it away from the backing sheet.

The invention claimed is:

1. A composite index sheet comprising a series of independent and separated index strips of elongated form arranged in coplanar edge-to-edge relation, a backing sheet coextensive with said series of strips, and adhesive means in narrow strip form at spaced intervals on said backing sheet extending transversely to said index strips for securing said strips to said backing sheet and forming a composite structure of substantially uniform thickness in which said strips are individually and readily removable from said backing sheet.

2. A composite sheet of index strips comprising a plurality of separated and independent index strips arranged in edge-to-edge relation, a backing sheet engaging one face of said strips, a wax coating on said backing sheet arranged in spaced strip sections leaving narrow strip portions intervening said strip sections free from said coating, and adhesive means on the adjacent face of said index strips for securing said index strips to said narrow strip portions of said backing sheet and transversely across all of said index strips for detachably securing said index strips in sheet-forming relation on said backing sheet.

3. A composite index sheet comprising a series of independent and separated index strips of elongated form arranged in edge-to-edge relation, a flexible backing sheet having the major surface coated with a substance with which adhesives will not adhere, and substantially narrow elongated backing sections devoid of the coating, said sections extending transversely with respect to the length of the individual index strip and an adhesive coating on the adjacent faces of said index strips detachably securing said index strips to said backing sheet.

4. A composite index sheet comprising a series of independent and separated index strips of elongated form arranged in coplanar edge-to-edge relation, a backing sheet coextensive with said series of strips, and adhesive means in narrow strip form at spaced intervals and extending only a relatively small distance lengthwise of said strips for securing said strips to said backing sheet and forming a composite structure of substantially uniform thickness in which said strips are individually and readily removable from said backing sheet.

5. A composite index sheet comprising a series of independent and separated index strips of elongated form arranged in coplanar edge-to-

edge relation, a backing sheet coextensive with said series of strips, and spaced adhesive portions of substantially small dimension in the direction of the length of said index strips on said backing sheet covering a minor portion and substantially equally distributed over the area of said backing sheet adapted to contact with the backs of said index strips for securing them to said backing sheet whereby the major portion of said backing sheet is non-adhesive, and a composite structure is provided in which said strips are individually and readily removable from said backing sheet.

6. A plurality of independent and separated index strips of elongated form arranged in coplanar, edge-to-edge relation, a backing sheet substantially coextensive with said plurality of strips and contacting the rear faces thereof, the backing sheet being formed to provide an adhesive repelling surface, spaced adhesive receiving openings formed in and distributed throughout the adhesive repelling surface defining the entrance of an adhesive from the rear faces of said index strips to detachably maintain said index strips in series relation on said backing sheet, the total area of said openings being a substantially small part of the area of said sheet, and an adhesive operating through said openings to detachably secure said strips to said backing sheet.

7. A composite sheet of index strips comprising a plurality of separated and independent index strips arranged in edge-to-edge relation, a backing sheet engaging the rear faces of each of said index strips, said backing sheet having a face of adhesive repelling material adjacent the rear faces of said index strips and spaced openings formed in said adhesive repelling face arranged adjacent each index strip, said openings being distributed throughout said adhesive repelling material and having a total area much less than the area of said adhesive repelling material, and an adhesive material on the rear face of each index strip extending through said spaced openings to engage and maintain said index strips and said backing sheet in assembled relation and to permit ready and independent removal of any of said strips from said backing sheet.

CARL F. WOLTERS.
ROBERT M. ELLIS.