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M. VERNON

2,463,833

LOOSE-LEAF SHEET AND THE LIKE

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FIG. 2

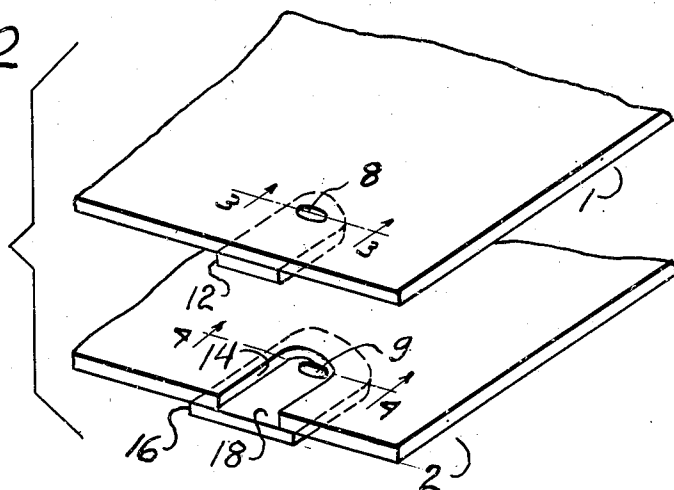


FIG. 1

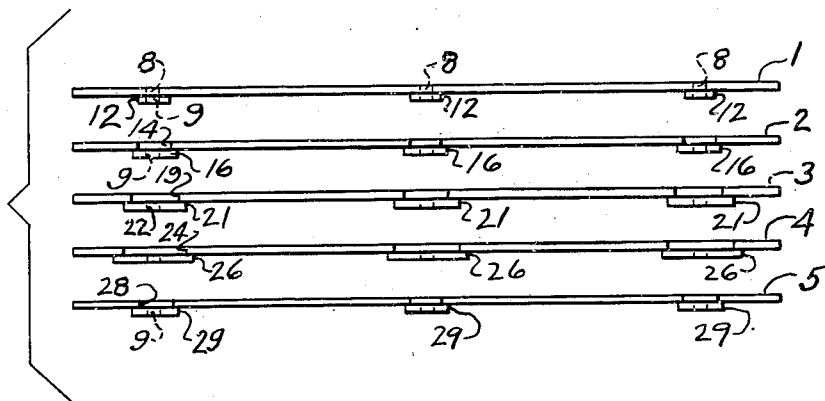


FIG. 3

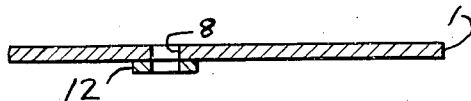
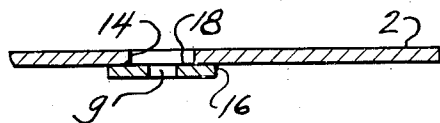


FIG. 4



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1 Claim. (Cl. 129—1)

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This invention relates to perforated reinforced sheets, and more particularly to improvements in sheets for stacking or binding on or in loose leaf holders, loose leaf books or the like. Such sheets are perforated, usually at spaced points along the binding margin, to cooperate with binding means, and are usually of paper or the like which is easily worn through or torn away by binding means used to hold a stack of sheets or to form a book of such sheets. The aim of this invention is to improve the strengthening means for the perforations in a manner substantially to eliminate bulkiness which otherwise is caused by the reinforcing.

Reinforcing means heretofore known, which may be readily used without undue inconvenience or expense, have considerable bulk in the vicinity of the perforations which normally cooperate with binding means such as posts or rings. This bulkiness prevents the sheets in a stack or book from lying flat and also limits to a large degree the number of sheets which may be stacked or bound. Methods heretofore known, which are aimed at diminishing this bulkiness, are either expensive or require the more or less delicate operation of removing a portion of the thickness of the sheet so that the reinforcing means may be embedded in the body of the sheet.

In accordance with the present invention, reinforcing means of the normal kind which are relatively cheap are so designed and arranged that the additional bulk at the binding means is substantially eliminated. Accordingly, the principal aim of this invention is to provide strengthening means of such a character that the stack or booklet of sheets will have substantially uniform thickness throughout the stack or booklet and will lie flat without appreciable or inconvenient distortion.

Another object of the invention is to provide reinforcing wafers graduated in size so that when successive sheets are notched in accordance with the invention, a wafer or wafers on one sheet may be nested in a notch or notches in a succeeding sheet in a progressive stack of sheets.

A further object of the invention is to provide a method for obtaining a stack or book of reinforced sheets of substantially uniform thickness throughout, the stack or book comprising sheets cut, notched or perforated to accommodate the binding means of a contacting sheet.

Still another object of the present invention is to provide a stack or booklet of sheets having strengthened perforations, the said stack or booklet being free of bulkiness in the region of the perforations.

A still further object of the present invention is to provide a series of sets of sheets provided with binding means, the binding means nesting with recesses in a successive sheet in a manner

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substantially to eliminate the bulk at the binding means.

Other objects and advantages of the invention will, of course, become apparent and immediately suggest themselves to those skilled in the art to which the invention is directed from a reading of the following specification in connection with the accompanying drawings in which:

Fig. 1 shows, by way of example and with exaggerated thickness, a plurality of sheets constructed in accordance with the invention, the sheets being arranged in the order of stacking to illustrate the manner of relating one series of sheets with a successive series of sheets;

Fig. 2 is a view in perspective drawn to an exaggerated scale of the top and second sheets of a stack;

Fig. 3 is a section on line 3—3 of Fig. 2; and Fig. 4 is a section on line 4—4 of Fig. 2.

In Fig. 1 of the drawings there is shown, illustratively, a plurality of sheets which will be designated in order by reference characters 1 to 5. In accordance with the invention, the sheets designated 1 to 4 constitute a series of sheets, and sheet 5 is the first sheet of the next series of three sheets. While a series of three sheets plus a top sheet has been selected for convenience in explaining the invention, it will be understood that the drawings and the description are given solely by way of example, and that the number of sheets in a series and the total number of sheets, however arranged, may vary, depending upon conditions of use of the invention.

The sheets 1 to 5 will usually be of the kind used for ordinary writing or loose leaf notebook paper, and accordingly, the size of the sheet and the number and spacing of the perforations will be determined by the purpose for which the sheet is intended. Binding rings, filing posts, or the like (not shown) project through perforations such as a perforation 8 in Fig. 1. Assuming that the sheets are to be accommodated in a binder with three spaced rings, there will be three of these perforations 8, as shown in Fig. 1 of the drawings. In the remaining sheets, a perforation 9 is made in the reinforcing wafer. In sheet 1, both the sheet and the wafer are perforated, the sheet perforation being designated by the reference character 8, and the wafer perforation by the reference character 9.

A reinforcing wafer 12 having the perforation 9 is secured, preferably by adhesive means, to the sheet 1 as shown. The wafer 12 and others shown on the drawing may be of cloth or the like, saturated or impregnated with a strengthening composition, if desired. The face of the wafer 12, for example, is coated with an adhesive of any desired kind so that it may be secured with ease to the sheet 1. Plastic materials in thin sheets, either opaque or transparent, may also

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be used as materials for the wafers. In this connection, colored materials may be employed, and it is within the scope of the invention to use wafers of a given color for a sheet in a given position in a series of sheets. Also, one series may be distinguished from another series by choice of colors. The adhesive bond may be provided over the entire contacting surface of the wafer 12 or only a portion of the wafer 12 may be coated with the adhesive.

Fig. 2 indicates the extent and general shape of the wafer 12, these dimensions being selected solely for illustrative purposes. It will be understood that the wafer 12 may be of any desired shape selected in view of its intended function. Also, the thickness of the wafer 12 with respect to the thickness of the sheet 1 is a matter of choice, but in general, the thickness of the wafer 12 may be approximately that of the sheet 1.

Sheet 2 is recessed or notched as indicated at 14 (Figs. 1, 2 and 4) so that the wafer 12 will be accommodated in and nest with this notch. The shape of the notch 14, therefore, will conform generally to the shape of the wafer 12. The perforation 9, referred to previously, occurs in a wafer 16 which is secured to the sheet 2. The wafer 16 may be secured to the sheet 2 also by an adhesive bond. However in this instance, the exposed portion 18 of the wafer 16 (Fig. 2) is preferably not adhesively coated. Sheet 3 is notched as indicated at 19, and a wafer 21 having a perforation 22, is secured to this sheet. The notch 19 accommodates the wafer 16 and the next sheet 4 is notched as indicated at 24 to accommodate the wafer 21 when the sheets are stacked. A wafer 26 similar to the wafer 21 but of greater extent is secured to the sheet 4.

In the illustrative showing of Fig. 1, the sheet 5 occurs as the first sheet of the next series of sheets, and it is preferably, although not necessarily, constructed in the same manner as sheet 2. The notch 28 corresponds in size to the notch 14, and the wafer 29 perforated as at 9, corresponds in size to the wafer 16, and with the sheet 5 prepared as shown, the second sheet of the second series will then correspond to sheet 3 of the first series.

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The entire stack of sheets with the respective leaves nesting in one another will have a substantially uniform thickness at the wafer edge. The graduation in size of the successive wafers may, it is understood, be relatively small in comparison with the showing of Fig. 1 of the drawings in which the proportions, as indicated above, may be considered as being exaggerated for the sake of the clearness of illustration.

Various modifications of the invention shown and described herein by way of example are possible without departing from the spirit and scope of the invention described herein, and it is desired that any and all such modifications be considered within the purview of the present invention defined by the hereinafter appended claim.

I claim:

A stack of perforated loose leaf sheets each of said sheets having a reinforcing wafer thereon, said wafers being graduated in size, and said sheets having notches therein to accommodate a wafer of a contacting sheet, and an aligned aperture through said stack of sheets provided by perforations in said wafers and a perforation in at least one of said sheets.

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