# United States Patent [19]

**Elias et al.**

[11] **3,923,353**

[45] **Dec. 2, 1975**


[54] **DOCUMENT HANGING APPARATUS**


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[21] Appl. No.: **514,890**

**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 374,007, June 27, 1973, abandoned.

[52] **U.S. Cl.** ..... **312/184;** 24/67 R; 211/126

[51] **Int. Cl.²** ..... **A47B 63/00;** B42F 15/00

[58] **Field of Search** ..... 211/45, 46, 50, 54, 89, 211/113, 124, 126; 312/183, 184; 90/125 A, 20 A; 229/43; 24/67 R, 67.1, DIG. 11



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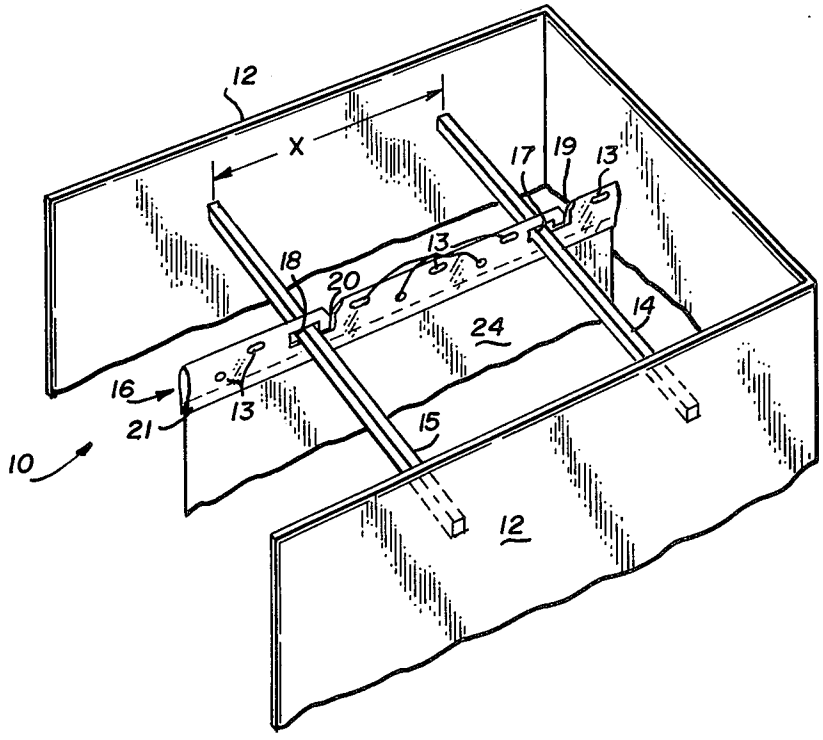
*Primary Examiner*—Casmir A. Nunberg
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[57] **ABSTRACT**

Document hanging apparatus comprising an elongated strip of plastic material folded along its longitudinal centerline and having apertures provided in the side portions near the fold line, and adhesive document affixing means provided along one edge opposite the fold to engage a document and secure such document between the sides of the fold.


**7 Claims, 7 Drawing Figures**



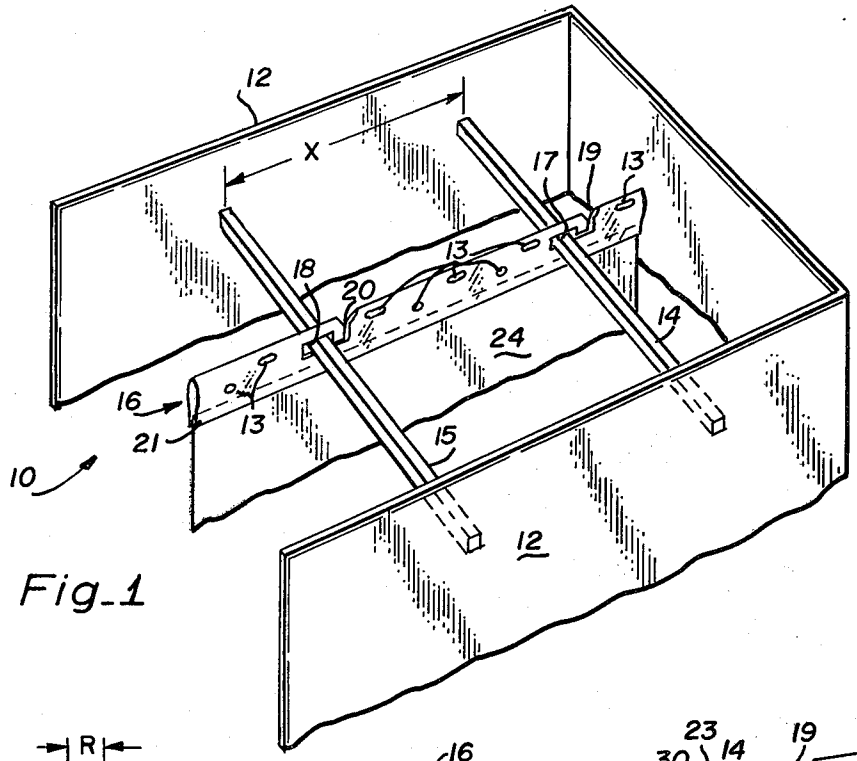



Fig_1

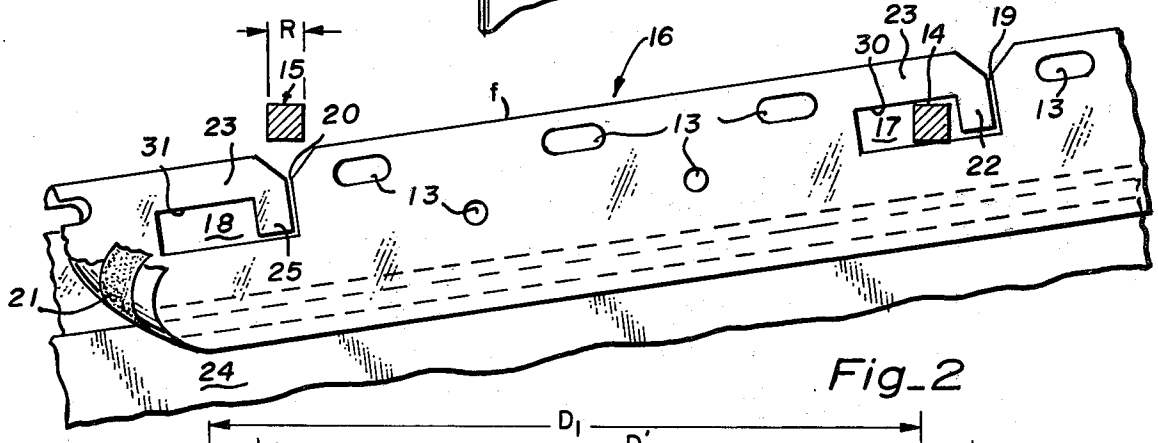



Fig_2

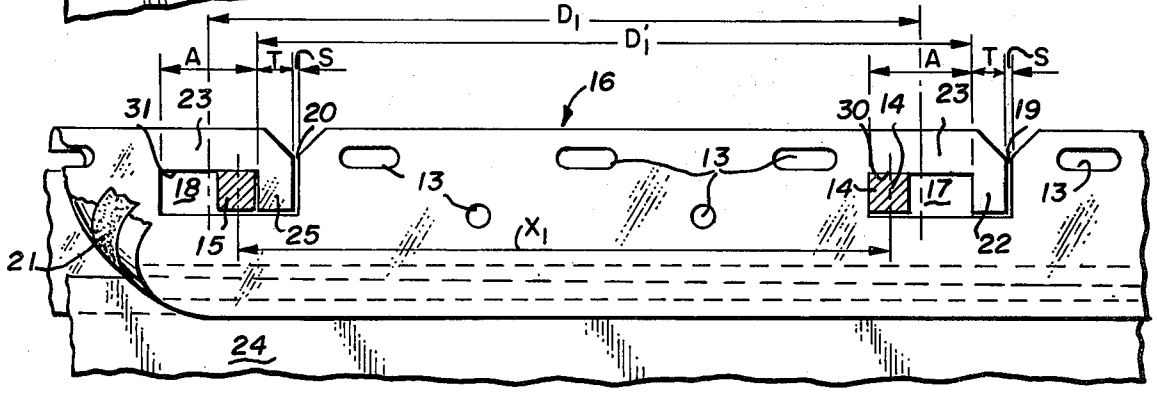



Fig_3

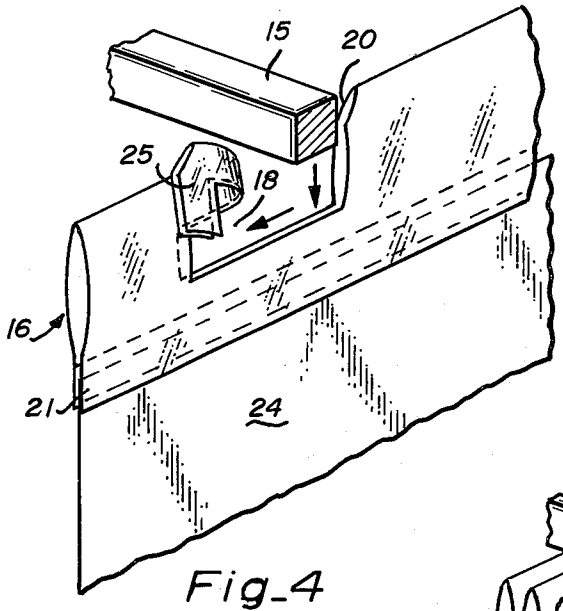



Fig_4

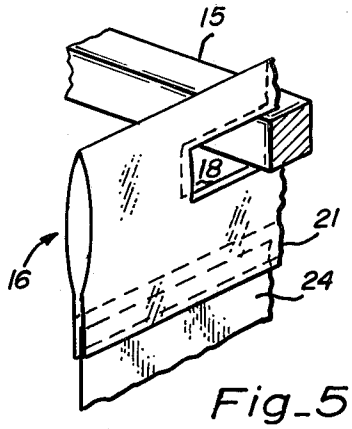



Fig_5

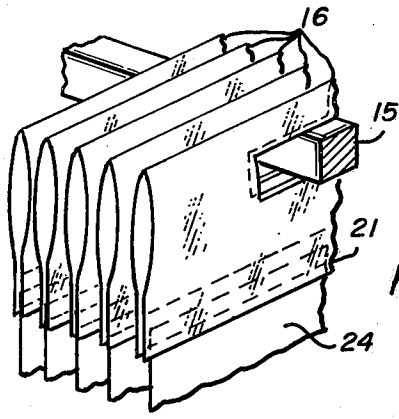



Fig_6

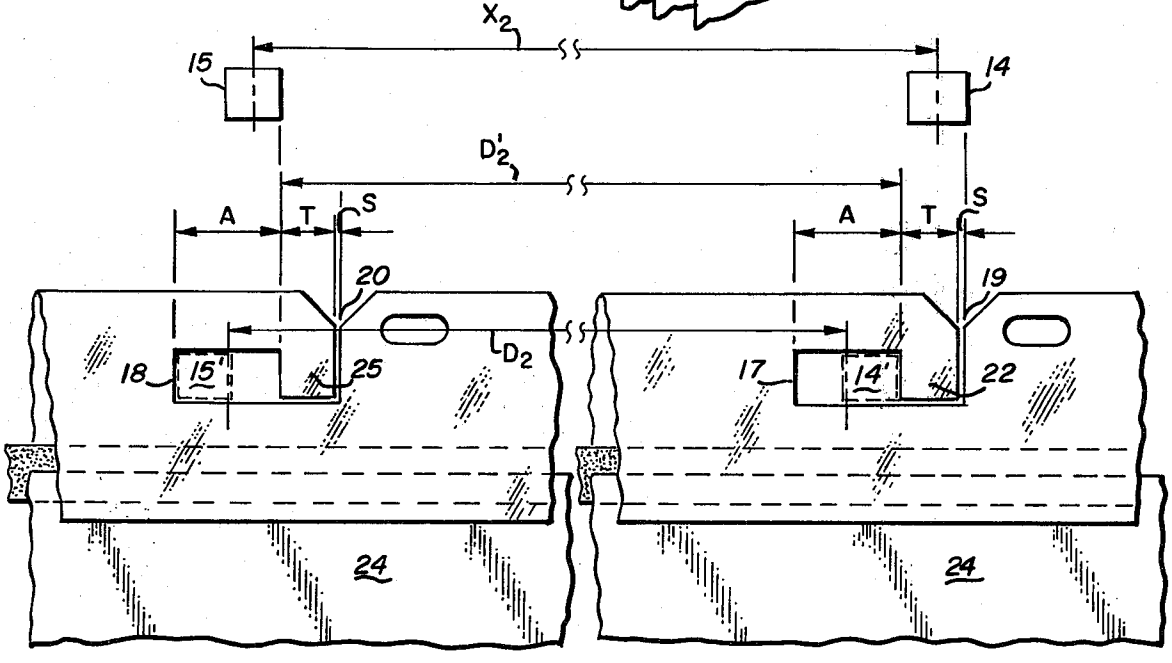



Fig_7

# DOCUMENT HANGING APPARATUS

## CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of our co-pending application for a document hanger, Ser. No. 374,007, filed June 27, 1973 now abandoned.

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to document storage apparatus, and more particularly to a hanging apparatus which includes rails with hangers suspended therefrom, the hangers being removable and replaceable on the rails, without the need for mechanical clips, bolts, etc.

2. Prior Art

Heretofore document hangers or long filing devices have typically been provided in the form of hanging structures such as those disclosed in the U.S. Pats. to Pedersen , Nos. 1,878,177 and 1,832,239, Kohler, No. 3,704,051, Snider et al. No. 3,069,737 and 2,869,210, Morcheles et al. No. 3,221,892 and Fletcher No. 3,364,528 and our pending applications Ser. Nos. 327,743 and 374,007. Other related structures are disclosed in the U.S. Pats. to Kirkorian, No. 3,684,340, Furrer No. 2,969,793, and Swan No. 818,130 and the Swiss Patent to Neher No. 349,954. Although such apparatus has found wide use in the field, all suffer from the disadvantage of either mechanical complexity, bulkiness of structure or lack of strength. Whereas mechanical complexity usually causes the unit price of the device to be inordinantly high, structural bulkiness causes the hanger to occupy a large proportion of the available hanging space which could otherwise be occupied by documents themselves. This, of course limits the quantity of documents that can be stored in any particular closet or cabinet.

## SUMMARY OF THE PRESENT INVENTION

It is therefore an object of the present invention to provide a novel document holder which is compact, simple in construction, inexpensive to make, easy to affix to the documents to be supported and easily removable and replaceable in the storage means.

Another object is to provide a versatile document hanger suitable for use with several different storage means.

Briefly, a preferred embodiment of the present invention includes an elongated strip of plastic material folded along its longitudinal centerline and having hanging apertures of a predetermined size and at a predetermined distance from each other provided in the portion nearest the fold. A strip of tape, adhesively coated on both sides, runs along one of the edges opposite the fold for holding a document placed between the folded edges.

Among the advantages of the present invention are that it can be made using very simple processes, available materials and with a minimum of labor.

Another advantage of the present invention is that it can be made in long strip form so that individual hangers of any desirable length may be cut therefrom.

Still another advantage of the present invention is that it can be very easily fastened to a document without the use of any tools, clips, or pins.

Still another advantage is that due to the unique design of the hanging aperture, the hanger can be removed from one rail without disturbing the other end, thus, making documents conveniently removable and replaceable in the storage means.



Yet another advantage of the present invention is that when applied to a single sheet document, it may be passed through a duplicating machine along with the document and need not be removed therefrom.

These and other advantages of the present invention will become apparent to those of ordinary skill in the art after having read the following detailed description of the preferred embodiment which is illustrated in the several figures of the drawing.

## IN THE DRAWING

FIG. 1 is a perspective view illustrating a document filing means in accordance with the present invention;

FIG. 2 is a partially cut-away side view, illustrating the method of attaching the document hanger to the supporting rails and the method of attaching the document to the document hanger;

FIG. 3 is a side view illustrating the position of the rails relative to the document hanger when the document hanger is attached to both rails;

FIG. 4 is a perspective view illustrating the functioning of the document hanger as it is being attached to a rail;

FIG. 5 is a perspective view illustrating the bowing of the folded document hanger caused by the spring-like nature of the materials used;

FIG. 6 is a perspective view showing several document hangers, the central hangers having reduced bowing and the outside hangers having normal bowing;

FIG. 7 is a fragmentary view illustrating the dimensions used in the formula for determining the relative distances between, and measurements of, the parts of the document hanger.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1 of the drawing, a document filing apparatus 10 is illustrated. The apparatus includes a protective storage means 12 having two rods 14 and 15 fixedly attached to the inside thereof, a document hanger 16 connected with rods 14 and 15, and document 24 adhesively attached to document hanger 16 by adhesive strip 21. Document hanger 16 is comprised of an elongated strip of plastic or similar material folded along the centerline of its length to form two strip sides 16*a* and 16 *b*.

The strip side 16*a* is provided with elongated apertures 17*a* and 18*a*, and slits 19*a* and 20*a* which, along with the fold "*f*" form L-shaped projections 23 terminating in tabs 22*a* and 25*a* respectively. Similarly, the strip side 16*b* is provided with elongated apertures 17*b* and 18*b*, slits 19*b* and 20*b*, and L-shaped projections 23 terminating in tabs 22*b* and 25*b* respectively. The letters "*a*" and "*b*" designate corresponding components of each strip side. Slits 19 and 20 run parallel to the fold for a short distance from the bottom of elongated apertures 17 and 18 and then perpendicular to the fold to a V-shaped notch cut in the top of hanger 16 along its fold. The lower edges of L-shaped members 23 form rail bearing edges 30*a* and 30*b* and 31*a* and 31*b*.

An adhesive means is disposed to run along the length of the hanger 16 on the inside surface of at least one of the strip sides proximate the strip side edge opposite the fold.

Referring now to FIGS. 2 and 3, document hanger 16 is shown having one end disposed in engagement with rail 14 (FIG. 2) and suspended from both rails 14 and 15 (FIG. 3). As illustrated, document 24 is adhesively attached to hanger 16 by placing it midway along adhesive surface 21 and folding the sides of hanger 16 thereover. Document 24 is thus affixed to the hanger by part of adhesive strip 21 and the two sides of hanger 16 are held together by the rest of adhesive strip 21.

Connection of hanger 16 to the rails 14 and 15 is effectuated by placing slit 19 proximate rail 14 and forcing it upward with a slight lateral motion to deflect tab 22 and allow rail 14 to enter aperture 17. Hanger 16 is moved forward into the position shown in FIG. 2 allowing tabs 22 to return to their normal position closing apertures 17. Apertures 18 are connected with rail 15 in like manner by forcing tabs 25 up, around and over rail 15 by an upward, twisting, pushing movement until tabs 25 return to their normal position closing apertures 18. The reverse procedure may be taken to remove a hanger from the rails.

In FIG. 4, the position of tabs 25 as hanger 16 is connected with rail 15 is illustrated. Initially, the V-shaped notch at the top of slit 20 receives rail 15. As hanger 16 is rotated into engagement with rail 15, tabs 25 bend along rod 15 as illustrated. When tabs 25 become disposed along the side of rail 15, hanger 16 is moved upwardly. As rail 15 contacts the bottom of aperture 18, hanger 16 is moved forward forcing tabs 25 over the top of rail 15. When hanger 16 is sufficiently forward as permitted by the lengths of apertures 17*a* and 17*b*, tabs 25 snap down behind rail 15 enclosing rail 15 within aperture 18.

FIG. 5 illustrates the bowed sides of hanger 16 caused by the resilient nature of the material used. Folding the elongated strip and attaching the folded sides together along the edge opposite the fold forms a natural bow in the sides which separates the bearing edges and gives structural rigidity to the hanger. Material used should be of relatively tear-resistant plastic or other flexible material which is rigid enough to hold its shape while supporting documents of a particular weight. Since in many cases, the hanger may be applied to a single original or transparent or translucent document from which prints are to be made by passing it through a print-making machine, the material should be thin so that it will pass through the machine with the document and need not be removed each time a print is to be made. Moreover, the material should be of a resilient and tear-resistant plastic or other flexible material which is rigid enough to hold its shape and flex back to it while supporting documents.

It should be noted that the document is enclosed within the sides of hanger 16 and is thereby protected from the tendency of the corners to roll, tear or pull away from the adhesive.

Referring to FIG. 6, the reduction in bowing of the inner hangers allowing more documents to be hung is illustrated. The outer document hangers remain naturally bowed giving lateral support to the inner hangers.

The illustrated hanger 16 may be used in association with rails separated by either of two spacings X. The first and most preferred spacing is shown in FIGS. 2 and 3. As illustrated, the rails 14 and 15 have a width R and a center-to-center spacing $X_1$. The hanger tabs 22 and 25 have a width (in the longitudinal direction of strip 16) of T, and slits 19 and 20 have a width of S. In order for the device to work in its intended manner, the longitudinal length A of aperture 17 must be long enough so that with rail 14 in the rightmost portion of aperture 17, rail 15 may be inserted through slit 20 and into the position shown by the rail lines 15. In order to accomplish this the length A of aperture 17 must be at least equal to $R + T + S$. Accordingly, it may be shown that the center-to-center spacing $D_1$ between the centers of apertures 17 and 18 (where the lengths of apertures 17 and 18 are equal) must be equal to $X_1 + T + S$. It should be noted that $D_1$ is also the spacing between the tab side edges of apertures 17 and 18. For clarity, this is shown as $D_1'$ in FIG. 3.

It is the intent of the present invention to make both aperture 17 and 18 identical in size and configuration since the additional clearance outside each rail will permit hanger 16 to be skewed relative to the rails. Although not absolutely necessary to facilitate the intended document hanging function, this feature provides ease of movement along the rails and permits skewing of the documents for inspection. It should be understood however, that if desired, the length of aperture 18 could be reduced to a length only slightly larger than R since rail 15 does not move into the leftmost portion except when the hanger is skewed.

In FIG. 7, an alternative spacing of the rails is illustrated. In this embodiment the rails 14 and 15 likewise have a width R, but have a center-to-center spacing of $X_2$. The tabs 22 and 25 have a width (in the longitudinal direction of strip 16) of T, and slits 19 and 20 have a width of S. For use with this rail configuration, the longitudinal length A of aperture 18 must be long enough so that rail 15 may first be inserted through slit 20 and into position adjacent tabs 25, and then be moved into the position shown by the dashed lines 15' as rail 14 is moved through slit 19 into the position shown by the dashed lines 14'. In order to accomplish this, the length A of aperture 18 must be at least equal to $R + T + S$. As in the previously described embodiment, it may be shown that the center-to-center spacing $D_2$ between the centers of apertures 17 and 18 (where the length of the apertures are the same) must be equal to $X_2 - T - S$. $D_2$ is also the spacing between the tab side edges of apertures 17 and 18. The principal disadvantage of this embodiment is that no clearance is provided to allow skewing of the hangers for inspection or ease of lateral movement. For this reason the first described rail spacing is preferred.

It should be understood that the two alternative rail spacings may be used with the same hanging strip and it is the intent of the present invention to make both aperture 17 and aperture 18 identical in size and configuration. However, if desired, for hanging strips intended to be used only for the FIG. 3 rail spacings, the length of aperture 18 could be reduced to slightly larger than R since rail 15 is not necessarily required to move into the leftmost portion thereof as rail 14 is positioned in aperture 17. Similarly for strips intended for use only with rail spacing as shown in FIG. 7, the length of aperture 17 could be shortened.

Alternative embodiments incorporate apertures 13 shown in FIGS. 1, 2 and 3 to make the document hangers of this invention compatible with other document hanging apparatus.

Although the present invention has been described above with reference to certain preferred embodiments, it is to be understood that other alterations and modifications thereof may be made. It is therefore intended that the appended claims be interpreted to

cover all such alterations and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. Document storage apparatus, comprising:

means forming a compartment for storing documents;

supporting rails disposed within said compartment in parallel relationship to each other;

document hanging means including an elongated strip of flexible material folded in half along its longitudinal centerline to form a document receiving slot, said strip having at least two pairs of elongated apertures provided therein with the apertures of each pair being symmetrically disposed about the fold and with their elongated dimensions aligned parallel to said fold, said strip also having a slit proximate each of said pairs of apertures and extending from the side of one of said apertures most remote from said fold to the most remote side of its paired aperture, said slits forming passageways by which said rails may be inserted into corresponding ones of said apertures; and

means for fastening a document to said strip whereby such document may be removably suspended from said rails by said strip.

2. Document storage apparatus as recited in claim 1 wherein said apertures are rectangular in configuration and said slits extend from said remote sides of said apertures in a direction generally parallel to said fold and then turn at substantially right angles to intersect said fold, said slits, said fold and said apertures forming generally L-shaped portions terminating in tab-like projections.

3. Document storage apparatus as recited in claim 2 wherein said rails have a width R and a center-to-center spacing X, said tab-like projections have a longitudinal width S and the spacing D′ between the tab side edges of respective pairs of said apertures is equal to $X + T + S$.

4. Document storage apparatus as recited in claim 3 wherein the longitudinal length of at least one of said apertures is $R + T + S$.

5. Document storage apparatus as recited in claim 2 wherein said rails have a width R and a center-to-center spacing X, said tab-like projections have a longitudinal width S and the spacing D′ between the tab side edges of respective pairs of said apertures is equal to $X - T - S$.

6. Document storage apparatus as recited in claim 5 wherein the longitudinal length of at least one of said apertures is $R + T + S$.

7. Document storage apparatus as recited in claim 1 wherein said means for fastening includes at least one strip of adhesive affixed to at least one surface of said strip within said slot.

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