United States Patent

Dahl, Jr.

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[45] **Dec. 12, 1972**

[54] MICROFILM HOLDER

[72] Inventor: **Ernest A. Dahl, Jr.**, 729 Greenwood Ave., Wilmette, Ill. 60091

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[21] Appl. No.: **77,581**

[52] **U.S. Cl.** **40/105.5**, 40/159

[51] **Int. Cl.** **G09f 1/12**

[58] **Field of Search** 40/159, 105.5

[56] **References Cited**

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Primary Examiner—Robert W. Michell
Assistant Examiner—J. H. Wolff
Attorney—Olson, Trexler, Wolters & Bushnell

[57] **ABSTRACT**

A transparent holder for a plurality of microfilm strips arranged in parallel pocketed array thereacross and including thin magnetic strip means carried by a pocket of the holder in a position adapting the assembly for use in a fanning magnetic type of filing system wherein a storage file tray or drawer includes magnet means along the sides thereof acting through the magnetic strip means to cause fanning out or separation of the upper margins of a prearranged group of holders by magnetic repulsion in order to facilitate visual survey of the fanned holders for selective holder removal from the storage file or insertion thereof at a predetermined, proper location.

4 Claims, 12 Drawing Figures

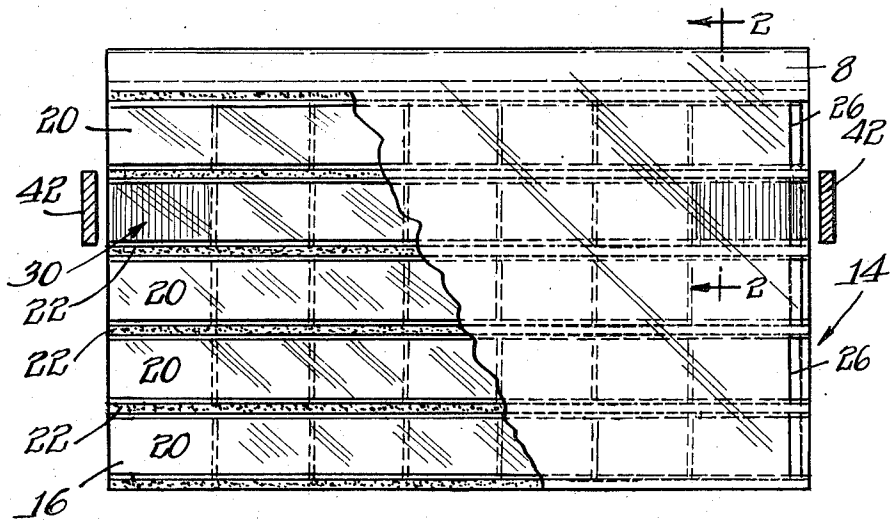

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Fig. 1.

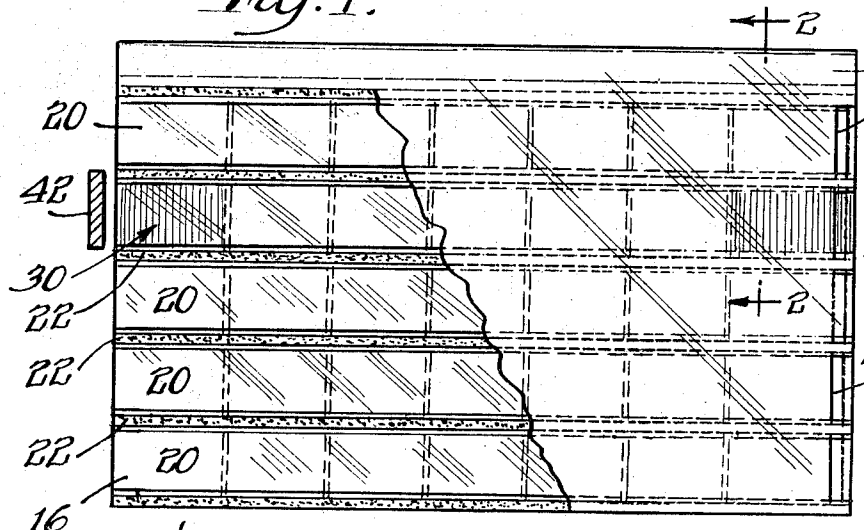

Fig. 2.

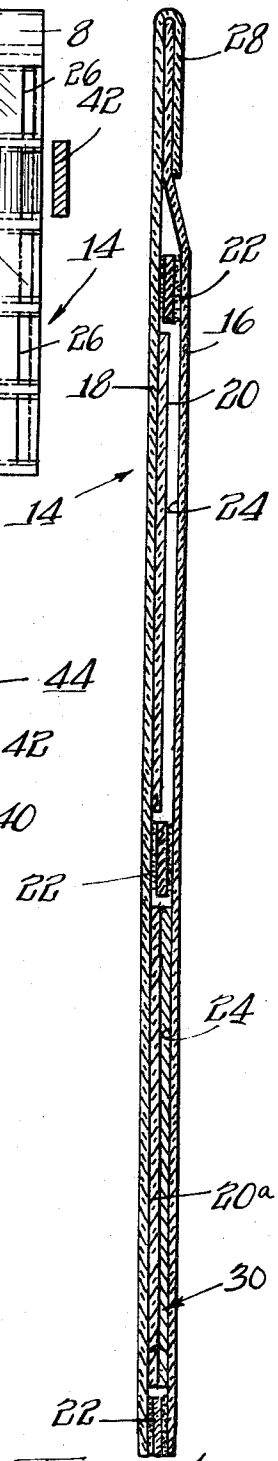

Fig. 3.

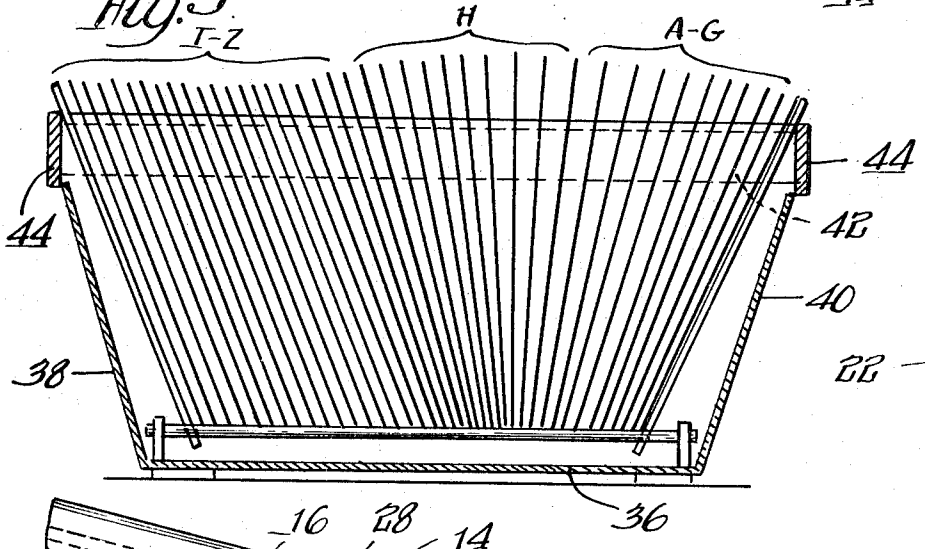

Fig. 4.

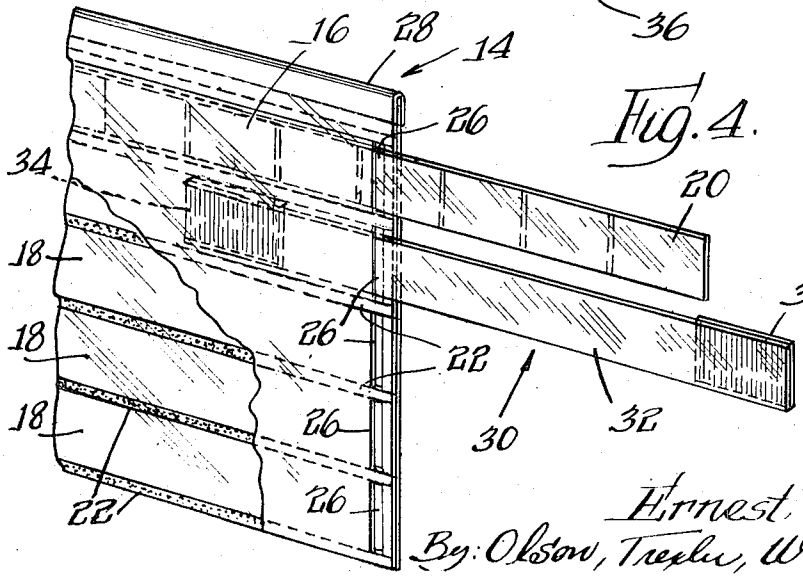

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Fig. 5.

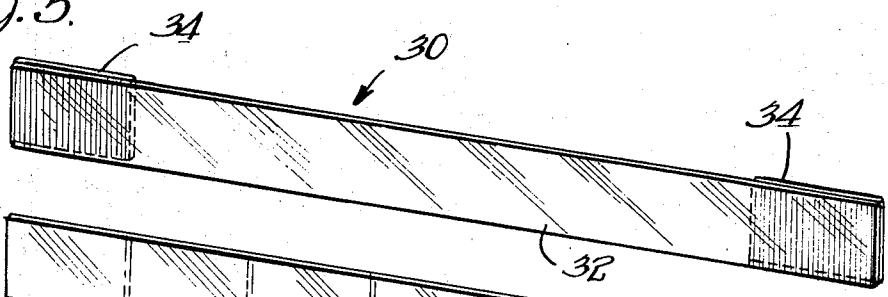


Fig. 6.

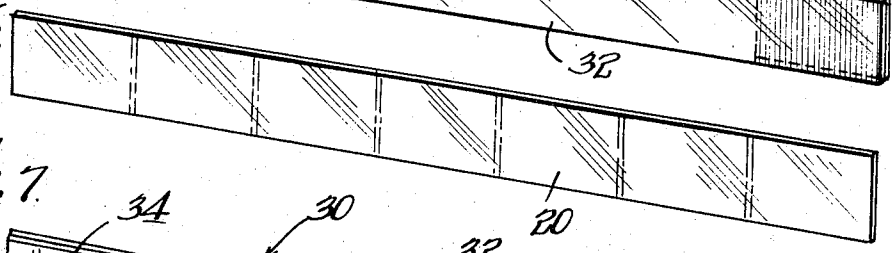


Fig. 7.

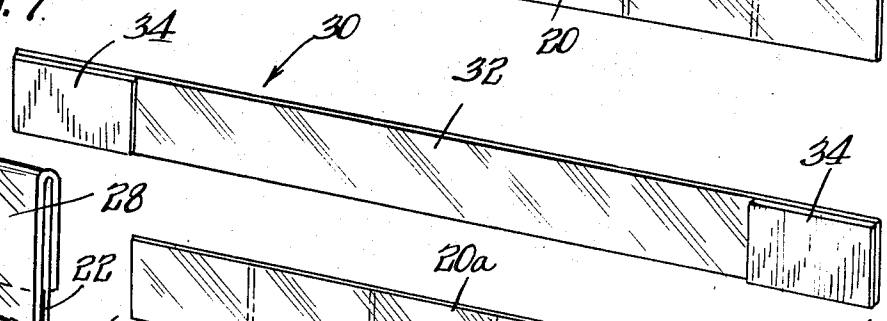


Fig. 8.

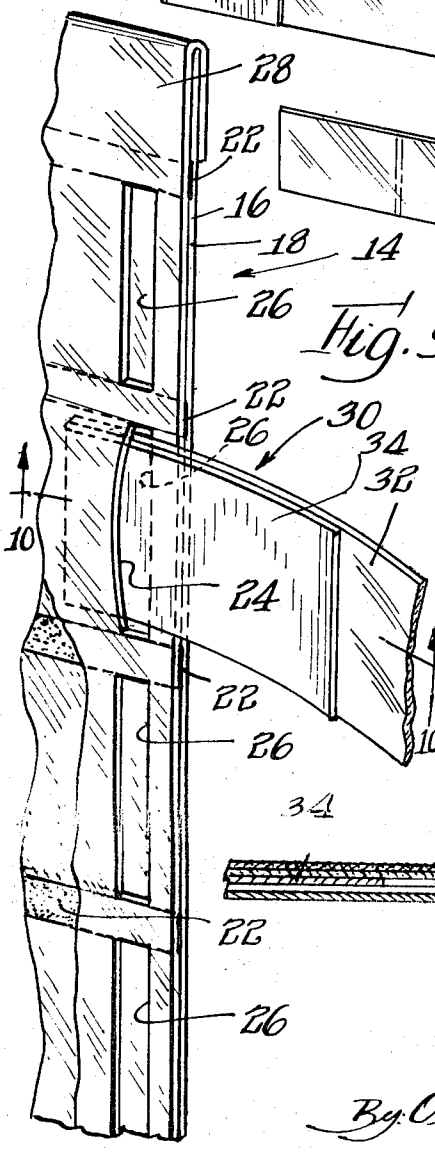


Fig. 9.

Fig. 11.

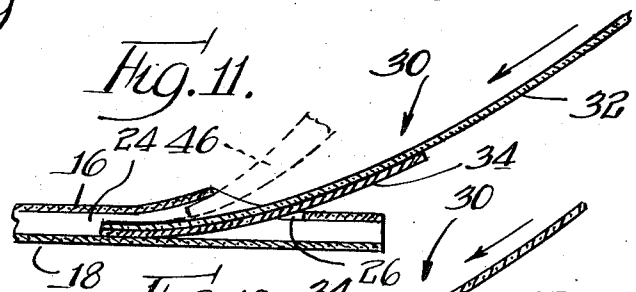


Fig. 10.

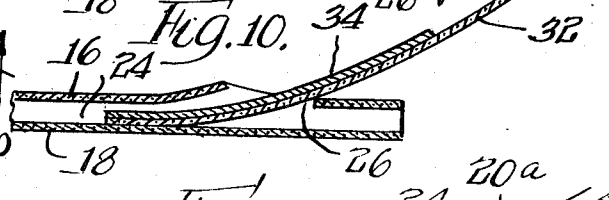
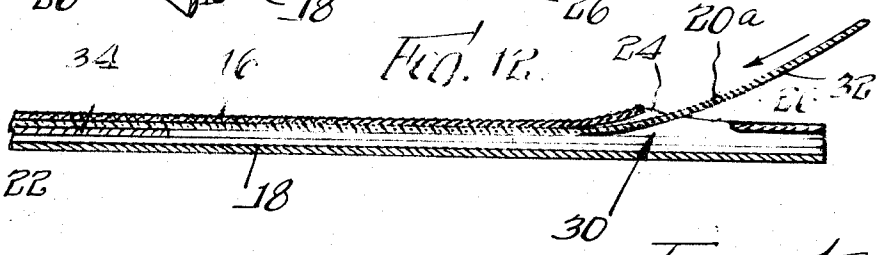


Fig. 12.



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MICROFILM HOLDER

SUMMARY OF THE INVENTION

It has been common practice, in order to conserve storage space, to reduce various forms of technical data, books, records, etc., to a relatively small scale on microfilm. Thus, pages were conventionally reduced to micro image on a frame of microfilm roll. More recently, it has become common practice to arrange a group of microfilm strips in parallel array in a holder so that related microfilmed data as to any particular subject matter may be grouped together in pockets of such a holder which, in turn, may be appropriately titled for visual identification of any particular subject matter desired. Such microfilm holders are not used only for projection of the included microfilm strips on a screen as in a microfilm reader, but also to produce reference copies therefrom by so-called contact printing. Thus a sensitive film is exposed in contact with the holder through which exposing light passes to the sensitive film. For such reproduction of sharp images, the film contacting portions of the holder, that is, the portions covering the included microfilm strips, should be extremely thin.

Thus, for example, it has heretofore been common practice to provide microfilm strip holders in which the panel facing the camera has a thickness of approximately ¾ of a mil, whereas the opposite or back panel has a thickness of 2½ mils. The microfilm varies in thickness from 5½ to 6 mils. It has also been common practice to separate these panels by the use of strips having a thickness of approximately 5½ mils, and a width in the neighborhood of 1/16 of an inch.

The microfilm holder of the present invention is adapted for the above and other related uses, but is also particularly adapted for convenient storage in a fanning magnetic storage system from which individual holders from a fanned group of holders may be conveniently removed for use and replaced in storage with minimum amount of handling and manually contacting of adjacent holders in the storage file. With the present tendency toward reducing great volumes of information to microfilm, the storage space for such material also becomes important. Storage alone is not the only problem. The matter of retrieving stored material in a minimum amount of time is also of great significance. The stored material should also be protected against damage resulting from repeated use.

The present invention aims to satisfy the above requirements by providing a holder which includes extremely thin magnetic sheet or strip means at the side edges thereof for cooperation with fanning magnets in a drawer or tray type filing system resulting in fanning of a prearranged group of holders for ready access to a desired holder which is appropriately titled for view by the user.

Another object of the invention is to provide a microfilm holder having parallel microfilm accommodating pockets wherein the magnetic strip or insert means may be carried within at least one of the pockets. Thus the magnetic strip means may be used with conventional pocketed microfilm holders.

More specifically, the invention contemplates the provision of magnetic strip means without sacrificing any substantial amount of film storage space.

A still further object of the invention is to provide a microfilm holder which may have interchangeably associated therewith one or more magnetic strips depending upon the degree of extent of fanning action desired in the filing system and the location of such magnetic strips may be selected in accordance with the type of filing drawer or tray.

The invention still further aims to provide a magnetic strip of relatively inexpensive construction lending itself to mass production techniques and which may be selectively located as desired in a conventional pocketed microfiche holder.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects and advantages of the present invention will be more apparent from the following detailed description when considered in connection with the accompanying drawings, wherein:

FIG. **1** is a front elevational view of a microfiche type holder for microfilm strips, with magnet members disclosed in section at opposite extremities thereof and with a portion of the front panel broken away to disclose the spacer strips;

FIG. **2** is an enlarged fragmentary vertical sectional view taken substantially along the line **2—2** of FIG. **1**;

FIG. **3** is a vertical sectional view showing the end edges of a plurality of microfilm strip holders mounted within a magnet equipped supporting tray;

FIG. **4** is a fragmentary perspective view of the right extremity of the microfilm strip holder of FIG. **1**, disclosing a microfilm strip and magnetic strip means partially inserted within complementary holder pockets;

FIG. **5** is a perspective view of one embodiment of the present invention wherein the magnetic strip means consists of strip sections secured to opposite extremities of a transparent elongate carrier member;

FIG. **6** is a perspective view of a conventional microfilm strip;

FIG. **7** is a perspective view similar to FIG. **5** as seen from the opposite side thereof;

FIG. **8** is a perspective view of a microfilm strip which is shortened to be accommodated between the magnetic strip sections shown in FIGS. **5** and **7**;

FIG. **9** is an enlarged fragmentary perspective view similar to FIG. **4** showing a magnetic strip section as it is being initially inserted within a complementary holder pocket;

FIG. **10** is a sectional view taken substantially along the line **10—10** of FIG. **9**, disclosing the partial insertion of the magnetic strip section and associated carrier therefor within the holder pocket;

FIG. **11** is a sectional view similar to FIG. **10**, with the magnetic strip section and carrier inverted and partially inserted within the holder pocket; and

FIG. **12** is a fragmentary sectional view similar to FIGS. **10** and **11** disclosing a microfilm strip partially inserted within the holder pocket containing a previously inserted magnetic strip section and the elongate carrier therefor.

BRIEF DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawings more in detail, wherein like numerals have been employed to designate similar parts throughout the various figures,

it will be seen that a microfilm strip holder embodying the present invention is designated generally by the numeral **14**. Front and rear panels **16** and **18** respectively are spaced apart to accommodate a plurality of microfilm strips **20**. Horizontally disposed thin spacer strips **22** cooperate with panels **16** and **18** to define horizontal microfilm accommodating pockets **24**. A series of five pockets for each holder is illustrated, but this number and the size of each pocket may vary according to particular dictated circumstances. The pockets may be open at each end and the front panel **16** has portions thereof removed between adjacent spacer strips **22** adjacent at least one edge to provide access openings **26** facilitating the insertion and removal of the microfilm strips. One of the panels may be extended slightly above the other panel to provide a title or other identifying strip **28** for the particular microfilm holder.

A selected number of the pockets **24** receive microfilm strips of conventional form with a series of frames such as the seven frames shown in the drawings. The access openings **26** facilitate the insertion of such strips into the corresponding pockets. If desired, the inserted microfilm strips may be projected slightly beyond the opposite end of a pocket and then retracted with the initially trailing end of the inserted microfilm strip lying to the outside of the corresponding access opening and beneath the front panel. In this case, where there is some degree of permanency to the material included in the holder, that end of the pocket may be closed by sealing the adjacent edges of the front and back panels.

As illustrated in FIG. **1**, the top and the third, fourth and fifth pockets from the top each accommodate a microfilm strip **20** containing seven frames. The second pocket from the top of the holder **14** has inserted therein magnetic strip means designated generally by the numeral **30**. The magnetic strip means **30** may include a transparent carrier strip **32** (FIG. **5**) having adhered to the ends thereof magnetic sheets or strips **34** of extremely thin soft iron or suitable magnetic material. A microfilm strip **20*a*** of a shorter length than the strips **20** may be inserted in the second pocket from the top without substantially increasing the thickness, thus to permit viewing in a reader or contact printing of the shorter microfilm strip. It is to be understood that the magnetic strip may be inserted in any selected pocket **24**, depending upon the desired fanning action. Due to the transparency of the carrier portion extending between the magnetic inserts, a microfilm strip may be included in the pocket with very minimum loss of film holding space. Because of the selectivity of the placement of the magnetic strip means in the holder pockets, these holders may be conveniently adapted or customized to a variety of requirements of individual users.

With reference to FIG. **3**, a fanning type of file drawer or tray is illustrated with a bottom wall **36** and inclined end walls **38** and **40**, and with permanent bar magnets **42** (shown in dotted lines) extending along the opposite side between handles **44**. Assuming the file tray to be relatively filled and that a microfilm holder in the Title H area (FIG. **3**) is desired; the operator shifts the A to G groups forwardly and the I to Z groups rearwardly. This permits the holders in the H group to fan out, as illustrated, in response to the magnetic repulsion induced in the magnetic strip sections. Thus the title strips **28** in the H group are exposed to view, permitting a desired microfilm holder to be conveniently removed for viewing in a reader or for printing, as the case may be.

In conventional microfilm holders, the rear panel **18** may have a greater thickness than the front panel **16**, thus giving some strength to the microfilm holder for filing and for proper fanning action as mentioned above. On the other hand, the extreme thinness of the front panel **16** lends itself to contact printing of the retained microfilm strips. The thickness of the rear panel may be of the order of 2½ to 3 mils, and that of the front panel of the order of ¾ mil. The thickness of the spacers **22** may be in the order of 5½ mils, so that the pockets defined thereby may be substantially filled by an inserted microfilm strip, and the same is substantially true of the available film pocket space extending between the magnetic strip sections which accommodate the shorter microfilm strip **20*a***. The spacer strips **22** also resist curling of the microfilm holders, as does the rear panel, but they are still sufficiently flexible for the intended uses. With further reference to the filing, the location of the tray magnets **42** may dictate the location of the magnetic strip means **30** in the microfilm holders. For example, if the magnets **42** are relatively higher than illustrated, the magnetic strips may be placed in the first or top pocket of the microfilm holder to obtain proper fanning action.

It has been the practice heretofore to feed the microfilm strips from individual rolls thereof into telescopic association with complementary pockets of the holders. The microfilm strips are severed after complete insertion and in some instances it has been the practice to employ a tool, such as the tool **46** illustrated by dotted lines in FIG. **11**, to facilitate initial insertion of the film strips. Film inserting machines of the type which may be used for the above purpose are illustrated in U.S. Pat. No. 2,937,483. The magnetic strip means **30**, like the microfilm strip **20**, may be similarly fed from rolls into telescopic association with a holder pocket.

Attention is directed to the fact that by having the magnetic means **30** in strip form with the magnetic strip sections **34** positioned at the opposite extremities of the transparent carrier strip **32**, the tray magnets **42** exert magnetic forces which counteract any tendencies for the combined carrier and magnetic strip sections adhered thereto to become longitudinally dislodged. Hence once the magnetic strip sections and carrier have been properly positioned within the holder, magnetic forces will function to fan the upper margins of the holders in Group H and at the same time function to secure the metallic magnetic strip material against longitudinal dislodgment. In some instances it may be desirable to employ magnetic strip material having a width which is less than the width of the complementary holder pocket in order to assure sufficient pocket space to accommodate both the microfilm and the magnetic strip means. In any event, the thickness of the magnetic strip means may be held to a degree of thinness sufficient to assure telescopic reception of both the microfilm strip and said magnetic strip means in a given holder pocket. It has been found, for example,

that a carrier strip having a thickness of approximately 1 mil and magnetic sections adhered thereto having a thickness of approximately 2 mils will function satisfactorily when used with conventional microfiche master type microfilm holder pockets.

The invention is claimed as follows:

1. A microfilm strip holder adapted for use in a fanning magnetic filing system, and comprising two rectangular panels of transparent relatively thin plastic sheet material in superposed relation, elongate horizontal spacer strips secured between said panels at spaced intervals providing a plurality of horizontal pockets for receiving microfilm strips, magnetic strip means enclosed within at least one of said pockets including magnetic sections positioned within and substantially filling opposite extremities of said last mentioned holder pocket, and relatively thin further strip means approximating the width of the holder pockets interconnecting said magnetic sections and maintaining said sections selectively and removably in spaced relation thereby rendering said sections shiftable longitudinally as a unit within one of said pockets.

2. A microfilm holder as set forth in claim 1, wherein the interconnecting mounting strip is nonmagnetic.

3. A microfilm strip holder as set forth in claim 1, wherein the magnetic strip means comprises sections of magnetic strip stock secured to opposite extremities of a thin transparent mounting strip.

4. A microfilm strip holder as set forth in claim 6 wherein the magnetic strip sections and transparent mounting strip are so dimensioned as to assure the reception of a microfilm strip within the holder pocket in the space between said magnetic sections.

* * * * *