

[54] **MICROFILM INDEX CARD**
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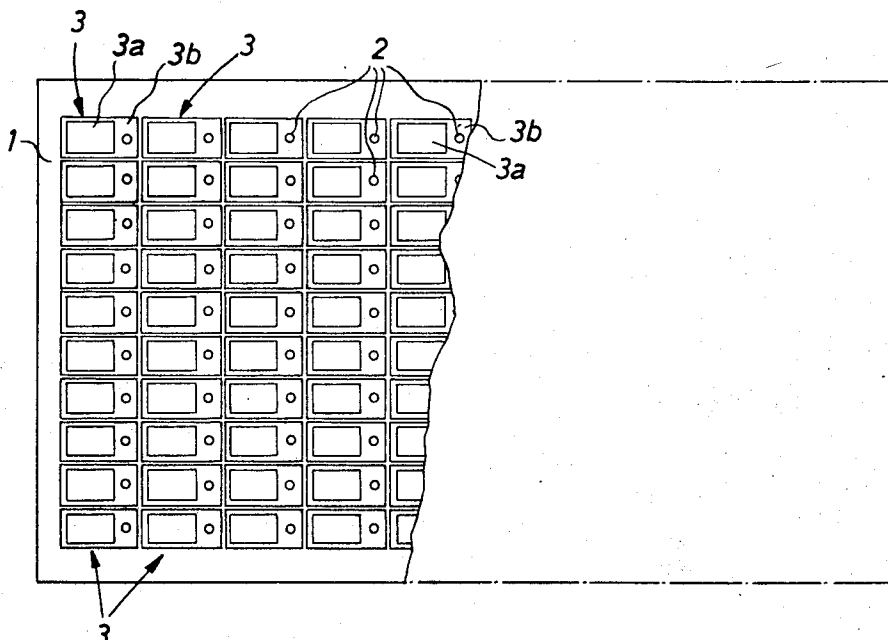
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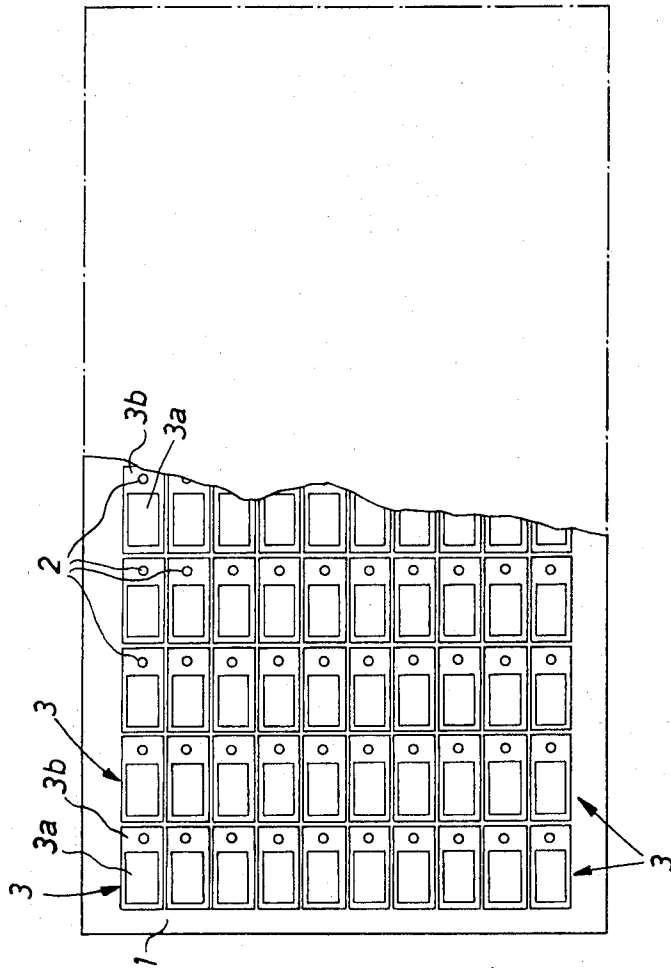
[57] **ABSTRACT**

A microfilm index card wherein a rectangular sheet-like carrier supports several rows of microcopies each of which has an exposed information-bearing portion and an unexposed portion. The unexposed portions of the microcopies are connected with the carrier by ultrasonically welded spots which allow for detachment of microcopies without damaging the carrier. The emulsion sides of the microcopies face away from the carrier to permit the placing of such sides into immediate proximity of photosensitive layers during contact printing. The spots are strong enough to normally prevent turning or other movements of microcopies with reference to the carrier.

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1 Claim, 1 Drawing Figure





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MICROFILM INDEX CARD**BACKGROUND OF THE INVENTION**

The present invention relates to microfilming in general, and more particularly to index card microfilming, i.e., to storage of information-bearing microcopies on cards.

At the present time, microcopies in 18×24 or microfiche size are obtained by stepwise exposure of successive documents on discrete sheets of film or by a continuous microfilming method. For example, an elongated roll of microfilm can be exposed stepwise or continuously to store information in the form of negative microframes or microcopies, and the roll is thereupon subdivided into strips of 10 to 12 frames each. Such strips are thereupon mounted on a card by resorting to self-adhesive tape. The cards may have openings or cutouts for the exposed microfilm frames.

A drawback of such microfilming procedures is that it is not possible to make substantial alterations in the arrangement of strips of microcopies on the card. Thus, if a single microcopy is to be removed or replaced, it is necessary to remove an entire strip from the card. Furthermore, it is normally necessary to reproduce an entire strip even though it is desired to obtain an enlarged print of a single microcopy. Each printing operation causes a marked reduction in the quality of microcopies. Still further, the connections which are established by adhesive tape are unreliable, especially for prolonged storage, and the application of adhesive tape must be carried out with great care, with clean hands, and consumes much time. As a rule, at least two lengths of tape must be applied for each microcopy.

SUMMARY OF THE INVENTION

An object of the invention is to provide a novel and improved microfilm index card with a plurality of microcopies.

Another object of the invention is to provide novel and improved connections between a sheet-like carrier and a plurality of microcopies.

A further object of the invention is to provide a microfilm index card with connections which secure microcopies to a sheet-like carrier in such a way that the microcopies are safely retained in desired orientation but can be readily detached without damaging the carrier.

An additional object of the invention is to provide an index card wherein a large number of microcopies can be stored in a small area and wherein the connections between the microcopies and the carrier do not affect the quality of information which is stored on the microcopies.

In accordance with a feature of the invention, the improved microfilm index card comprises a sheet-like carrier, at least one row of sheet-like microcopies or microframes on the carrier, and spots of ultrasonically welded connections between the carrier and the microcopies. Each microcopy preferably comprises an exposed information-bearing portion and an unexposed portion, and the spots of welding connect the carrier with the unexposed portions of the microcopies. The emulsion side of each microcopy preferably faces away from the carrier to facilitate accurate contact printing.

The connections formed by the ultrasonically welded spots will not deteriorate on prolonged storage of the index card.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The improved index card itself, however, both as to its construction and the mode of making the same, together with additional features and advantages thereof, will be best understood upon perusal of the following detailed description of certain specific embodiments with reference to the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

The single FIGURE is a schematic elevational view of a microfilm index card with several rows of microcopies which is constructed and assembled in accordance with the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The drawing illustrates a microfilm index card which comprises a rectangular sheet-like carrier 1 and several parallel rows of sheet-like microcopies or microframes 3 which are separably but safely secured to the carrier 1 by circular ultrasonically welded spots 2. The carrier 1 may consist of transparent material and each microcopy 3 comprises an exposed information-bearing portion 3a and an unexposed portion 3b. The spots 2 connect the carrier 1 with the unexposed portions 3b. By properly positioning and adjusting the ultrasonic welding apparatus, one can form spots 2 of required size and depth to thus insure that the microcopies 3 are held against turning with reference to the carrier 1, i.e., that the microcopies remain in a desired orientation in which a substantial number of such microcopies can be stored on a relatively small carrier. The spots 2 allow for repeated separation of selected microcopies 3 without any damage to the carrier 1. A fresh spot 2 is provided whenever a previously separated microcopy 3 is to be reattached to the carrier 1 in a selected position. This allows for convenient detachment of one or more selected microcopies for the purpose of viewing in a reader or for reproduction of information on their exposed portions 3a. Thus, instead of necessitating the printing of the entire set of microcopies 3 on a carrier 1, it is possible to readily detach one or more microcopies and to reattach them to the carrier upon completion of a reproducing or reading operation.

It is preferred to mount the microcopies 3 on the carrier 1 in such a way that their emulsion side faces away from the carrier. This is advisable when the information on the microcopies 3 is reproduced by contact printing because the emulsion side can be placed into immediate proximity of the photosensitive layer on a sheet or roll of printing paper. Such positioning of microcopies during contact printing insures the making of highly satisfactory prints with sharply outlined details of the information which is stored on the microcopies.

It was found that a single spot 2 suffices to connect any one of the microcopies 3 with the carrier 1. It is clear that the distribution of microcopies on the carrier 1 can deviate from the distribution which is shown in the drawing and that all of the microcopies need not be of identical size or shape.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can,

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by applying current knowledge, readily adapt it for various applications without omitting features which fairly constitute essential characteristics of the generic and specific aspects of our contribution to the art and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims:

1. A microfilm index card, comprising a sheet-like carrier having a rectangular outline and consisting of a light-transmitting material; a plurality of groups of sheet-like microcopies on said carrier, each of said

groups forming a row of microcopies and all of said microcopies being of identical size and shape, each of said microcopies comprising an exposed information-bearing portion, an unexposed portion and an emulsion side facing away from said carrier; and circular spots of ultrasonically welded connections separably securing said unexposed portions of said microcopies to said carrier, the size of each of said spots being a small fraction of the overall size of the respective microcopy and there being a single spot for each of said microcopies, whereby the individual microcopies may be interchanged at will.

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