April 23, 1935. B. G. RAND 1,999,157

CARD INDEX FILE

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Fig. 1.

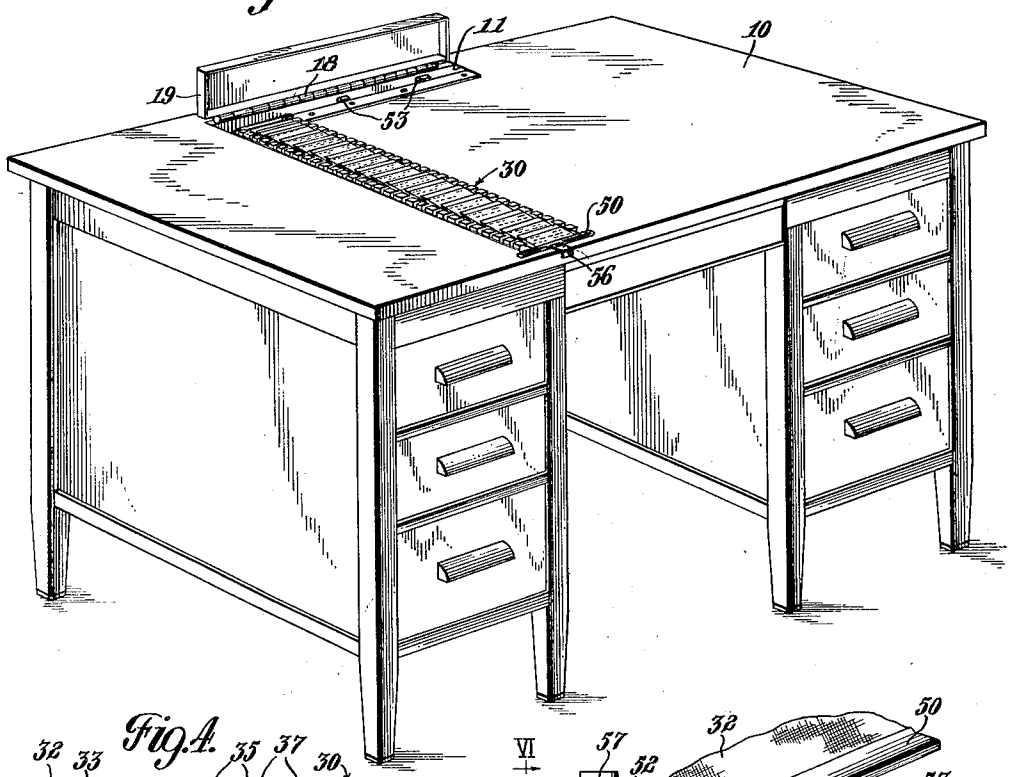
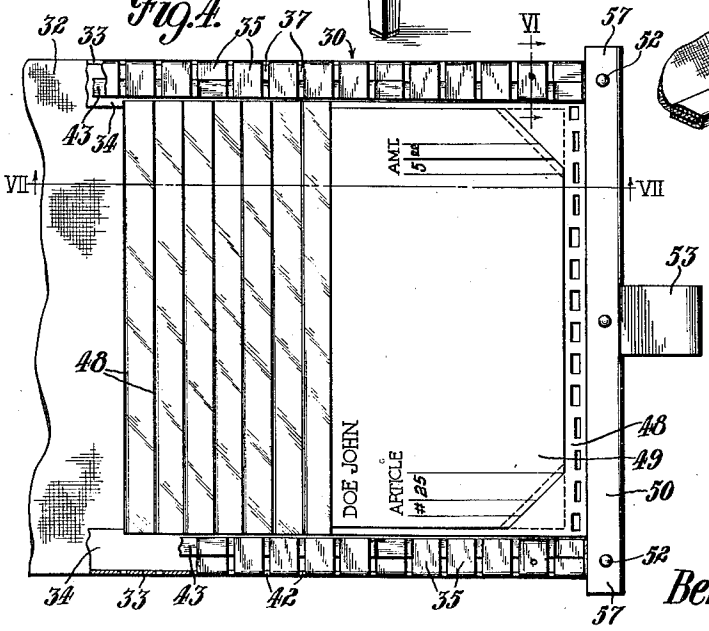


Fig. 4.



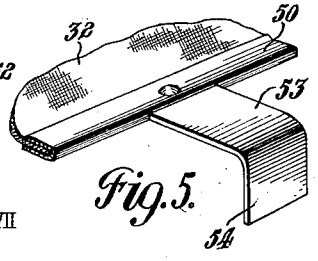


Fig. 5.

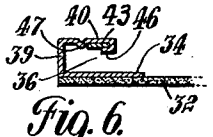


Fig. 6.

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Fig. 2.

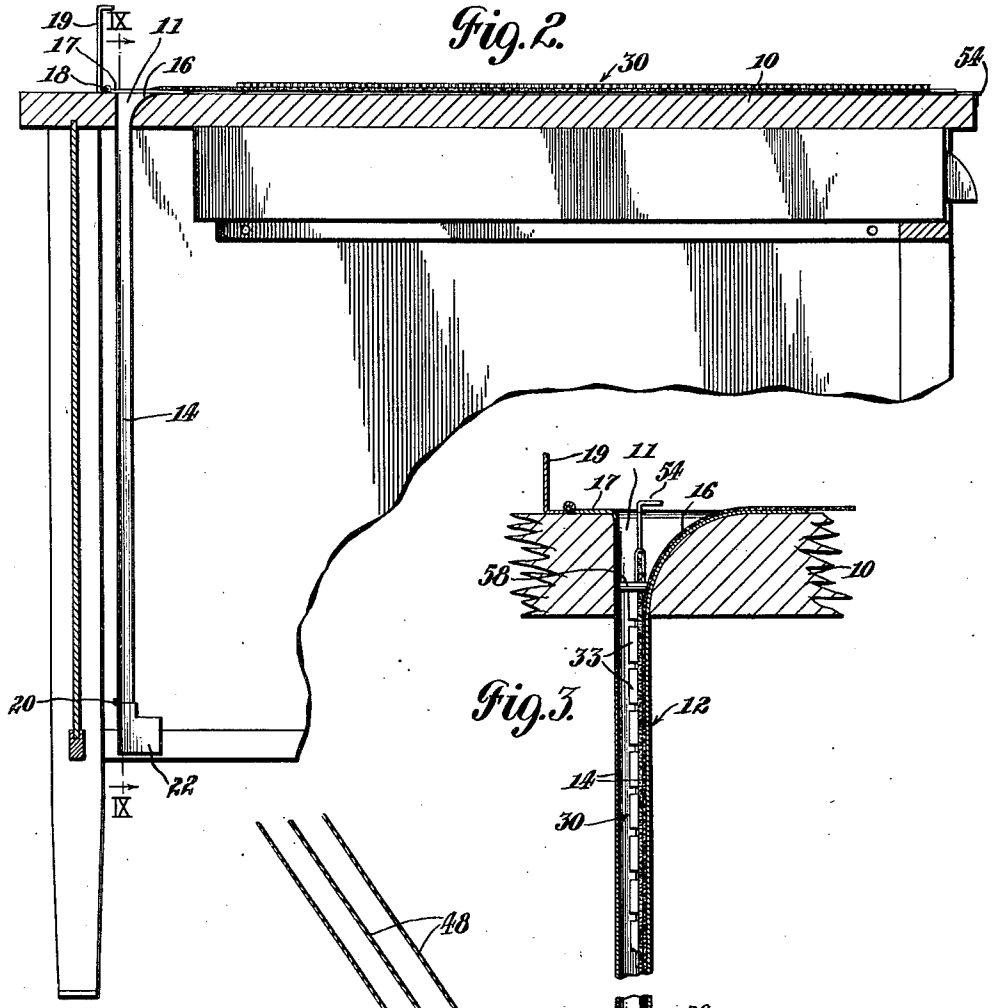


Fig. 3.

Fig. 7.

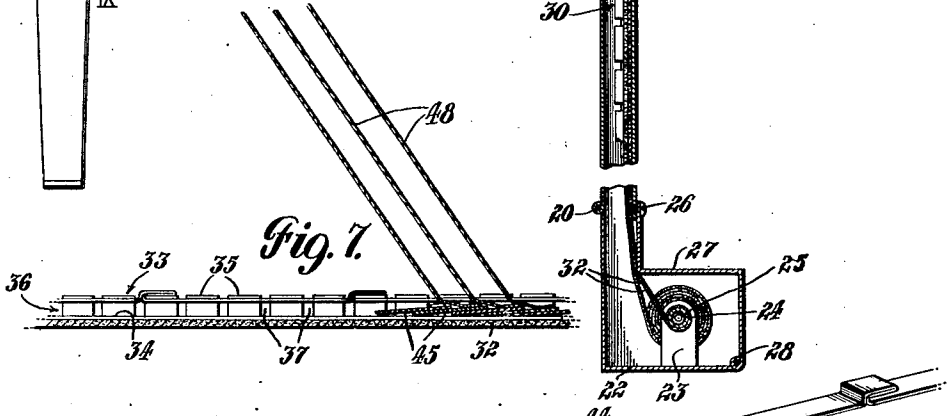
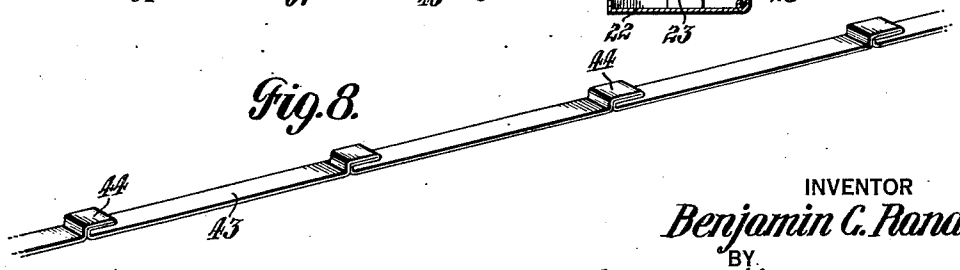


Fig. 8.



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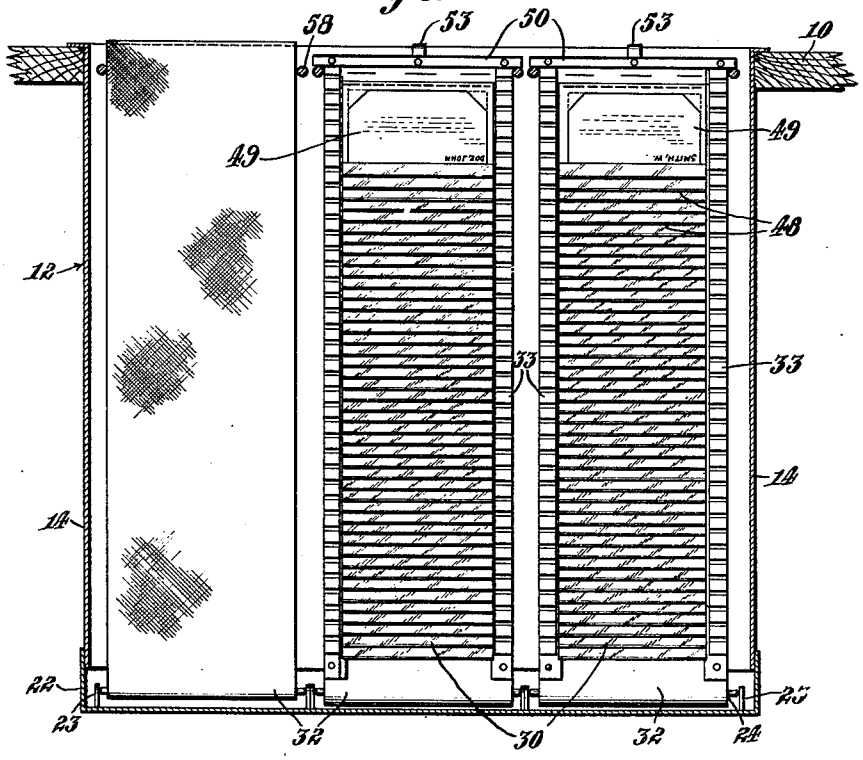
Dean, Brooks & Henry ATTORNEY

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Fig. 9.



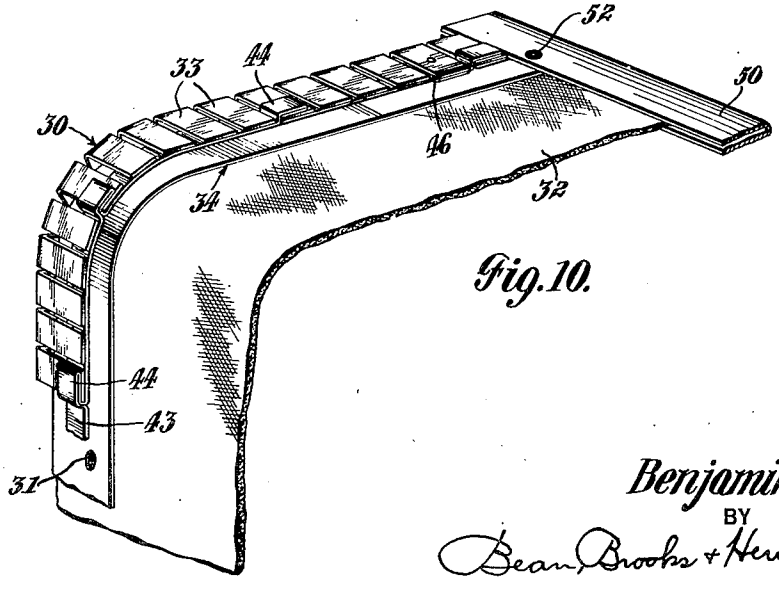


Fig. 10.

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Patented Apr. 23, 1935 1,999,157

UNITED STATES PATENT OFFICE

1,999,157

CARD INDEX FILE

Benjamin G. Rand, North Tonawanda, N. Y., assignor to Remington Rand Inc., Buffalo, N. Y.

Application October 23, 1931, Serial No. 570,732

15 Claims. (Cl. 129—16)

This invention relates to filing systems of the card index type and it has particular relation to record members and record holding members mounted in flexible supports.

Filing systems in which a plurality of overlapped record members with their edges slightly spaced and mounted so as to have their lateral edges slidably disposed in drawer channels have been employed in so called card index files. These drawers in certain forms were relatively shallow and the record members normally lay flat therein and could be so manipulated as to present data written on either side of the record members by turning them about hinging portions located along the upper marginal edges thereof. Although these filing systems are efficient for the purpose for which they were designed they occupy considerable space and special cabinets must be provided for housing them.

According to this invention a filing device is designed which includes all of the advantages previously known in the type of construction referred to and in addition the entire filing assembly including the record members and channel construction for receiving the record members, is flexible. The end of the flexible assembly is secured to a spring roller, such as a window shade roller, and the entire file can be concealed when not in use, in various types of office furniture, or in walls, or in relatively small cabinets. The flexible nature of the channel construction adapts the filing device for use in conjunction with supporting devices such as endless belts, and the construction is such that new records can be added and old records removed without removing the remainder of the record members. One of the principal features of the invention lies in the construction of a flexible channel strip in which the side of the channel members can spread or contract as they are flexed and flexible members are incorporated therein to insure proper channel-like configuration regardless of the degree of flexing. Thus a plurality of these filing devices can be installed in any suitable enclosing structure such as office furniture, or the like, and each one operated independently.

For a better understanding of the invention reference may now be had to the accompanying drawings forming a part of this specification of which

Fig. 1 is a perspective of an article of furniture in which the invention has been incorporated;

Fig. 2 is a fragmentary cross-section of the furniture shown by Fig. 1;

Fig. 3 is a fragmentary cross-section, on a larger scale, illustrating the manner in which the features of construction embodying the invention are mounted in an article of furniture;

Fig. 4 is a fragmentary plan of a sheaf of index record members incorporated in a flexible support or carrier;

Fig. 5 is a fragmentary perspective of an end portion of the record member supports;

Fig. 6 is a cross-section, on a larger scale, taken substantially along the line VI—VI of Fig. 4;

Fig. 7 is a cross-section, taken substantially along the line VII—VII of Fig. 4, and illustrating record members hinged outwardly;

Fig. 8 is a fragmentary perspective of a metal strip incorporated in the invention;

Fig. 9 is a cross-section taken substantially along the line IX—IX of Fig. 2; and

Fig. 10 is a fragmentary perspective of a flexible record member support included in the invention.

In practicing the invention a suitable article of furniture 10, which may be in the form of a desk, table or the like, is provided with an opening 11 of proper size to receive a well 12 having walls 14 composed of relatively thin material. The upper portion of one of the walls together with the contiguous wall of the opening 11, is curved as indicated at 16 thus providing an upper flared entrance to the well. The upper end of one of the walls has a flange 17, the edge of which is provided with a hinge 18 for supporting a cover 19 which is adapted to be closed over the flared entrance to the well.

The lower portion of the wall includes a hinge connection 20 for supporting a casing 22 in which a plurality of brackets 23 are rigidly mounted. Spring rollers 24 that are in the form of window shade rollers operated by a coil spring 25, or the like are rotatably carried upon the brackets 23. Suitable fasteners 26, such as screws or latches, secure a wall section 27 of the casing at a location opposite the hinge 20 to the body portion of one of the walls 14. A second hinge 28 at the lower corner of the casing provides means whereby the section 27 can be swung open to insure convenient access to the inside of the casing and to the rollers 24.

Flexible index filing devices 30 including flexible base strips 32 of fabric or other flexible material are connected to the several rollers 24 and record member carriers 33 are secured to the fabric, as indicated at 31. The carriers comprise metallic strips 34 secured along the edges of each fabric strip and are provided with a row of spaced integral re-entrant fingers 35 extending toward each other from opposite edges of the fabric to

form channels 36. Spaces 37 between the fingers 35 are sufficiently wide to insure proper flexibility of the carriers. Each finger 35 includes a section 39 disposed at right-angles to the integral strip 34, and a reentrant section 40 extending inwardly toward the central portion of the fabric strip 32. It will be observed that portions 42 of strips 34 between the spaced fingers are flexible, although the sections 39 of the fingers resist flexing of strips 34 between the portions 42. Thus it will be clear that the fingers are somewhat fan-like in operation where the files are flexed.

In order to provide an unbroken flexible channel along each side portion of the fabric strip, a second strip of thin flexible metal 43 with hooks 44 thereon, at intervals equal to the distance traversed by a plurality of fingers 35, is disposed along each of the rows of fingers. These hooks 44 fit snugly but slidably upon the outer sections 40 of the fingers they engage and certain of the fingers, for example, two fingers upon each row adjacent the ends of the row are provided with inwardly turned flanges 46 and a depressed or struck out lug 47 for receiving the strip 43 and maintaining it slidably in its proper position against the inner surface of the sections 40. When the file 30 is flexed the strip 43 also flexes and the hooks slide upon the fingers to compensate for the difference in radii of the arcs defined by the inner and outer curved surface of the base 34 and strip 43 which constitute opposed sides of the channel members. The channels 36 are adapted to receive in internested relation tabs 45 of flexible record member holders 48 which are in turn adapted to receive flexible record members 49. If it is desirable to remove record member holders or to add them to the carriers, the tabs 45 can be flexed and sprung from their position beneath the strips 43 and the record member holders may be thus detached from the files. The tabs on the record member holders can be inserted into the channels by flexing tabs 45 to shorten the distance between the ends to less than the distance between strips 43 and when released the ends of tabs 45 are guided into the channels. Accordingly the record member holders 48 can be inserted in any location along the carriers without removing the other record member holders.

At the outer end of each filing device 30 a transverse bar 50 is secured, as indicated at 52, to the fabric 32 and it provides shoulders to prevent accidental displacement of the record member holders from the ends of the carriers. A handle 53 including a hook 54 is secured intermediate the ends of the bar 50 and is adapted to be grasped manually to withdraw the file from the well. When the file is thus withdrawn from the well the handle 53 is hooked, as indicated at 56, over the front edge of the article of furniture whereby the record member holders on the file are conveniently exposed for examination. End portions 57 of the transverse bar extend beyond the outer edges of the carriers and are adapted to rest upon transverse supports 58 secured across the upper portions of the walls 14. Thus when the files are not in use the handles are nevertheless in a convenient accessible position as shown by Fig. 3. The cover 19 can be closed when the files are not in use.

From the foregoing description it will be apparent that the flexible files can be employed for concentrating and making available at the finger tips whatever data that may be required at a moment's notice and these files can be located in various types of office furniture without seriously altering the construction of the furniture. Likewise, special relatively small cabinets can be employed for receiving the files. The flexible character of the files renders them suitable for use in various kinds of filing systems, such as endless belt systems, disappearing files, drawer files, etc. It is of course to be understood that the curved surfaces 16 may be in the form of rollers.

Although only one form of the invention has been shown and described in detail it will be apparent to those skilled in the art that the invention is not so limited but that various changes may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. A file construction comprising a flexible strip, record members, a plurality of fingers turned to form flexible channel-like configurations along opposite edges of the strip, and means engaged in said channel-like configurations for receiving and supporting said record members.

2. A file construction comprising a flexible strip, series of spaced fingers extending along opposite portions of the strip to form channel-like configurations, and means bridging the spaces between the several fingers to provide substantially continuous walls along one portion of each channel-like configuration.

3. A file construction comprising a flexible strip, series of spaced fingers extending along opposite edge portions of the strip to form channel-like configurations, record member holders mounted in the channel-like configurations, and removable means bridging the spaces between the several fingers to provide substantially continuous wall portions along the channel-like configurations.

4. A file construction comprising a flexible strip, series of spaced fingers extending along opposite edge portions of the strip to form channel-like configurations, and removable means slidably mounted along the fingers to provide a substantially continuous wall along one portion of each channel-like configuration.

5. A file construction comprising a flexible base strip, series of fingers extending along opposite edge portions of the base strip to form channel-like configurations, a flexible retaining strip along one side portion of each channel-like configuration, and means for securing the retaining strip to the fingers.

6. A file construction comprising a flexible base strip, series of fingers extending along opposite edge portions of the base strip to form channel-like configurations, a flexible retaining strip disposed along one side portion of each channel-like configuration, said retaining strip having slidable connections to the fingers.

7. A file construction comprising a base strip, series of fingers extending along opposite edge portions of the base strip to form channel-like configurations, a plurality of retaining strips disposed along the channel-like configurations, said retaining strips having hooks slidably secured to a plurality of the fingers.

8. A filing device comprising a flexible base strip, a pair of carriers secured along opposite edges of the base strip, and rows of projections disposed along opposite marginal portions thereof, the projections of one row extending toward the projections of the other row.

9. A filing device comprising a flexible strip, record members, channel members disposed along

opposite sides of the flexible strip, means for detachably supporting said record members removably and slidably engaged in said channel members, a roller secured to the strip, means for supporting the roller, and means for actuating the roller.

10. A filing device comprising a flexible strip, channel members disposed along opposite edges of said strip, a roller secured to the strip, means for supporting the roller, and resilient means for actuating the roller, a portion of the strip being normally wound about the roller.

11. A filing device comprising a flexible strip, channel members disposed along opposite edges of the strip, a roller secured to the strip, means for housing and supporting the roller, resilient means for actuating the roller, means for withdrawing a portion of the strip against the action of the resilient means, and means for securing the strip in withdrawn relation.

12. A filing device comprising a flexible strip, channel members disposed along opposite edges of the strip, a roller secured to the strip, means for housing and supporting the roller, resilient means for actuating the roller, means for withdrawing a portion of the strip against the action of the resilient means, means for securing the strip in withdrawn relation, means on the housing means for arresting entry of the strip into the housing means at such position that a portion thereof is always accessible from the outside of the housing means.

13. A filing device comprising a flexible base strip, a plurality of fingers extending along opposite edge portions of the base strip to form channel-like configurations, means removably mounted along the fingers to provide substantially continuous walls along one portion of the channel-like configuration, a roller for receiving in wound relation a portion of the base strip, means for supporting the roller, and means for actuating the roller.

14. A filing device comprising a flexible base strip, a plurality of fingers extending along opposite edge portions of the base strip to form channel-lke configuratons, means removably mounted along the fingers to provide substantially continuous walls along portions of the channel-like configurations, a roller for receiving in wound relation a portion of the base strip, means for supporting the roller, and means for actuating the roller, a curved surface along one portion of the supporting means whereby the flexible strip with the fingers thereon is flexed to follow the contour of the curved surface when it is drawn outwardly from the supporting means.

15. A visible index construction comprising a flexible backing and supporting strip, a plurality of metallic channel forming members secured in adjacent aligned relation and in spaced opposed rows on said strip to form opposed channels extending longitudinally of the strip and forming a support flexible throughout all portions of its length, and overlapping record members having holders provided with opposite ends received by and engaged in said channels.

BENJAMIN G. RAND.