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(54) DEVICE FOR LOOSELEAF BINDING OF PAPERS

VORRICHTUNG ZUM LÖSBAR ZUSAMMENHALTEN VON PAPIERBÖGEN

DISPOSITIF POUR CLASSER DES FEUILLES VOLANTES

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Description

This invention relates to a device for looseleaf binding of papers and documents.

Hitherto, page materials requiring to be looseleaf bound have, after suitable drilling or punching, been held together using an openable multi-ring device attached to a pre-formed spine and cover assembly. The disadvantage of the existing arrangement is that the device is usually manufactured from metal and includes a spring device which is riveted to the spine and covers, making the total cost of this binding device relatively expensive. It is also normal for the covers of this binding means to be titled to match the intended contents, making the binder redundant should a different content be required.

It is an object of this invention to provide a relatively low cost looseleaf binding system which permits the rapid and secure binding of prepared pages, and the easy subsequent removal or addition of pages. A secondary object of this invention is to provide flexibility of use by permitting the binding of covers as well as pages, so that the covers and not the binding means relate to the content of the assembled document, allowing the use of one looseleaf binding means for a range of documents.

Looseleaf binding devices are shown in US-A-3057357 and US-A-3183913. Several embodiments of device are shown in US-A-3057357 but all are either complex integral mouldings or are assembled from separate components utilizing ball-and-socket type joints. Whilst the ball-and-socket embodiments avoid the problems of the relatively complex tooling necessary to produce the moulded embodiments, the ball-and-socket arrangements are not well adapted to resisting shock loading as would occur if a sheaf of bound documents is dropped. Under such loading conditions the ball will tend to pop out of the corresponding socket with the resultant failure of the device. The device of US-A-3183913 requires, in addition to two separate spine members, a base member which holds the spine members and controls movement thereof. This additional component adds to the cost and weight of the device. Also, the device illustrated is liable to snap over-centre into its release configuration in the event of shock loading of the type referred to above.

The present invention provides a looseleaf binding device of the type referred to in the pre-characterising portion of claim 1 which is characterised in that the interengaging components comprise a plurality of tongue-like projections formed integrally with one of the elongate members and a plurality of apertures defined by the other of the elongate members for receiving the tongue-like projections to secure the elongate members together. The tongue-like projections are each connected to the remainder of the elongate member with which they are formed by means of hinge portions, the hinge portions of the tongue-like projections cooperating to form a hinge which permits articulation of the

spine members relative to each other. The tongue-like projections each have a tapered lead-in region and a barb so that the tongue-like projections may readily be inserted into the corresponding apertures until the barbs snap behind the means defining the aperture. With this arrangement, the device may readily be assembled but is highly resistant to accidental disassembly.

The locking member may comprise a strip slidable between the first and second extensions to hold the device in the closed configuration, but in a particularly preferred embodiment the locking member comprises a strip pivotably attached to one of the first and second extensions along one longitudinal edge of the strip, the strip being pivotable between a first, free position and a second locking position in which the strip engages with the other of the first and second extensions to hold the device in the closed configuration. Preferably, the locking member is formed integrally with one of the elongate plastics members forming the spine or, in an alternative embodiment, integrally with the remainder of the device.

Preferably, the strip is provided with a tab for ease of movement between its first and second positions. A recess may be provided on the other of the first and second extensions such that the strip may be positively located in the locking position.

Preferably, the width of the locking member is such that when it is in its use position it somewhat elastically deforms one or both of the extensions and/or the first and/or second finger members so that the free ends of the finger members engage each other with a slight pre-load. The effect of this arrangement is to resist separation of the fingers and, at the same time, resist displacement of the locking strip from its use position.

The spine is intended to be suitably sized to contain common sizes and volumes of looseleaf pages, and the number of finger means may be selected to form two or more closed loops as appropriate, depending on the number of holes provided in the pages. The shape and cross-section of the finger means may also be selected as appropriate for any particular application of the device.

The present invention will now be described in more detail, by way of example only, with reference to the accompanying drawings, in which:

Figures 1-4 do not show an embodiment of the present invention and are disclosed for illustrative purposes only.

Figure 1 is a perspective view of a binding device according to one embodiment, in its open position; Figure 2 is a perspective view of the binding device of Figure 1 with pages in position, the device being closed and locked;

Figure 3 is a sectional view of a second embodiment;

Figure 4 is a sectional view of a third embodiment; and

Figures 5 and 6 show respectively a rear view and

cross-section of an embodiment of the invention.

Referring to Figures 1 and 2 of the drawings, there is shown a binding device 1 which is intended for the binding of looseleaf pages. The binding device comprises a spine 2 which may be manufactured from a semi-flexible plastics material for example polypropylene. The spine 2 incorporates a longitudinal hinge 3 which may be formed by locally narrowing the thickness of the plastics material of the spine. A number of fingers 4 and 4a extend from the spine, on either side of the hinge 3, the fingers being integrally formed with the spine and being suitably sized and spaced to accept pre-punched pages 5, as shown in Figure 2. The device 1 is hingeable between a first, open position, illustrated in Figure 1, in which pre-punched pages 5 can be impaled over fingers 4a, for example, and a second, closed position illustrated in Figure 2, in which the free ends of the fingers 4 and 4a on either side of the hinge are brought together to hold the pages 5 on the closed loops formed by the cooperating fingers 4 and 4a. The free ends 6 of the fingers 4 and 4a may be formed with suitably shaped mating portions to provide positive cooperation between the fingers in the closed position.

Two short extensions 7 and 7a are formed one on either side of the hinge 3 in spine 2. The extensions 7 and 7a project rearwardly from the spine, and the inside faces of these extensions are provided with grooves, formed to locate a locking member 8 which may be made of a thin strip of rigid material having a length similar to the spine.

Referring to Figure 2 of the drawings, it will be seen that when the pages 5 are fully loaded into the binding means, by impaling the punched edges of the pages over fingers 4a, the fingers 4 and 4a can be pressed closed. The binding device can then be locked closed by sliding locking member 8 between the short extensions 7 and 7a with the edges of this locking member located in the extension grooves. Locking member 8 can be provided with a means such as folded section or tab 9 to facilitate its insertion and removal, and radiuses 10 at the opposite end to assist insertion. The locking member should have a width at least equal to and preferably somewhat greater than the relaxed distance between the bases of the grooves of the extensions, when the ends of the fingers 4 and 4a are in firm contact with each other. Thus, when the locking member is fully inserted between the extensions 7 and 7a, the device will be held with the fingers in the closed position and slightly pre-loaded against each other.

The embodiment shown in Figure 3 is substantially the same as that shown in Figures 1 and 2, and like numerals will be used for like parts. However, in Figure 3, the locking member 11 is hingeable connected by a hinge 12 to the extension 7a. Preferably the locking member and hinge are formed integrally with the extension 7a. In this embodiment, this locking member is in the position shown in broken line when the device is open. When the device is closed, the locking member

11 can be pivoted in the direction of arrow 13 to snap into a recess on the interior face of extension 7 to hold the device in the closed position.

The Figure 4 embodiment shows a spine which is constructed in two parts 14a and 14b held together by means of the hinge 15. Part 14b is formed with an enlarged edge 16 providing one part of the hinge 15, and part 14a is formed with a socket 17 along its edge, the socket 17 being adapted to fit around the enlarged edge 16 to provide the cooperating part of the hinge 15. In the embodiment shown in Figure 4 the locking member 18 is formed integrally with extension 7 but in alternative arrangements the locking member may be formed integrally with extension 7a, or may be provided as a separate slidably located locking strip. In Figure 4, the locking member 18 is joined to extension 7 by a hinge 19 and is in a position similar to that shown in broken lines when the device is open. When the device is closed, as shown in Figure 4, the locking member 18 can be pivoted in the direction of arrow 20 to lock between extensions 7 and 7a, and to clip into a recess on the interior face of extension 7a to positively locate the locking strip when the device is closed. In order to facilitate opening of the binding device, one or more tabs 21 may be formed on the locking strip 6 so as to protrude from the outside face of extension 7a via one or more suitable slots provided in the extension 7a.

In the embodiment of the invention illustrated in Figures 5 and 6 the binding device is formed by two separate plastics mouldings 22, 23. Moulding 22 comprises extension 7, spine portion 14a and fingers 4. Moulding 23 comprises extension 7a, spine portion 14b, fingers 4a and locking member 18.

Spine portion 14a has, integrally formed therewith, a plurality of tongue-like projections 24 each of which is connected by an integral hinge 25 to the spine portion 14a. An aperture corresponding to each tongue-like projection 24 is formed to one side of the spine portion 14b by a generally U-shaped bar 26 moulded integrally with the spine portion 14b. Each tongue-like projection 24 has a tapered lead-in region and a barb (as best seen in Figure 6) so that the tongue-like projections 24 may readily be inserted into the corresponding apertures until the barbs on the tongue-like projections snap under the bars 26. Thereafter, removal of the tongue-like projections from apertures will be very difficult.

The locking member 18 of the embodiment of Figure 5 is formed in a manner similar to that of the embodiment of Figure 4, and operates in the same manner as that described above with reference to Figure 4. In the open position of the locking member, as shown in solid line in Figure 6, the device may be opened. In the closed position of the locking member, as shown in broken line, the edge of the locking member snaps into a groove 27 provided in the extension 7a to lock the device closed. In use, hinging movement of the two portions of the device is accomplished by the hinged portions 25.

As shown in Figures 3 and 4, the axial shape of the fingers 4 and 4a may be substantially semi-circular to

form a circular loop when the device is closed, or the closed loop may be substantially square or rectangular, or may have any other suitable shape. The cross-section of the individual fingers 4 and 4a may be circular to suit generally available paper punching means, or may be rectangular, or any other suitable shape. To use the binding device, the locking member should be removed (in the case of a separately formed strip) or released (in the case of an integral strip), and the fingers 4 and 4a of the binder opened by pressing together the extensions 7 and 7a formed on each side of the hinge at the rear of the spine.

Pages formed with suitably sized and positioned holes can be impaled over the fingers. When compilation is completed, the binding device can be closed using pressure on the outer surfaces of the fingers. The binding device is positively locked in the closed position by inserting or positioning the locking member between the two extensions 7 and 7a formed at the rear of the spine so that the strip firmly bridges the gap across the hinge line and places the fingers under a slight preload. Pages are released by again removing or releasing the locking strip and opening the fingers.

Claims

1. A looseleaf binding device comprising: first and second separately formed elongate spine members (14a, 14b) hingeable relative to each other and connected to each other by respective interengaging components (24, 26) of the spine members, a plurality of first finger members (4) extending forwardly from the first spine member (14a) on one side of the hinge (25); a plurality of cooperating second finger members (4a) extending forwardly from the second spine member (14b) on the other side of the hinge (25); first and second extensions (7, 7a) projecting rearwardly respectively from the first and second spine members (14a, 14b) on either side of the hinge (25), the device being hingeably movable between an open configuration in which the free ends of the finger members (4, 4a) are spaced apart and a closed configuration in which the free ends of the cooperating first and second finger members (4, 4a) meet to form a plurality of closed loops through holes in a sheaf of looseleaf papers to be bound and in which the connection formed by the interengaging components (24, 26) is loaded in tension; and a locking member (18) positionable to lock the first and second extensions (7, 7a) in the position corresponding to the closed configuration of the device to hold the device in the closed configuration; characterised in that said interengaging components comprise a plurality of tongue-like projections (24) formed integrally with one of the elongate members (14a) and a plurality of apertures defined by the other of the elongate members (14b) for receiving said tongue-like projections (24) to secure the elongate members (14a, 14b) together,

said tongue-like projections (24) each being connected to the remainder of the elongate member (14a) with which they are formed by means of a hinge portion (25), the hinge portions of the tongue-like projections (24) cooperating to form said hinge; and said tongue-like projections (24) each have a tapered lead-in region and a barb so that the tongue-like projections (24) may readily be inserted into the corresponding apertures until the barbs snap behind means (26) defining the apertures thereby inhibiting removal of the tongue-like projection (24) from the apertures.

2. A binding device according to claim 1 characterised in that each of said apertures is formed in a generally U-shaped bar (26) moulded integrally with a spine portion (14b) of its associated elongate member (23).
3. A binding device according to claim 1 or claim 2, characterised in that the locking member (18) is pivotally attached to one (7a) of said first and second extensions along one longitudinal edge thereof, the locking member being pivotable between a first, free position, and a second locking position in which the locking member engages with the other (7) of said first and second extensions to hold the device in the closed configuration.
4. A binding device according to claim 3, characterised in that said locking member (18) is formed integrally with the extension (7a) and is connected to the extension by an integral hinge which provides the pivotal attachment.
5. A binding device according to any preceding claim characterised in that said locking member (18) is releasable from its operative position to permit the elongate members (22, 23) to be hinged about said hinge thereby moving the free ends of the fingers (4, 4a) away from each other to facilitate removal of or insertion of papers to said binding device.

Patentansprüche

1. Ein Loseblattheft, bestehend aus: Ersten und zweiten, getrennt gebildeten länglichen Rückenteilen (14a, 14b), die zueinander klappbar ausgeführt und durch ineinandergreifende Teile (24, 26) der Rückenteile miteinander verbunden sind; einer Mehrzahl von ersten Fingerteilen (4), die vom ersten Rückenteil (14a) an einer Seite des Scharniers (25) vorwärts verlaufen; einer Mehrzahl von zusammenwirkenden zweiten Fingerteilen (4a), die vom zweiten Rückenteil (14b) an der anderen Seite des Scharniers (25) vorwärts verlaufen; ersten und zweiten Verlängerungen (7, 7a), die jeweils von den ersten und zweiten Rückenteilen (14a, 14b) an beiden Seiten des Scharniers (25) nach hinten vorste-

hen, wobei die Vorrichtung zwischen einer geöffneten Konfiguration, in der die freien Enden der Fingerteile (4, 4a) auseinander stehen und einer geschlossenen Konfiguration, in der die freien Enden der zusammenwirkenden ersten und zweiten Fingerteile (4, 4a) zum Bilden einer Mehrzahl geschlossener Schlaufen durch Löcher in einem zu bindenden Stapel loser Blätter aufeinander treffen und wo die Verbindung durch die ineinandergreifenden Teile (24, 26) unter Spannung gebildet wird, geklappt werden kann; sowie einem Sperrteil (18), das zum Sperren der ersten und zweiten Verlängerungen (7, 7a) in die Stellungen gebracht werden kann, die der geschlossenen Konfiguration der Vorrichtung entspricht, um die Vorrichtung in der geschlossenen Konfiguration zu halten; dadurch gekennzeichnet, dass besagte ineinandergreifende Teile eine Mehrzahl von zungenartigen Vorsprüngen (24), die mit einem der länglichen Teile (14a) integriert gebildet sind und eine Mehrzahl von Öffnungen umfassen, die durch die anderen der länglichen Teile (14b) zur Aufnahme besagter zungenartiger Vorsprünge (24) zum Zusammenhalten der länglichen Teile (14a, 14b) gebildet sind. Besagte zungenartigen Vorsprünge (24) sind jeweils mit dem Rest des länglichen Teiles (14a) verbunden, mit dem sie mittels eines Scharnierabschnitts (25) gebildet sind. Die Scharnierabschnitte der zungenartigen Vorsprünge (24) wirken zusammen, um besagtes Scharnier zu bilden. Weiter haben besagte zungenartigen Vorsprünge (24) jeweils einen zugespitzten Einfädelbereich sowie einen Widerhaken, so dass die zungenartigen Vorstände (24) ohne weiteres in die zutreffenden Öffnungen eingeführt werden können, bis der Widerhaken hinter Vorrichtung (26), durch die die Öffnungen gebildet werden, einschnappt. So wird das Entfernen der zungenartigen Vorsprünge (24) aus den Öffnungen verhindert.

2. Eine Bindevorrichtung nach Anspruch 1, dadurch gekennzeichnet, dass alle der besagten Öffnungen in einer allgemein U-förmigen Leiste (26) gebildet sind, die durch Guss in einem Rückenabschnitt (14b) ihres zugehörigen länglichen Teils (23) integriert ist.
3. Eine Bindevorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass das Sperrteil (18) schwenkbar mit einer (7a) der besagten ersten und zweiten Verlängerungen an ihrem längsläufigen Rand befestigt ist. Das Sperrteil ist zwischen einer ersten Öffnungsstellung und einer zweiten Verschlussstellung schwenkbar, wo das Sperrteil in die andere (7) der besagten ersten und zweiten Verlängerungen eingreift, um die Vorrichtung in der geschlossenen Konfiguration zu halten.
4. Eine Bindevorrichtung nach Anspruch 3, dadurch

gekennzeichnet, dass besagtes Sperrteil (18) mit der Verlängerung (8a) integriert gebildet und durch ein integriertes Scharnier, das die gelenkartige Verbindung herbeiführt, mit der Verlängerung verbunden ist.

5. Eine Bindevorrichtung nach einem der o.g. Ansprüche, dadurch gekennzeichnet, dass besagtes Sperrteil (18) aus seiner Funktionsstellung gelöst werden kann, um es den länglichen Teilen (22, 23) zu ermöglichen, um besagtes Scharnierteil geschwenkt zu werden, wodurch die freien Enden der Finger (4, 4a) voneinander weg bewegt werden können, um das Entfernen oder Einlegen von Papieren in/aus besagte(r) Bindevorrichtung zu ermöglichen.

Revendications

1. Un dispositif classeur pour feuilles volantes comportant: premier et second éléments dorsaux allongés formés séparément (14a, 14b) articulés l'un par rapport à l'autre et mutuellement raccordés par les composants respectifs à encliquetage (24, 26) des éléments dorsaux, une pluralité de premiers doigts (4) qui s'étendent vers l'avant à partir du premier élément dorsal (14a) d'un côté de la charnière (25); une pluralité de seconds doigts coopérants (4a) qui s'étendent vers l'avant à partir du deuxième élément dorsal (14b) de l'autre côté de la charnière (25); une première et une seconde extensions (7, 7a) qui font respectivement saillie vers l'arrière à partir des premier et second éléments dorsaux (14a, 14b) de part et d'autre de la charnière (25), le dispositif pouvant être déplacé au moyen de charnières entre une configuration ouverte dans laquelle les extrémités libres des doigts (4, 4a) sont espacées et une configuration fermée dans laquelle les extrémités libres des premier et second ensembles de doigts (4, 4a) se réunissent pour former une pluralité de boucles fermées à travers des trous dans une liasse de feuilles volantes à relier et dans laquelle la connexion formée par les éléments s'encliquetant mutuellement (24, 26) est sous contrainte de traction; et un élément de blocage (18) positionnable de manière à bloquer la première et la seconde extension (7, 7a) dans la position correspondant à la configuration fermée du dispositif afin de maintenir le dispositif en cette configuration fermée; caractérisé en ce que les dits éléments à encliquetage mutuel comportent une pluralité de projections en forme de languettes (24) formées intégralement avec l'un des éléments allongés (14a) et une pluralité d'ouvertures définies par le second des éléments allongés (14b) pour recevoir les dites projections semblables à des languettes (24) de manière à fixer ensemble les éléments allongés (14a, 14b), les dites projections en forme de languettes (24) étant chacune raccordées au

reste des éléments allongés (14a) avec lesquels elles sont formées au moyen d'une partie articulée (25), les parties articulées des projections semblables à des languettes (24) coopérant pour former ladite charnière; et les dites projections semblables à des languettes (24) possédant chacune une région initiale conique et un picot de manière à ce que les projections en forme de languettes (24) puissent facilement être insérées dans les ouvertures correspondantes jusqu'à ce que les picots s'encliquent derrière les moyens (26) de définition des ouvertures, inhibant ainsi l'extraction des projections semblables à des languettes (24) hors des ouvertures.

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2. Un dispositif classeur selon la revendication 1, caractérisé en ce que chacune des dites ouvertures est formée en une barre généralement profilée en U (26) moulée intégralement avec une partie dorsale (14b) de son élément allongé associé (23).
3. Un dispositif de reliure selon les revendications 1 ou 2, caractérisé en ce que l'élément de blocage (18) est attaché de manière pivotante sur l'une (7a) des dites première et seconde extensions, le long d'un bord longitudinal de celles-ci, l'élément de blocage pouvant pivoter entre une première position libre et une seconde position de blocage dans laquelle l'élément de blocage s'engrène avec la seconde (7) des dites première et seconde extensions afin de maintenir le dispositif en la configuration fermée.
4. Un dispositif de reliure selon la revendication 3, caractérisé en ce que ledit élément de blocage (18) est formé intégralement avec l'extension (7a) et est connecté à l'extension par une charnière intégrale qui assure la fixation pivotale.
5. Un dispositif de reliure selon l'une des revendications précédentes, caractérisé en ce que ledit élément de blocage (18) peut être libéré de sa position de fonctionnement pour permettre l'articulation des éléments allongés (22, 23) autour de ladite charnière, déplaçant ainsi les extrémités libres des doigts (4, 4a) pour les écarter l'un de l'autre afin de faciliter l'enlèvement ou l'insertion de feuilles dans ledit dispositif de reliure.

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