EUROPEAN PATENT SPECIFICATION

(54) LOCKING ARRANGEMENT FOR PANELS
VERRIEGELUNGSEINRICHTUNG AN SEITENWÄNDEN
ENSEMBLE FERNETURE POUR PANNEAUX

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Description

Background of the Invention

[0001] The present invention relates generally to interlocking arrangements for panels, and more particularly to a locking arrangement for panels wherein a locking tab forms a cooperative slide locking engagement with a pair of locking slits.

[0002] In the packaging of articles, and particularly of one or more articles in wrap-around type cartons, locking arrangements are frequently used for maintaining closure of the carton about the articles. It can be appreciated that such locking arrangements must be securely and reliably engaged, and must remain in such condition until the carton is opened.

[0003] One well-known form of locking arrangement comprises a locking tab and cooperating slit. An example of this type of locking arrangement can be seen in U.S. Patent No. 3,249,284 (Wood). In this example, as is typical, the locking tab includes a head portion attached along a relatively narrow neck to a panel of the carton. The tab includes at least one shoulder, i.e., that portion of the tab where the head connects with the relatively narrow neck. On an opposite panel of the carton, a slit is formed into which the tab may be inserted. Following insertion, the tab engages the end of the slit, preventing the tab from being withdrawn, and thereby securing the lock.

[0004] For locks of this type, it is advantageous to provide means to facilitate opening of the slit for receiving the locking tab as it is inserted. Otherwise, the tab or slit may be damaged during engagement, or the tab may miss engagement with the slit altogether. Thus, it is known to arrange the slit such that as a leading portion of the panel in which the slit is formed is folded away, the slit is opened. Such an arrangement may be seen, for example in U.S. Patent No. 4,600,140, in which the slit includes angled portions for creating the opening. However, it is also important to ensure that once inserted, the tab remains firmly engaged with the slit. When the leading edge panel has been folded away, the edge panel may not completely return to its original position, thereby leaving the slit partially opened.

[0005] One way in which secure retention can be accomplished is to have a portion of the tab which is folded over into overlapping relation with the main tab body. After insertion, the folded portion is released and at least partially unfolds, thereby providing additional security to the lock. An example of this approach can be seen in the above-referenced U.S. Patent No. 4,600,140. One disadvantage of this approach, however, is the additional complexity required in machinery for forming and locking cartons.

[0006] In meeting the foregoing needs, one aspect of the present invention provides a locking arrangement for panels comprising a first panel; a locking tab extending from the first panel. A second panel has a main portion, and a leading portion connected thereto along at least one panel fold line. A locking slit is defined in the second panel, extending at least from a first point disposed on the leading portion to a second point disposed on the main portion. A cut edge is defined in the second panel, extending at least from a first point disposed in the leading portion to a second point disposed in the main portion. The locking slit and the cut edge define therebetween a strut panel. A strut fold line is disposed across the strut panel from the locking slit to the cut edge substantially in parallel to the panel fold line. The strut fold line is disposed in an offset relationship to the panel fold line whereby folding of the leading portion along said panel fold line causes the strut fold line and the strut panel to at least partially open the locking slit for receiving the locking tab thereinto. Preferably the locking tab has a main body defining a widened locking shoulder disposed along at least one side edge of the tab.

[0007] In this embodiment, the locking tab may further define a second widened locking shoulder disposed along an opposite side edge of the tab, the locking shoulders engaging the locking slits for retaining the locking tab within the locking slits. The locking tab in this case may define a maximum width thereacross at the locking shoulders which is less than or equal to the distance between the first points along the locking slits.

[0008] The locking tab may further comprise a neck disposed between the locking shoulder and the first panel. The locking tab may define a locking edge formed along the neck between the locking shoulder and the first panel, wherein the first portion of the locking slit is formed such that, when the locking tab is engaged with the locking slit, the locking edge and the first portion of the locking slit are substantially coincident.

[0009] According to an optional feature of this aspect of the invention, there may further comprises a second panel fold line, the first and second panel fold lines being co-linear.

[0010] According to a further optional feature of this aspect of the invention the cut edge is defined by a second locking slit formed in the second panel.

[0011] Preferably, each of the first and second locking slits extend from the first points, each of the first points may be disposed astride a respective one of the panel fold lines, into the leading portion and to the second points disposed on the main portion.

[0012] Each of the locking slits may include a first portion extending from the first point into the leading portion and a second portion extending from the leading portion into the main portion, and a shoulder portion disposed within the leading portion and which connects the first and second portions of each of the locking slits. The first and second locking slits may be substantially mirror-images of each other. Also, the first portion of each of the locking slits may extend beyond the first point and into the main portion of the second panel.

[0013] The strut fold line may be disposed across the strut panel from the first locking slit to the second locking slit.
slit, intersecting each of the locking slits between respective ones of the shoulder portions and the intersection of the locking slit and one of the panel fold lines.

[0014] According to a further optional feature of this aspect of the invention the second panel defines a panel side edge therefore. The cut edge may be defined by a portion of the panel side edge.

[0015] The locking tab may define thereon a leading tab edge extending between the locking shoulders, and the main body of the tab may define an alignment notch extending thereinto from the tab leading edge to a notch base, the alignment notch along the leading tab edge having a width greater than the distance between the second points on the locking slits whereby the alignment notch cooperates with the strut panel to laterally retain the locking tab within the locking slits. The alignment notch may further define a greater width along the tab leading edge than at the notch base.

[0016] Other advantages and objects of the present invention will be apparent from the following description, the accompanying drawings, and the appended claims.

Fig. 1 is a plan view illustration of a carton blank including a locking arrangement for panels in accordance with a preferred embodiment of the invention.

Fig. 2 is a plan view illustration showing enlarged portions of a carton during formation, including the locking arrangement of Fig. 1 positioned for engagement.

Fig. 3 is plan view similar to Fig. 2, showing the carton portions following engagement of the locking arrangement.

Figs. 4 and 5 are views similar to Figs. 2 and 3, respectively, showing an alternative embodiment for the locking arrangement of the present invention.

Figs. 6 and 7 are views similar to Figs. 2 and 3, respectively, showing a further alternative embodiment for the locking arrangement of the present invention.

Detailed Description of the Preferred Embodiment

[0017] Throughout the drawings the same reference numerals are used to denote the same features.

[0018] Referring first to Fig. 1, a paperboard carton blank C is illustrated which includes an interlocking arrangement for panels in accordance with a preferred embodiment of the invention. In the illustrated embodiment, the blank C is configured to form a carton of a wrap-around type carton having closure panels 1 and 5, side wall panels 2 and 4, and top panel 3. Male locking tabs 20 extend from one of the closure panels 1 while corresponding locking slits are formed in the other closure panel 5 as indicated generally at 30. Closure panel 5 is formed from a main panel 6 and a leading panel 7 connected along a plurality of collinear fold lines 8.

[0019] Although the illustrated embodiment includes a carton for forming a relatively simple wrap-around style carton, it will be understood that the interlocking arrangement of the present invention is usable in any carton or other application in which panels of a sheet material are to be secured by means of a slide-type interlock.

[0020] The locking arrangement of Fig. 1 is shown in greater detail in Fig. 2. A portion of closure panel 1 is shown, which portion includes one of the locking tabs 20 attached thereto. A portion of closure panel 5 including main panel 6 and leading panel 7 are also shown, positioned as they would appear during folding of the blank to form the carton, just prior to insertion of tab 20 into the corresponding slit arrangement 30 located in panels 6 and 7.

[0021] Locking tab 20 includes a main body 40 which is connected to panel 1 by a relatively narrow neck 42. The transition between neck 42 and body 40 defines a locking edge 44, which edge terminates at a shoulder portion 46. Body 40 defines a leading edge 48 for the tab, which in this embodiment is formed generally as a circular edge running from shoulder to shoulder. Optionally, a fold line (not shown) may be formed transversely across neck 42, and may be collinear with the leading edge of panel 1.

[0022] The slit arrangement 30 comprises a pair of slits 50 and 52, formed as mirror-images of each other. Each slit 50, 52 includes a first portion 54 which extends from the fold line 8 at an outward angle into the leading edge panel 7. A second portion 56 extends rearwardly into the main panel 6, with the first and second portions 54 and 56 being joined at a shoulder 58. In the preferred embodiment, shoulder 58 is formed as a curved portion of slit 50, 52, although other configurations may be used.

[0023] The second portions 56 of slits 50 and 52 form between them a strut panel 60. Strut panel 60 is connected at one end to main panel 6, and at an opposite end to leading panel 7 adjacent slit shoulders 58. A fold line 62 is formed across the strut panel 60, and is disposed parallel to fold lines 8. Fold line 62 is further displaced in an offset condition with respect to fold lines 8, being offset in the direction of the leading edge of panel 7.

[0024] For locking, after carton blank has been wrapped around the article or articles to be packaged, panel 1 is positioned with respect to panels 6 and 7 as shown generally in Fig. 2. Leading panel 7 is folded out of the plane of main panel 6 along fold lines 8. The forwardly-extending portions of slits 50 and 52 in the vicinity of shoulders 58 provide an opening beneath the shoulder areas to allow tab 20 to pass below panel 6 for engagement with slits 50 and 52.

[0025] It can also be seen that the offset position of fold line 62 will force strut panel 60 out of the plane of main panel 6, thereby further opening entry to the locking slits 50 and 52 for tab 20. Tab 20 is then inserted beneath panel 6, over strut tab 62 and into engagement with slits 50 and 52. The tab is inserted sufficiently far
to cause locking edges 44 of tab 20 to pass first portions 54 of slits 50 and 52. At a maximum, the tab 20 can be inserted only to the ends of slits 50 and 52, thereby preventing overtightening of the blank around the package contents, which can damage the carton blank or its contents.

[0026] After tab 20 has been inserted, the locking edges 44 of tab 20 will be captured by portions 54 of slits 50 and 52, thereby preventing the lock from becoming disengaged. The lock of Fig. 2 can be seen in its engaged condition in Fig. 3.

[0027] One advantage of the lock arrangement of the present invention can be appreciated from the illustration of Fig. 3. When in its locked condition, the locking tab 20 is disposed with paperboard portions from the receiving panel located both above and below the locking tab. In particular, the portions of panel 5 adjacent to slit portions 46 of tab 20, while on the opposite side of the tab, the strut panel 60 is positioned against the central portion of the locking tab 20. This is advantageous in that because the locking tab is held firmly in position, the locking edges 44 of head 40 are maintained in locking contact with slit portions 54, thereby increasing the security of the locking arrangement against inadvertent disengagement.

[0028] An additional feature of the present invention can be seen by reference to the alternate embodiment for the locking arrangement shown in Fig. 4. Panels 5 and 6 define therein a slit arrangement 130 similar to that used in the embodiment of Figs. 1-3. Panel 1 is provided with a locking tab 120, which is generally similar to locking tab 20 used in the previous embodiment. However, in this embodiment, locking tab 120 includes a main body 140 into which an alignment notch 170 is formed, extending from leading edge 148. Along leading edge 148, notch 170 is of a width W 5 which is greater than the widest width W 3 of strut panel 160. Notch 170 is further formed having side edges 172 which preferably taper inwardly, thereby decreasing the width of the notch 170 near its innermost base portion 174. Notch 170 extends into main body 140, but to a depth less than the distance from leading edge 148 to the base of the locking tab 120 at panel 1.

[0029] In use, tab 120 is inserted into slit arrangement 130 in a manner similar to that used for the embodiment shown in Figs. 1-3. During insertion, and as seen from Fig. 5, tab 120 is inserted beyond the innermost portion of strut panel 160. The side edges 172 of notch 170 will interact with the innermost ends of slits 150, 152 engage the side edges of strut panel 160, thereby guiding the insertion of tab 120, with the end of strut panel 160 being finally disposed within notch 170. As a result, tab 120 is properly laterally located within the slit arrangement, and is retained in such position after locking.

[0030] The embodiment of Figs. 4 and 5 further illustrates an alternative slit arrangement 130. In this embodiment, first portions 154 of slits 150, 152 extend from shoulders 158, disposed in leading edge panel 7, into main panel 6. Unlike the embodiment of Figs. 1-3, these portions of slits 150, 152 do not terminate on fold lines 8, but rather terminate within panel 6. Nonetheless, it will be recognized that because shoulders 158 are disposed in leading edge panel 7, folding of panel 7 with result in opening of slits 150 and 152 for receiving tab 120. Such a slit arrangement may be used with the tab illustrated in Figs. 1-3, although it will be further recognized that panel 1 will therefore overlap panel 5 to a greater extent.

[0031] It will be appreciated that still further alternative embodiments of the present invention are possible. For example, it is not necessary that slits 50, 52 be mirror-images of each other. Indeed, as illustrated in the embodiment of Figs. 6-7, only one of the slits may be used to receive the locking tab. In this embodiment, tab 220 includes only a single locking edge 244 and shoulder 246 defined along one side of tab 220.

[0032] Slit arrangement 230 includes a first slit 250, which slit is formed in a manner similar to slits 50 and 150 of the preceding embodiments. Slit 250 includes a first portion 254 connected at a shoulder 258 to second portion 256 which extends rearwardly into panel 6 to partially define strut panel 260. A second slit 252 serves only to define strut panel 260, and may be formed extending from a point at fold line 262 into main panel 6.

[0033] In use, leading edge panel 7 is folded along fold lines 8. Strut panel 260 and fold line 262 cooperate with this folding operation to open slit 250 for receiving tab 220. Tab 220 is inserted into slit 250, and the innermost point of slit 250 along portion 256 cooperates with side edge 276 of tab 220 to guide the tab into position within slit 250. Once engaged, tab 220 is held by the innermost point of slit 250 against lateral movement in the direction of strut panel 262. Preferably, a second tab 220 facing in an opposite position may be provided on the carton to prevent lateral movement of the locking arrangement in an opposite direction.

[0034] In the event a locking arrangement in accordance with the embodiment of Figs. 6-7 is used, it may be possible to eliminate the second slit 252 entirely. For example, if the locking arrangement is placed near the side edge of the panels into which it is formed, the side edge of panel 5 may be used in place of slit 252. In such a case, offset fold line 262 will extend from slit 250 to the side edge of the panel 5. In either case, fold line 262 will terminate at a cut edge, and will therefore operate to open the slit 250 for receiving tab 220.

[0035] In each of the embodiments described above, a fold line 62, 162, 262 is provided across strut panel 60, 160, 260 which fold line is offset from the fold lines 8 connecting leading edge panel 7 with main panel 6. Such offset causes the strut panel to further open the slits 50, 52, 150, 152, 250. However, it will be recognized that it is possible to align the fold line 62, 162 with fold lines 8 in the first two and similar embodiments. In such case, only the slit shoulders 58, 158 serve to open the
slits for receiving the locking tab. However, the strut panel 60, 160 is nonetheless advantageous, in that it facilitates retention of the tab in its locked position.

[0036] It will further be recognized that neck 42 may be varied depending upon the relative size of the locking tab 20, the carton and the panels which comprise the carton. For example, neck 42 may be made longer or shorter than depicted in Figs. 1-3, thereby changing the distance by which main body 40 of locking tab 20 is spaced from the edge of panel 1. Indeed, neck 42 may be formed to have no length at all, in which case the shoulders 44 will be disposed immediately adjacent the leading edge of panel 1.

[0037] It is further noted that although the panels 1, 5 and 6 upon which the elements of the interlocking arrangement are illustrated may be considered as bottom panels of the carton shown, use of the interlocking arrangement 10 with panels that ultimately serve as top, side, end or other panels that form a closure is encompassed by and within the scope and spirit of the invention.

Claims

1. A locking arrangement for panels comprising a first panel (1); a locking tab (20) extending from said first panel (1), a second panel (5) having a main portion (6), and a leading portion (7) connected thereto along at least one panel fold line (8); a locking slit (50, 52) defined in said second panel, extending at least from a first point disposed on said leading portion (7) to a second point disposed on said main portion (6); a cut edge (58) defined in said second panel, extending at least from a first point disposed in said leading portion to a second point disposed in said main portion characterised in that said locking slit (50, 52) and said cut edge (58) defining therebetween a strut panel (60) and in that a strut fold line (62) disposed across said strut panel from said locking slit to said cut edge substantially in parallel to said panel fold line, said strut fold line (62) being disposed in an offset relationship to said panel fold line whereby folding of said leading portion along said panel fold line causes said strut fold line (62) and said strut panel (60) to at least partially open said locking slit (50, 52) for receiving said locking tab (20) thereinto.

2. A locking arrangement as claimed in claim 1 wherein said locking tab (20) has a main body (40) defining a widened locking shoulder (46) disposed along at least one side edge of said tab.

3. A locking arrangement as claimed in claim 2, wherein said locking tab (20) further defined a second widened locking shoulder (46) disposed along an opposite side edge of said tab.

4. A locking arrangement as claimed in claim 2 or claim 3, wherein said locking tab (20) further comprises a neck (42) disposed between said locking shoulder and said first panel.

5. A locking arrangement as claimed in claim 4, wherein said locking tab (20) defines a locking edge (44) formed along said neck (42) between said locking shoulder and said first panel, and wherein said first portion of said locking slit (50, 52) is formed such that, when said locking tab is engaged with said locking slit, said locking edge (44) and said first portion of said locking slit are substantially coincident.

6. A locking arrangement as claimed in any of claims 2 to 5, wherein said locking tab (20) defines thereon a leading tab edge extending between said locking shoulders, and wherein said main body of said tab defines an alignment notch (170) extending therefrom into said tab leading edge (148) to a notch base, said alignment notch along said leading tab edge having a width greater than the distance between said second points on said locking slits (50, 52) whereby said alignment notch (170) cooperates with said strut panel (60) to laterally retain said locking tab within said locking slits (50, 52).

7. A locking arrangement as claimed in claim 6, wherein said alignment notch (170) is further defined having a greater width along said tab leading edge (148) than at said notch base.

8. A locking arrangement as claimed in any of claims 1 to 7, further comprising a second panel fold line (8), said first and second panel fold lines (8) being collinear.

9. A locking arrangement as claimed in any preceding claim, wherein said cut edge (58) is defined by a second locking slit (52) formed in said second panel.

10. A locking arrangement as claimed in claim 9, wherein each of said first and second locking slits (50, 52) extend from said first points, each of said first points being disposed astride a respective one of said panel fold lines, into said leading portion (7) and to said second points disposed on said main portion (6).

11. A locking arrangement as claimed in claim 10, wherein each of said locking slits (50, 52) includes a first portion (54) extending from said first point into said leading portion (7) and a second portion (56) extending from said leading portion into said main portion (6), and a shoulder portion (58) disposed within said leading portion and which connects said
first and second portions of each of said locking slits (50, 52).

12. A locking arrangement as claimed in claim 11, wherein said strut fold line (62) is disposed across said strut panel (60) from said first locking slit (50) to said second locking slit (52), intersecting each of said locking slits between respective ones of said shoulder portions (58) and the intersection of said locking slit and one of said panel fold lines (8).

13. A locking arrangement as claimed in claim 11 or claim 12, wherein said first portion (34) of each of said locking slits extends beyond said first point and into said main portion (6) of said second panel.

14. A locking arrangement as claimed in any of claims 9 to 13, wherein said first and second locking slits (50, 52) are substantially mirror-images of each other.

15. A locking arrangement as claimed in any of claims 1 to 8, wherein said second panel (5) defines a panel side edge thereof, and wherein said cut edge (58) is defined by a portion of said panel side edge.

16. A carton incorporating a locking arrangement as claimed in any one of claims 1 to 15.

17. A blank for forming a carton, which blank comprising a locking arrangement as claimed in any one of claims 1 to 15.

18. A carton as claimed in claim 16 or a blank as claimed in claim 17 wherein the first and second panels are struck from the opposite ends of the carton blank.

Patentansprüche

1. Verriegelungsanordnung für Wandflächen, die eine erste Wandfläche (1) umfasst, eine Verriegelungslasche (20), die sich von der ersten Wandfläche erstreckt, eine zweite Wandfläche (5), die einen Hauptabschnitt (6) und einen Führungsabschnitt (7) aufweist, der damit entlang wenigstens einer Wandflächenfaltlinie (8) verbunden ist, einen in der zweiten Wandfläche definierten Verriegelungsschlitz (50, 52), der sich wenigstens von einem in dem Führungsabschnitt (7) angeordneten ersten Punkt zu einem in dem Hauptabschnitt (6) angeordneten zweiten Punkt erstreckt, eine in der zweiten Wandfläche definierte Schnittkante (58), die sich wenigstens von einem in dem Führungsabschnitt angeordneten ersten Punkt zu einem in dem Hauptabschnitt angeordneten zweiten Punkt erstreckt, dadurch gekennzeichnet, dass der Verriegelungsschlitz (50, 52) und die Schnittkante (58) dazwischen eine Verstrebungswandfläche (60) definieren und dadurch, dass eine Verstrebungsfaltlinie (62) über die Verstrebungswandfläche von dem Verriegelungsschlitz zu der Schnittkante im Wesentlichen parallel zu der Wandflächenfaltlinie angeordnet ist, wobei die Verstrebungsfaltlinie (62) in einer zur Wandflächenfaltlinie versetzten Beziehung angeordnet ist, wodurch das Falten des Führungsabschnitts entlang der Wandflächenfaltlinie bewirkt, dass die Verstrebungsfaltlinie (62) und die Verstrebungswandfläche (60) den Verriegelungsschlitz (50, 52) wenigstens teilweise zur Aufnahme der Verriegelungslasche (20) darin öffnen.

2. Verriegelungsanordnung nach Anspruch 1, in welcher die Verriegelungslasche (20) einen Hauptkörper (40) aufweist, der eine aufgeweitete Verriegelungsschulter (46) definiert, die entlang wenigstens einer Seitenkante der Lasche angeordnet ist.

3. Verriegelungsanordnung nach Anspruch 2, in welcher die Verriegelungslasche (20) ferner eine zweite aufgeweitete Verriegelungsschulter (46) definiert, die entlang einer gegenüberliegenden Seitenkante der Lasche angeordnet ist.

4. Verriegelungsanordnung nach Anspruch 2 oder 3, in welcher die Verriegelungslasche (20) ferner einen Hals (42) umfasst, der zwischen der Verriegelungsschulter und der ersten Wandfläche angeordnet ist.

5. Verriegelungsanordnung nach Anspruch 4, in welcher die Verriegelungslasche (20) eine Verriegelungskante (44) definiert, die entlang des Halses (42) zwischen der Verriegelungsschulter und der ersten Wandfläche ausgebildet ist, und in welcher der erste Abschnitt des Verriegelungsschlitzes (50, 52) derart ausgebildet ist, dass dann, wenn die Verriegelungslasche mit dem Verriegelungsschlitz in Eingriff genommen ist, die Verriegelungskante (44) und der erste Abschnitt des Verriegelungsschlitzes im Wesentlichen zusammenfallen.

6. Verriegelungsanordnung nach einem der Ansprüche 2 bis 5, in welcher die Verriegelungslasche (20) daran eine Laschenführungskante definiert, die sich zwischen den Verriegelungsschaltern erstreckt, und in welcher der Hauptkörper der Lasche eine Ausrichtungskerbe (170) definiert, die sich in diesen hinein von der Laschenführungskante (148) zu einer Kerbenbasis erstreckt, wobei die Ausrichtungskerbe entlang der Laschenführungskante eine Breite aufweist, die größer ist als der Abstand zwischen den zweiten Punkten an den Verriegelungsschlitzen (50, 52), wodurch die Ausrichtungskerbe (170) mit der Verstrebungswandfläche (60)
zusammenwirkt, um die Verriegelungslasche in den Verriegelungsschlitten (50, 52) seitlich zurückzuhalten.

7. Verriegelungsanordnung nach Anspruch 6, in welcher die Ausrichtungskerbe (170) ferner entlang der Laschenführungskante (148) mit einer größeren Breite definiert ist als an der Kerbenbasis.

8. Verriegelungsanordnung nach einem der Ansprüche 1 bis 7, die ferner eine zweite Wandflächenfaultlinie (8) umfasst, wobei die erste und die zweite Wandflächenfaultlinie (8) co-linear sind.

9. Verriegelungsanordnung nach einem der vorstehenden Ansprüche, in welcher die Schnittkante (58) durch einen zweiten Verriegelungsschlit (52) definiert ist, der in der zweiten Wandfläche ausgebildet ist.

10. Verriegelungsanordnung nach Anspruch 9, in welcher sich jeder der ersten und zweiten Verriegelungsschlitze (50, 52) von den ersten Punkten in den Führungsschnitt (7) und zu den zweiten Punkten erstreckt, die auf dem Hauptabschnitt (6) angeordnet sind, wobei jeder der ersten Punkte quer über eine entsprechende Wandflächenfaultlinie angeordnet ist.


12. Verriegelungsanordnung nach Anspruch 11, in welcher die Verstrebungsfaultlinie (62) von dem ersten Verriegelungsschlit (50) zu dem zweiten Verriegelungsschlit (52) quer über die Verstrebungswandfläche (60) angeordnet ist, wobei diese jeden der Verriegelungsschlitze zwischen den entsprechenden Schulterabschnitten (58) und dem Schnittpunkt des Verriegelungsschlitzes und einer der Wandflächenfaultlinien (8) schneidet.


14. Verriegelungsanordnung nach einem der Ansprüche 9 bis 13, in welcher der erste und der zweite Verriegelungsschlit (50, 52) im Wesentlichen Spiegelbilder voneinander sind.

15. Verriegelungsanordnung nach einem der Ansprüche 1 bis 8, in welcher die zweite Wandfläche (5) eine Wandflächenseitenkante dafür definiert und in welcher die Schnittkante (58) durch einen Abschnitt der Wandflächenseitenkante definiert ist.

16. Schachtel, die eine Verriegelungsanordnung nach einem der Ansprüche 1 bis 15 enthält.

17. Zuschnitt zum Ausbilden einer Schachtel, wobei der Zuschnitt eine Verriegelungsanordnung nach einem der Ansprüche 1 bis 15 umfasst.

18. Schachtel nach Anspruch 16 oder Zuschnitt nach Anspruch 17, wobei die erste und die zweite Wandfläche aus den gegenüberliegenden Enden des Schachtelzuschnitts ausgestanzt sind.

Revendications

1. Un dispositif de blocage pour des panneaux comprenant un premier panneau (1), une languette de blocage (20) s’étendant depuis ledit premier panneau, un second panneau (5) ayant une partie principale (6) et une partie de guidage (7) raccordée à celle-ci le long au moins d’une ligne de pliage du panneau (8), une fente de blocage (50, 52) définie dans ledit deuxième panneau, s’étendant au moins d’un premier point disposé sur ladite partie de guidage (7) vers un deuxième point disposé sur ladite partie principale (6), un bord coupé (58) défini dans ledit deuxième panneau s’étendant au moins d’un premier point disposé sur ladite partie de guidage vers un deuxième point disposé, caractérisé en ce que ladite fente de blocage (50, 52) et ledit bord coupé (58) définissant entre eux un panneau à support (60) et en ce qu’une ligne de pliage du support (62) disposée à travers ledit panneau à support de ladite fente de blocage audit bord coupé pour l’essentiel parallèle à ladite ligne de pliage du panneau, ladite ligne de pliage du support (62) étant disposée en rapport décalé à ladite ligne de pliage du panneau par le fait que le pliage de ladite partie de guidage le long de ladite ligne de pliage de panneau fait en sorte que ladite ligne de pliage de support (62) et ledit panneau à support (60) à ladite fente de blocage au moins partiellement ouverte (50, 52) reçoivent ladite languette de blocage (20) dans celle-ci.

2. Un dispositif de blocage selon la revendication 1 dans lequel ladite languette de blocage (20) a un corps principal (40) définissant un épaulement de blocage élargi (46) disposé le long d’au moins un...
Un dispositif de blocage selon la revendication 2 dans lequel ladite languette de blocage (20) définit en plus un deuxième épaulement de blocage élargi (46) disposé le long d'au moins un bord latéral opposé de ladite languette.

Un dispositif de blocage selon la revendication 4 dans lequel ladite languette de blocage (20) définit un bord de blocage (44) formé le long dudit col (42) entre ledit épaulement de blocage et ledit premier panneau et dans lequel ladite première partie de ladite fente de blocage (50, 52) est formée de telle sorte que lorsque ladite languette de blocage est engagée avec ladite fente de blocage, ledit bord de blocage (44) et ladite première partie de ladite fente de blocage sont pour l'essentiel coincidents.

Un dispositif de blocage selon la revendication 6 dans lequel ladite languette de blocage (20) définit sur celle-ci un bord de languette de guidage s'étendant entre lesdits épaulements de blocage et dans lequel ledit corps principal de ladite languette définit une encoche d'alignement (170) s'étendant dans celle-ci depuis ledit bord de languette de guidage (148) vers une base d'encoche, ladite encoche d'alignement le long du bord de languette de guidage ayant une largeur supérieure à la distance entre lesdits deuxièmes points sur lesdites fentes de blocage (50, 52) par lequel ladite encoche d'alignement (170) coopère avec ledit panneau à support (60) pour retenir latéralement ladite languette de blocage dans lesdites fentes de blocage (50, 52).

Un dispositif de blocage selon la revendication 11 dans lequel ladite ligne de pliage du support (62) est disposée à travers ledit panneau à support (60) de ladite première fente de blocage (50) à ladite deuxième fente de blocage (52), reliant chacune desdites fentes de blocage entre les fentes respectives desdites parties d'épaulement (58) et l'intersection de ladite fente de blocage et une desdites lignes de pliage de panneau (8).

Un dispositif de blocage selon la revendication 12 dans lequel ladite ligne de pliage du support (62) est disposée à travers ledit panneau à support (60) de ladite première fente de blocage (50) à ladite deuxième fente de blocage (52), reliant chacune desdites fentes de blocage entre les fentes respectives desdites parties d'épaulement (58) et l'intersection de ladite fente de blocage et une desdites lignes de pliage de panneau (8).

Un dispositif de blocage selon la revendication 13 dans lequel ladite ligne de pliage du support (62) est disposée à travers ledit panneau à support (60) de ladite première fente de blocage (50) à ladite deuxième fente de blocage (52), reliant chacune desdites fentes de blocage entre les fentes respectives desdites parties d'épaulement (58) et l'intersection de ladite fente de blocage et une desdites lignes de pliage de panneau (8).

Un dispositif de blocage selon le(s) revendication(s) 1 à 7 comprenant en outre une deuxième ligne de pliage de panneau (8), lesdites première et deuxième lignes de pliage (8) étant colinéaires.

Un dispositif de blocage selon l'une des revendications précédentes dans lequel ledit bord coupé (58) est défini par une deuxième fente de blocage (52) formée dans ledit deuxième panneau.
les premier et deuxième panneaux sont touchés depuis les extrémités opposées de la découpe à plat de carton.