

Description

The present invention relates generally to apparatus for controlling the opening of closing of cases, especially sample cases, business luggage cases, luggage generally, or other carrying cases.

It is advantageous in carrying cases, and especially in business luggage cases (i.e. briefcases, attache cases) that some means, such as a brace or a stay, be provided to hold the case parts separated so that the user may place papers therein or take them out without the lid slamming shut. To be fully satisfactory, such a brace or stay should occupy a minimum amount of interior space of the case and should not pose a threat to the hands of the user or damage papers contained in the case during opening and closing. A well-known prior brace consists of a pair of arms pivotally interconnected, the outer ends of which are pivotally joined to the case halves such that when the case is fully open, the arms releasably lock into a straight member preventing inadvertent closing of the case. This known type of brace or stay is not completely satisfactory in that the pinching action between the two arms can tear or otherwise damage papers contained within the case, and it also can inflict injury on the fingers of the users.

GB—A—1425 of A.D. 1910 describes a metal luggage stay having an elongate slot and an opening at one end which engage with respective projections on the two parts of a case. As the case is opened and closed one projection slides along the length of the slot. The stay thus limits the extent of opening of the case. So as to tend to hold the case in its open position the projection may carry a ridged washer which seats in a groove in the stay around the further end of the slot.

US—A—2,842,278 describes a case stay which has an opening at one end mounted on a fixed pivot on one half of the case and a slot receiving a second stud mounted at a fixed point on the other case half. The second stud has an enlarged outer end, inwardly of which is located a keeper or washer having a bent extension which runs in the slot and hence stops rotation of the keeper. The stud has a diameter closely conforming to the slot width. The stud passes through the case wall and on the further side thereof there is a spring in compression about the stud so as to pull the outer end of the stud inwardly towards the case wall and thus to provide a clamping action on the stay. The stay carries projections near the further end of the slot to provide resistance to sliding of the stay and hence to tend to hold the case open.

With such an arrangement we have found that the extension of the keeper plate which rides in the slot specifically prevents rotation of the keeper plate. This tends to induce "hang-ups" or a tendency to jamming of the stud in the slot which is not conducive to smooth operation

of the device. Furthermore, the coil spring can tend to move to one side or the other and provide an uneven force tending to cock the washers which it bears against, again promoting hang-ups.

In a first aspect the present invention provides improved apparatus for controlling the opening or closing of a case as defined in claim 1 below. With such an arrangement the tendency for hang-ups is at the least very substantially reduced.

A preferred form of such apparatus includes a flat metal plate having one end pivotally connected to a stud affixed to the inner surface of one of the luggage parts end walls. The plate has an elongated curved slot received onto a stud affixed to the other case part such that when the two parts are opened or closed on each other, the stud will slide along and be guided by the slot. At the outer extremity of the slot, the metal plate is formed to provide a thickened ear immediately adjacent the end portion thereof. A spring and washer are provided on the stud exerting clamping pressure transversely of the plate as the stud moves along the slot. In use, the clamping pressure deters any tendency for the case parts to slam together. When the stud is positioned at the outer extremity of the slot, the combination of the thickened part of the plate and the spring pressure will secure it firmly in open relation.

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings of which:—

Figure 1 is a perspective view of a carrying case with a brace embodying this invention;

Figure 2 is an elevational, sectional partially fragmentary view of the case and brace of *Figure 1*;

Figure 3 is a sectional, elevational view taken along line 9—9 of *Figure 2*;

Figure 4 is a view similar to *Figure 3* showing the case parts opened part way;

Figure 5 is a front elevational, partially sectional view of that portion of the case including the brace of *Figure 1*, taken on the line 5—5 in *Figure 2*;

Figure 6 is a figure similar to *Figure 2* showing the case partially closed; and

Figure 7 is an elevational view similar to *Figures 2* and *6* showing the case entirely closed.

In *Figure 1* a typical business paper luggage case, attache case or briefcase, generally as at 10, includes a pair of luggage case parts or shells 11 and 12 related together along a common edge by a hinge 13 permitting the case parts to be closed and opened onto each other. The brace or stay 32 is interconnected adjacent the hinge 13 to the internal walls of the case end walls and serves to releasably lock the cases in the open position depicted in *Figure 1*, and during closing to provide sufficient resistance to the closing movement to prevent the case parts slamming onto each other

possibly injuring the fingers of the user. Moreover, the construction of the stay or brace 32 is such that it will tend not to pinch or tear papers contained within the case, and, in addition, the brace only takes up a minimum amount of space from the interior of the case when the case parts 11 and 12 are closed on each other.

As can be seen best in Figure 2, the brace or stay 32 includes a metal plate having a first straight-line portion 33 and a second elongated curved portion 34 integral therewith. The straight-line portion extends along an axis that is spaced outwardly of the concavity 35 of curved portion 34 thereby locating the end 36 eccentrically with respect to 33.

The curved portion 34 of the plate 32 includes an elongated slot 37 having a relatively straight-line portion extending from a position immediately adjacent the end 36 to the point 38 which has a total length of approximately one-third the entire length of the brace 32 and the centerline of which on extending outwardly of the end 36 approaches the axis through 33 at a small angle. The slot continues on past 38 in the curved portion 39 which turns toward the brace straight-line portion 33 and has a length slightly less than that of the slot straight-line portion.

The plate walls defining the slot 37 are formed at a point spaced from the slot end adjacent the brace end 36, to provide a thickened part or stop 40 which extends from one side of the general plane of the brace plate (Figures 3 and 4).

The brace straight-line portion 33 includes an opening 41 which is rotatably received onto a stud 42 affixed to the inner end wall of the case part 12 and extending inwardly of the case generally parallel to the axis of hinge 13.

A further stud 43 is fixedly secured to the inner end wall of the case part 11 adjacent to the hinge and extending generally parallel thereto. The stud 43 passes through the slot 37 and includes an oversize head 44 that prevents removal of the brace from the stud. A washer-like bearing 45 (e.g., made of nylon) received on the shank of stud 43 has a large diametral portion separating the stud head 44 from the brace plate and a smaller diametral portion 46 which extends into the slot 37. A generally flat disc-like washer 47 of diameter greater than the slot width is also positioned on the stud shank and is continuously urged against the brace plate by a coil spring 48. More particularly, the spring is compressingly carried by the stud shank with one end contacting the inner wall surface of 11 and the other end located within a suitably formed groove 49 in the face of washer 47.

In use, and beginning with the case parts 11 and 12 closed on each other as Figure 7, as the case part 11 is moved away from part 12 the brace 32 rotates on stud 42 and the other stud 40 moves along the slot 37 toward the outer brace end. On further opening movement, this

action continues until the washer 47 passes over the stop 40 (Figure 4) and is lockingly located at the slot outer end (Figures 1, 2, and 3). The exertion of the spring on the washer 47, and thus onto the brace, maintains the case in open condition until sufficient closing force is applied to move the washer 47 back over the stop 40. Also, the spring provides sufficient clamping force on the brace throughout opening as to prevent slamming of the parts together. Moreover, as a result of the brace geometry it is maintained closely adjacent the case part end walls at all times and the brace extends only minimally into the space between the abutting case part edges (cf., Figures 6 and 7).

The illustrated example shows a luggage brace for limiting the open condition of the luggage shells to a prescribed maximum, and for controlling the rate of closure of the shells on each other, so as to reduce the possibility of pinching the fingers of the user. Also, through an eccentric construction of the brace and the special shape of the slot within which a mounting stud is slidably received, the brace is prevented from moving into that case part that would normally be the lower one and in which papers, documents and the like are carried during opening and closing of the case.

Although the invention herein has been described particularly in relation to its use in a business paper case or so-called attache case, it is contemplated that it would be equally advantageous in other types of carrying cases, such as sample cases or conventional luggage. That is, wherever carrying case parts are desired to be related to one another in a manner that would prevent their being opened beyond a certain predetermined maximum and closing would be at a sufficiently slow rate as to prevent inadvertent injury to the user, the described brace in both of its versions, could be advantageously employed.

Claims

1. Apparatus for controlling the opening or closing of a case (10') having first and second case shell parts (11', 12') hinged to one another, comprising:

a plate having an elongated slot (37) of substantially uniform width, and an opening (41);

a first stud (42) affixed to an inner surface of said first case shell part (12') extending generally parallel to the hinge, which stud is rotatably received within said plate opening (41);

a second stud (43) received through the slot and located at a fixed point on an inner wall of said second case shell part (11') and terminating outwardly of said slot in an enlarged head (44); said second stud extending generally parallel to said first stud;

first bearing means (45) rotatively received on the outer end of said second stud including a

possibly injuring the fingers of the user. Moreover, the construction of the stay or brace 32 is such that it will tend not to pinch or tear papers contained within the case, and, in addition, the brace only takes up a minimum amount of space from the interior of the case when the case parts 11 and 12 are closed on each other.

As can be seen best in Figure 2, the brace or stay 32 includes a metal plate having a first straight-line portion 33 and a second elongated curved portion 34 integral therewith. The straight-line portion extends along an axis that is spaced outwardly of the concavity 35 of curved portion 34 thereby locating the end 36 eccentrically with respect to 33.

The curved portion 34 of the plate 32 includes an elongated slot 37 having a relatively straight-line portion extending from a position immediately adjacent the end 36 to the point 38 which has a total length of approximately one-third the entire length of the brace 32 and the centerline of which on extending outwardly of the end 36 approaches the axis through 33 at a small angle. The slot continues on past 38 in the curved portion 39 which turns toward the brace straight-line portion 33 and has a length slightly less than that of the slot straight-line portion.

The plate walls defining the slot 37 are formed at a point spaced from the slot end adjacent the brace end 36, to provide a thickened part or stop 40 which extends from one side of the general plane of the brace plate (Figures 3 and 4).

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A further stud 43 is fixedly secured to the inner end wall of the case part 11 adjacent to the hinge and extending generally parallel thereto. The stud 43 passes through the slot 37 and includes an oversize head 44 that prevents removal of the brace from the stud. A washer-like bearing 45 (e.g., made of nylon) received on the shank of stud 43 has a large diametral portion separating the stud head 44 from the brace plate and a smaller diametral portion 46 which extends into the slot 37. A generally flat disc-like washer 47 of diameter greater than the slot with is also positioned on the stud shank and is continuously urged against the brace plate by a coil spring 48. More particularly, the spring is compressingly carried by the stud shank with one end contacting the inner wall surface of 11 and the other end located within a suitably formed groove 49 in the face of washer 47.

In use, and beginning with the case parts 11 and 12 closed on each other as Figure 7, as the case part 11 is moved away from part 12 the brace 32 rotates on stud 42 and the other stud 40 moves along the slot 37 toward the outer brace end. On further opening movement, this

action continues until the washer 47 passes over the stop 40 (Figure 4) and is lockingly located at the slot outer end (Figures 1, 2, and 3). The exertion of the spring on the washer 47, and thus onto the brace, maintains the case in open condition until sufficient closing force is applied to move the washer 47 back over the stop 40. Also, the spring provides sufficient clamping force on the brace throughout opening as to prevent slamming of the parts together. Moreover, as a result of the brace geometry it is maintained closely adjacent the case part end walls at all times and the brace extends only minimally into the space between the abutting case part edges (cf., Figures 6 and 7).

The illustrated example shows a luggage brace for limiting the open condition of the luggage shells to a prescribed maximum, and for controlling the rate of closure of the shells on each other, so as to reduce the possibility of pinching the fingers of the user. Also, through an eccentric construction of the brace and the special shape of the slot within which a mounting stud is slidably received, the brace is prevented from moving into that case part that would normally be the lower one and in which papers, documents and the like are carried during opening and closing of the case.

Although the invention herein has been described particularly in relation to its use in a business paper case or so-called attache case, it is contemplated that it would be equally advantageous in other types of carrying cases, such as sample cases or conventional luggage. That is, wherever carrying case parts are desired to be related to one another in a manner that would prevent their being opened beyond a certain predetermined maximum and closing would be at a sufficiently slow rate as to prevent inadvertent injury to the user, the described brace in both of its versions, could be advantageously employed.

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a plate having an elongated slot (37) of substantially uniform width, and an opening (41);

a first stud (42) affixed to an inner surface of said first case shell part (12') extending generally parallel to the hinge, which stud is rotatably received within said plate opening (41);

a second stud (43) received through the slot and located at a fixed point on an inner wall of said second case shell part (11') and terminating outwardly of said slot in an enlarged head (44); said second stud extending generally parallel to said first stud;

first bearing means (45) rotatively received on the outer end of said second stud including a



portion of diameter greater than the slot width contacting the enlarged head of the second stud;

second bearing means, e.g. washer (47), of diameter greater than the slot width around the second stud with a smooth major surface facing the plate; and

a coil spring (48) on said second stud continuously resiliently urging said bearing means to provide a resilient clamping force on the plate resisting sliding of said second stud along the slot;

characterised in that the second stud (43) is fixed on the inner wall of the second case part (11'), the first bearing means (45) includes an integral second portion (46) of diameter less than the slot width received within the slot 37 for both sliding and rotative movement therealong, the second bearing means includes a recessed major surface facing away from the plate, and the coil spring (48) has one end received within the recess (49) in the second bearing means and its other end bearing against the inner wall of the second case part.

2. Apparatus as in Claim 1, characterised in that the plate portions defining the slot (37) are formed closely adjacent an end of the slot to form a stop (40) that is substantially thicker than the remainder of the plate.

3. Apparatus as in claim 1 or 2, characterised in that the plate has a straight-line portion (33) integrally related with a curved portion (39), the plate opening (41) being located in the straight-line portion and the slot (37) being located in the curved portion.

Revendications

1. Dispositif pour commander l'ouverture et la fermeture d'une boîte (10') comportant une première et une seconde parties de coque (11', 12') articulées l'une avec l'autre, comprenant:

— une plaque comportant une fente allongée (37) de largeur sensiblement uniforme et une ouverture (41);

— une première broche (42) fixée sur une surface intérieure de ladite première partie de coque (12') en s'étendant dans l'ensemble parallèlement à la charnière, ladite broche étant montée à rotation dans ladite ouverture de plaque (41);

— une seconde broche (43) engagée dans la fente et placée en un point fixe sur une paroi intérieure de ladite seconde partie de coque (11') et se terminant à l'extérieur de ladite fente par une tête élargie (44), ladite seconde broche s'étendant dans l'ensemble parallèlement à ladite première broche;

— un premier moyen d'appui (45) monté à rotation sur l'extrémité extérieure de la seconde broche et comportant une partie de diamètre supérieur à la largeur de fente en contact avec la tête élargie de la seconde broche;

— un second moyen d'appui, par exemple une rondelle (47), d'un diamètre supérieur à la

largeur de fente et entourant la seconde broche avec une grande surface lisse tournée vers la plaque; et

— un ressort hélicoïdal (48) placé sur la seconde broche et poussant de façon continue et élastique lesdits moyens d'appui pour exercer sur la plaque une force de blocage élastique s'opposant à un glissement de ladite seconde broche le long de la fente;

caractérisé en ce que la seconde broche (43) est fixée sur la paroi intérieure de la seconde partie de boîte (11'), le premier moyen d'appui (45) comprend une seconde partie intégrante (46) d'un diamètre inférieur à la largeur de fente et montée dans la fente (37) pour exécuter à la fois un mouvement de glissement et de rotation le long de celle-ci, le second moyen d'appui comprend une grande surface évidée qui est dirigée en sens opposé à la plaque, et le ressort hélicoïdal (48) comporte une extrémité engagée dans l'évidement (49) du second moyen d'appui tandis que son autre extrémité s'appuie contre la paroi intérieure de la seconde partie de boîte.

2. Dispositif selon la revendication 1, caractérisé en ce que les parties de plaque définissant la fente (37) sont profilées dans une zone étroitement adjacente à une extrémité de la fente pour former une butée (40) qui est sensiblement plus épaisse que le reste de la plaque.

3. Dispositif selon la revendication 1 ou 2, caractérisé en ce que la plaque comporte une partie rectiligne (33) liée de façon monobloc à une partie incurvée (39), l'ouverture de plaque (41) étant placée dans la partie rectiligne, et la fente (37) étant placée dans la partie incurvée.

Patentansprüche

1. Einrichtung zum Steuern des Öffnens oder Schließens eines Behälters (10'), der einen ersten und einen zweiten Schalenteil (11', 12') aufweist, die aneinander anscharniert sind, mit

einer Platte, die einen länglichen Schlitz (37) im wesentlichen gleichförmiger Breite, und eine Öffnung (41) aufweist;

einem ersten Zapfen (42), der an einer inneren Fläche des ersten Schalenteiles (12') des Behälters befestigt ist, sich im wesentlichen parallel zum Scharnier erstreckt und drehbar in der Öffnung (41) der Platte aufgenommen ist;

einem zweiten Zapfen (43), welcher durch den Schlitz geht und an einem festen Punkt an einer inneren Wand des zweiten Schalenteiles (11') des Behälters angeordnet ist und außerhalb des Schlitzes in einem vergrößerten Kopf (44) endet; und welcher im wesentlichen parallel zum ersten Zapfen verläuft;

einer ersten Lagervorrichtung (45), die am äußeren Ende des zweiten Zapfens drehbar aufgenommen ist und einen Teil mit einem Durchmesser, der größer als die Breite des Schlitzes ist, enthält, welcher den vergrößerten Kopf des zweiten Zapfens berührt;

einer zweiten Lagervorrichtung, z.B. einer



Seilagscheibe (47), die einen Durchmesser hat, der größer als die Breite des Schlitzes ist, den zweiten Zapfen umgibt und eine der Platte zugewandte glatte Hauptfläche aufweist; und

einer Schraubenfeder (48) auf dem zweiten Zapfen, die dauernd elastisch auf die Lagervorrichtung drückt, um eine elastische Klemmkraft auf die Platte auszuüben, die einem Gleiten des zweiten Zapfens längs des Schlitzes entgegenwirkt;

dadurch gekennzeichnet, daß der zweite Zapfen (43) an der inneren Wand des zweiten Behälterteiles (11') befestigt ist; daß die erste Lagervorrichtung (45) einen integralen zweiten Teil (46) mit einem Durchmesser, der kleiner als die Breite des Schlitzes ist, enthält, der sowohl für eine gleitende als auch für eine drehende Bewegung längs des Schlitzes von diesem aufgenommen wird, daß die zweite Lagervorrichtung eine vertiefte Hauptfläche aufweist, die

von der Platte weg weist, und daß die Schraubenfeder (48) mit ihren einen Ende von der Vertiefung (49) der zweiten Lagervorrichtung aufgenommen wird und mit ihren anderen Ende an der inneren Wand des zweiten Behälterteiles anliegt.

2. Einrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die den Schlitz (37) definierenden Teile der Platte nahe bei einem Ende des Schlitzes so geformt sind, daß sie einen Anschlag (40) bilden, der wesentlich dicker als der Rest der Platte ist.

3. Einrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Platte einen geradlinigen Teil (33), dem ein gebogener Teil (39) integral zugeordnet ist, aufweist, daß die Öffnung (41) der Platte im geradlinigen Teil angeordnet ist und der Schlitz (37) im gebogenen Teil angeordnet ist.



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