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(54) **A TRANSPORTABLE SAFETY BARRIER**
TRANSPORTIERBARE SICHERHEITSSPERRE
BARRIERE DE SECURITE TRANSPORTABLE

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US-A- 4 063 830 US-A- 5 531 258

- **CEN: "Child care articles - Safety barriers - Safety requirements and test methods" EUROPEAN STANDARD EN1930, vol. BSEN1930:2000, August 2000 (2000-08), Brussels**

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Description

[0001] The invention relates to a foldable safety barrier to be secured in an opening, such as a door opening, a staircase or a window, and comprising a frame having an upper cross member and a lower cross member as well as first and second lateral posts, said upper and lower cross members as well as said lateral posts being adapted to secure a covering which is defined by the upper and lower cross members as well as by the lateral posts, said upper and lower cross members consisting of two parts which are mutually displaceable so that the length of the upper and lower cross members may be adjusted, said lateral posts being provided with a hinge link to fold the lateral posts into the plane of the safety barrier.

[0002] Such safety barriers are used e.g. in connection with journeys where they may be installed in a holiday flat, a hotel room, a summer cottage, etc.

[0003] Usually, the safety barriers are based on separate pipes, typically four, which are assembled to a frame, and which, prior to assembly, are passed through casings in a square piece of fabric which, after assembly, is partly fixed round the assembled pipe frame.

[0004] This frame is raised to a vertical position, and a bolt is typically mounted at the four ends, two in each of the horizontal pipes, said bolt having a rubber-coated head mounted therein which is fixed in an opening or a door frame. This fixing subjects the frame to pressure, and when fixed sufficiently the frame is safe enough to deny children up to a certain age access to or to prevent them from falling down stairs.

[0005] The drawback of these structures is that they are very cumbersome to assemble, and their size makes it almost impossible to carry them along on journeys e.g. in trunks because of the length of the pipes.

[0006] Further, it may be difficult to comply with safety standards since, typically, it cannot be controlled whether the safety barrier is fixed sufficiently.

[0007] DE 19742636 discloses a foldable frame for door safety purposes, where the frame is composed of upper and lower cross members as well as two lateral posts. Folding takes place in that two hinge brackets are mounted in the lateral posts to allow the lateral posts to be folded inwards toward each other so that the frame occupies less space during transport. A similar frame is known from US Patent No. 5704164.

[0008] It is common to the two known frames that the outer dimensions of the hinge brackets are different from those of the lateral posts, which means that in a folded-out state the frame has shoulders which a child may use when attempting to climb over the safety barrier.

[0009] Accordingly, the object of the invention is to provide a safety barrier which is safer than the known ones.

[0010] The object of the invention is achieved by a safety barrier of the type stated in the introductory portion of claim 1 and known from US - A - 55 31258 which is characterized in that the outer dimensions of the hinge

link and the first and second lateral posts are the same in the direction parallel to the upper and lower cross members when the safety barrier is in a folded-out state, and that the outer dimensions of the hinge link and the first and second lateral posts correspond closely in the direction parallel to the shafts of the hinge link, and that the hinge links are provided with a lock which comprises two push-buttons which are spring-loaded, said lock being adapted to lock the lateral posts in a non-folded state and to release the lock when the safety barrier is to be folded together.

[0011] Hereby, the hinge links cannot be used as a support if a child tries to climb over the safety barrier, and a safety barrier is provided.

[0012] When, as stated in claim 2, the lateral posts are coupled to the hinge link by means of their separate shafts, the hinge parts of the safety barrier are easier to manufacture with outer dimensions corresponding to those of the lateral posts.

[0013] A particularly advantageous way of making the hinge links in order to improve the safety additionally is, as stated in claim 3, that the push-buttons are adapted to affect plate parts which, from a position in which they are locked against forwardly projecting parts, are moved into channels which allow the pipes to be rotated about the shafts.

[0014] The strength of safety barrier itself may be increased, if, as stated in claim 4, the upper and lower cross members are coupled to the lateral posts with four angle brackets, each angle bracket having first and second bracket parts, said first bracket part being coupled to the lateral posts, said second bracket part being coupled to the upper and lower cross members, and that fixing parts facing toward the opening are coupled to the free end of the second bracket part.

[0015] The fixing parts are expediently configured as stated in claim 5 in that the fixing parts at one end of the upper cross member are formed by a threaded rod carrying a ferrule at its free end, and at the other end by a threaded rod having a ferrule which is additionally coupled to a clamping device. This allows easy adjustment of the safety barrier.

[0016] To ensure that the safety barrier is sufficiently fixed in an opening, it is an advantage if, as stated in claim 6, a pressure indicator is additionally coupled to at least one of the bracket parts.

[0017] This pressure indicator is preferably provided in that, as stated in claim 7, it is formed by a sleeve having a thick part provided at one end which is affected by a spring element disposed in a housing, which is arranged in the bracket and consists of first and second sub-housings, and such that one end of the spring element engages the thick part of the sleeve and the other end thereof engages a shoulder in the first sub-housing, said sleeve having gripper hooks at its free end which engage the opposite side of the same shoulder in the second sub-housing, said shoulder defining the first and second sub-housings.

[0018] To fix the lower cross member effectively, it is expedient, as stated in claim 8, that the fixing parts at one end of the lower cross member are formed by a threaded rod having ferrules and at its other end by a housing having a block, said block being adapted to be moved axially out of the housing during angular displacement.

[0019] The invention will now be explained more fully with reference to the drawing, in which

fig. 1 shows a foldable safety barrier according to the invention in a folded-out state, seen from the front and before it is fixed in an opening,

fig. 2 shows the safety barrier of fig. 1, but now fixed in an opening,

fig. 3 shows the safety barrier of fig. 2 in a folded-together state, while

figs. 4a - 4e show a hinge used in the safety barrier of figs. 1 - 3 in different working positions.

[0020] Fig. 1 shows a foldable safety barrier according to the invention with parts of the safety barrier shown in section. The safety barrier consists of an upper cross member 1 and a lower cross member 2 as well as two lateral posts designated 3 and 4, respectively. The upper cross member 1 is connected with one end of the two lateral posts with the shown brackets 5 and 6, while the lower cross member is connected with the other end of the lateral posts with the shown brackets 7 and 8.

[0021] The upper and lower cross members are configured identically, and, as will be seen, they consist of two pipes designated 9 and 10 which may be inserted into each other and be secured in given positions, where one pipe in the figure, the shown pipe 9, is formed with a plurality of holes in which a button 11 with a spring load 12, positioned at one end of the pipe 10, may engage and lock the pipes 9, 10 in given positions. Suitable selection of a hole, in which the button 11 is to lock the pipes 9, 10 to each other, allows the width of the safety barrier to be adapted to a given opening, as will be explained more fully later.

[0022] As will additionally be seen, the two lateral posts 3, 4 are configured identically and consist of two pipes 13, 14 interconnected via hinge links 15, 19, said pipes being connected with the hinge parts by means of shafts 17, 18 which extend through the hinge link and which may be constructed as threaded rods, bolts and other similar shafts constructed in a known manner.

[0023] As will additionally be seen in the figure, the hinge link has a push-button 16 which, as will be explained later, is adapted to lock the two pipes 13, 14 connected with the hinge link, when the safety barrier is in a folded-out state, and to release the lock when the safety barrier is to be folded together.

[0024] It is noted that the outer dimensions of the hinge links 15, 19 correspond closely to the outer dimensions of the pipes 13, 14.

[0025] The brackets 5 - 8 are essentially identical and have two legs 26, as will be seen at the bracket 5. The leg 26 is connected with the pipe 13 on the lateral post 3 by means of a shaft which extends through the pipe 13 and the leg 26, and which may be configured as a threaded rod, bolt or the like. In the other leg, the one pipe 10 of the upper cross member is inserted into the leg. As will additionally be seen, the two legs 26 are interconnected by means of a plate member, in which holes are drilled, one of these being designated 29. These holes are intended to secure a covering member (not shown) in the area which is defined by the upper and lower cross members 1, 2 as well as by the lateral posts 3, 4, said covering being designated 28.

[0026] The figures show four brackets, of which a first bracket 6 is formed with adjustment and clamping means, while a second one 7 is just formed with clamping means. The two last ones are formed with adjustment means and optionally a pressure indicator. The adjustment means are identical in the four brackets and consist of a threaded rod (30b) which is terminated by a ferrule 30 at one end. The threaded rod cooperates either with threads provided in the bracket or with threads provided in a sleeve 32, which, as will be explained below, is intended to constitute a pressure indicator. The sleeve 32 forms part of a pressure indicator and is therefore preferably coloured, e.g. red, cf. the following.

[0027] Further, the threaded rod 30b has screwed on to it a nut 31 which is intended to lock the threaded rod in a given position, as the nut may be tightened against the sleeve 32 which is formed with a thicker part 36. As will be seen, the sleeve is movable in a housing which consists of two sub-housings designated 33 and 34. The two sub-housings are separated by a shoulder 35. The sleeve 32 is formed with a plurality of spring elements 37 which hold the sleeve in the housing 33, 34, when the spring elements are pressed into the second sub-housing.

[0028] Inside the sub-housing 33, in which the spring element 37 is positioned, it engages the shoulder 35 at its one end and the thicker part 36 of the sleeve 32 at its other end. Hereby, when the spring element 37 is not subjected to impacts, the sleeve will be locked by the spring elements which engage the shoulder. If the ferrule is subjected to pressure, the spring element will be pressed together, and the sleeve 32 will then be moved in the sub-housings 33 and 34. As will be explained later, the threaded rod, ferrule and sleeve will act as adjustment means which are equipped with a pressure indicator.

[0029] The bracket 7, which is provided with clamping means, is composed of a block 39 having an engagement face 44 which is movable in a housing 38. The movement is provided by two parallel rods 40, 41 which, at their ends, have the shown pivots 42, 43 in the housing 38 and 45, 46 on the block 39. The block operates such that

when affected by a vertical force it will rotate about the axes of rotation and be displaced in a horizontal plane out of the housing, so that the distance from the engagement face to the pivots 42, 43 is maximum.

[0030] The bracket 6, which is also formed with clamping means, cooperates with the same type of adjustment means as are explained in connection with the brackets 5 and 8, but without a pressure indicator, i.e. consists solely of a threaded rod 24 with a ferrule 25 and a lock nut. On the threaded rod behind the lock nut there is arranged a movable housing 21 having inner threads which cooperate with the threaded rod 24. The housing 21 accommodates a groove 48 in which a pin 49 provided on a part 50 of a handle 20 may slide. As will be seen, the part 50 on the handle 20 is in contact with the housing 21. The handle 20 may be moved about an axis of rotation 23. Inside the bracket, the threaded rod is connected with a spring (not shown) which pulls the threaded rod 24 and the housing 21. When the handle 20 is pressed downwards, the part 50 will displace the housing 21 and the threaded rod 24 with ferrule to the right in the figure. When the handle is horizontal, it will be locked and can be activated only after activation of a push-button 22 on the part 50 which releases a locking mechanism (not shown).

[0031] The structure of the hinge links 15 and 19 will now be explained in connection with figures 4a - 4e.

[0032] Figure 4a shows the hinge link 15 which connects the pipes 13 and 14 in fig. 1. The hinge link has two shafts of rotation designated 51 and 52 in the figures. The hinge link may be locked and opened by means of a spring-loaded push-button, as will be explained below.

[0033] A spring is arranged centrally in the hinge link and applies a force to push-buttons 53 and 54 at its free ends. The side of the push-buttons facing into the hinge link 15 engages plate parts 62, 63, which are provided with holes for the passage of the spring 55 to the push-buttons 53 and 54.

[0034] In the position shown in fig. 4b, the hinge link is locked, as the plates with their one outer arm engage forwardly projecting parts, designated 62 - 65, cf. also fig. 4c, provided in the pipes 13 and 14.

[0035] As will additionally be seen, channels 58, 59 are provided between the forwardly projecting parts 62, 64 and 63, 65, respectively.

[0036] Fig. 4e shows further details of the hinge in the direction of the arrow in fig. 4d. The shoulders 63 and 64 are formed with inclined flanks 68, 69 on which the plates 56, 57 may slide, when the legs 14, 15 are moved from the position shown in fig. 4d to the position shown in the other figures.

[0037] When the legs have been straightened completely, the plates will leave the flanks 68, 69 and click into and rest in the shown cavities 66, 67. When the safety barrier is to be folded together again, the push-buttons 53, 54 are merely activated, and then the plates 56, 57 may again be moved to the position shown in fig. 4e through the narrowed section between the cavities 66, 67 and the flanks 68, 69.

[0038] it will now be explained how the safety barrier according to the invention is used, it being assumed that the safety barrier is constructed as shown, in the folded-together state shown in fig. 3.

5 [0039] The push-buttons 53, 54 on the two hinge links are activated, following which the safety barrier is unlocked and folded out to the position shown in fig. 1. The lower cross member of the safety barrier is placed against the lower frame whose upper and lower sides are designated 66, 67 in fig. 1, while the upper part of the other side is designated 68, whereas the lower part of the other side is just shown in fig. 2. The push-buttons 11 are activated, and the pipes 9, 10 are extended as much as possible, corresponding to the opening defined by the frame, following which the two threaded rods 24, 29 with ferrules 25, 30 are adjusted to a distance which is about 3 mm from the frame. The block, too, is placed close to the frame so as to be about 3 mm from the frame. The safety barrier is now raised in the frame, and vertical pressure from above causes the lower part of the safety barrier to be fixed in the frame.

10 [0040] Then the handle 20 is activated, thereby causing fixing against the upper part of the frame. It is now checked that the sleeves 36 cannot be seen. If it turns out that they can be seen, the fixing is not great enough to comply with current regulations, and the safety barrier must be loosened from the frame, and threaded rods with ferrules must be screwed slightly further out, following which the fixing is again performed as explained above, and then the sleeve should be concealed in the brackets.

Claims

- 35 1. A foldable safety barrier to be secured in an opening, such as a door opening, a staircase or a window, and comprising a frame having an upper cross member (1) and a lower cross member (2) as well as first and second lateral posts (3,4), said upper (1) and lower (2) cross members as well as said lateral posts (3,4) being adapted to secure a covering (28) which is defined by the upper and lower cross member (1,2) as well as by the lateral posts (3,4), said upper and lower cross member (1,2) consisting of two parts which are mutually displaceable so that the length of the upper and lower cross members (1,2) may be adjusted, said lateral posts (3,4) being provided with a hinge link (15,19) to fold the lateral posts (3,4) into the plane of the safety barrier, **characterized in that**
- 40 the outer dimensions of the hinge link (15,19) and the first and second lateral posts (3,4) are the same in the direction parallel to the upper and lower cross members (1,2) when the safety barrier is in a folded-out state, and that the outer dimensions of the hinge link (15,19) and the first and second lateral posts (3,4) correspond closely in the direction parallel to the shafts (17,18) of the hinge link (15,19), and that the hinge links are provided with a lock which com-
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prises two push-buttons (53,54) which are spring-loaded, said lock being adapted to lock the lateral posts (3,4) in a non-folded state and to release the lock when the safety barrier is to be folded together.

2. A safety barrier according to claim 1, **characterized in that** the lateral posts are coupled to the hinge link by means of their separate shafts.
3. A safety barrier according to claim 1-2, **characterized in that** the push-buttons are adapted to affect plate parts which, from a position in which they are locked against forwardly projecting parts, are moved into channels which allow the pipes to be rotated about the shafts.
4. A safety barrier according to claims 1-3, **characterized in that** the upper and lower cross members are coupled to the lateral posts with four angle brackets, each angle bracket having first and second bracket parts, said first bracket part being coupled to the lateral posts, said second bracket part being coupled to the upper and lower cross members, and that fixing parts facing toward the opening are coupled to the free end of the second bracket part.
5. A safety barrier according to claim 4, **characterized in that** the fixing parts at one end of the upper cross member are formed by a threaded rod carrying a ferrule at its free end, and at the other end by a threaded rod having a ferrule which is additionally coupled to a clamping device.
6. A safety barrier according to claim 4 or 5, **characterized in that** a pressure indicator is additionally coupled to at least one of the bracket parts.
7. A safety barrier according to claim 6, **characterized in that** the pressure indicator is formed by a sleeve having a thick part provided at one end which is affected by a spring disposed in a housing, which is arranged in the bracket and which consists of first and second sub-housings, and such that one end of the spring engages the thick part of the sleeve and the other end thereof engages a shoulder in the first sub-housing, said sleeve having gripper hooks at its free end which engage the opposite side of the same shoulder in the second sub-housing, said shoulder serving to define the first and second sub-housings.
8. A safety barrier according to claims 5-7, **characterized in that** the fixing parts at one end of the lower cross member are formed by a threaded rod having a ferrule and at its other end by a housing having a block, said block being adapted to be moved axially out of the housing during angular displacement.

Patentansprüche

1. Klappbare Sicherheitsbarriere zum Einsetzen in eine Öffnung wie eine Türöffnung, in eine Treppe oder in ein Fenster, und umfassend einen Rahmen mit einem oberen Querelement (1) und einem unteren Querelement (2) sowie mit einem ersten und einem zweiten seitlichen Pfosten (3, 4), wobei das obere Querelement (1) und das untere Querelement (2) sowie die seitlichen Pfosten (3, 4) zum Befestigen einer Abdeckung (28) eingerichtet sind, die durch das obere Querelement (1) und das untere Querelement (2) sowie durch die seitlichen Pfosten (3, 4) begrenzt ist, das obere Querelement (1) und das untere Querelement (2) zwei Teile aufweisen, die gegenseitig verlagerbar sind, so dass die Länge des oberen Querelements (1) und des unteren Querelements (2) einstellbar ist, wobei die seitlichen Pfosten (3, 4) mit einem Gelenkglied (15, 19) versehen sind, um die seitlichen Pfosten (3, 4) in die Ebene der Sicherheitsbarriere zu klappen, **dadurch gekennzeichnet, dass** die äußeren Dimensionen des Gelenkgliedes (15, 19) und der ersten und zweiten seitlichen Pfosten (3, 4) in der Richtung parallel zu den oberen und unteren Querelementen (1, 2) gleich sind, wenn sich die Sicherheitsbarriere in einem ausgeklappten Zustand befindet, und dass die äußeren Dimensionen des Gelenkgliedes (15, 19) und der ersten und zweiten seitlichen Pfosten (3, 4) in der Richtung parallel zu den Achsen (17, 18) des Gelenkgliedes (15, 19) eng übereinstimmen, und dass die Gelenkglieder mit einer Verriegelung versehen sind, die zwei Drucktasten (53, 54) umfasst, die federbeaufschlagt sind, wobei die Verriegelung eingerichtet ist, um die seitlichen Pfosten (3, 4) in einem nicht zusammengeklappten Zustand zu verriegeln und die Verriegelung freizugeben, wenn die Sicherheitsbarriere zusammengeklappt werden soll.
2. Sicherheitsbarriere nach Anspruch 1, **dadurch gekennzeichnet, dass** die seitlichen Pfosten (3, 4) mit dem Gelenkglied (15, 19) mittels ihrer getrennten Achsen (17, 18) verbunden sind.
3. Sicherheitsbarriere nach einem der Ansprüche 1 bis 2, **dadurch gekennzeichnet, dass** die Drucktasten (53, 54) eingerichtet sind, um auf Plattenteile (56, 57) einzuwirken, die aus einer Position, in der sie gegen hervorstehende Teile (62-65) sperren, in Durchgänge (58, 59) bewegt werden, die ein Schwenkdrehen der Rohre (13, 14) um die Achsen (17, 18) zulassen.
4. Sicherheitsbarriere nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** das obere Querelement (1) und das untere Querelement (2) mit den seitlichen Pfosten (3, 4) mit vier Eck-Winkelstücken (5, 6, 7, 8) verbunden sind, wobei jedes Eck-Winkel-

stück (5, 6, 7, 8) erste und zweite Winkelteile aufweist, wobei das erste Winkelteil mit den seitlichen Pfosten (3, 4) und das zweite Winkelteil mit dem oberen bzw. dem unteren Querelement (1, 2) verbunden sind, und dass Befestigungsteile, die der Öffnung zugewandt sind, mit dem freien Ende des zweiten Winkelteils verbunden sind.

5. Sicherheitsbarriere nach Anspruch 4, **dadurch gekennzeichnet, dass** die Befestigungsteile an dem einen Ende des oberen Querelements (1) durch eine Gewindestange (30b) gebildet sind, die an ihrem freien Ende ein Klemmelement (30) trägt, und dass die Befestigungsteile an dem anderen Ende des oberen Querelements (1) durch eine Gewindestange (24) mit einem Klemmelement (25) gebildet sind, das zusätzlich mit einer Klemmeinrichtung verbunden ist. 5 10
6. Sicherheitsbarriere nach Anspruch 4 oder 5, **dadurch gekennzeichnet, dass** ein Druckanzeiger zusätzlich mit wenigstens einem der Winkelteile verbunden ist. 15 20
7. Sicherheitsbarriere nach Anspruch 6, **dadurch gekennzeichnet, dass** der Druckindikator durch eine Hülse (32) mit einem dicken Teil (36) an einem Ende ausgebildet ist, auf das eine Feder (37) einwirkt, die in einem Gehäuse angeordnet ist, das in dem Winkelstück (5, 8) eingerichtet ist und das ein erstes Teilgehäuse (33) und ein zweites Teilgehäuse (34) aufweist, wobei die Anordnung der Art ist, dass ein Ende der Feder (37) mit dem dicken Teil (36) der Hülse (32) in Eingriff steht und sich ihr anderes Ende in Eingriff mit einer Schulter (35) in dem ersten Teilgehäuse (33) befindet, wobei die Hülse (32) an ihrem freien Ende Greifhaken aufweist, die in Eingriff mit der gegenüberliegenden Seite derselben Schulter (35) in dem zweiten Teilgehäuse (34) stehen, wobei die Schulter (35) dazu dient, das erste Teilgehäuse (33) und das zweite Teilgehäuse (34) abzugrenzen. 25 30 35 40
8. Sicherheitsbarriere nach einem der Ansprüche 5 bis 7, **dadurch gekennzeichnet, dass** die Befestigungsteile an dem einen Ende des unteren Querelements (2) durch eine Gewindestange mit einem Klemmelement und an seinem anderen Ende durch ein Gehäuse (38) mit einem Block (39) gebildet ist, wobei der Block (39) eingerichtet ist, um während einer Winkelverlagerung axial aus dem Gehäuse (38) bewegt zu werden. 45 50

Revendications

1. Barrière de sécurité pliable à fixer dans une ouverture, telle qu'une ouverture de porte, un escalier ou une fenêtre, et comprenant un châssis comportant une traverse supérieure (1) et une traverse inférieure 55

(2) ainsi que des premier et second montants latéraux (3, 4), lesdites traverses supérieure (1) et inférieure (2) ainsi que lesdits montants latéraux (3, 4) étant adaptés pour maintenir en place un élément de couverture (28) qui est défini par les traverses supérieure et inférieure (1, 2) ainsi que par les montants latéraux (3, 4), lesdites traverses supérieure et inférieure (1, 2) étant constituées de deux parties mutuellement déplaçables de telle manière que la longueur des traverses supérieure et inférieure (1, 2) peut être ajustée, lesdits montants latéraux (3, 4) comportant une liaison articulée (15, 19) permettant de plier les montants latéraux (3, 4) dans le plan de la barrière de sécurité, **caractérisée en ce que** les dimensions extérieures de la liaison articulée (15, 19) et les premiers et second montants latéraux (3, 4) sont les mêmes dans la direction parallèle vers les traverses supérieure et inférieure (1, 2) lorsque la barrière de sécurité est dans un état replié, et **en ce que** les dimensions extérieures de la liaison articulée (15, 19) et les premier et second montants latéraux (3, 4) correspondent étroitement dans la direction parallèle aux axes respectifs (17, 18) de la liaison articulée (15, 19), et **en ce que** les liaisons articulées sont munies d'un verrou qui comprend deux boutons-poussoirs (53, 54) qui sont à rappel élastique, ledit verrou étant adapté pour verrouiller les montants latéraux (3, 4) dans un état non replié et pour être ouvert lorsque la barrière de sécurité doit être replié sur elle-même.

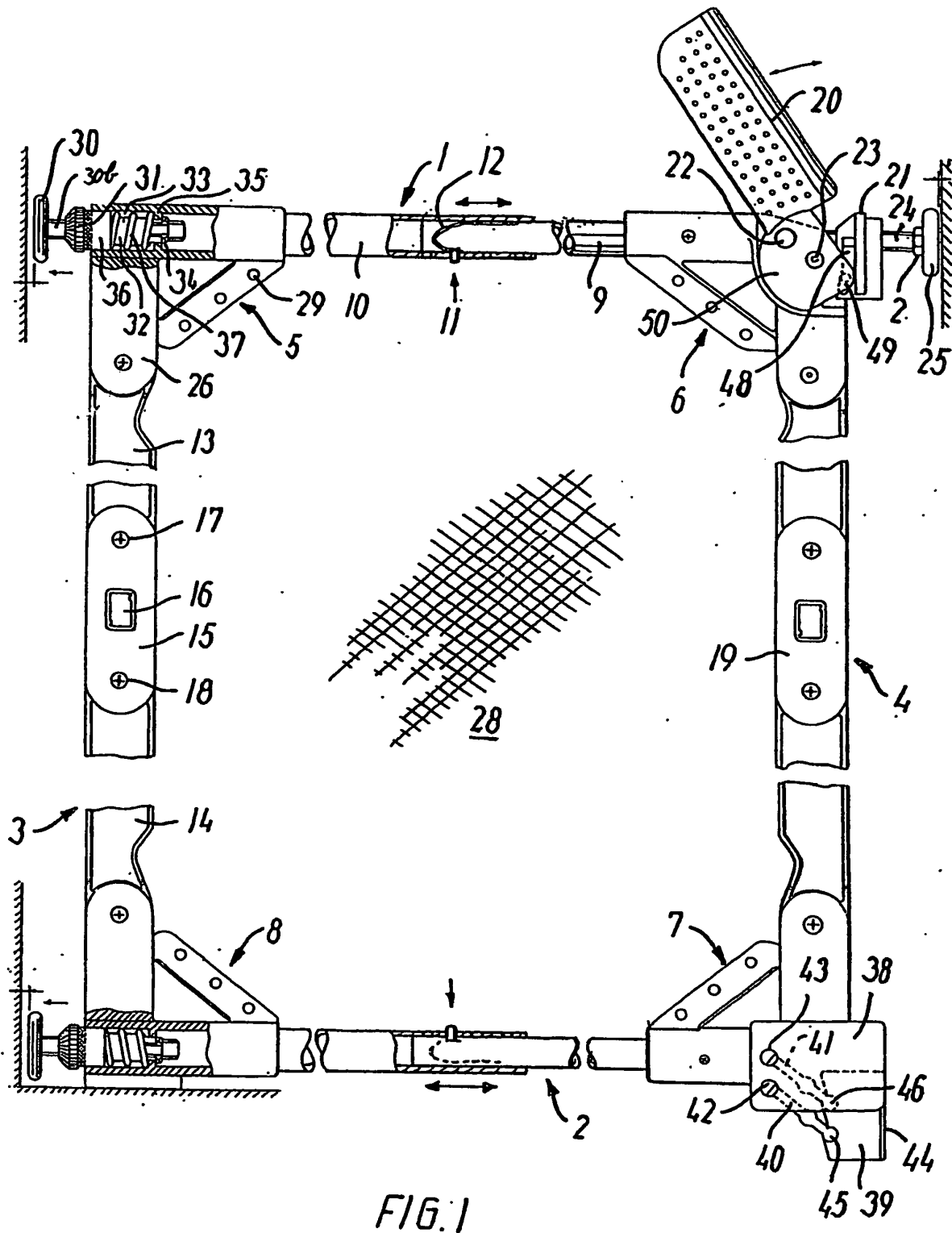
2. Barrière de sécurité selon la revendication 1, **caractérisée en ce que** les montants latéraux (3, 4) sont couplés à la liaison articulée (15, 19) au moyen de leurs axes respectifs (17, 18).
3. Barrière de sécurité selon la revendication 1-2, **caractérisée en ce que** les boutons-poussoirs (16, 53 ; 54) sont adaptés pour solliciter des plaquettes (56, 57) qui, depuis une position dans laquelle elles sont bloquées contre des parties faisant saillie vers l'avant (62-65), sont déplacées vers l'intérieur de rainures (58, 59), ce qui permet de faire tourner les tubes (13, 14) autour des axes (17, 18).
4. Barrière de sécurité selon les revendications 1-3, **caractérisée en ce que** les traverses supérieure et inférieure (1, 2) sont couplées aux montants latéraux (3, 4) par l'intermédiaire de quatre cornières d'assemblage (5, 6, 7, 8), chaque cornière d'assemblage (5, 6, 7, 8) comportant des première et seconde parties de cornière, ladite première partie de cornière étant couplée aux montants latéraux (3, 4), ladite seconde partie de cornière étant couplée aux traverses supérieure et inférieure (1, 2), et **en ce que** des éléments de fixation orientés vers l'ouverture sont couplés à l'extrémité libre de la seconde partie de cornière.

5. Barrière de sécurité selon la revendication 4, **caractérisée en ce que** les éléments de fixation situés à une extrémité de la traverse supérieure (1) sont constitués par une tige filetée (30b) portant un embout (30) à son extrémité libre, et à l'autre extrémité par une tige filetée (24) comportant un embout (25) et qui est par ailleurs couplée à un dispositif de blocage. 5
6. Barrière de sécurité selon la revendication 4 ou 5, **caractérisée en ce qu'un** indicateur de pression est par ailleurs couplé à au moins une des parties de cornière. 10
7. Barrière de sécurité selon la revendication 6, **caractérisée en ce que** l'indicateur de pression est constitué par un manchon (32) présentant une partie épaisse (36) à une extrémité qui est sollicitée par un ressort (37) disposé dans un logement, ce dernier étant ménagé dans la cornière (5, 8) et constitué d'un premier et d'un second logements secondaires (33, 34), et de telle manière qu'une extrémité du ressort (37) vienne en prise avec la partie épaisse (36) du manchon (32) et que son autre extrémité vienne en prise avec un épaulement (35) situé dans le premier logement secondaire (33), ledit manchon (32) comportant des crochets de prise à son extrémité libre qui coopèrent avec la face opposée dudit épaulement (35) situé dans le second logement secondaire (34), ledit épaulement (35) servant à définir les premier et second logements secondaires (33, 34). 15
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8. Barrière de sécurité selon les revendications 5-7, **caractérisée en ce que** les éléments de fixation sont constitués, à une extrémité de la traverse inférieure (2), par une tige filetée comportant un embout, et à son autre extrémité par un logement (38) comportant un élément de butée (39), ledit élément de butée (39) étant adapté pour être déplacé axialement hors du logement (38) par déplacement angulaire. 35
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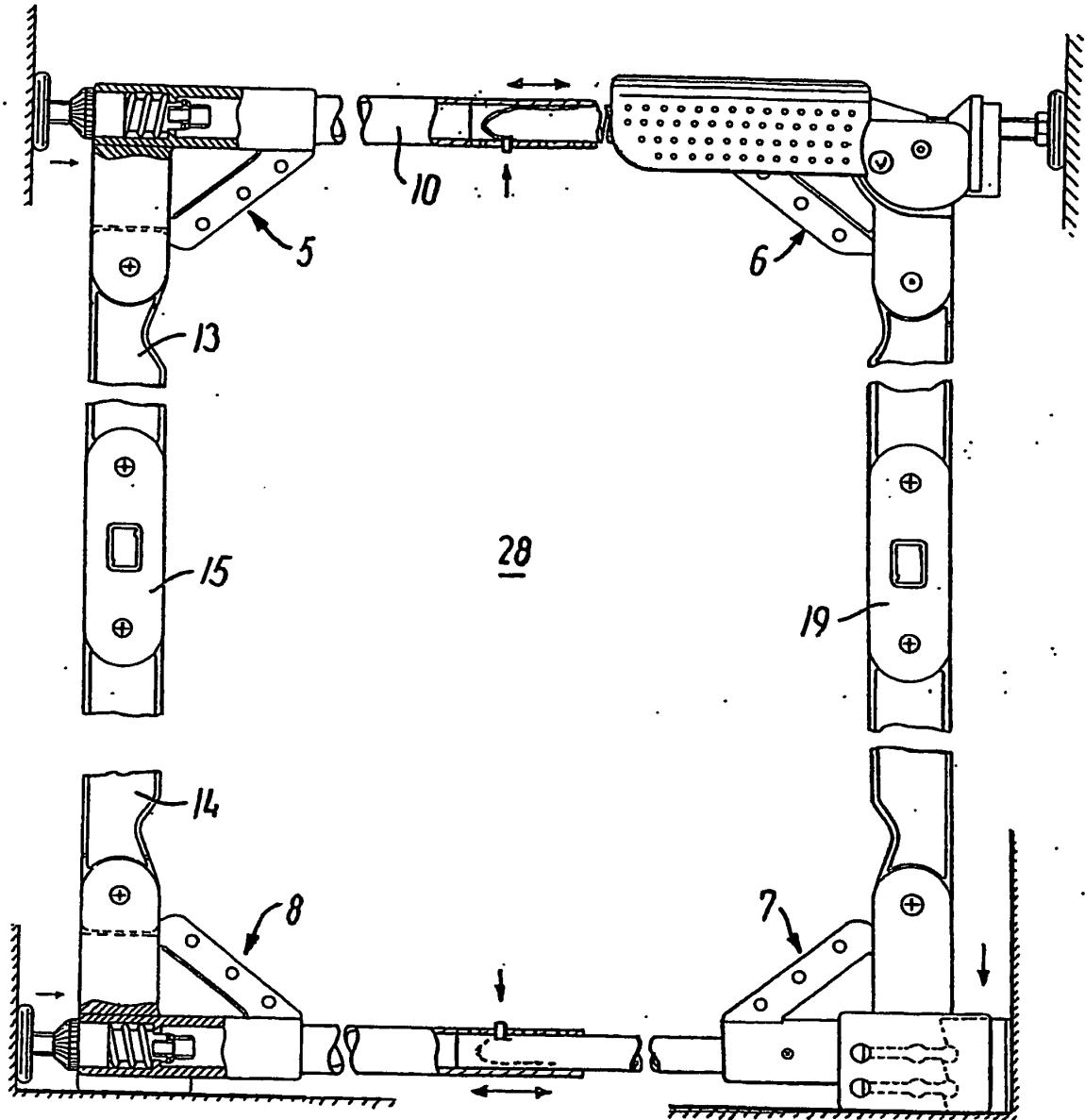
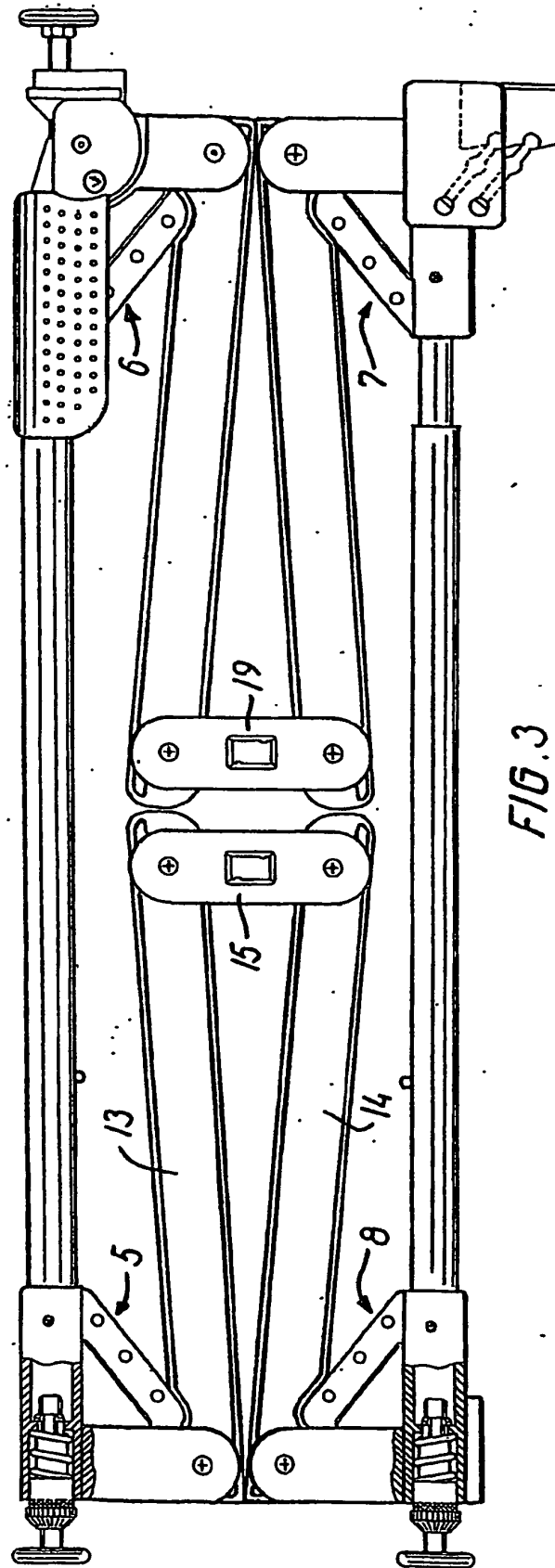


FIG. 2



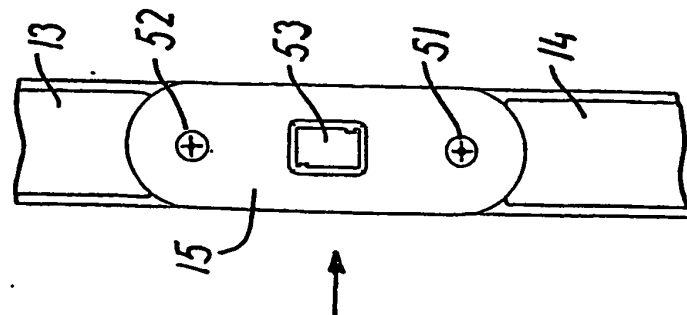


FIG. 4a

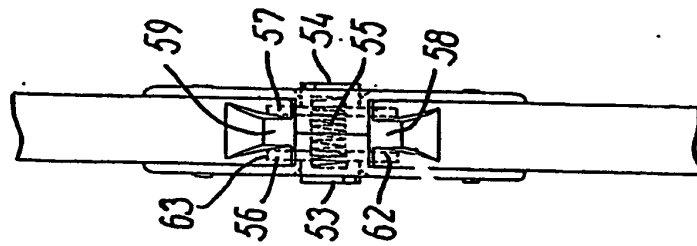


FIG. 4b

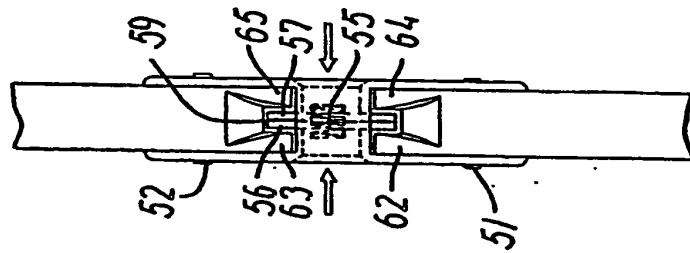


FIG. 4c

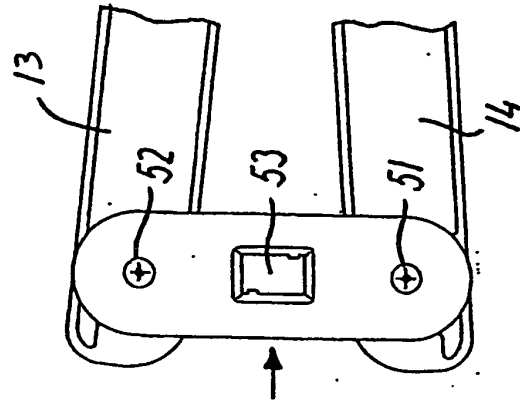


FIG. 4d

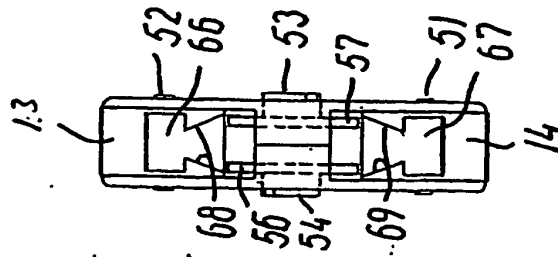


FIG. 4e

REFERENCES CITED IN THE DESCRIPTION

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