



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 0 851 959 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**17.04.2002 Bulletin 2002/16**

(51) Int Cl.7: **E04G 1/15**, B25H 1/02,  
A47B 13/06

(21) Application number: **96932091.0**

(86) International application number:  
**PCT/NO96/00223**

(22) Date of filing: **20.09.1996**

(87) International publication number:  
**WO 97/11242 (27.03.1997 Gazette 1997/14)**

(54) **UNDERFRAME FOR USE WHEN BUILDING A TEMPORARY WORK BENCH OR WORK TABLE  
AT A BUILDING SITE**

STÜTZRAHMEN FÜR DEN GEBRAUCH BEIM BAU EINER PROVISORISCHEN WERKBANK ODER  
EINES ARBEITSTISCHES AUF DER BAUSTELLE

BATI POUR UN BANC DE TRAVAIL OU UN ETABLI TEMPORAIRES, MONTES SUR UN CHANTIER

(84) Designated Contracting States:  
**AT BE CH DE DK ES FI FR GB IT LI NL SE**

(72) Inventor: **Kaasinen, Gunnar**  
**4060 Kleppe (NO)**

(30) Priority: **20.09.1995 NO 953701**

(74) Representative: **Münch, Otto, Dipl.-Ing. et al**  
**Isler & Pedrazzini AG,**  
**Patentanwälte,**  
**Postfach 6940**  
**8023 Zürich (CH)**

(43) Date of publication of application:  
**08.07.1998 Bulletin 1998/28**

(73) Proprietor: **Kaasinen, Gunnar**  
**4060 Kleppe (NO)**

(56) References cited:  
**DE-A- 4 212 158** **NO-C- 90 034**  
**US-A- 4 249 636**

**EP 0 851 959 B1**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

## Description

**[0001]** This invention relates to a work bench underframe, particularly for a temporary work bench or work table, wherein the underframe is adapted to be releasably interconnected to a table top which, preferably, is constituted by a standard pallet. Possibly, the underframe may be equipped with travelling wheels.

**[0002]** At most building sites and plants, nearly at all times, a need for temporary work benches or work tables exists, these benches and/or tables being discharged and broken up when the building works are finished. Often, standard pallets are left at the building site after use, and they are well suited as solid and dependable table tops. The pallet is nailed to an underframe consisting of legs and braces in the form of cut wooden materials. However, the result is often a quite unstable temporary work table, as could have been expected. Such a building method of providing a temporary work table is time-consuming, because the necessary working operations must be repeated in their entirety each and every time a need arises for a work table, and because it usually takes some time to find wooden materials fit for use when building an underframe.

**[0003]** NO 90034, considered herein as closest prior art reference, discloses an underframe to be used when building a table, the underframe being adapted to be hooked on a board. The underframe comprises two identical underframe parts, each consisting of an elastically compliant, w-shaped body, having freely projecting legs taking upright positions in the table's position of use. Each leg is carrying a hook-like holding means for engagement with the board. The two underframe parts are connected with each other by a spring, this spring keeping the underframe parts tight to the board.

**[0004]** US-A-4'249'636 discloses a portable and collapsible underframe to support a board, the underframe comprising three u-shaped leg structures. A first and a second of these structures are pivotally fixed to the board, the third being pivotally fixed to the first one. The table is standing on end parts of the first and third structure, the second one being pivotally connected to the first one. Furthermore, the first and second structure are connected by a safety and bracing device.

**[0005]** Therefore, an object of the present invention is to provide a prefabricated underframe shaped and designed for releasable interconnection to a table top forming member, preferably a standard pallet.

**[0006]** According to the invention, this object is realized by the fact that an underframe of the kind defined introductorily, is shaped and designed such that it exhibits the features appearing from the characterizing clause of claim 1.

**[0007]** A further object of the invention is aiming at providing an underframe of the kind concerned, capable of taking a storage/transport position, wherein each of two or more identical underframe parts substantially becomes situated in "one plane", without portions project-

ing appreciably therefrom.

**[0008]** In a general embodiment, the underframe according to the invention comprises at least two substantially identical underframe parts, each including a hoop-like member having a certain self-elasticity within the hoop plane, said hoop-like member having two free, in the position of use upright legs forming the legs of the table underframe, the hoop web forming the foot piece of the table underframe, the upright, freely projecting legs each being provided with a holding means, e.g. having an elastic clamping effect, for releasably retaining the table top which, preferably, is constituted by a pallet.

**[0009]** In order to adapt the underframe of the invention to pallets of various widths (internal measure e.g. of "Europallet" is 600 mm and of Lastepallet Sweden 850 mm), at least one articulated arm thereof may be lengthenable/shortenable, the U-hoop web being divided and made lengthenable/shortenable. These lengthenable/shortenable parts may have linear rows of holes adapted to be brought to correspond mutually, bolts serving to lock the connection between cooperating parts in adjusted position, the lengthening or shortening, respectively, of said articulated arm(s), of course, being identical to the lengthening/shortening of the U-hoop web.

**[0010]** Each of said holding means, which can have an individual, resilient clamping effect may, preferably, have the shape of an U-shaped holder. When a prefabricated work table underframe, the four legs thereof carrying such a U-shaped, possibly resilient holding or clamping means, is to be used in connection with a pallet adapted to form the work table top, the apertures of the two U-shaped holding means face in opposite directions at opposing underframe parts, gripping around the lowest but one, longitudinal, opposing members of the pallet. By "pallet members" is meant the various boards of wood from which the pallet is nailed together. In order to bring the holding means of each underframe part into engagement with said longitudinal pallet members, the spacing between the outer points of the holding means (as measured in the lateral direction of the pallet) must be brought to be less than the spacing between the opposing side edges of said longitudinal pallet members.

**[0011]** The resilience of the resilient hoop-like underframe parts, i.e. the resilience of their legs, towards and away from each other, could, in connection with a relatively rigid hoop, established and maintained the surrounding grip of the holding means around said pallet members, but it is more practical to equip each underframe part with a shortenable/lengthenable safety device, urging and keeping the holding means in a releasable engagement with the pallet's longitudinal, opposing members.

**[0012]** Such a safety device can be shaped and designed in a constructively simple way. E.g., it may be built up as a toggle joint mechanism consisting of two articulated arms, each of which, at the outer end thereof,

being articulated to the adjacent leg of the respective underframe, and wherein one articulated arm, at the other outer end thereof, is articulated to the other articulated arm at a point spaced from the end of the latter. The other articulated arm is provided with a locking means, e.g. in the form of a bolt, adapted to cooperate with a hole in the first-mentioned articulated arm when the articulated arms take their securing positions, extending in aligned orientations, in the extension of each other. In this position, the safety device urges the two legs of the respective underframe part outwardly away from each other, in order to secure the retaining grip of the U-shaped holding means thereof around said opposing pallet members.

**[0013]** When the locking means of the safety device are brought out of function, e.g. by pulling a locking pin on one articulated arm out from a locking hole in the other articulated arm, the holding means may be drawn out of its engagement with an adjacent, longitudinal pallet member by causing the hoop-like underframe part's legs to resile towards each other. Thus, the work table is disassembled and, thereafter, it is left behind a prefabricated underframe having small space demands, favouring transport and storage thereof.

**[0014]** In order to achieve a particularly stable connection between the underframe's holding means and the work table top (the pallet), the holding means may be shaped, designed and dimensioned with a certain extent laterally of the legs of the underframe parts, i.e. in the longitudinal direction of the opposing pallet members.

**[0015]** In order to reduce the space-demand of each underframe, especially with a view on said holding means, the holding means may be rotatable, at least 90°, about the longitudinal axis of the leg associated thereto.

**[0016]** In a practical embodiment of the invention, each hoop leg may carry an external telescopic pipe each carrying a holding means. Besides enabling the rotation of the holding means about the longitudinal axis of the leg associated thereto, a simple adjusting device is obtained for the vertical adjustment of the position of the underframe and, thus, of the work bench or work table. The outer sleeve of the telescopic pipe may, then, be formed with a row of adjusting holes, while the leg has one hole only.

**[0017]** When said holes correspond at an established adjustment vertically, the connection between the hoop leg and the telescopically displaceable outer sleeve is secured by means of a locking pin.

**[0018]** If one, in the lack of a pallet or for some other reason, must use a plate of one kind or another, the holding means of each underframe part are rotated through the associated telescopically displaceable and rotatable outer sleeve such that the U-apertures thereof will be facing each other. This simplifies the mounting of the plate which, quite simply, can be pushed into the opposing holders formed by the U-shaped holding means of

the underframe parts.

**[0019]** A non-restricting example of a preferred embodiment is further explained in the following, reference being made to the attached drawings, wherein:

Figure 1 is a side elevational view of one of at least two hoop-like parts including in the underframe according to the invention and shown in a mounting position wherein the underframe is in the course of being interconnected to an elongated, rectangular pallet shown from a short side thereof, in a vertical sectional view. This side elevational view, partly in section, also showing a securing and bracing mechanism in an inactive position, could, however, just as well shown an underframe part in the course of being disassembled from the pallet, the holding means in both cases being shown in positions withdrawn from their engagement with the adjacent, longitudinal pallet member, said pallet members being mutually opposed in accordance with figure 1;

Figure 2 shows a side elevational view, partly in vertical section, and corresponding to figure 1, but where each of the holding means are brought into engagement with the adjacent, longitudinal pallet member, said engagement being maintained by means of said securing and bracing mechanism which, thus, takes the active securing position thereof;

Figure 3 shows a vertical section along the line III - III in figure 2, i.e. with the pallet of figures 1 and 2 seen from one longitudinal side thereof;

Figure 4 corresponds to figure 2, but shows the holding means rotated 90°, simultaneously as the outer telescopic pipe is caused to take the lower end position thereof, thereby causing the underframe part shown to take its minimum space-demanding storage and transport condition;

Figure 5 corresponds to figure 2, but shows a modification of a work table built up on an underframe according to the invention, identical to the one shown in the preceding figures, but where the work table top here consists of a solid plate instead of the previously used pallet;

Figure 6 corresponds to figure 4, but shows an adjustable embodiment of the underframe adapted to be adjusted according to the pallet width.

**[0020]** Thus, figures 1 - 3 show the underframe according to the invention in use in association with a standard pallet, figure 4 showing an underframe part occupying a minimum space-demanding condition, while figure 5 shows the same underframe in use in association with some kind of plate instead of the pallet in figures

1 - 3.

**[0021]** First, reference is made to figures 1 - 3, in which the underframe of the invention, figure 3, is shown to comprise two identical parts 10a and 10b. As will be appreciated, especially long work benches or work tables may require support by means of more than two underframe parts. As the underframe parts 10a and 10b are identical, it is sufficient to describe one part, namely the one denoted by the reference indication 10b and appearing from all figures of the drawings.

**[0022]** The respective underframe part 10b, figures 1 and 2, comprises a substantially modified U-hoop-like, resilient body 12 having upright, freely terminating legs 14, 14' which, preferably due to the self-resilience of the hoop-body 12 in the hoop plane, can be adapted to take the diverging, inoperative position of readiness shown in figure 1, in which the free ends are spaced at a minimum distance from each other. Instead, these diverging positions of the legs 14 and 14' could have been established through manually urging the leg ends inwardly towards each other, utilizing the resilience of the hoop body 12 in the hoop plane. In order to allow the legs 14, 14' to take this preparing mounting position, a securing and bracing mechanism generally denoted by the reference numeral 16, must be brought into an inoperative position. This mechanism 16 is described later on.

**[0023]** On the outside of each leg 14, 14' and each underframe part 10a, 10b, an outer sleeve 18, 18' is telescopically displaceably disposed, each outer sleeve 18, 18' at the top carrying a U-shaped holding means 20, 20' which, possibly, may be constituted by a resilient clamp means.

**[0024]** The free end of each leg 14, 14' is indicated at 14a, 14a'.

**[0025]** For the adjusting possibility of the outer telescopic sleeve 18, 18' in the longitudinal direction of the respective leg 14, 14', the former is provided with a row of holes 22 which, in the position of use, can be brought to correspond with one of a row of holes 23 in each leg 14, 14', the connection being secured in the adjusted position by means of a lateral bolt 24. Each of the legs 14, 14' has a further, through-going hole 26, the axis thereof forming an angle of 90° with the axis of each of the holes 23. One of the holes 22 in each telescopic sleeve 18, 18' is caused to correspond to this extra hole 26 in the storage or transport position of the underframe part 10a, 10b, figure 4.

**[0026]** A short pipe piece 28, 28' on the outside of each telescopic sleeve 18, 18' is axially displaceable, but not rotatable, in relation to the latter, as well as carries a pair of bearing ears 30, 30' each for the articulated connection of one of two articulated arms 32, 32' included in the safety and bracing mechanism 16. Each of the two short pipe pieces 28, 28' has two through-going holes 34 and 36, the axes thereof crossing each other 90° angularly as well as cooperating with the locking bolt 24 in the position of use (Figures 1 through 3 and 5) and in the position of storage/transport (Figure 4), respec-

tively.

**[0027]** The tubular web 14" of the underframe part 10b is provided with vertical bores for screws 38, 38' or the like, serving as foot pieces. Possibly, the hoop web 14" may be provided with travelling wheels (not shown).

**[0028]** The two interhinged articulated arms 32, 32' of the safety and bracing mechanism 16 are such coupled to each other that one outer end of one articulated arm 32 is articulated to the other articulated arm 32' intermediate the outer ends of the latter, the articulation point being denoted at 40. The other articulated arm's 32' free end carries a coupling means in the form of a locking pin 42 or the like, for engaging into a locking hole 44 or the like provided in the first-mentioned articulated arm 32, situated intermediate the outer ends thereof.

**[0029]** When the oppositely facing holding means 20, 20' occupy the positions shown in figure 1, with the U-openings directed such that one U-branch of the holding means 20, 20' is situated above and another U-branch beneath opposing pallet members 46, 46', and the safety and bracing mechanism 16 is made operative by aligning the two articulated arms, the U-shaped holding means 20, 20' are urged in directions away from each other, so that they are caused to grip retainingly around said pallet members 46, 46', see figure 2. This interconnection of the pallet and the two underframe parts, easy to disassemble, is then established. Beforehand, one has adjusted the efficient level of the legs. Then, this efficient level is represented by the telescopic sleeves 18, 18', because they are carrying the holding means 20, 20'.

**[0030]** Figure 4 shows an underframe part 10b in storage/transport position, wherein the telescopic sleeves 18, 18' and the short pipe pieces 28, 28' are passed down to the lowermost positions on the outside of the straight portions of the legs 14, 14', simultaneously as the holding means 20, 20' are rotated 90° in relation to the operative positions, in order to let all parts occupy the same "plane". In the transport/storage position, the safety and bracing mechanism 16 may, if desirable, take an inoperative position such as shown in figure 1.

**[0031]** In figure 5, a modification of a work table according to the invention has been shown, a pallet no longer serving as the table top, but instead a plate, the underframe being the same as before. In figure 5, the holding means 20, 20' have been rotated 180° in relation to the operative position of figures 1 - 3, so that they form opposing holders. Here, an ordinary plate 48 replaces the pallet 46,46',46". The simplest way of mounting such a plate 48 is to push it rectilinearly into the holders formed by the holding means 20, 20'. An embodiment without the mechanism 16 for the case shown in figure 5, may also be used.

**[0032]** When a pallet is used as a table top, the upper leg portions 14a, 14a' may project somewhat above the upper ends of the telescopic sleeves 18, 18'. In the embodiment according to figure 5, this is not desired and, therefore, each of the telescopic sleeves 18, 18' with its

holding means 20, 20' is caused to take a position in the vertical plane, with the holding means 20, 20' situated at a higher level than in the remaining figures.

[0033] When a resilient hoop-shaped body 12 is chosen to form an underframe part 10a or 10b, respectively, based on the hoop body's 12 shape and design in combination with the inherent resilience of the used material, the shown circumferential shape of the hoop body 12 is advantageous. The shape may be considered as being developed with a starting-point in a substantially right-angled hoop having rounded corners, but where the freely projecting U-legs 14, 14' have been pressed together at a not insignificant distance from the U-hoop web 14", so that the U-hoop web 14" is connected with each rectilinear leg portion through a convexly curved bend 14b passing into a concavely curved bend 14c which, in its turn, passes uniformly into the adjacent, straight U-leg portion, figure 5.

[0034] The invention is defined by the appended claims and is not restricted to the shown embodiments and detailed shapes and designs. Thus, each underframe part 10a, 10b may alternatively be made of pipes/rods of a rigid, non-flexible material, replacing the resilient pipes/rods. In such a case, the U-hoop web 14" must be divided and provided with a joint having a horizontal rotational axis in the position of use. In such a case, the hoop body 12 may, possibly, have a more simple circumferential shape, the bend 14b, 14c in each corner being replaced by a rounded corner portion having a smaller radius than the bend 14b, 14c shown. Besides the adjustment possibility in the vertical direction, the underframe parts 10a, 10b may also be longitudinally adjustable.

[0035] Thus, in figure 6 is shown an adjustable underframe part 10b adaptable to pallets having differing widths. At least one articulated arm 32' is divided, each articulated arm part 32a', 32a" being provided with a linear row of holes 50, 50'. Two bolts 52, 52' secure the connection of the parts 32a', 32a" in the adjusted positions thereof.

[0036] The U-hoop web 14" is divided correspondingly, one tubular part 14a" being provided with a linear row of holes 54, the other tubular part 14a' of the U-hoop web 14" being provided with a connecting member 56 provided with a linear row of holes 58 as well as being insertable into and withdrawable from the U-hoop web part 14a", the holes 54 and 58 being adapted to correspond with each other for a common locking bolt 60.

## Claims

1. An underframe (10a,10b) to be used when building a work bench or work table including a table top (46,46',46"; 48), said underframe (10a,10b) comprising at least two substantially identical underframe parts (10a, 10b) each consisting of an elastically compliant, rebounding hoop-like body (12)

having freely projecting legs (14, 14') taking upright positions in the work bench's or work table's position of use, each of said legs (14, 14'), through a sleeve (18, 18') telescopically displaceable and rotatable on each leg (14, 14'), carrying a holding means (20, 20') shaped for engagement with said table top (46,46',46"; 48), said underframe part (10a,10b) carrying a safety and bracing device (16) for securing said legs (14, 14') in the operative positions thereof, with said holding means (20, 20') in active engagement with the table top (46,46',46"; 48), **characterized in that** each hoop-like body (12) is elastically compliant and rebounding in the plane thereof, exhibiting an approximately U-shape course, and that each of the holding means (20, 20') has a, in said position of use, lying U-shape, wherein upper end portions (14a, 14a') of said approximately U-shaped hoops are situated at a larger distance from the table top (46,46',46"; 48) in an inoperative position of readiness of the respective U-shaped hoop (12) than in the engagement positions of the holding means (20, 20'), the safety and bracing device (16) associated with each underframe part (10a, 10b) and adapted to secure the holding means (20, 20') in an operative engagement with the table top (46,46',46"; 48) and simultaneously brace an underframe structure, said safety and bracing device (16) comprising two interhinged, mutually rotatable and lockable articulated arms (32, 32'), the outer end of each of said articulated arms (32, 32') being linked to one of said legs (14, 14') through a pipe piece (28, 28') associated with each articulated arm (32, 32'), said pipe piece (28, 28') being longitudinally displaceably and non-rotatably disposed on the outside of each leg (14, 14') associated thereto through one of said telescopic sleeves (18, 18').

2. An underframe as set forth in claim 1, **characterized in that** each of the holding means (20, 20') exhibits a certain resilient clamping effect between U-branches thereof.

3. An underframe as set forth in claim 1 or 2, **characterized in that** the holding means (20, 20') each has a substantial extent in a horizontally extending position of use corresponding to about four/five times the diameter of the telescopic sleeves (18, 18') carrying the same and that, therefore, the rotational capability of each of the telescopic sleeves (18, 18') around the associated leg (14, 14') of the hoop body (12) may be utilized when the respective underframe part (10a, 10b) is to be brought into space-saving transport/storage position, so that the holding means (20, 20') which in an operative position extend laterally of the plane of the hoop body (12), are caused to take a position in said hoop plane.

4. An underframe as set forth in claim 1, 2 or 3, **characterized in that** one articulated arm (32) of the safety and bracing mechanism (16), at the inner end thereof, is linked to the other articulated arm (32') in a point (40) situated intermediate the ends of said other articulated arm (32'), a free end of the last-mentioned articulated arm (32') having a locking means (42) for releasable interconnection to the first-mentioned articulated arm (32) in a point between the two ends of the latter, said two articulated arms (32, 32'), in their mutually lockable position, being aligned with each other, one articulated arm (32) extending in the extension of the other (32'), corresponding to the safety and bracing mechanism's (16) operative position which it takes in the operative position of the respective underframe part (10a, 10B), the inoperative position of said mechanism (16) corresponding to the released articulated arms (32, 32') after they have rotated about the common pivot point (40) thereof, taking inclined positions.
5. An underframe as set forth in any one of the preceding claims, **characterized in that** said hoop-like body (12) which, possibly, consists of a bended pipe, has a, in the position of use substantially horizontal, hoop web (14") provided with small foot pieces in the form of underlying screw heads (38, 38') of screws or the like, screwed into said web (14").
6. An underframe as set forth in any one of the preceding claims 1-5, **characterized in that** it is provided with travelling wheels.
7. An underframe as set forth in any one of the preceding claims, **characterized in that** each of said hoop-like bodies (12) are made from pipes of a material having elastically compliant, rebounding properties, and that the hoop body (12), from a substantially rectilinear, in the position of use horizontal web portion (14"), at each end of the latter has a marked, convexly curved bend (14b) passing into a less marked, concavely curved bend (14c), each of said concave bends (14c) passing into a rectilinear portion of the adjacent leg (14, 14'), the distance between the outer points of the convexly curved bends (14b) significantly exceeding the largest distance between the legs (14, 14') in the operative positions thereof.
8. An underframe as set forth in one or more of the preceding claims 1 - 6, **characterized in that** the hoop body (12) is rigid and divided, preferably in the mid-region of the web's (14") length, where a joint connects the halves of the hoop body (12).
9. An underframe as set forth in one or more of the

preceding claims, **characterized in that** each underframe part (10, 10b) is lengthenable/shortenable in the direction of the U-hoop web (14") and fastenable in a number of differing, adjusted positions.

10. An underframe as set forth in claim 4, **characterized in that** at least one articulated arm (32') is divided, each of the two arm parts (32a', 32a") being provided with aligned, straight rows of holes (50, 50') for common locking means (52, 52'), securing the arm parts (32a', 32a") in one of a number of adjusted positions, and that the U-web (14") also is divided, one (14") of the hoop web parts (14a', 14a") being provided with a number of holes (54), the other U-hoop web part (14a') being provided with a connecting/adjusting member (56) insertable into the first-mentioned, tubular U-hoop web part (14a"), said connecting/adjusting member (56) being provided with a number of holes (58) aligned with the holes (54) of the first-mentioned U-hoop web part (14a"), at least one locking means (60) being provided, adapted for insertion into and through two corresponding, aligned holes (54, 58) in the adjusted, lengthened/shortened position of the U-hoop web (14").

#### Patentansprüche

1. Ein Untergestell (10a, 10b) für die Bildung einer Werkbank oder eines Arbeitstisches mit einer Tischplatte (46,46',46"; 48), umfassend mindestens zwei im wesentlichen identische Untergestellteile (10a, 10b), wobei jedes aus einem elastisch rückfedernden bügelförmigen Körper (12) mit zwei frei vorstehenden Beinen (14, 14') besteht, welche in der Arbeitsposition der Werkbank oder des Arbeitstisches eine aufrechte Position einnehmen, wobei jedes der Beine (14, 14') ein Haltemittel (20, 20') trägt, welches für einen Eingriff mit der Tischplatte (46,46',46"; 48) ausgebildet ist und welches mittels einer Buchse (18, 18') teleskopartig verschiebbar und auf jedem Bein (14, 14') rotierbar ist, wobei das Untergestellteil (10a,10b) ein Sicherheits- und Verstrebungselement (16) trägt zur Sicherung der Beine (14,14') in ihrer Arbeitsposition mit den Haltemitteln (20,20') im aktiven Eingriff mit der Tischplatte (46,46',46"; 48), **dadurch gekennzeichnet, dass** jeder bügelförmige Körper (12) in seiner Ebene elastisch rückfedernd ausgebildet ist, wobei er eine mindestens annähernd u-förmige Bahn beschreibt, und dass jedes der Haltemittel (20,20') in dieser Arbeitsposition eine liegende U-Form aufweist, wobei in einer nicht-operativen Bereitschaftsposition des mindestens annähernd u-förmigen Bügels (12) obere Endbereiche (14a,14a') dieses Bügels in einem grösseren Abstand von der Tischplatte (46,46',46"; 48) ange-

- ordnet sind als in der Eingriffsposition der Haltemittel (20,20'), dass das Sicherheits- und Verstrebungselement (16), welches mit jedem Untergestellteil (10a, 10b) kombiniert ist und welches zur Sicherung des Haltemittel (20,20') im operativen Eingriff mit der Tischplatte (46,46',46"; 48) ausgebildet ist und welches gleichzeitig eine Untergestellstruktur verstrebt, zwei gelenkig verbundene, miteinander rotierbare und arretierbare Gelenkarme (32,32') aufweist, wobei das äussere Ende jedes Gelenkarmes (32,32') über ein jedem Gelenkarm (32,32') zugeordnetes Rohrstück (28,28') mit einem der Beine (14,14') verbunden ist, wobei dieses Rohrstück (28,28') in Längsrichtung verschiebbar und nichtrotierbar auf der Aussenseite jedes Beines (14,14') angeordnet und mit diesem mittels einer der teleskopartig verschiebbaren Buchsen (18, 18') verbunden ist.
2. Ein Untergestell nach Anspruch 1, **dadurch gekennzeichnet, dass** jedes der Haltemittel (20,20') einen gewissen federnden Klammereffekt zwischen den U-Bereichen aufweist.
3. Ein Untergestell nach einem der Ansprüche 1 oder 2, **dadurch gekennzeichnet, dass** jedes der Haltemittel (20,20') einen substantiellen Ausdehnung in eine horizontale Arbeitsausdehnungsrichtung aufweist, wobei die Ausdehnung bis zu vier/fünf mal dem Durchmesser der dieses tragenden teleskopartigen Buchse (18,18') entspricht und dass deshalb die Rotationsfähigkeit jedes der teleskopartigen Buchsen (18,18') um das zugehörige Bein (14,14') des bügelförmigen Körpers (12) benützbar ist, wenn der entsprechende Untergestellteil (10a, 10b) in eine raumsparende Transport/Lagerposition gebracht werden soll, so dass die Haltemittel (20,20'), welche sich in einer Arbeitsposition quer zur Ebene des bügelförmigen Körpers (12) erstrecken, in eine Position in dieser Ebene des Bügels gezwungen werden.
4. Ein Untergestell nach einem der Ansprüche 1, 2 oder 3, **dadurch gekennzeichnet, dass** ein Gelenkarm (32) des Sicherheits- und Verstrebungsmechanismus (16) an seinem inneren Ende mit einem anderen Gelenkarm (32') verbunden ist in einem Punkt (40), welcher zwischen den Enden des anderen Gelenkarmes (32') angeordnet ist, wobei ein freies Ende des letztgenannten Gelenkarmes (32') ein Fixierungsmittel (42) aufweist zur lösbaren Verbindung mit dem erstgenannten Gelenkarm (32) in einem Punkt zwischen den zwei Enden des letzteren, wobei beide Gelenkarme (32,32') in ihrer gemeinsam fixierbaren Position, welche der Arbeitsposition des Sicherheits- und Verstrebungsmechanismus (16) entspricht, die in der Arbeitsposition der Untergestellteile (10a,10b) eingenommen wird, parallel zueinander ausgerichtet sind, wobei ein Gelenkarm (32) sich in der Verlängerung des anderen (32') erstreckt und wobei die Nichtarbeitsposition des Mechanismus (16) den gelösten Gelenkarmen (32,32') entspricht, nachdem sie um den gemeinsamen Drehpunkt (40) rotiert sind und geneigte Positionen angenommen haben.
5. Ein Untergestell nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der bügelförmige Körper (12), welcher insbesondere aus einem gebogenen Rohr besteht, in der Arbeitsposition ein im wesentlichen horizontales Bügelsteg (14") aufweist, welcher mit schmalen Fussstücken in der Form von unterliegenden Schraubenköpfen (38,38') von Schrauben oder ähnlichem versehen ist, die in den Steg (14") eingeschraubt sind.
6. Ein Untergestell nach einem der vorhergehenden Ansprüche 1-5, **dadurch gekennzeichnet, dass** es mit Transporträdern versehen ist.
7. Ein Untergestell nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** jedes der bügelförmigen Körper (12) aus Rohren aus einem Material gemacht ist, welches elastisch biegsame, rückstellende Eigenschaften aufweist und dass der bügelförmige Körper (12) an jedem Ende eines im wesentlichen gradlinigen, in der Arbeitsposition horizontalem Stegteil (14") eine markierte, konvexe Biegung (14b) aufweist, welche in eine mit weniger Markierungen versehene, konkave Biegung (14c) übergeht, wobei jede dieser konkaven Biegungen (14c) in einen geradlinigen Abschnitt des benachbarten Beins (14,14') übergeht, wobei der Abstand zwischen den äusseren und inneren Punkten der konvexen Biegungen (14b) den grössten Abstand zwischen den Beinen (14,14') in der Arbeitsposition signifikant übertrifft.
8. Ein Untergestell nach einem der vorhergehenden Ansprüche 1-6, **dadurch gekennzeichnet, dass** der bügelförmige Körper (12) steif und geteilt ausgebildet ist, vorzugsweise in der mittleren Region der Länge des Stegs (14"), wo eine Verbindung die zwei Hälften des bügelförmigen Körpers (12) verbindet.
9. Ein Untergestell nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** jeder Untergestellteil (10, 10b) in der Richtung des U-Bügelstegs (14") verlängerbar und verkürzbar ist und in einer Anzahl verschiedener, vorgegebener Positionen fixierbar ist.
10. Ein Untergestell nach Anspruch 4, **dadurch gekennzeichnet, dass** mindestens ein Gelenkarm

(32') unterteilt ist, wobei jeder der zwei Armteile (32a, 32a') mit ausgerichteten, geraden Reihen von Löchern (50, 50') für bekannte Verschlussmittel (52, 52') versehen ist, welche die Armteile (32a', 32a'') in einer von einer Anzahl vorgegebener Positionen sichern, und dass der U-Steg (14'') ebenfalls geteilt ist, wobei einer (14'') der Bügelstegteile (14a', 14a'') mit einer Anzahl von Löchern (54) versehen ist und wobei der andere U-Bügelstegteil (14a') mit einem Verbindungs/Justier-Element (56) versehen ist, welches in den erstgenannten rohrförmigen U-Bügelstegteil (14a'') einführbar ist, wobei dieses Verbindungs/Justier-Element (56) mit einer Anzahl von Löchern (58) versehen ist, welche in einer Linie mit den Löchern (54) des erstgenannten U-Bügelstegteil (14a'') ausgerichtet sind, wobei mindestens ein Verschlussmittel (60) vorgesehen ist, welches in der ausgerichteten, gekürzten oder verlängerten Position des U-Bügelstegs (14'') zur Einführung in und durch zwei korrespondierende ausgerichtete Löcher (54, 58) ausgebildet ist.

## Revendications

1. Châssis (10a, 10b) à utiliser lors de la construction d'un établi ou d'une table de travail incluant une tablette (46, 46', 46'' ; 48), ledit châssis (10a, 10b) comprenant au moins deux parties de châssis substantiellement identiques (10a, 10b), chacune consistant en un corps rebondissant en forme de cercle souple élastiquement (12) possédant des pieds en saillie libre (14, 14'), prenant des positions verticales dans la position d'utilisation de l'établi ou de la table de travail, chacun des pieds (14, 14'), à travers un manchon (18, 18') déplaçable télescopiquement et orientable sur chaque pied (14, 14'), supportant des moyens de retenue (20, 20') formés pour être en prise avec ladite tablette (46, 46', 46'' ; 48), ladite partie de châssis (10a, 10b) supportant un dispositif de sécurité et d'arrimage (16) pour arrimer lesdits pieds (14, 14') dans leurs positions actives, lesdits moyens de retenue (20, 20') étant en prise active avec la tablette (46, 46', 46'' ; 48),

**caractérisé en ce que** chaque corps en forme de cercle (12) est souple élastiquement et rebondit dans son plan, présentant une forme approximativement en forme de U et **en ce que** chacun des moyens de retenue (20, 20') possède, dans ladite position active, une forme en U horizontal, dans lequel les parties d'extrémité supérieure (14a, 14a') desdits cercles approximativement en forme de U sont situées à une distance plus grande de la tablette (46, 46', 46'' ; 48) dans une position de repos de disponibilité du cercle en forme de U respectif (12) que dans les positions en prise des moyens de retenue (20, 20'), le dispositif de sécurité et d'arrimage (16) est associé à chaque partie du châssis

(10a, 10b) et adapté pour arrimer les moyens de retenue (20, 20') dans une prise active avec la tablette (46, 46', 46'' ; 48) et arrime simultanément une structure de châssis, ledit dispositif de sécurité et d'arrimage (16) comprenant deux bras articulés verrouillables, pouvant être mutuellement pivotés et verrouillés (32, 32'), l'extrémité extérieure de chacun desdits bras articulés (32, 32') étant reliée à un desdits pieds (14, 14') à travers une pièce formant tuyau (28, 28') associée à chaque bras articulé (32, 32'), ladite pièce formant tuyau (28, 28') étant déplaçable longitudinalement et placée de manière à ne pas pouvoir être pivotée en dehors de chaque pied (14, 14') qui y est associé à travers un desdits manchons déplaçables télescopiquement (18, 18').

2. Châssis selon la revendication 1, **caractérisé en ce que** chacun des moyens de retenue (20, 20') présente un certain effet de préhension souple entre leurs branches en forme de U.
3. Châssis selon la revendication 1 ou 2, **caractérisé en ce que** chacun des moyens de retenue (20, 20') possède une extension substantielle dans une position d'emploi extensible horizontalement correspondant à environ quatre/cinq fois le diamètre des manchons télescopiques (18, 18') les supportant et **en ce que**, ainsi, la capacité rotative de chacun des manchons télescopiques (18, 18') autour du pied associé (14, 14') du corps en cercle (12) peut être utilisée lorsque la partie du châssis respective (10a, 10b) doit être amenée dans une position de gain d'espace pour le transport/stockage, afin que les moyens de retenue (20, 20') qui, dans une position active, s'étendent latéralement au plan du corps en cercle (12), sont forcés de prendre une position dans ledit plan en cercle.
4. Châssis selon la revendication 1, 2 ou 3, **caractérisé en ce que** un bras articulé (32) du mécanisme de sécurité et d'arrimage (16), à son extrémité intérieure, est relié à l'autre bras articulé (32') en un point (40) situé entre les extrémités dudit autre bras articulé (32'), une extrémité libre du dernier bras articulé mentionné (32') possédant des moyens de verrouillage (42) pour une interconnexion détachable au premier bras articulé mentionné (32) en un point entre les deux extrémités de ce dernier, lesdits deux bras articulés (32, 32'), dans leur position mutuellement verrouillable, étant alignés l'un par rapport à l'autre, un bras articulé (32) s'étendant dans l'extension de l'autre (32'), correspondant à la position active du mécanisme de sécurité et d'arrimage (16) qu'il prend dans la position active de la partie de châssis respective (10a, 10b), la position de repos dudit mécanisme (16) correspondant aux bras articulés détachés (32, 32') après qu'ils ont tourné autour de leur point de pivot commun (40), prenant



des positions inclinées.

5. Châssis selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit corps en forme de cercle (12) qui consiste éventuellement en un tuyau coudé, possède, dans une position d'emploi sensiblement horizontale, une âme en cercle (14'') fournie avec de petites pièces formant base sous la forme de têtes de vis sous-jacentes (38, 38') de vis ou similaires, vissées dans ladite âme (14''). 5 10
6. Châssis selon l'une quelconque des revendications précédentes 1 à 5, **caractérisé en ce qu'il** est fourni avec des galets de translation. 15
7. Châssis selon l'une quelconque des revendications précédentes, **caractérisé en ce que** chacun desdits corps en forme de cercle (12) est composé à partir de tuyaux d'un matériau possédant des propriétés souples élastiquement et rebondissantes et **en ce que** le corps en cercle (12), à partir d'une partie d'âme horizontale sensiblement rectiligne en position d'emploi (14''), à chaque extrémité de cette dernière, possède un coude marqué incurvé de manière convexe (14b) passant dans un coude moins marqué incurvé de manière concave (14c), chacun desdits coudes concaves (14c) passant dans une partie rectiligne du pied adjacent (14, 14'), la distance entre les points extérieurs des coudes incurvés de manière convexe (14b) dépassant de manière significative la distance la plus grande entre les pieds (14, 14') dans leurs positions actives. 20 25 30
8. Châssis selon une ou plusieurs des revendications précédentes 1 à 6, **caractérisé en ce que** le corps en cercle (12) est rigide et divisé, de préférence dans la région médiane de la longueur de l'âme (14''), où un joint relie les moitiés du corps en cercle (12). 35 40
9. Châssis selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** chaque partie de châssis (10, 10b) peut être allongée/ raccourcie dans la direction de l'âme en cercle en forme de U (14'') et attachée dans un nombre de positions ajustées différentes. 45
10. Châssis selon la revendication 4, **caractérisé en ce qu'au** moins un bras articulé (32') est divisé, chacune des deux parties du bras (32a', 32a'') étant fournie avec des rangées de trous alignées et droites (50, 50') pour les moyens de verrouillage communs (52, 52'), arrimant les parties du bras (32a', 32a'') dans un nombre de positions ajustées et **en ce que** l'âme en forme de U (14'') est également divisée, une des parties (14'') des parties de l'âme en cercle (14a', 14a'') étant fournie avec un nombre de trous (54), l'autre partie de l'âme en cercle en 50 55

forme de U (14a') étant fournie avec un élément formant connexion/ajustement (56) insérable dans la première partie de l'âme en cercle en forme de U mentionnée (14a''), ledit élément formant connexion/ajustement (56) étant fourni avec un nombre de trous (58) alignés avec les trous (54) de la première partie de l'âme en cercle en forme de U mentionnée (14a''), au moins un moyen de verrouillage (60) étant fourni adapté pour l'insertion dans et à travers deux trous correspondant alignés (54, 58) dans la position alignée allongée/raccourcie de l'âme en cercle en forme de U (14'').

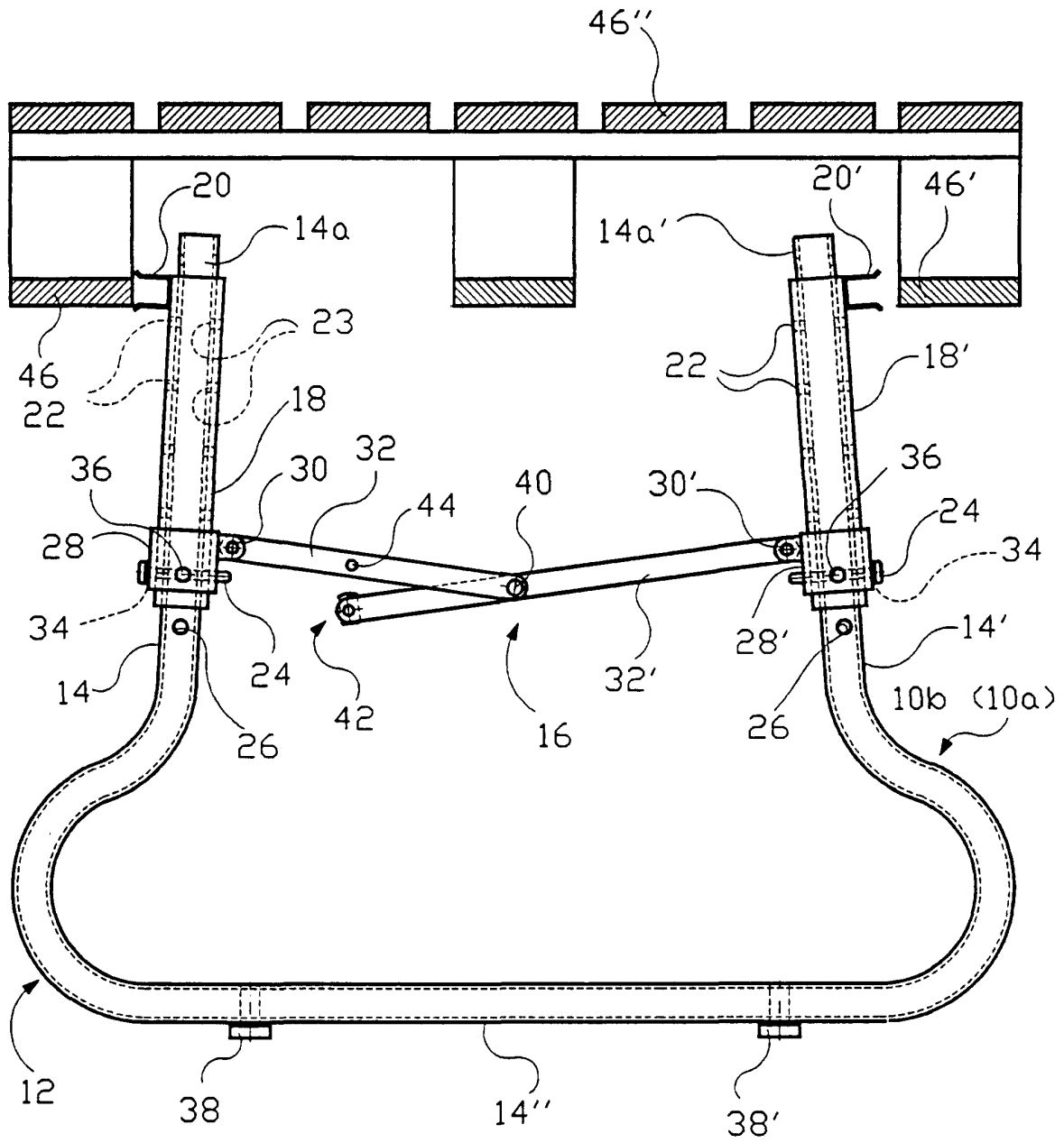


Fig. 1

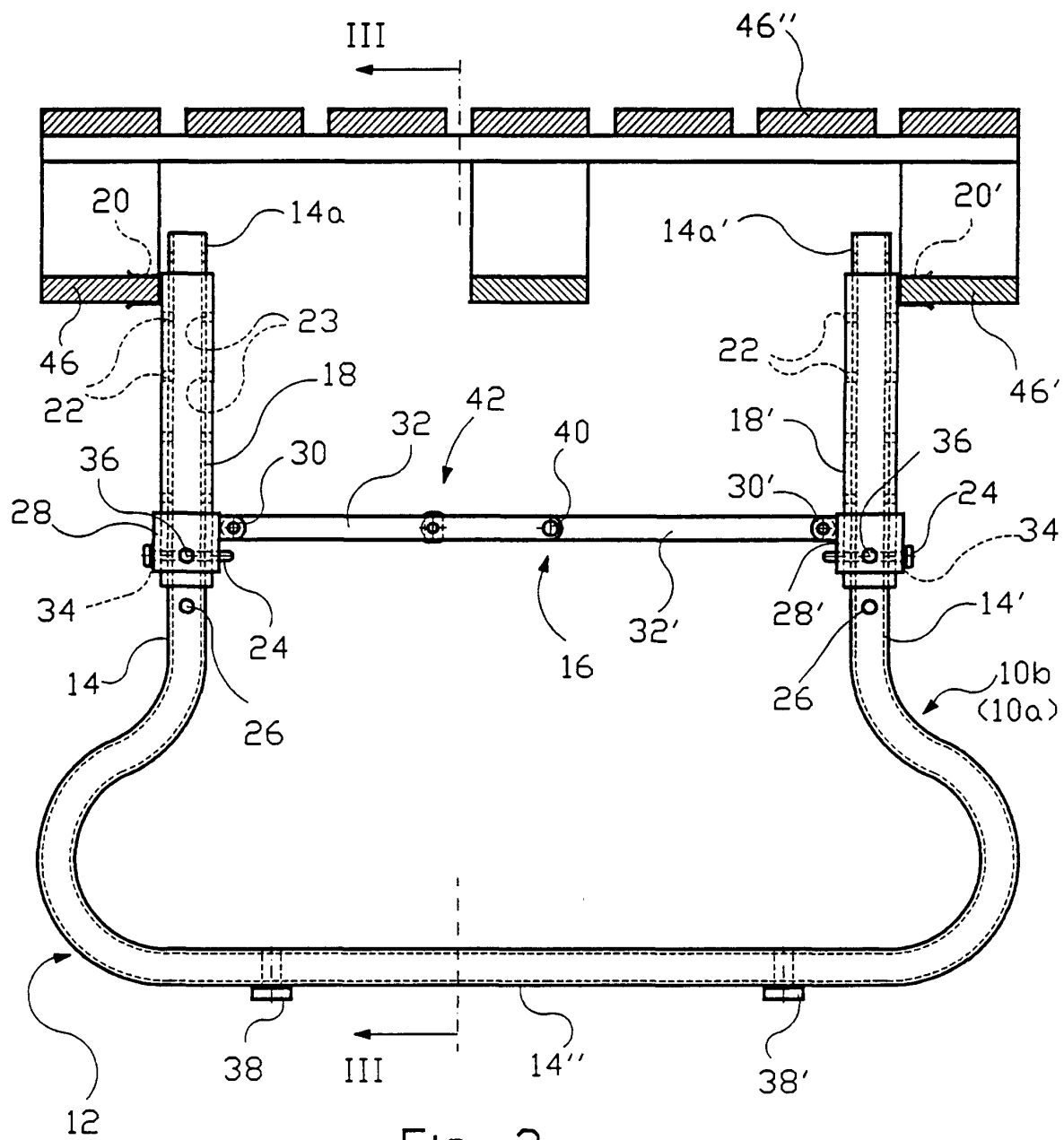


Fig. 2

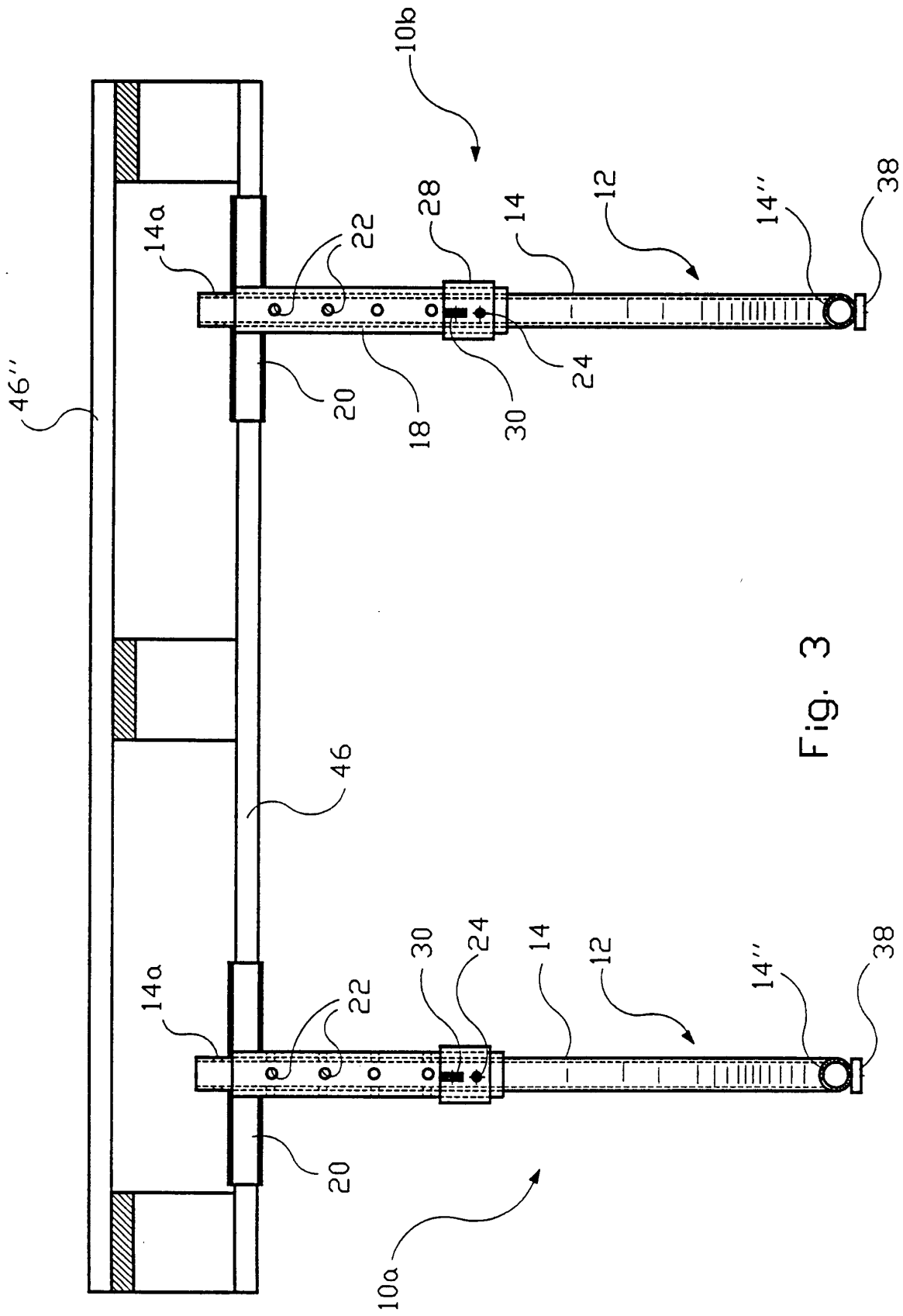


Fig. 3

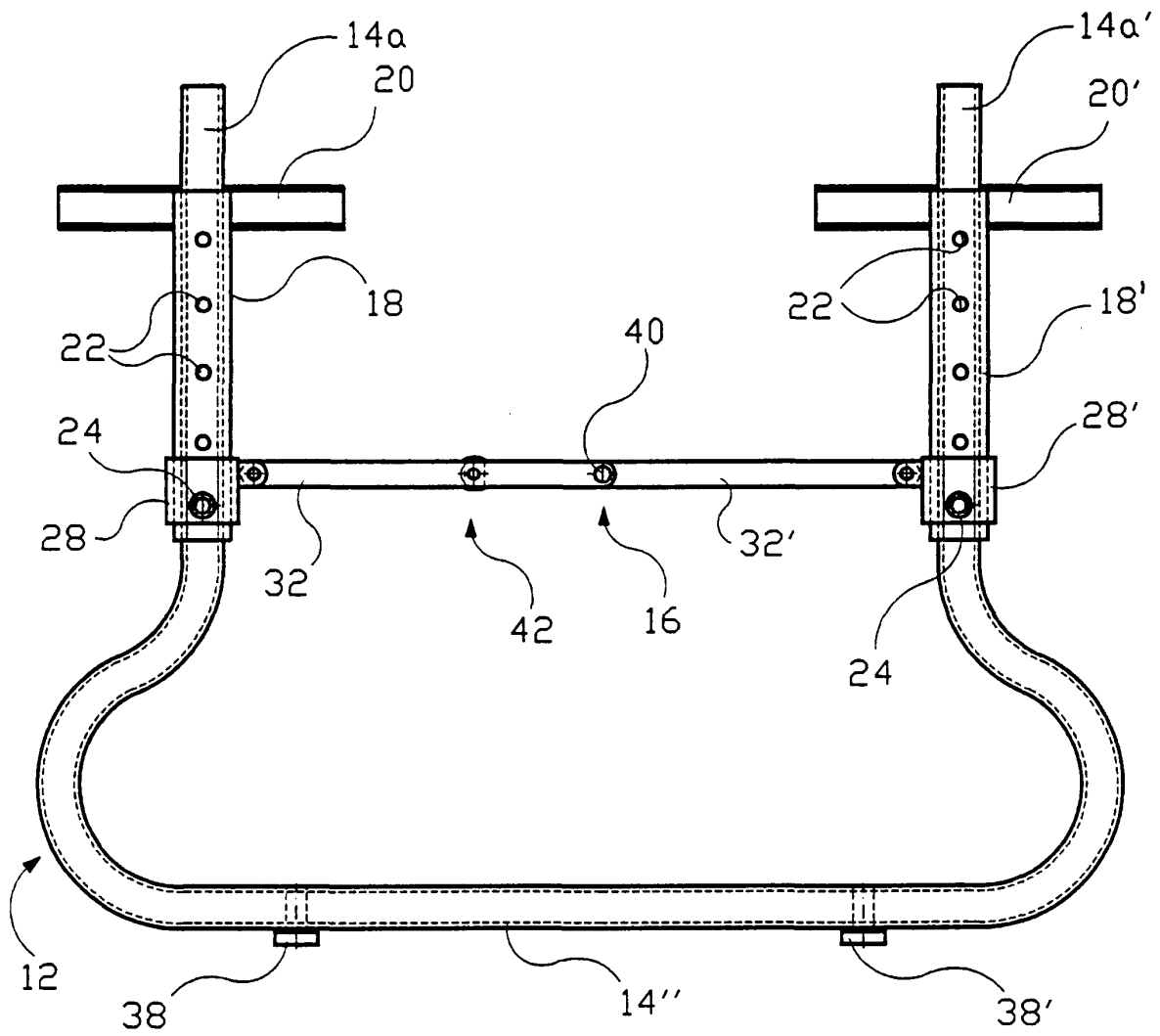


Fig. 4

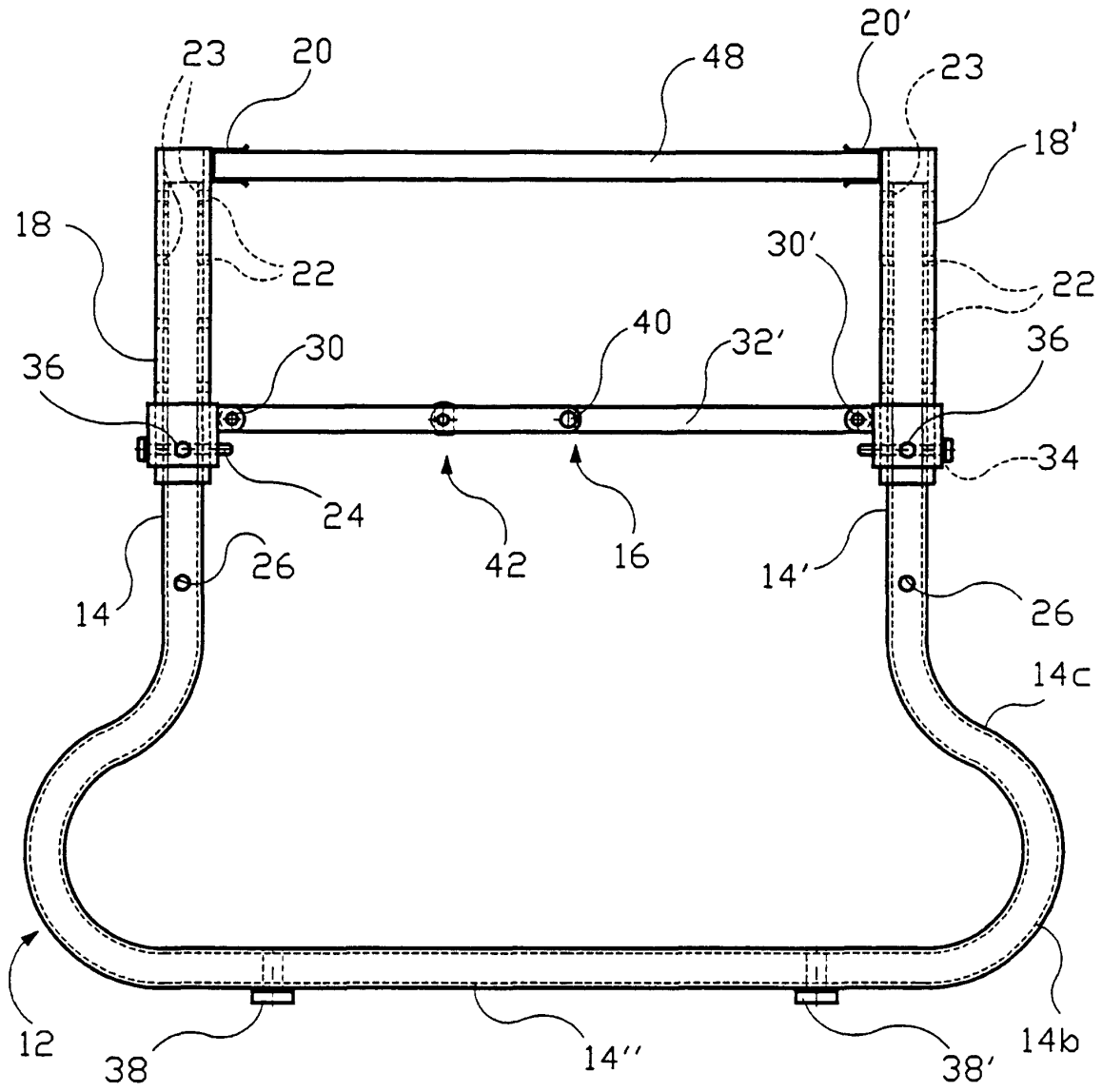


Fig. 5

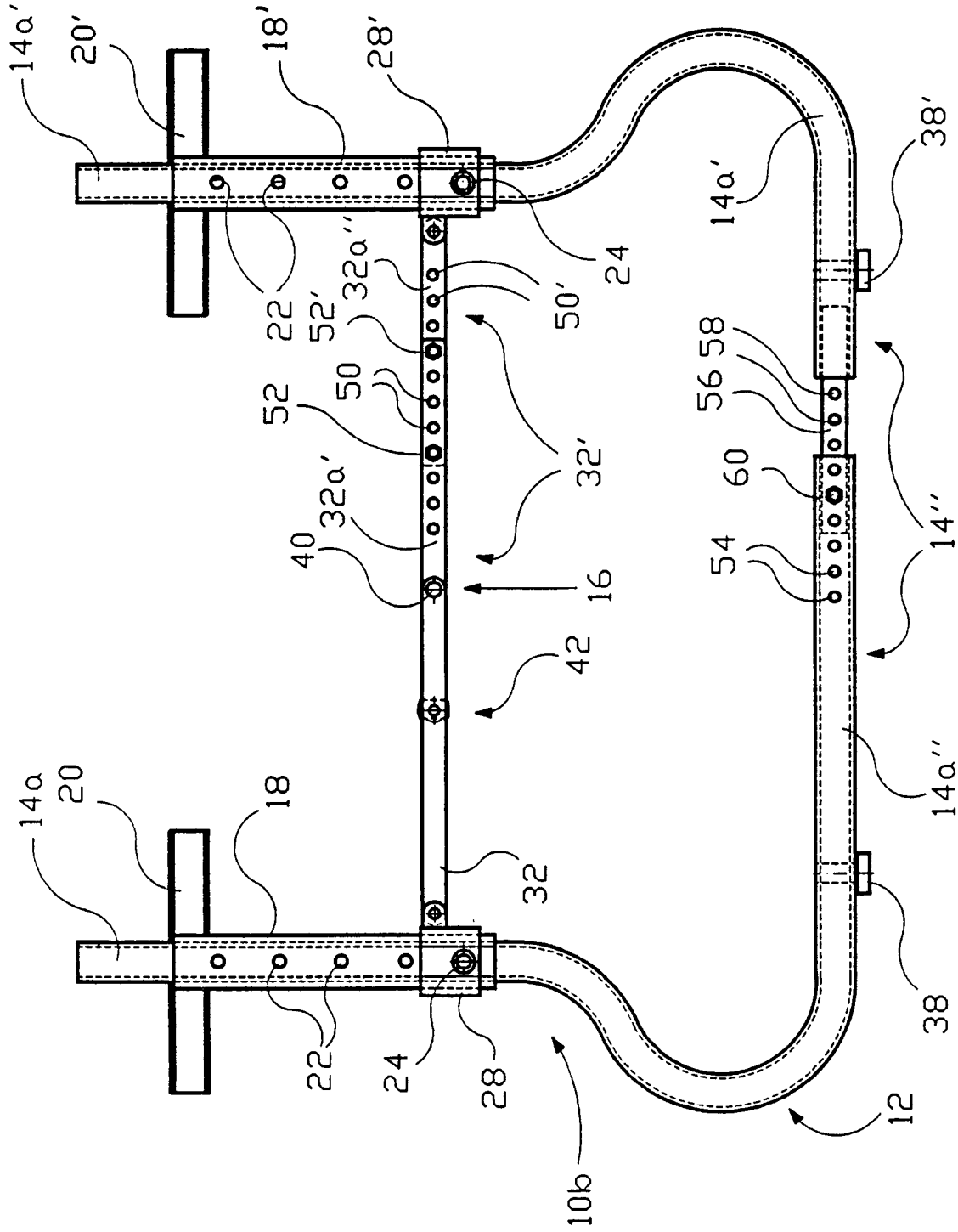


Fig. 6