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(54) **EXTENSIBLE TABLE WITH IMPROVED EXTENSION MECHANISM**

AUSZIEHBARER TISCH MIT VERBESSERTEM AUSZIEHMECHANISMUS

TABLE À RALLONGE DOTÉE D'UN MÉCANISME DE RALLONGE AMÉLIORÉ

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Description

FIELD OF INVENTION

[0001] This invention relates to an extensible table with an improved extension mechanism.

BACKGROUND OF THE INVENTION

[0002] US 2,456,835 A refers to refectory tables and more particularly to a slide mechanism whereby one or more leaves of a refectory table may be pulled out from beneath a main table top or panel and positioned to form an extension of the same.

[0003] Many current extensible tables split then separate the main top panel outwards then in one way or another replace the empty space created in the center with an extension leaf, thereby producing an extended table-top surface. One problem with this method is it involves a number of steps for the user, that is first separating the top panels, then engaging into operation the center extension leaf. Another problem is that this type of extension method does not allow for accessories that require static center portions such as pole umbrellas and the like.

[0004] Some inventions have tried to overcome this limitation by having a narrow static center top panel, and extension leafs that are engaged on both sides of this narrow center portion after the top panels on either side of this center panel have been moved away. While this method works, it is somewhat more complicated as it requires a mechanism to engage two extension leafs into place instead of just one.

[0005] Also known in the current state of the art are extensible tables with a stationary center top panel portion and foldable side panels as the extension mechanism. While these types of tables have the benefit of a stationary center portion, and are relatively less complex in terms of the mechanism, the foldable side panels require a higher degree of user input to engage the extension mechanism. Furthermore, the foldable side panels are cumbersome and need a relatively large clearance during the folding and unfolding operation. This design also typically has a lower structural integrity when extended.

[0006] Therefore, what is needed in the art is an extensible table of sturdy design that has a stationary center top panel portion with extension leafs on the side having an easy to operate extension mechanism requiring minimal user input.

[0007] A primary objective of the present invention is to provide an extensible table with a stationary center top panel portion.

[0008] Another objective of the present invention is to provide a user-friendly extension mechanism for a table that requires minimal use input.

SUMMARY OF THE INVENTION

[0009] The present invention is an extensible table that has a stationary top panel fixed to a main frame. A pair of slidable frames can be pulled away from the center of the table in a longitudinal direction and independently of each other. As each slidable frame is pulled away from the center, an extension leaf stored below the top panel slides out. When the extension leaf is fully clear of the top panel, the direction of motion of the slidable frame is reversed so that it moves towards the center of the table. This then causes the extension leaf to rise up to the same height as the top panel so that it sits flush with the top panel and a continuous table-top surface is formed. The magnitude of extension from its initial length is equal to the length of the extension leaf. To transform the table back to its initial size, each slidable frame is again pulled away from the center of the table, towing the extension leaf along with it. A guide rail located on the underside of the extension leaf drops it back to its initial height. The slidable frame is then pushed inwards again, so the extension leaf slides underneath the top panel.

[0010] In one embodiment of the present invention the extension mechanism comprises: a main frame having a stationary top panel, a lower frame providing support on a ground surface, and a pair of longitudinal side bars running along two opposing sides of main frame and located a distance below top panel; a sliding frame longitudinally slidable in relation to main frame having a pair of longitudinal side members and a cross member joining each of the side members at an outer end; an extension leaf with a pair of guide rails fixed to an underside, being able to move from an initial position whereby the extension leaf is stored underneath the stationary top panel, to an extended position whereby the extension leaf is located flush alongside the top panel thus creating a continuous table-top surface, and back to the initial position; a means of moving the extension leaf from the initial position to the extended position; and a means of moving the extension leaf from the extended position back to the initial position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

Figure 1 shows an overall view of an extensible table in an embodiment of the present invention in a contracted state.

Figure 2 shows an overall view of an extensible table in an embodiment of the present invention in an extended state.

Figure 3 shows an extension mechanism in an embodiment of the present invention in a contracted state.

Figure 4 shows an extension mechanism in an embodiment of the present invention in a extended state.

DETAILED DESCRIPTION OF THE INVENTION

[0012] It should be noted that the following detailed description is directed to an extensible table and mechanism and is not limited to any particular size, shape or configuration of the table.

[0013] Referring to Figures 1 to 4, an extensible table in an embodiment of the present invention is shown. A sliding frame (50) is pulled from an initial position in an outwards direction. A pair of guide pins (56) located on each of a pair of side members (52) fixed to two opposing sides of the sliding frame (50) engage a pair of guide rails (42) fixed to an extension leaf (40) thus pulling the extension leaf (40) outwards to a point whereby the extension leaf (40) is clear of the top panel (30) and a rotating pushing block (60). The motion of the sliding frame (50) is then reversed by pushing it inwards toward the top panel (30), thus causing the extension leaf (40) to move inwards as well, until the extension leaf (40) comes into contact with the pushing block (60) which deflects the inward motion of the extension leaf (40) and causes the extension leaf (40) to rise upwards to a height substantially equal that of the top panel (30). The inward motion of the extension leaf (40) is thus halted by the top panel (30). As the sliding frame (50) continues to be pushed inwards, the attached guide pins (56) slide along towards an inner end of the guide rails (42), said guide rails being inclined so that as the guide pins (56) are positioned at said inner end of guide rails (42) the guide pins (56) provide support for the extension leaf (40) at an elevated height substantially equal that of the top panel (30). The inwards motion of a cross member (54) located perpendicular to and joining the ends of the two side members (52) is halted by the extension leaf (40) and such that a top surface of the cross member (54) is flush with a top surface of the extension leaf (40) and a top surface of the top panel (30) thus forming a continuous table top surface in this extended state of the extensible table.

[0014] Still referring to Figures 1 to 4, in order to return the extensible table back to its initial, contracted state, the sliding frame (50) is again pulled outwards. The extension leaf (40) is held in place by a hook and does not move in a horizontal direction. The outward movement of the sliding frame (50) in relation to the stationary extension leaf (40) causes the guide pins (56) to slide along to an outer end of the guide rails (42) thus causing the extension leaf (40) to drop by the force of gravity back to its initial height. The outwards motion of the sliding frame (50) is then reversed, and it is pushed inwards before the extension leaf (40) clears the rotating pushing block (60) so that the extension leaf (40) slides back to its initial position underneath the top panel (30). The sliding frame (50) continues to move inwards until the inwards motion of the cross member (54) is halted by the top panel (30)

and such that the top surface of the cross member (54) is flush with the top surface of the top panel (30) thus forming a continuous table top surface in this contracted state of the extensible table.

[0015] The extension mechanism described here is for the extension of one side of the extensible table. In one embodiment of the present invention, there are two extension mechanisms located at opposing sides of the extensible table.

[0016] Similarly, it is understood that the extension mechanism may be used on any or all sides of the extensible table in any configuration.

[0017] While several particularly preferred embodiments of the present invention have been described and illustrated, it should now be apparent to those skilled in the art that various changes and modifications can be made without departing from the scope of the invention as defined by the following claims.

Claims

1. An extensible table comprising:

a main frame (10) having a stationary top panel (30), the main frame (10) providing support on a ground surface;
a sliding frame (50) longitudinally slidable in relation to main frame (10); and
an extension leaf (40) able to move in a reversible and repeatable fashion from an initial state wherein the extension leaf (40) is stored underneath the stationary top panel (30), to an extended state wherein the extension leaf (40) is located flush alongside the top panel (30) thus creating a continuous table-top surface wherein the extension leaf (40) is

(a) movable from the initial state to the extended state in that:

a) the sliding frame (50) is pullable in an outwards direction so that at least one guide pin (56) located on a side member (52), with two side members (52) located longitudinally on opposing ends of the slidable frame (50) engages at least one guide rail (42) fixed to the extension leaf (40) so that the extension leaf (40) slides outwards until a point whereby the extension leaf is entirely clear of the top panel (30) and a rotatable pushing block (60);
b) the sliding frame (50) is pushable inwards until the extension leaf (40) comes into contact with the pushing block (60), the pushing block (60) is adapted to deflect the inward motion of

the extension leaf (40) so that it rises up to a height substantially equal to that of the top panel (30), so that the inward motion of the extension leaf (40) is halted by the top panel (30), and the at least one guide pin (56) is slidable along and to an inner end of each of the at least one guide rail (42), the guide rail having an incline such that the positioning of the guide pin (56) at said inner end of the guide rail (42) provides support for the extension leaf (40) at this elevated height; and

c) the sliding frame (50) is further pushable inwards until the inward motion of a cross member (54) located perpendicular to and joining the ends of the two side members (52) is halted by the extension leaf (40) and such that a top surface of the cross member (54) is flush with a top surface of the extension leaf (40) and a top surface of the top panel (30) thus forming a continuous table top surface in this extended state, and/or

(b) movable from the extended state to the initial state in that:

i) the sliding frame (50) is pullable in an outwards direction, and the extension leaf (40) is held in place by a hook (70), so that the outwards motion of the sliding frame (50) in relation to the extension leaf (40) causes the at least one guide pin (56) to slide to an outer end of each of the at least one guide rail (42) so that the guide rail (42) drops down to its initial height;

ii) the outwards motion of the sliding frame (50) is reversible into an inwards motion before an inner end of the extension leaf (40) clears the pushing block (60) so that the extension leaf (40) slides to its initial position underneath the top panel (30); and

iii) the sliding frame (50) is further pushable inwards until the inward motion of the cross member (54) is halted by the top panel (30) and such that the top surface of the cross member (54) is flush with a top surface of the top panel (30) thus forming a continuous table top surface in this contracted state.

2. An extensible table according to claim 1, wherein there are two guide pins (56) engaged to two guide rails (42) on each side member (52).

3. An extensible table according to claims 1 or 2 with two opposing sides of the table extensible in this fashion and independently of each other.

Patentansprüche

1. Ausziehbarer Tisch, umfassend:

einen Hauptrahmen (10), der eine feststehende Deckplatte (30) aufweist, wobei der Hauptrahmen (10) eine Stütze auf einer Bodenfläche bereitstellt;

einen Gleitrahmen (50), der in Längsrichtung in Bezug auf den Hauptrahmen (10) verschiebbar ist; und

einen Ausziehflügel (40), der sich auf umkehrbare und wiederholbare Weise aus einem Anfangszustand, in dem der Ausziehflügel (40) unter der feststehenden Deckplatte (30) gelagert ist, in einen ausgezogenen Zustand bewegen kann, in dem der Ausziehflügel (40) bündig entlang der Deckplatte (30) angeordnet ist, um somit eine durchgehende Tischplattenoberfläche zu erzeugen, wobei der Ausziehflügel (40)

(a) dadurch aus dem Anfangszustand in den ausgezogenen Zustand beweglich ist, dass:

a) der Gleitrahmen (50) in der Weise in einer Richtung nach außen gezogen werden kann, dass wenigstens ein Führungsstift (56), der an einem Seitenelement (52) angeordnet ist, wobei zwei Seitenelemente (52) in Längsrichtung an den gegenüberliegenden Enden des verschiebbaren Rahmens (50) angeordnet sind, mit wenigstens einer Führungsschiene (42) in Eingriff gelangt, die an dem Ausziehflügel (40) befestigt ist, so, dass der Ausziehflügel (40) bis zu einem Punkt, an dem der Ausziehflügel vollständig von der Deckplatte (30) und von einem drehbaren Schubblock (60) frei ist, nach außen gleitet;

b) der Gleitrahmen (50) nach innen geschoben werden kann, bis der Ausziehflügel (40) mit dem Schubblock (60) in Berührung kommt, wobei der Schubblock (60) dafür ausgelegt ist, die Bewegung des Ausziehflügels (40) nach innen in der Weise abzulenken, dass er auf eine Höhe aufsteigt, die im Wesentlichen gleich der der Deckplatte (30) ist, sodass die Bewegung des Ausziehflügels (40) nach innen durch die

Deckplatte (30) gehalten wird, und wobei der wenigstens eine Führungsstift (56) entlang und bis zu einem inneren Ende jeder der wenigstens einen Führungsschiene (42) verschiebbar ist, wobei die Führungsschiene eine Nei-

c) der Gleitrahmen (50) weiter nach innen geschoben werden kann, bis die Bewegung einer Querstrebe (54), die senkrecht zu den zwei Seitenelementen (52) angeordnet ist und die Enden der zwei Seitenelemente (52) verbindet, nach innen durch den Ausziehflügel (40) gehalten wird, und sodass eine Deckfläche der Querstrebe (54) mit einer Deckfläche des Ausziehflügels (40) bündig ist und somit eine Deckfläche der Deckplatte (30) in diesem ausgezogenen Zustand eine durchgängige Tischplattenoberfläche bildet, und/oder

(b) dadurch aus dem ausgezogenen Zustand in den Anfangszustand beweglich ist, dass:

i) der Gleitrahmen (50) in einer Richtung nach außen gezogen werden kann und der Ausziehflügel (40) durch einen Haken (70) in der Weise an seiner Stelle gehalten wird, dass die Bewegung des Gleitrahmens (50) in Bezug auf den Ausziehflügel (40) nach außen veranlasst, dass der wenigstens eine Führungsstift (56) zu einem äußeren Ende jeder der wenigstens einen Führungsschiene (42) gleitet, sodass die Führungsschiene (42) auf ihre Anfangshöhe fällt;

ii) die Bewegung des Gleitrahmens (50) nach außen in eine Bewegung nach innen umkehrbar ist, bevor ein inneres Ende des Ausziehflügels (40) von dem Schubblock (60) frei ist, sodass der Ausziehflügel (40) in seine Anfangsstellung unter der Deckplatte (30) gleitet; und

iii) der Gleitrahmen (50) ferner nach innen geschoben werden kann, bis die Bewegung der Querstrebe (54) nach innen durch die Deckplatte (30) gehalten wird, und sodass die Deckfläche

der Querstrebe (54) in diesem eingezogenen Zustand mit einer Deckfläche der Deckplatte (30) bündig ist und somit eine durchgängige Tischplattenoberfläche bildet.

2. Ausziehbarer Tisch nach Anspruch 1, bei dem es an jedem Seitenelement (52) zwei Führungsstifte (56) gibt, die mit zwei Führungsschienen (42) in Eingriff sind.
3. Ausziehbarer Tisch nach Anspruch 1 oder 2, bei dem zwei gegenüberliegende Seiten des Tisches auf diese Weise und unabhängig voneinander ausziehbar sind.

Revendications

1. Table à rallonge comprenant :

un châssis principal (10) ayant un panneau supérieur fixe (30), le châssis principal (10) fournissant le support sur une surface de sol ;

un châssis coulissant (50) pouvant coulisser longitudinalement par rapport au châssis principal (10) ; et

une rallonge (40) pouvant se déplacer d'une manière réversible et à volonté à partir d'un état initial dans lequel la rallonge (40) est rangée au-dessous du panneau supérieur fixe (30), jusqu'à un état étendu dans lequel la rallonge (40) est positionnée de niveau le long du panneau supérieur (30) créant une surface supérieure de table continue, dans laquelle la rallonge (40) est :

(a) mobile à partir d'un état initial jusqu'à un état étendu, en ce que :

a) le châssis coulissant (50) peut être tiré dans une direction vers l'extérieur de sorte qu'au moins une broche de guidage (56) positionnée sur un élément latéral (52), avec deux éléments latéraux (52) positionnés longitudinalement sur les extrémités opposées du châssis coulissant (50), met en prise au moins un rail de guidage (42) fixé sur la rallonge (40) de sorte que la rallonge (40) coulisse vers l'extérieur jusqu'à un point, moyennant quoi la rallonge est entièrement dégagée du panneau supérieur (30) et d'un bloc de poussée rotatif (60) ;

b) le châssis coulissant (50) peut être poussé vers l'intérieur jusqu'à ce que la rallonge (40) vienne en contact avec

le bloc de poussée (60), le bloc de poussée (60) est adapté pour dévier le mouvement vers l'intérieur de la rallonge (40) de sorte qu'elle remonte jusqu'à une hauteur sensiblement égale à celle du panneau supérieur (30), de sorte que le mouvement vers l'intérieur de la rallonge (40) est arrêté par le panneau supérieur (30), et la au moins une broche de guidage (56) peut coulisser le long de et vers une extrémité interne de chacun du au moins un rail de guidage (42), le rail de guidage ayant une inclinaison de sorte que le positionnement de la broche de guidage (56) au niveau de ladite extrémité interne du rail de guidage (42) fournit le support pour la rallonge (40) à cette hauteur élevée ; et

c) le châssis coulissant (50) peut en outre être poussé vers l'intérieur jusqu'à ce que le mouvement vers l'intérieur d'une traverse (54) positionnée perpendiculairement à et assemblant les extrémités de deux éléments latéraux (52), soit arrêté par la rallonge (40), de sorte qu'une surface supérieure de la traverse (54) est de niveau avec une surface supérieure de la rallonge (40) et une surface supérieure du panneau supérieur (30) formant ainsi une surface supérieure de table continue dans son état étendu, et/ou

(b) mobile à partir de l'état étendu jusqu'à l'état initial en ce que :

- i) le châssis coulissant (50) peut être tiré dans une direction vers l'extérieur, et la rallonge (40) est maintenue en place par un crochet (70), de sorte que le mouvement vers l'extérieur du châssis coulissant (50) par rapport à la rallonge (40) amène la au moins une broche de guidage (56) à coulisser vers une extrémité externe de chacun dudit au moins un rail de guidage (42) de sorte que le rail de guidage (42) chute de sa hauteur initiale ;
- ii) le mouvement vers l'extérieur du châssis coulissant (50) est réversible en mouvement vers l'intérieur avant qu'une extrémité interne de la rallonge (40) ne se dégage du bloc de poussée (60) de sorte que la rallonge (40) coulissera jusqu'à sa position initiale au-dessous du panneau supérieur (30) ; et
- iii) le châssis coulissant (50) peut en

outre être poussé vers l'intérieur jusqu'à ce que le mouvement vers l'intérieur de la traverse (54) soit arrêté par le panneau supérieur (30) de sorte que la surface supérieure de la traverse (54) est de niveau avec une surface supérieure du panneau supérieur (30) formant ainsi une surface supérieure de table continue dans cet état contracté.

2. Table à rallonge selon la revendication 1, dans laquelle on trouve deux broches de guidage (56) mises en prise avec deux rails de guidage (42) sur chaque élément latéral (52).
3. Table à rallonge selon les revendications 1 ou 2, avec deux côtés opposés de la table extensible de cette manière et indépendamment l'un de l'autre.

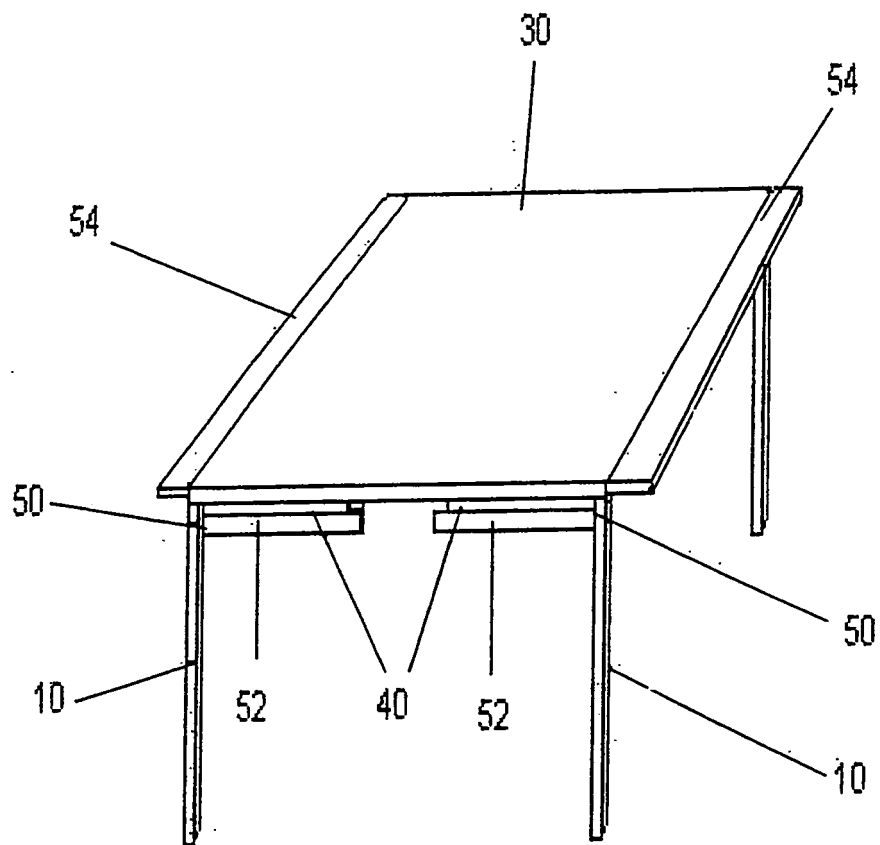


Figure 1

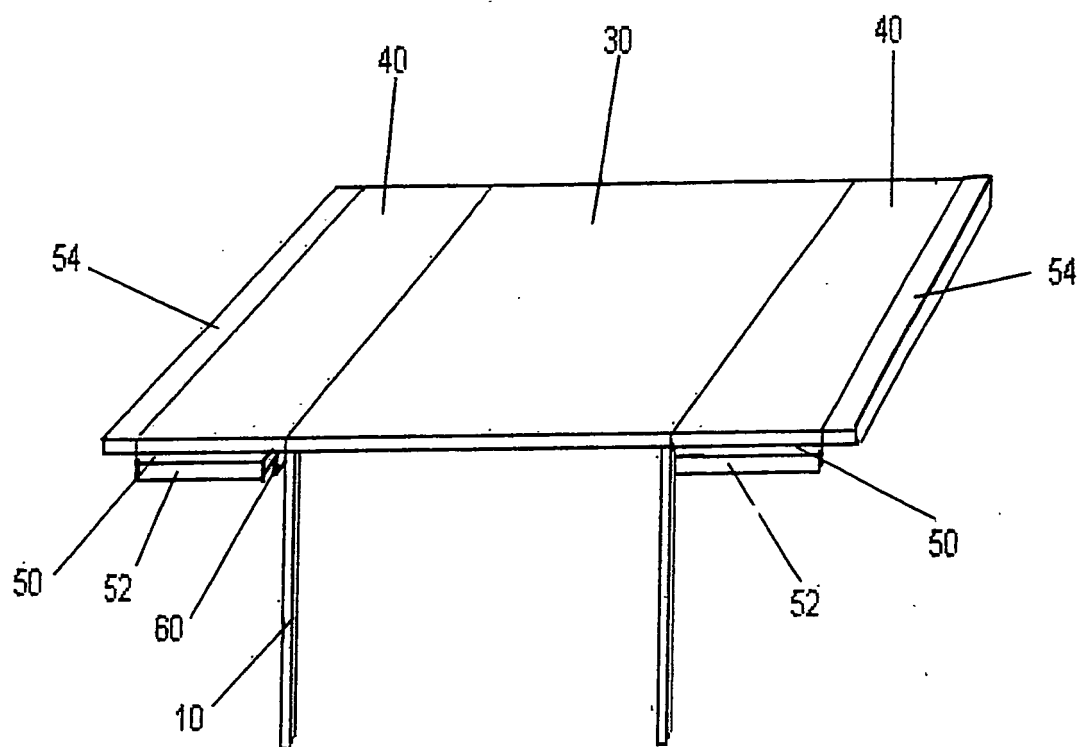


Figure 2

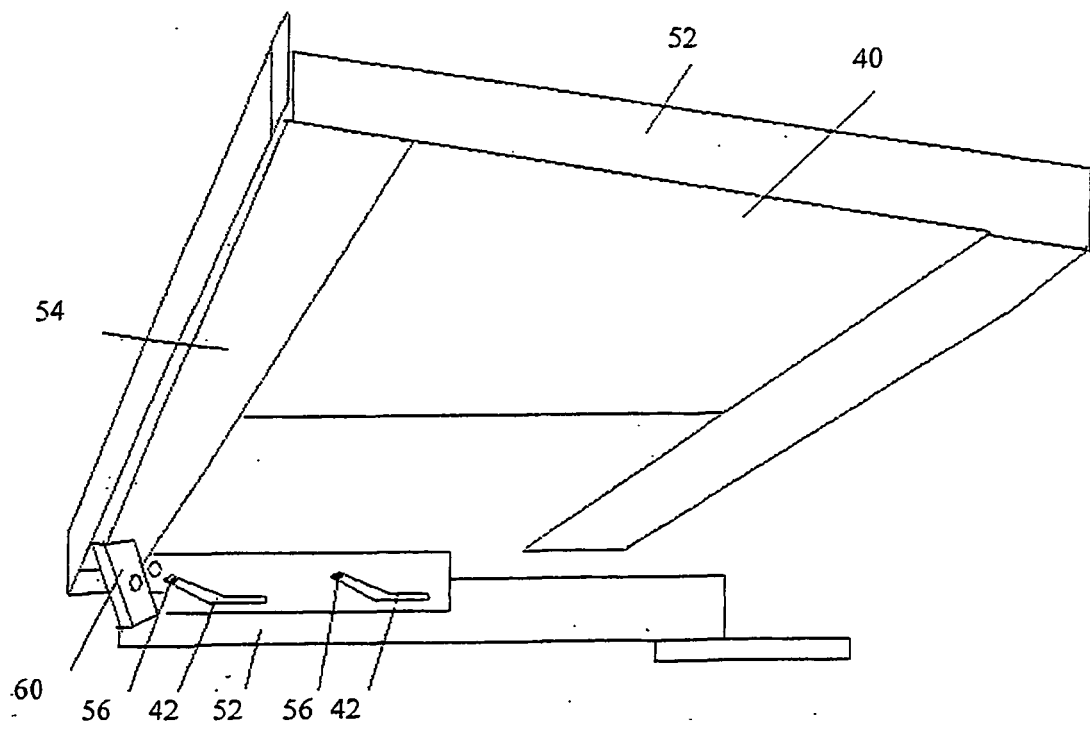


Figure 3

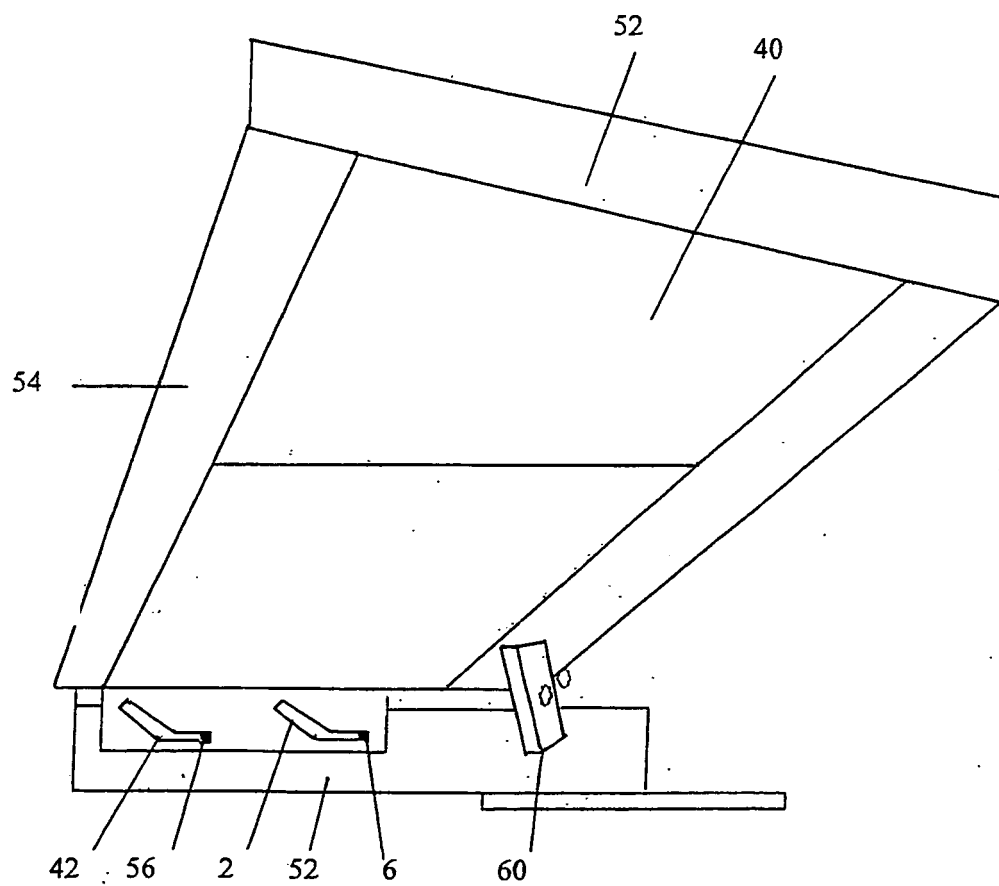


Figure 4

REFERENCES CITED IN THE DESCRIPTION

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