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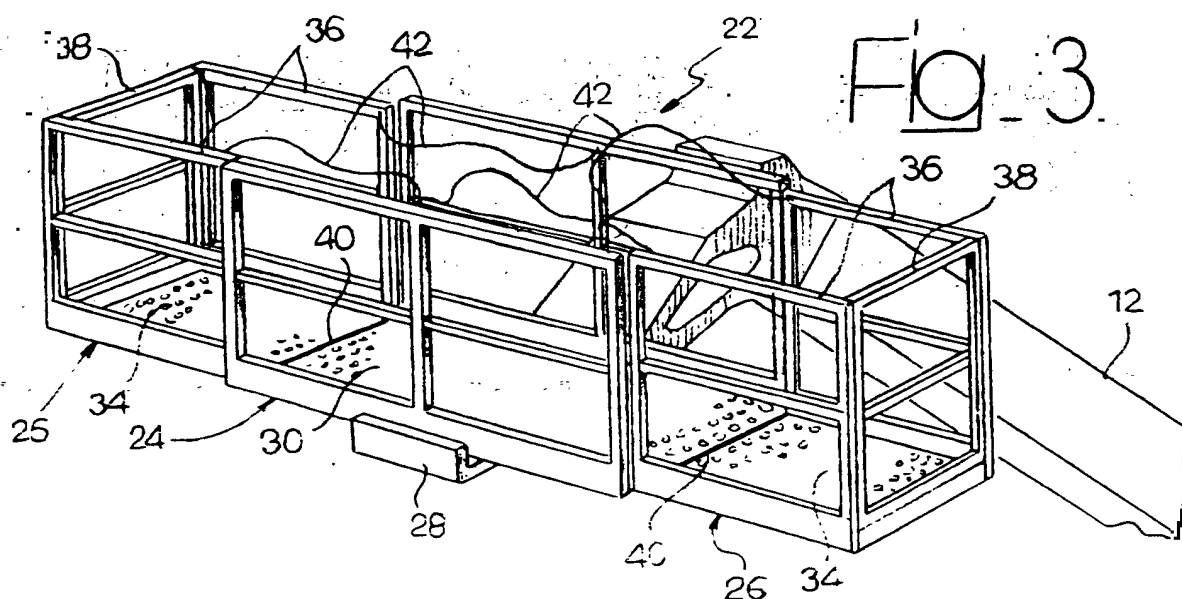
(54) **Extendable aerial platform**

(57) An extensible overhead platform destined to be connected to the end of a lifting boom, comprising:

on the smaller sides of the bottom wall (30) of the central section (24).

- a central section (24) with a rectangular bottom wall (30), and
- a pair of side sections (26) jointed onto the central section (24) on their respective axes (40) situated

Each side section (26) can turn on an angle essentially equal to 90° from a lifted position to a lowered position, so that the platform (22) can assume a closed configuration for transportation and an open configuration for working.



Description

[0001] This invention relates to an overhead platform destined to be connected to the end of a lifting boom of a lifting vehicle, for example, of the type described in document EP-A-0375705 by this Applicant.

[0002] One problem of such platforms is that their maximum clearance dimension in the orthogonal direction with respect to the direction of travel of the vehicle must be within a value defined by the rules of the highway code in the matter of maximum crosswise clearance of vehicles travelling on roads. Often the maximum width determined by the law is too small for the purposes of the users of such platforms.

[0003] Extensible overhead platforms have been proposed, such platforms being capable of assuming a configuration for transportation, which width is contained within the limits of the law, and a configuration for working, which width is greater.

[0004] One of the main problems of the known types of extensible overhead platforms is that the opening and closing manoeuvres can only be performed by operating from outside the platform. Consequently, such manoeuvres cannot be performed when the platform is lifted from the ground.

[0005] The scope of this invention is to provide an extensible overhead platform with a simple structure which can be opened and closed by operating from inside the platform.

[0006] According to this invention, such scope is attained by an overhead platform with the characteristics as of claim 1.

[0007] The characteristics and advantages of this invention will be illustrated in a preferred embodiment given as non-limiting example with reference to the enclosed drawings, whereas:

- figure 1 is a prospective view of a lifting vehicle equipped with an overhead platform according to this invention,
- figures 2 and 3 are prospective views of the platform according to this invention in closed position and in open position, respectively,
- figures 4 and 5 are front elevated views of the platform according to this invention in open position and in closed position, respectively,
- figure 6 is a plan view of the platform in a partially closed position,
- figures 7, 8 and 9 are partial prospective views illustrating in larger scale a locking device arranged in the area indicated by the arrow VII in figure 5,
- figure 10 is a cross-section in larger scale according to the line X-X in figure 9,
- figure 11 is a partial prospective view of a second locking device arranged in the area shown by the arrow XI in figure 4 in larger scale, and
- figure 12 is a cross-section according to the line XII-XII in figure 11.

[0008] With reference to figure 1, a lifting vehicle 10 is indicated of the type generally known, equipped with a lifting boom 12 jointed onto the chassis 14 of the vehicle on a crosswise axis 16. A hydraulic jack 18 turns the boom 12 on the joint axis 16. An attachment device 20 of the type known is arranged on the free end of the boom 12, which is generally telescopic. The attachment device is used for attaching tools of various types, such as, for example, a fork, a bucket, a hoisting hook, etc. In the example illustrated in figure 1, an overhead platform 22 is connected to the end of boom 12 of the vehicle 10.

[0009] With reference to figures from 2 to 5, the overhead platform 22 comprises a central section 24 and two mobile sections 26. The central section 24 is equipped with an attachment 28 suited to be coupled to the attachment device 20 on the boom 12. The construction details of the attachment 28 are not illustrated in detail herein, since the details lie outside the scope of this invention. The central section 24 has a rectangular shaped bottom wall 30. A pair of sideboards 32 are fastened along the longer sides of the tailboard 30.

[0010] Each side section 26 comprises a tailboard 34, a pair of fixed sideboards 36 and a foldable sideboard 38. The tailboards 34 of the side sections 26 are jointed onto the tailboard 30 of the central section 24, along the respective axes 40 located on the smaller sides of the tailboard 30. Each of the side sections 26 can turn on an angle of approximately 90° with respect to the central section 24 from a lifted position, corresponding to a closed configuration of the platform 22, to a lowered position, corresponding to an open configuration of the platform, and vice versa. The fixed sideboards 36 of the side sections 26 are solidly fastened to the respective tailboards 34 and, consequently, turn along with the tailboards. As illustrated in particular in figures 3 and 6, the fixed sideboards 36 are arranged internally with respect to the fixed sideboards 32 of the central section 24 in order to allow the sideboards 26 to turn.

[0011] The side sections 26 are opened and closed manually by an operator from inside the platform by using two pairs of ropes 42 which ends are anchored to a fixed sideboard 36 of a lateral section 26 and to a corresponding sideboard 32 of the central section 24. From the closed configuration illustrated in figure 2, a single operator standing in platform 22 can turn a side section 26 from the lifted position to the lowered position by pulling the ropes 42 with both hands. After opening the first side section 26, the operator can repeat the same manoeuvre on the second side section 26, so to take the platform 22 to the configuration shown in figure 3. In the same way, starting from the open configuration, one operator standing in platform 22 can turn a side section 26 from the lowered position to the lifted position by pulling the ropes 42.

[0012] The sideboard 38 of each side section 26 is jointed onto the respective tailboard 34 and can move from an erected position, in which it extends orthogonal-

ly with respect to the tailboard 34, to a folded position, in which it extends parallelly with respect to the tailboard 34, and vice versa. In this way, when the platform 22 is in the closed configuration, the sideboards 38 are folded onto the respective tailboards 34 to prevent the space inside the platform being obstructed by the sideboards 38 in the closed configuration of the platform 22. Figure 2 illustrates the platform in a configuration in which the left-hand sideboard 38 is folded down while the sideboard 38 of the right-hand side section 26 is erected, said side section not having been fully lifted in the configuration illustrated in figure 2. With reference to figures 11 and 12, each sideboard 38 is held in erected position by a pair of retaining elements 44 (only one of which is visible in the figures) fastened on the fixed sideboards 36. Each retaining element 44 can slide in the direction shown by the double arrow 46 and is pushed elastically towards a position engaging the sideboard 38. When a side section 26 is taken to its lifted position, in order to take the sideboard 38 to its folded position, it will suffice to release the retaining elements 44 to free the sideboard 38 which, by the effect of gravity, will spontaneously be folded.

[0013] With reference to figures from 7 to 10, the overhead platform according to a preferred form of embodiment of this invention is additionally equipped with a locking device which prevents the rotation of each side section 26 from the lifted position to the folded position if the respective sideboard 38 is not erected. The locking device comprises a sliding bolt 48 fastened to the tailboard 34 of each side section 26. The sliding bolt 48 co-operates with a compressed helicoid spring 50 which tends to push the bolt 48 towards an inward disengaged position. The bolt 48 presents a slanted surface 52 which co-operates with a plate 54 fastened to the folding sideboard 38. As shown in figures 7 and 8, when the folding sideboard 38 is erected, the plate 54 does not interfere with the bolt 48. In this configuration, the spring 50 pushes the bolt towards the inside to a position in which it does not interfere with the sideboard 32 of the central section 24. As illustrated in figure 9, when the sideboard 38 is folded down, the plate 54 slides on the slanted surface 52 and pushes the bolt 48 outwards, contrasting the action of the spring 50. In the position in which it is pushed outwards, the bolt 48 interferes with the sideboard 32 and prevents the rotation of the side section 26. This locking device is, consequently, a safety device for the operator since the platform can only be opened after erecting the sideboards 38, preventing the platform from being even only momentarily without protective sideboards.

Claims

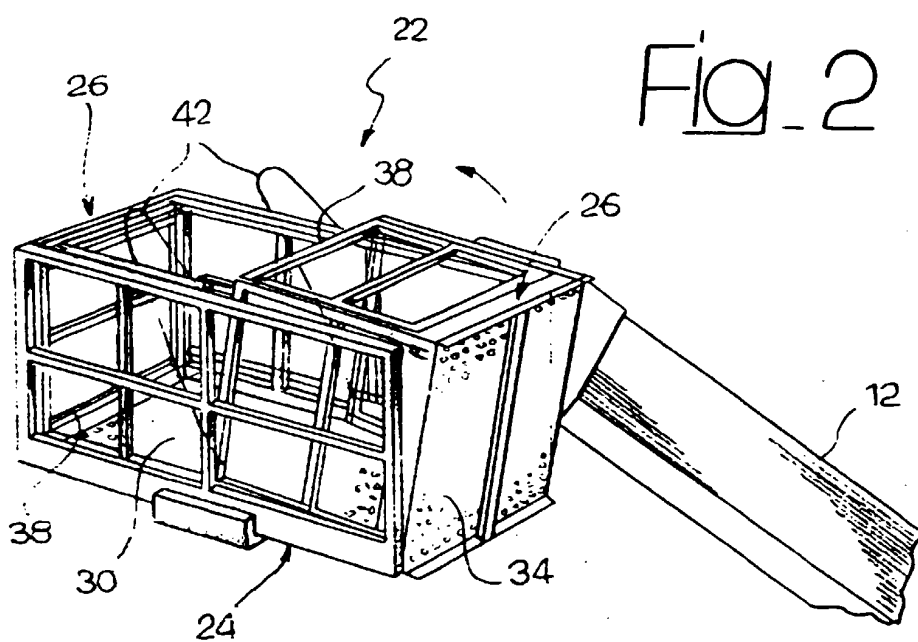
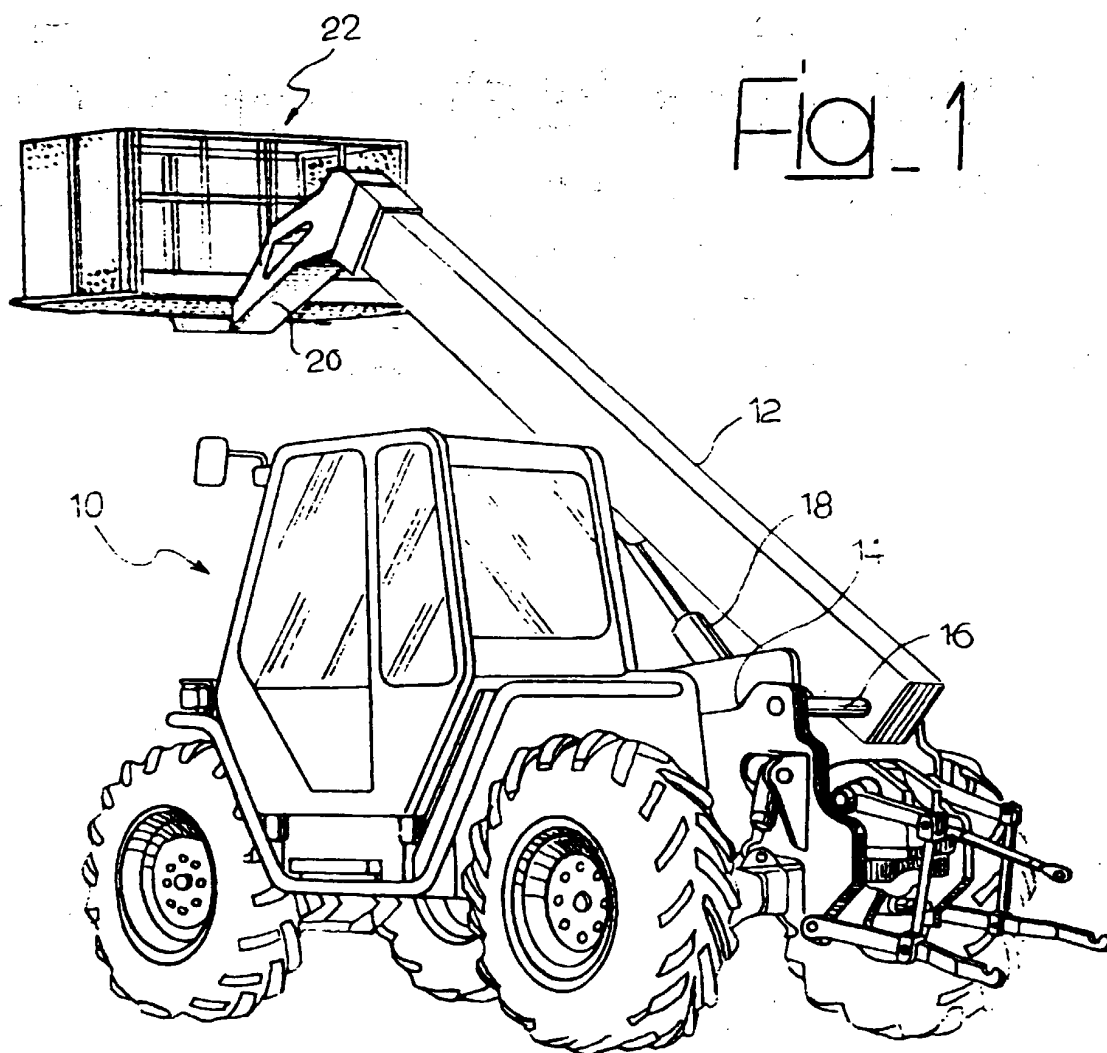
1. An extensible overhead platform, comprising:

- a central section (24) with a rectangular bottom

- wall (30) equipped with attachment devices (28) for connecting the platform (22) to the end of a lifting boom (12), and
- a pair of side sections (26) which can move with respect to the central section (24) so that the platform can assume a closed configuration for transportation and an open configuration for working,

characterised in that the side sections (26) are jointed onto the central section (24) on the respective axes (40) corresponding to the smaller sides of the bottom wall (30) of the central section (24), each of the side sections (26) being capable of turning on an angle essentially equal to 90° from a lifted position, corresponding to said closed configuration and a lowered position, corresponding to said open configuration.

2. An overhead platform according to claim 1, characterised in that each side section (26) presents a bottom wall (34) jointed onto the bottom wall (30) of the central section (24).
3. An overhead platform according to claim 2, characterised in that each side section (26) comprises a pair of fixed sideboards (36) and a folding sideboard (38) extending orthogonally with respect to the fixed sideboards (36).
4. An overhead platform according to claim 3, characterised in that it comprises a bolt locking device (48) associated to each folding sideboard (38), the locking device being capable of preventing the rotation of a side section (26) from the lifted position to the folded position if the respective folding sideboard (38) is not erected.



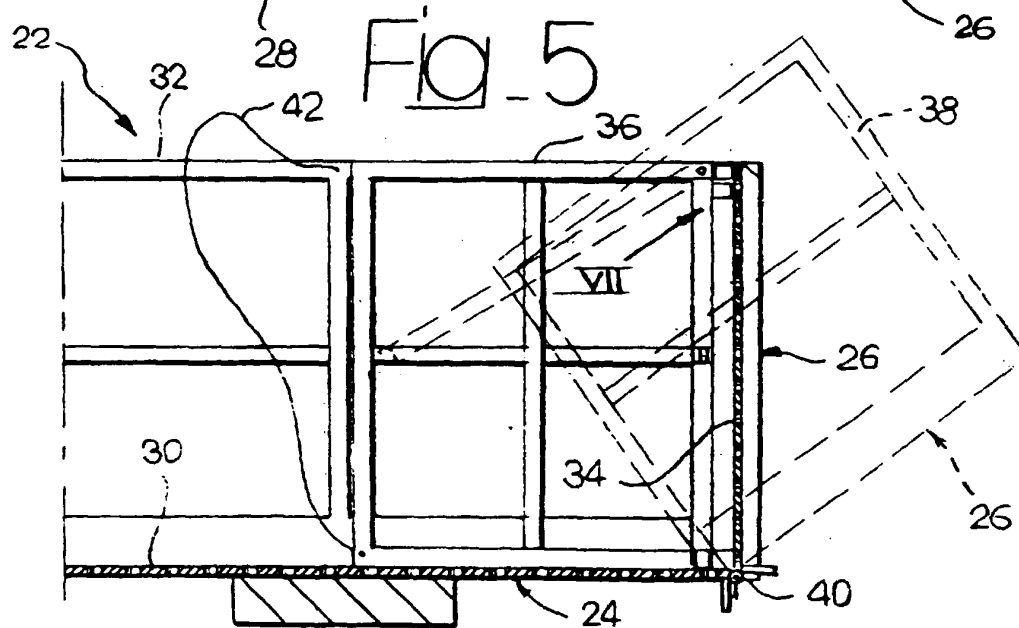
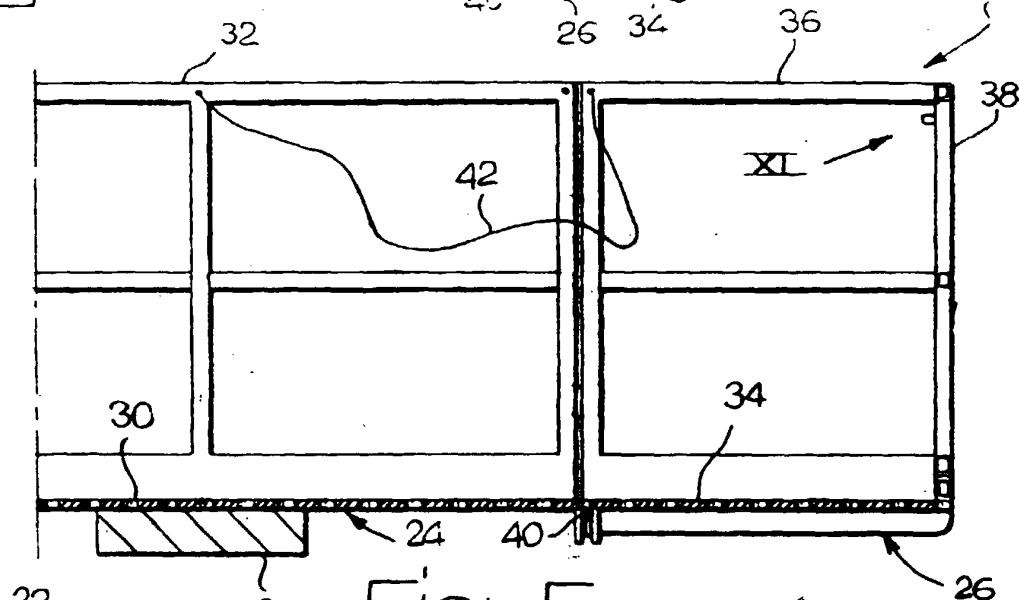
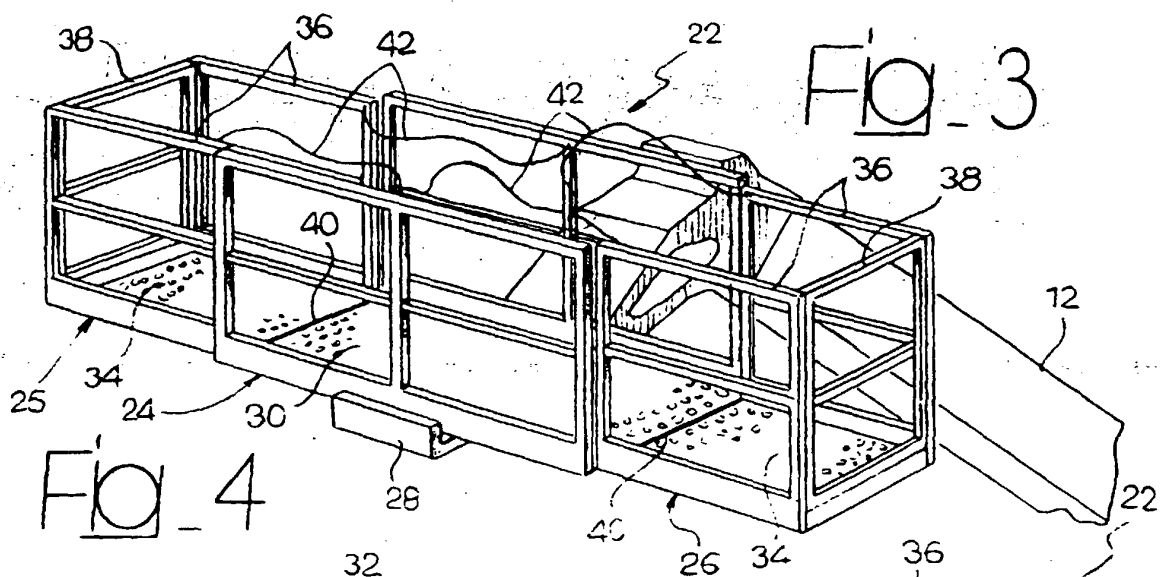


Fig. 6

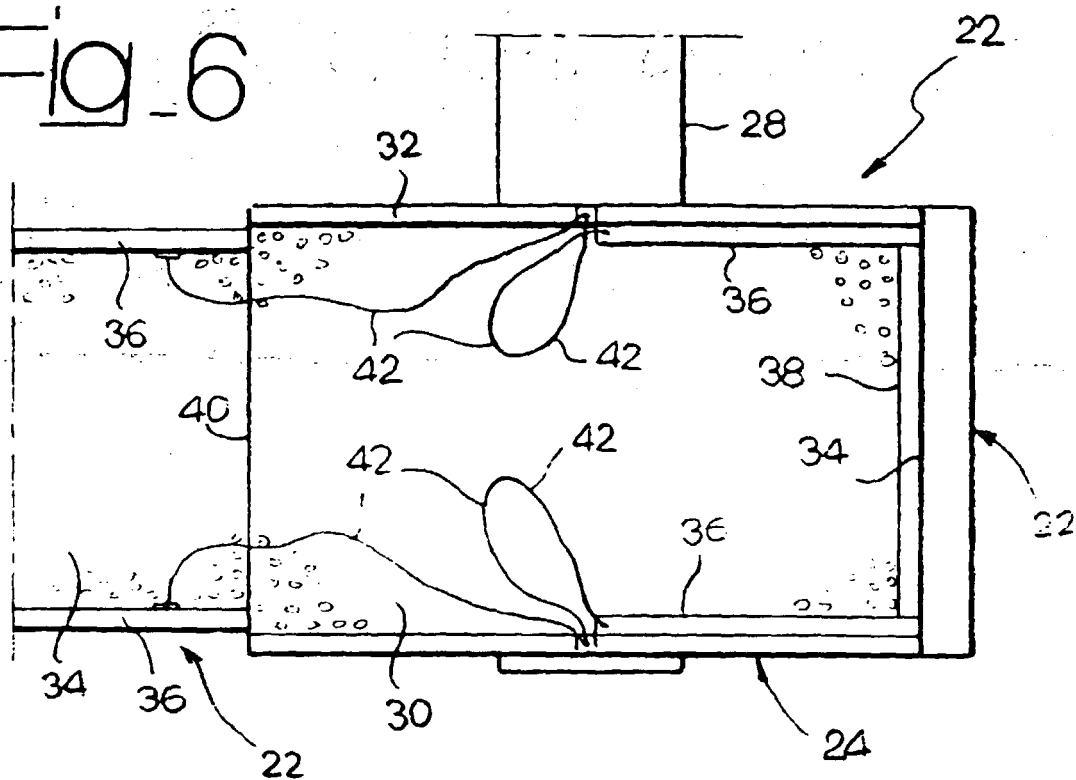


Fig. 10

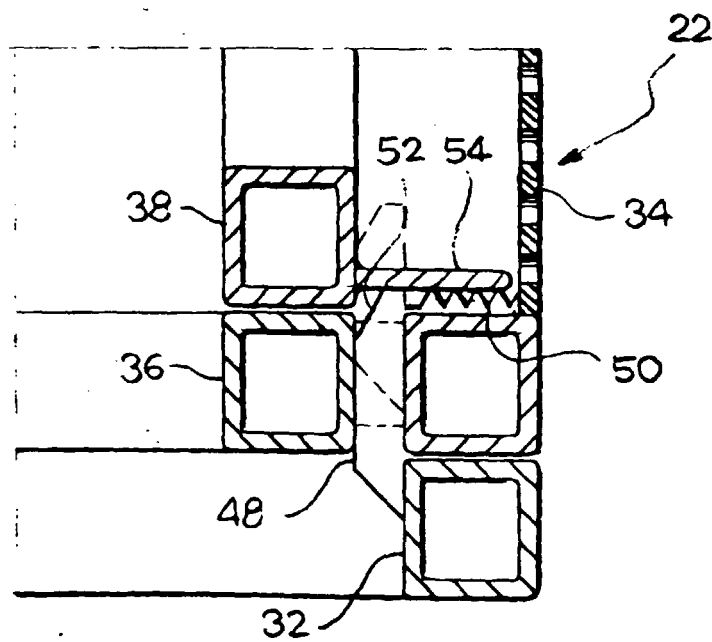


Fig. 7

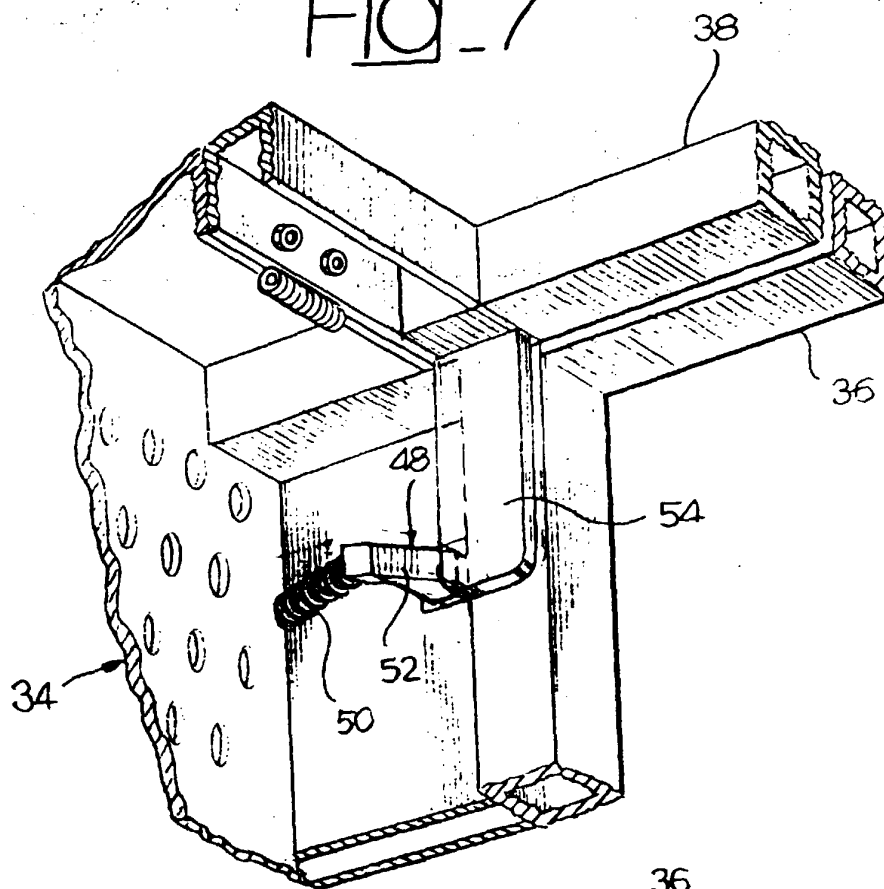


Fig. 8

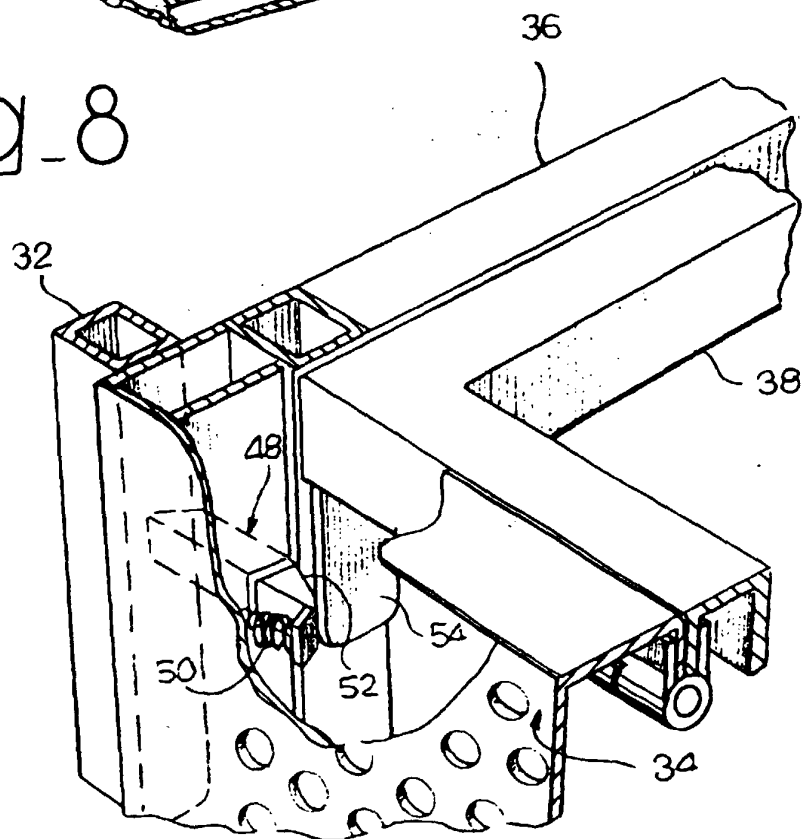


Fig 9

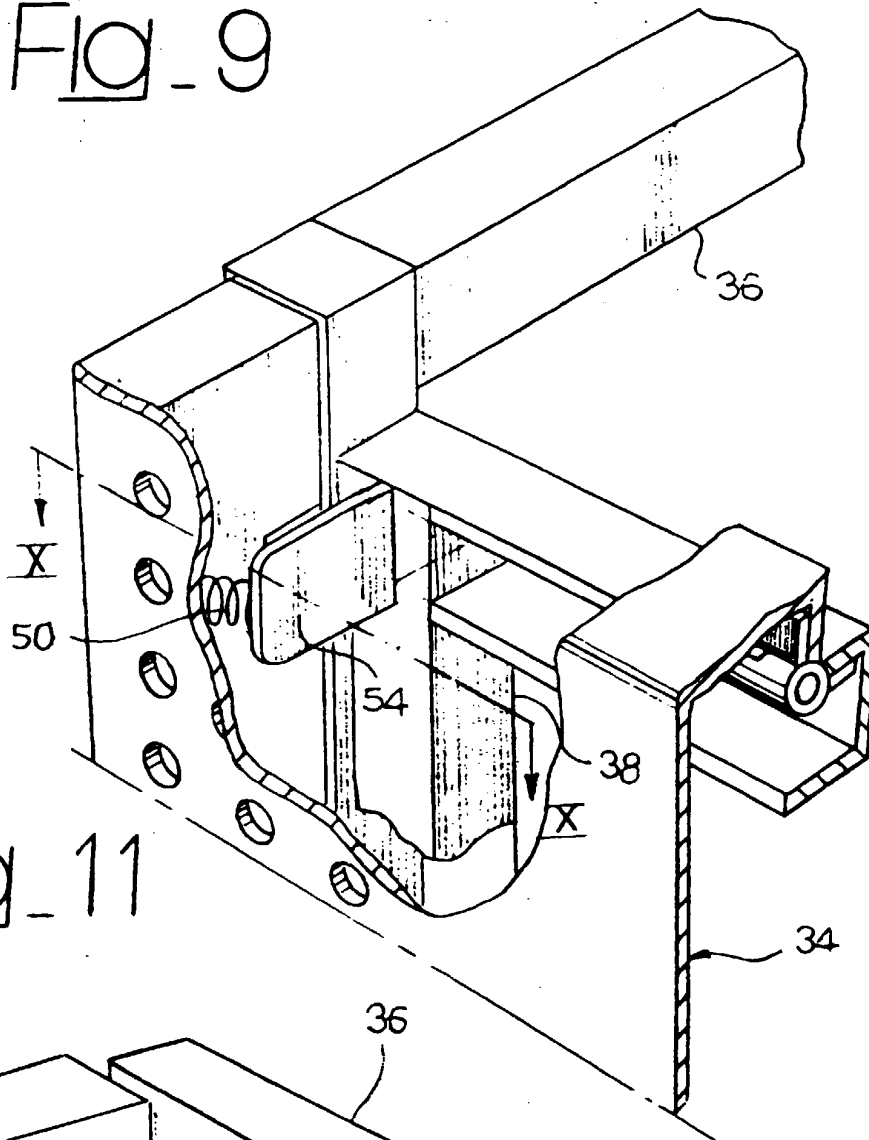


Fig 11

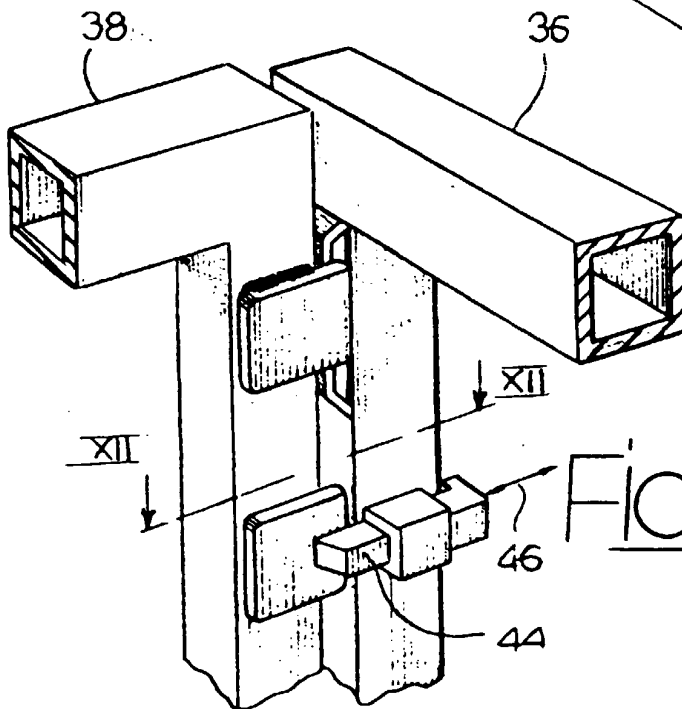


Fig 12

