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⑦① Applicant: **Yang, Tai-Her**
5-1 Taipin Street
Si-Hu Town Dzan-Hwa (TW)

⑦② Inventor: **Yang, Tai-Her**
5-1 Taipin Street
Si-Hu Town Dzan-Hwa (TW)

⑦④ Representative: **Arthur, Bryan Edward et al**
Withers & Rogers 4 Dyer's Buildings Holborn
London EC1N 2JT (GB)

⑤④ **An improved clamping work table (4).**

⑤⑦ The invention involves in one or more set of position selectable clamping paw units, which are inserted and fixed on a working table, to provide multi-directional and angular rotating service adjustments, thereby, working pieces of various size and shape can be firmly clamped, and it comprises of:

Clamping paw units, each unit consists of a locating jaw, a locating seat, and a sliding jaw, in which, the locating jaw and locating seat are fixed on the working table by selective insertion of them into their respective socket hole on the working table, and their service directions and angles are adjustable.

Description

An improved clamping working table (4)

The invention involves in one or more set of position selectable clamping paw units, which are inserted and fixed on a working table, to provide multi-directional and angular rotating service adjustments, thereby, working pieces of various size and shape can be firmly clamped, and it comprises of:

Clamping paw units, each unit consists of a locating jaw, a locating seat, and a sliding jaw, in which, the locating jaw and locating seat are fixed on the working table by selective insertion of them into their respective socket hole on the working table, and their service directions and angles are adjustable.

The central portion of the working table is provided with longitudinal central slots as well as many evenly distributed socket holes; the socket holes extend also to the two sides in the front end portion of the working table, the front end surface of the working table is used as an auxiliary working table surface, and it is also provided with socket holes.

Angular steels are used for the constructing of the downwardly expanded pagoda shaped footing unit, the middle section of the said footing unit is provided with an upper and a lower strengthening angular steel structure. Otherwise, short angular steels are used for the constructing of a base unit to convert the said improved clamping working table into a table topversion.

The working table may provide further a combining structure including a hammering board with anvil and a flat shape porous iron board to be combined on corresponding holes of the two sides with screws or rivets to furnish the same function of the above integrated type.

SUMMARY OF THE INVENTION

As new industrial products rush continuously into the market day after day, their production and rework processes also suffer from change, the traditional parallel clamping tools become improper to fit the present requirements, though, there are clamping tools on sale in the market which are equipped with multi clamping jaws on the same working table surface, and can be independently adjusted to match the relative positions and shapes of a working piece, but, each clamping point of these tools are not possible to be completely service adjustable, their adjustments are also limited to a specific working piece size range, therefore, they are not possible to be used to clamp larger working pieces in addition to their none parallel clamping surfaces can not hold a working piece firmly.

The invention is aimed to the above said shortcomings, and has devised an i-proved clamping working table, the clamping paws of this working table are inserted and fixed on the working table surface through position and angular rotation selection, thereby, they provide sevicng clamping function for various sized and shape working pieces.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 shows the perspective view of the improved clamping working table of the invention.

Fig. 2 shows the perspective view of the parts break down of the clamping paw of the invention.

Fig. 3 shows the front view of the improved clamping working table of the invention.

Fig. 4 shows the top view of the improved clamping working table of the invention.

Fig. 5 Shows the buttom view of the improved clamping table of the invention;

Fig. 6 shows the rear view of the improved clamping working table of the inveniton.

Fig. 7 shows the perspective view of the table top version of the improved clamping working table of the invention.

Fig. 8 shows the front view of the table top version of the improved clamping working table of the invention.

Fig. 9 shows the top view of the table top version of the improved clamping working table of the invention.

Fig. 10 shows the buttom view of the table top version of the improved clamping working table of the invention.

Fig. 11 shows the rear view of the table top version of the improved clamping working table of the invention.

Fig. 12 The solid view of the practical example of the combining type working table included in the invention.

Fig. 13 The lateral view of the practical example of the combining type working table included in the invention.

Fig. 14 The front sectional view of the practical example of the combining type working table included in the invention.

Fig. 15 The buttom view of the practical example of the combining type working table included in the invention.

DETAILED DESCRIPTION OF THE INVNETION

As shown in fig. 1, the improved clamping working table of the invention comprises of one or more clamping paw units, a working table, and a footing unit, in which;

Each clamping paw unit consists of a locating jaw 11, a locating seat 12, and a sliding jaw 13, as shown in fig. 2. The buttom center portion of the locating jaw 11 and locating seat 12 are extended downward to form into plug 110 and 120, these plugs are respectively inserted into one of the sockets on the working table surface, and these plugs are also used as rotating axes. The back side of sliding jaw 13 is extended backward to form into a rectangular or round guiding rod 131, and this rod 131 is fitted into the locating seat 12, through the driving force of threaded rod 121, as it is fitted into the locating seat. the sliding jaw can be moved forwardly or back-

wardly along the guiding rod 131.

The working table is made of thick casting steel material, as shown in fig. 3 and 4. the working table has a smooth top surface, and the two sides of the front end of the table surface, they are provided with lateral protruded drill bits. 21, on the central portion of the table, it is provided with central slots 22, on the rest table surface, it is provided with many sidewise symmetrical socket holes 23, and these socket holes 23 are used for the insertion of plugs 110, 120 of the locating jaw 11 and locating seat 12 respectively. The front end surface of the working table is a deeply downwardly extended auxiliary table surface 24, on this auxiliary table surface 24, it is provided with a lateral row of sockets 25, as they are used for the insertion of clamping paws to serve the lateral positioning purpose. As shown in fig. 4, 5 and 6, in order to have the position of socket holes 23 and central slots 22 to be well matched, the thickness of the bottom solid portion of working table, without socket holes and central slots, is reduced, meanwhile the thickness of other portion of the working table, with socket holes 23 and central slots 22, is increased in addition to it is strengthened by enforcement ribs.

The footing unit of the working table is made of 4 pieces of angular steels 3, as they are expanded downwardly to be formed into a pagoda shape, as shown in fig. 1, 3, 5, and 6. The middle section of the said structure is enforced at two locations with angular steels 31, by welding or riveting them on the 4 inner side of the 4 angular steels 3. The rectangular bottom and pagoda shaped footing unit is thus formed. Also each angular steels 3 and part of the enforcement angular steels 31 are provided with press formed strength enhancement ribs.

Fig. 7 shows the structure of the table top version of the invention. In which, the clamping paw units and working table remain the same as before, except its footing unit is cut down into a short structure, as shown in fig. 8, 10 and 11.

The footing unit of the table top version of the invention utilizes 4 pieces of shorter angular steels 4, their upper ends are welded to the 4 corners of the bottom side of the working table; the bottom ends of the angular steels 4 are welded to a invert U shaped base plate 41, and the angular steels 4 are provided with strength enhancement ribs.

The selective adjustments by inversion of clamping paw units into various socket holes of the working table as said above are done by pulling out each locating jaw 11, and locating seat 12 respectively from one socket hole of the working table, and inserting them into another one socket hole of the working table respectively, therefore, the minimum clamping width can reach almost to zero, i.e. by inserting locating jaw 11 and locating seat 12 face to face into the relative socket holes 23 which are nearest to the central slots 22. The maximum clamping width can be obtained by inserting locating jaw 11 and locating seat 12 into the relative socket holes 23 which are farthest from the central slots 22. For complex shaped working pieces, more clamping paw units more than 21 will be inserted into the working table as they are required. If a working piece

is required to be clamped in up right position, the central slots 22 can be used for the insertion of clamping paw units to serve this purpose.

The working table may provide further a combining structure including a hammering board with anvil and a flat shape porous iron board to be combined on corresponding holes 53 of the two sides with screws or rivets to furnish the same function of the above integrated type.

The structure is shown in figures 12 to 15 including:

-----One set of flat board 40 with multiple sets same caliber holes 42 and peripheral frames, and there are armature holes in corresponding sides of the peripheral frame to combine legs 43 respectfully, on the surface of one of the side of the combining legs 43 provides further combining holes 44 in order to combine it with anvil 50 the frame has undulating edge along combining holes 44 in order that it wouldn't hinder the tightening of the screw nuts on the root of the clamping device:

-----One set of anvil providing lateral working table 53 and the clamping hole 54 for the installation of clamping device, there are the trueing anvil bed for hammering on the two ends, and the longitudinal section is in concave shape, there is combining hole 52 on the surface to combine it with flat board 40 to be used for the combination and tightening of the anvil and the lateral combining hole 44 of the frame of the flat board, the working table is in flat shape or the anvil might be lower; the lateral surface to combine it with flat board 40 furnishing undulating edge along combining holes 52 to avoid to hinder the tightening of the screw nut on the root of the clamping device.

Claims

1. An improved clamping working table structural design, which comprises of one or more clamping paw units, a working table, and a footing unit, in which;

The clamping paw unit consists of a locating jaw, a locating seat, and a sliding jaw. The locating jaw and locating seat are positioned on the working table surface by inserting their bottom side central portion plugs into their respective socket holes on working table surface. The back side of the sliding jaw is provided with a guiding rod, and the rod passes through the locating seat, a threaded rod is coupled to the locating seat which drives the sliding jaw to move along the guiding rod;

The working table possesses a smooth surface, the two sides at front end of the working table are provided with protruded drill bits. The central portion of the working table is provided with longitudinal slots. the rest part of the working table is provided with specific sidewise distributed socket holes; the front end surface of the working table is provide with a downwardly extended auxiliary working table, on this table, it is also provided with socket holes; the

bottom side thickness of the working table at the portion which provided with central slats and socket holes, is increased and it is also strengthened by ribs;

The footing unit is made of 4 pieces of angular steels and they are expanded downwardly to form a pagoda shape, the middle section of this structure is strengthened at two locations by strength enhancement angular steels. 5

2. An improved clamping working table structural design as said above in claim 1, in which the footing unit is made of 4 pieces of shorter vertical angular steels, the upper end of these angular steels are welded to the 4 corners on bottom side of the said working table, the lower ends of these angular steels are welded to a invert U shaped base plate, and this forms the table top version of the improved clamping working table of the invention. 10 15

3. The working table stated in claim 1 may provide further a combining structure including a hammering board with anvil and a flat shape porous iron board to be combined on corresponding holes of the two sides with screws or revits to furnish the same function of clamping, the structure includes: 20 25

----One set of flat board with multiple sets same caliber holes and peripheral frame, there are armature holes on corresponding sides of the peripheral frame for the joining of legs respectfully, the lateral frame surface of the combined legs providing further the combining hole to combine it with the anvil, and the edge of the frame is in undulating shape along the combining holes in order that it wouldn't hinder the tightening of the screw nut on the root of the clamping device once it is installed laterally. 30 35

----One set of anvil providing lateral working table and the clamping hole to install clamping device. There are trueing anvil end bed for hammering on the two ends, the longitudinal section is in concave shape and there are combining holes on the surface to combine it with the flat board for combining the lateral combining hole of the frame of the flat board to make the both tight and the working table is in flat shape or the anvil might be lower, and there is undulating edge along the combining holes on the side to combine the flat board to avoid to hinder the tightening of the screw nut on the root of the clamping device. 40 45 50

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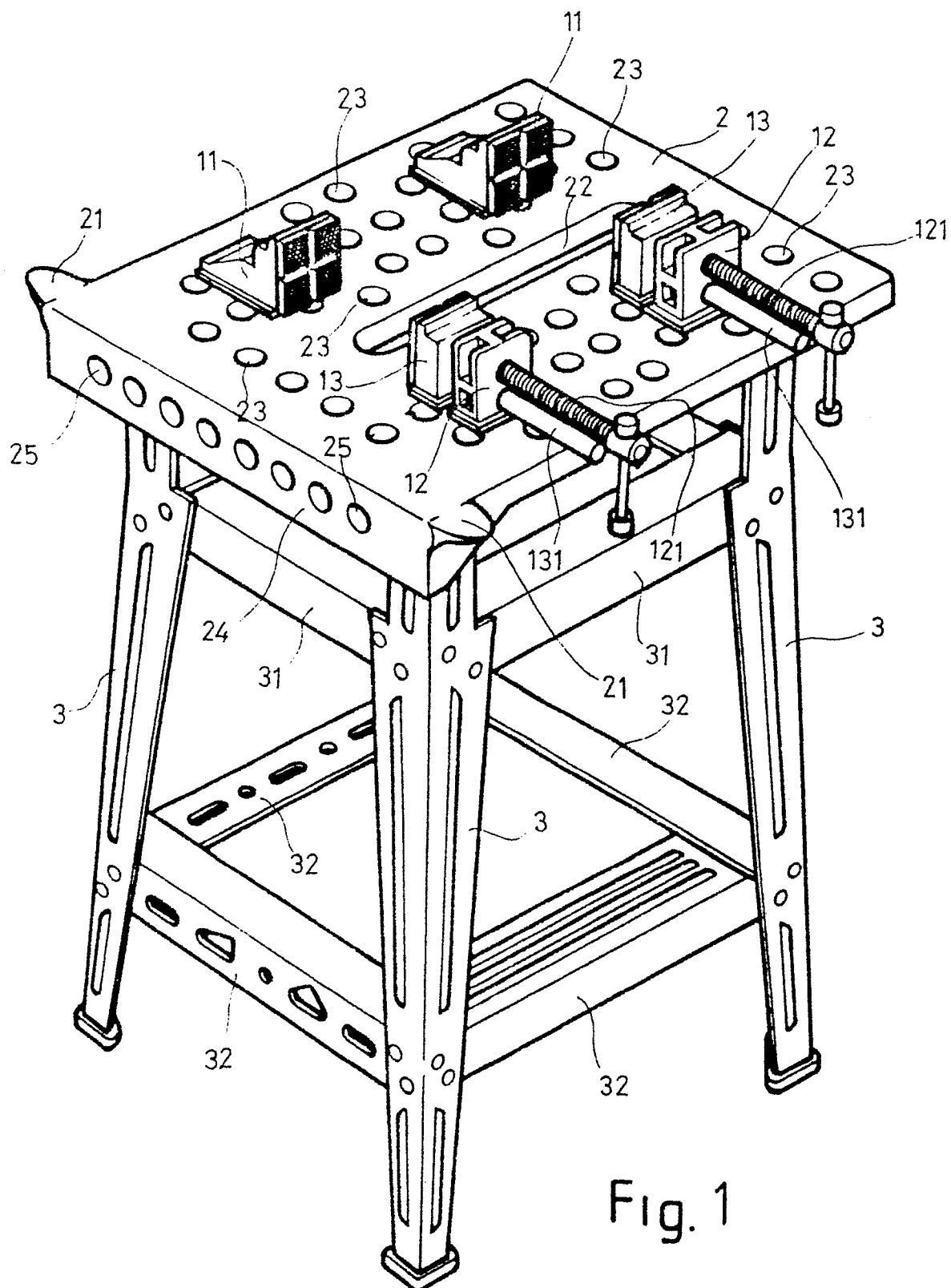


Fig. 1

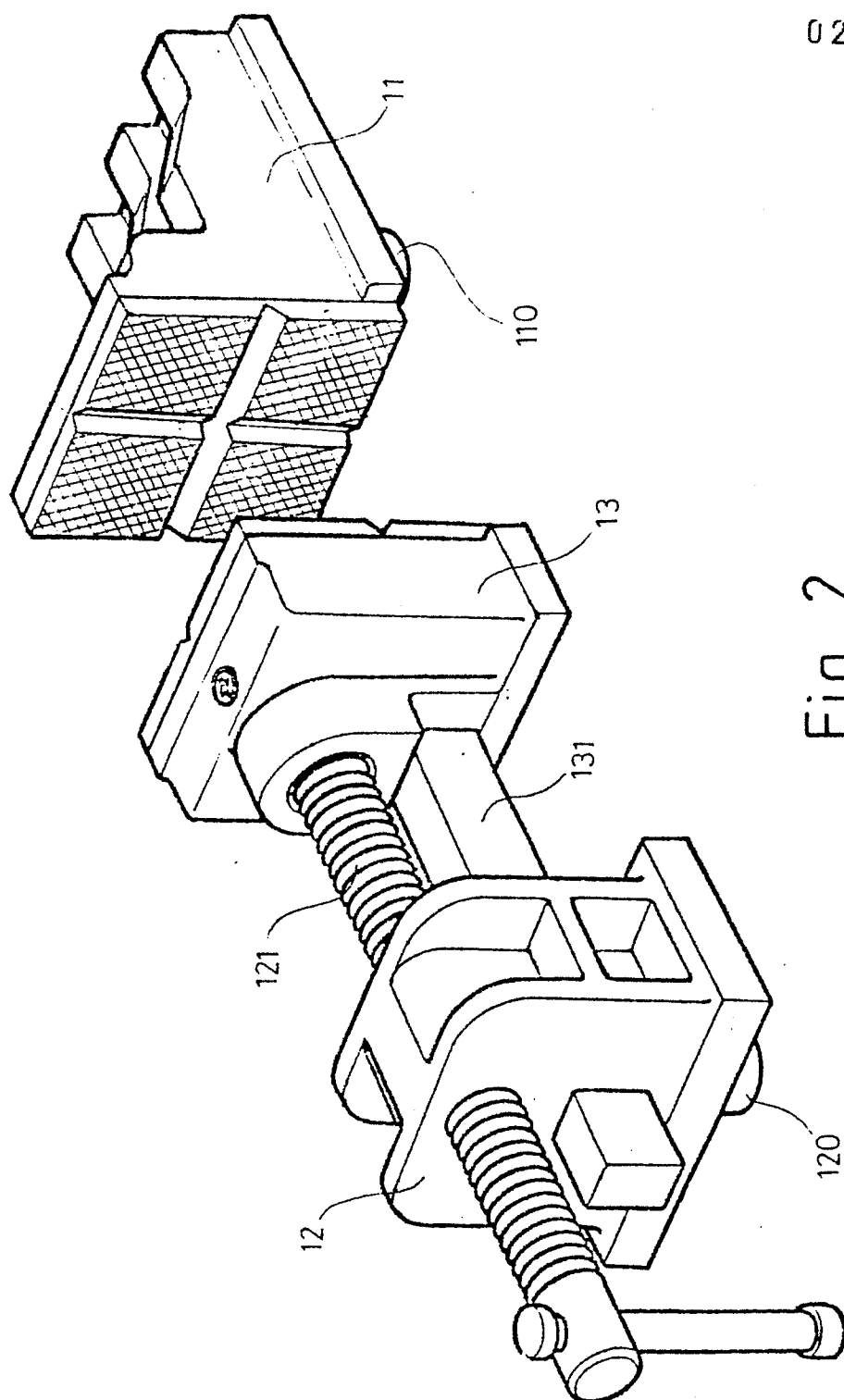


Fig. 2

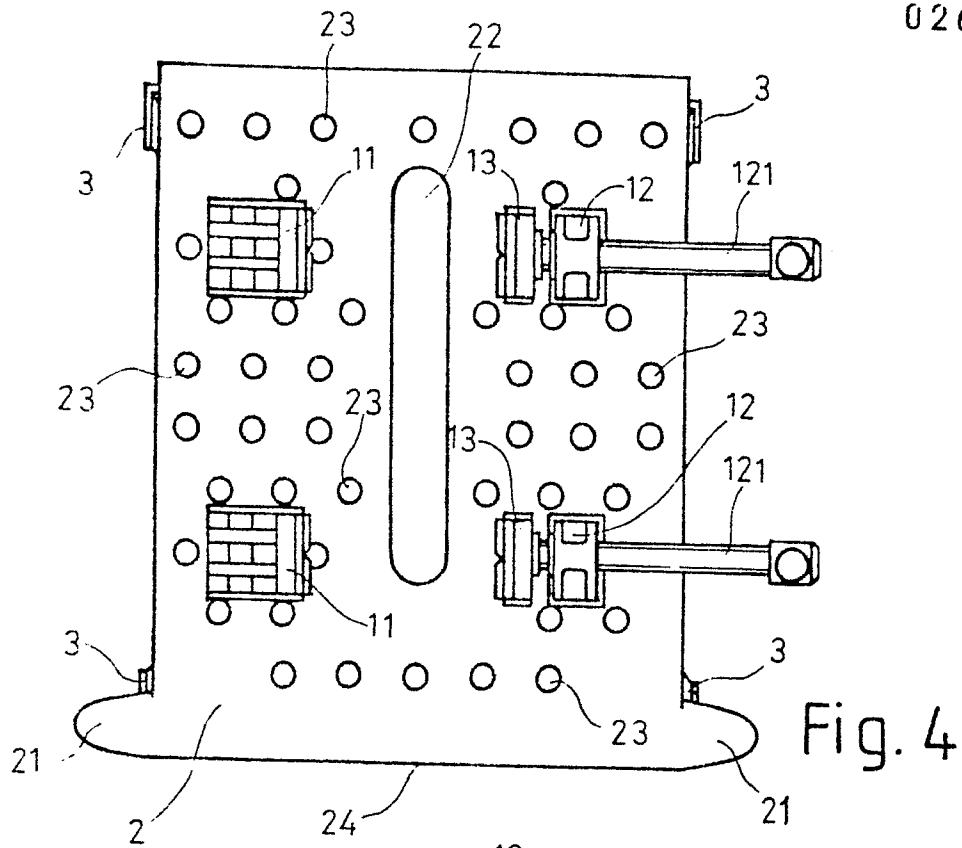


Fig. 4

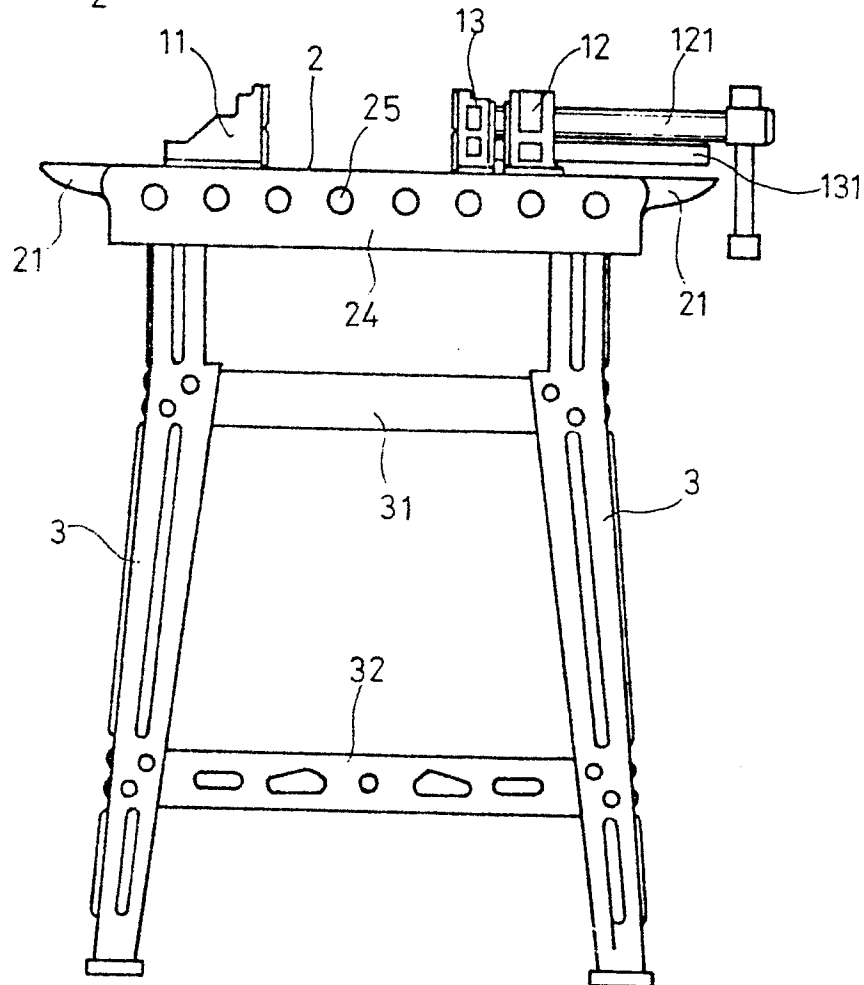


Fig. 3

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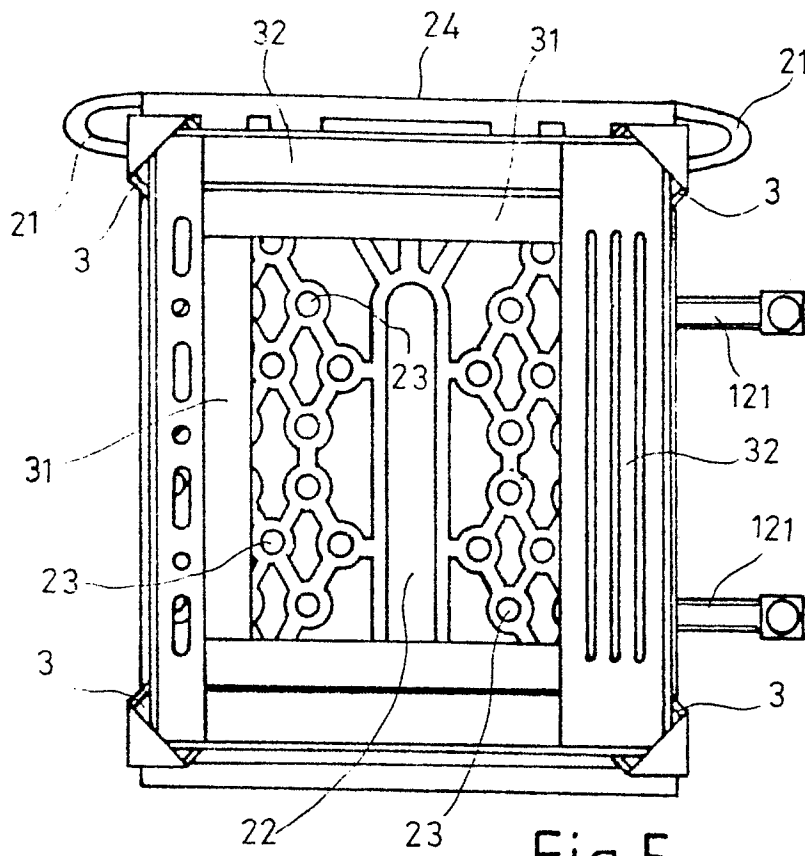


Fig. 5

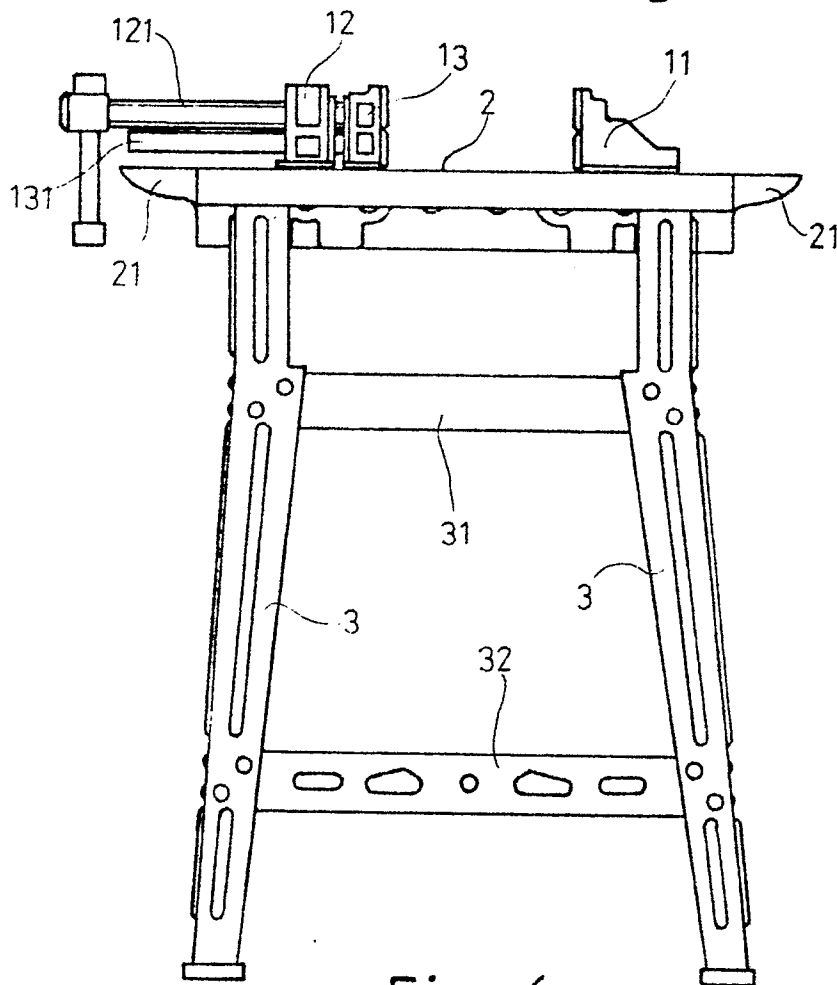


Fig. 6

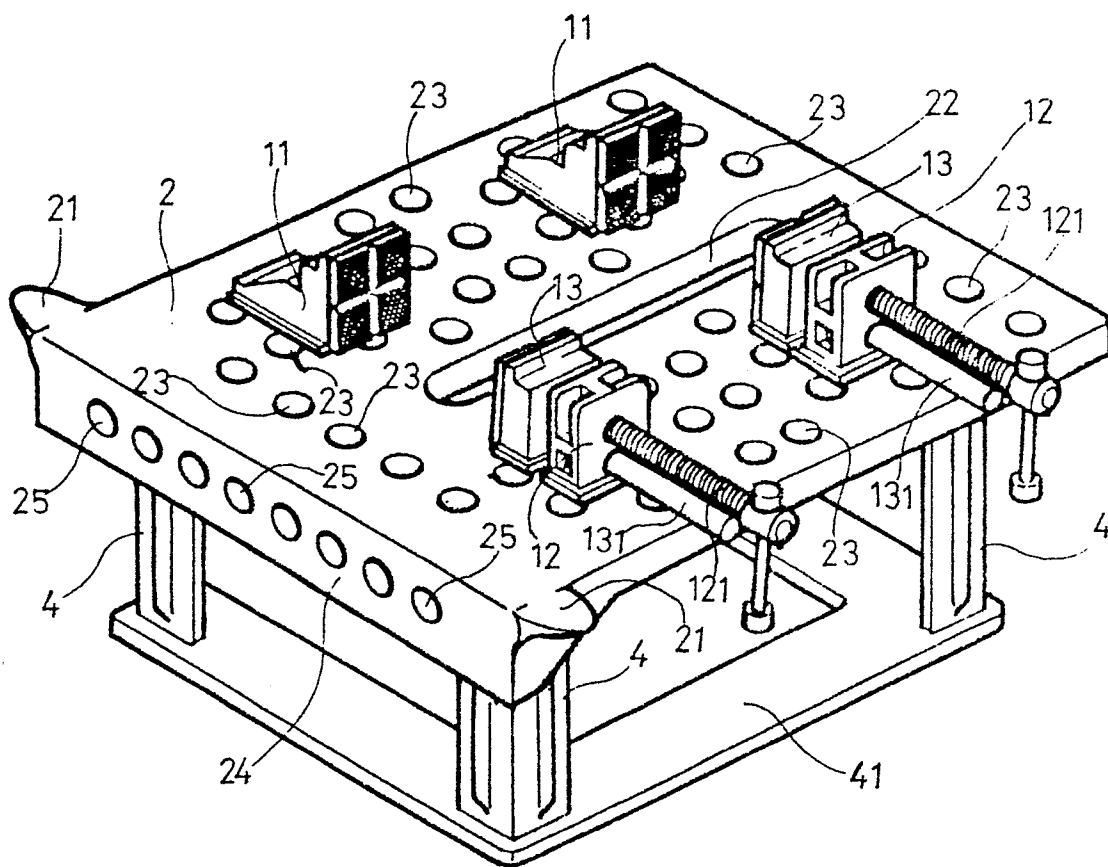
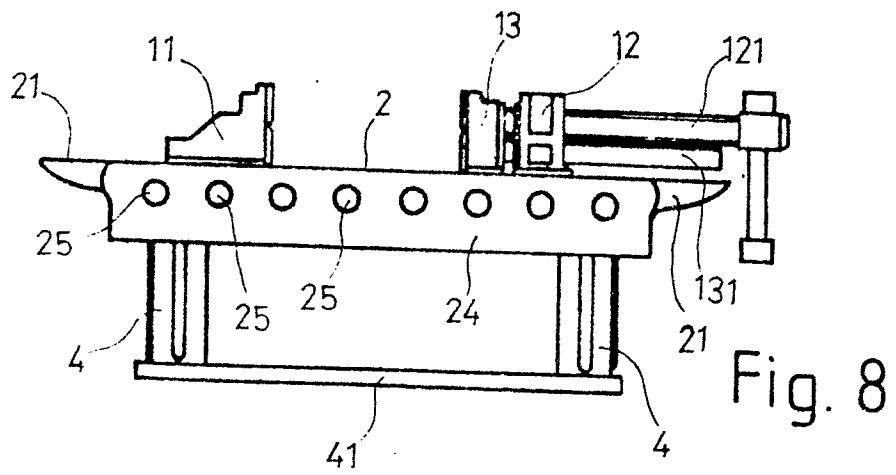
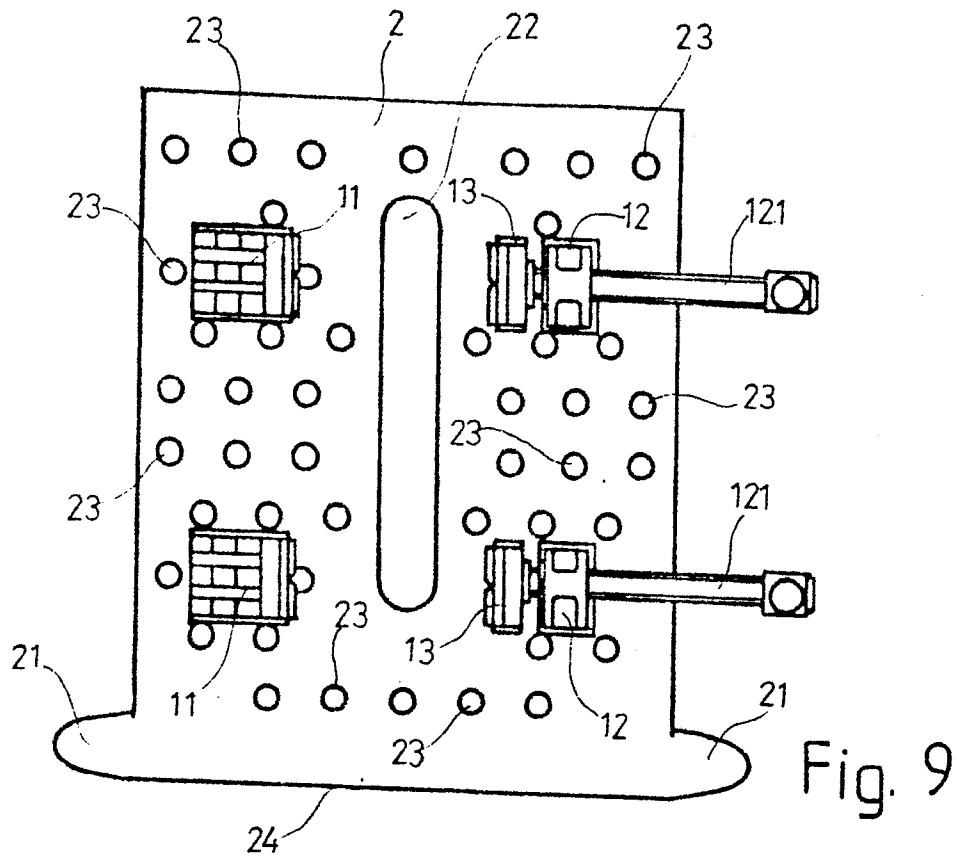


Fig. 7



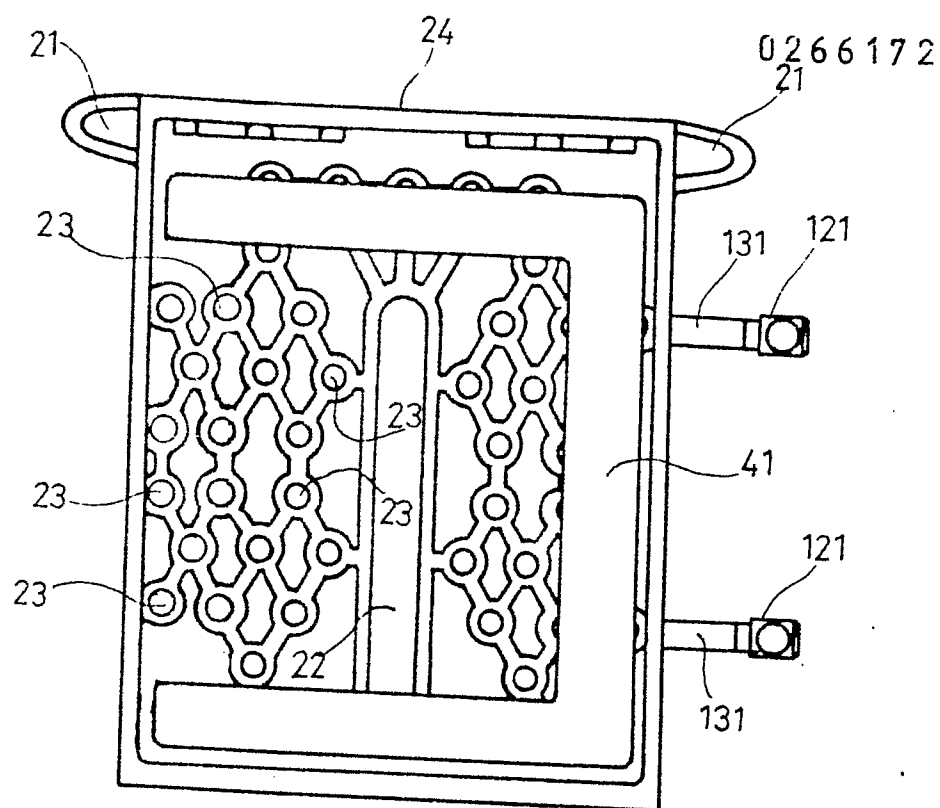


Fig. 10

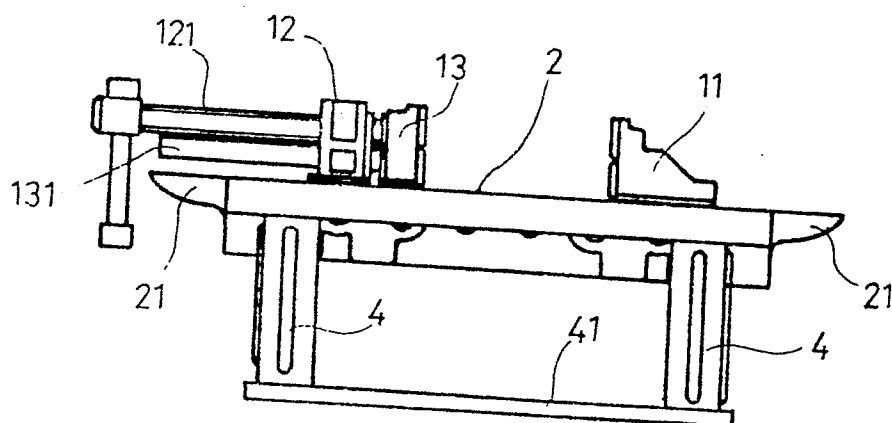


Fig. 11

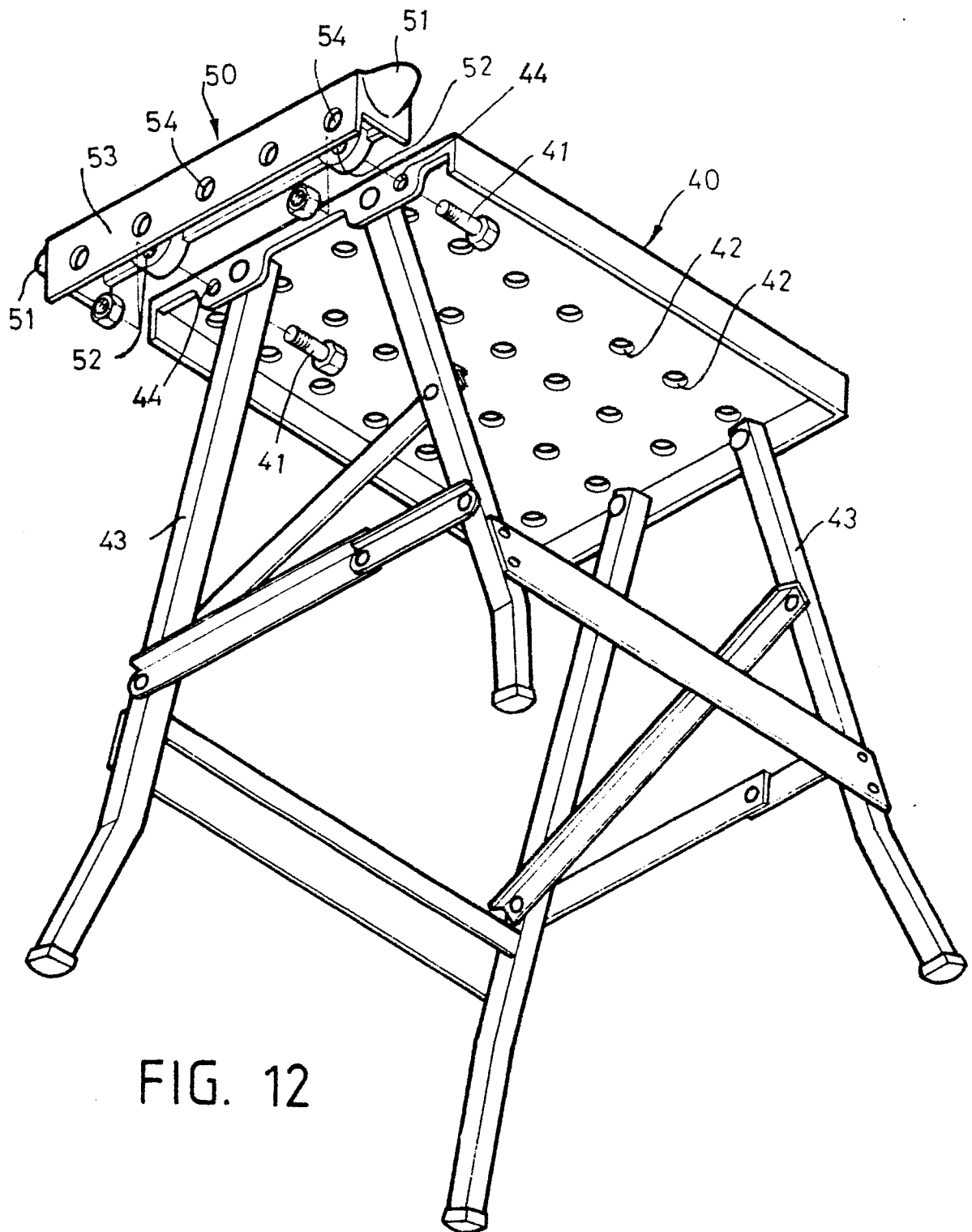


FIG. 12

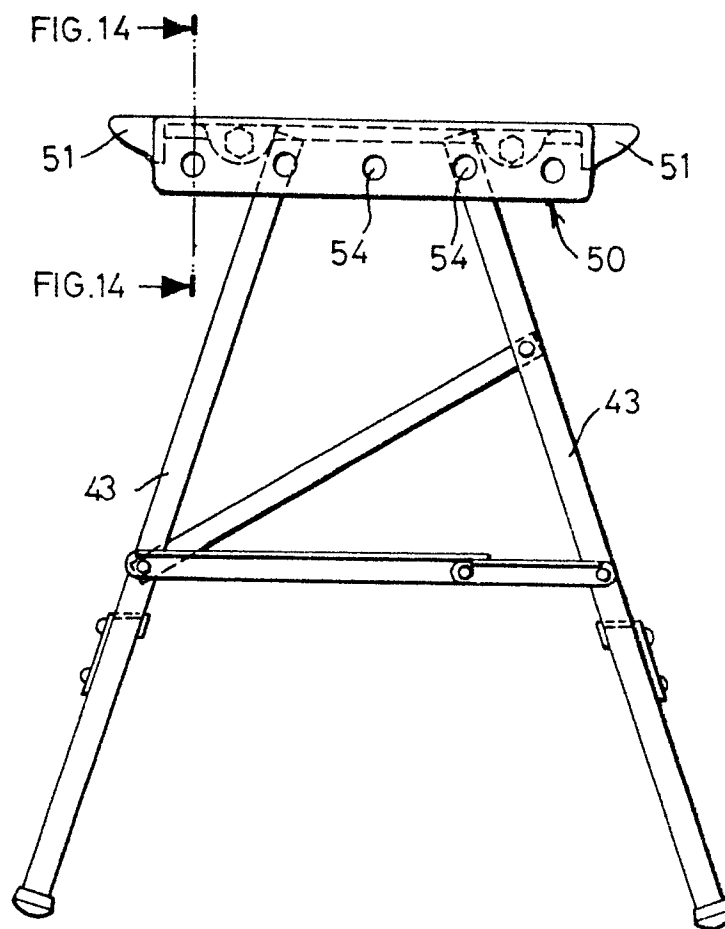


FIG. 13

