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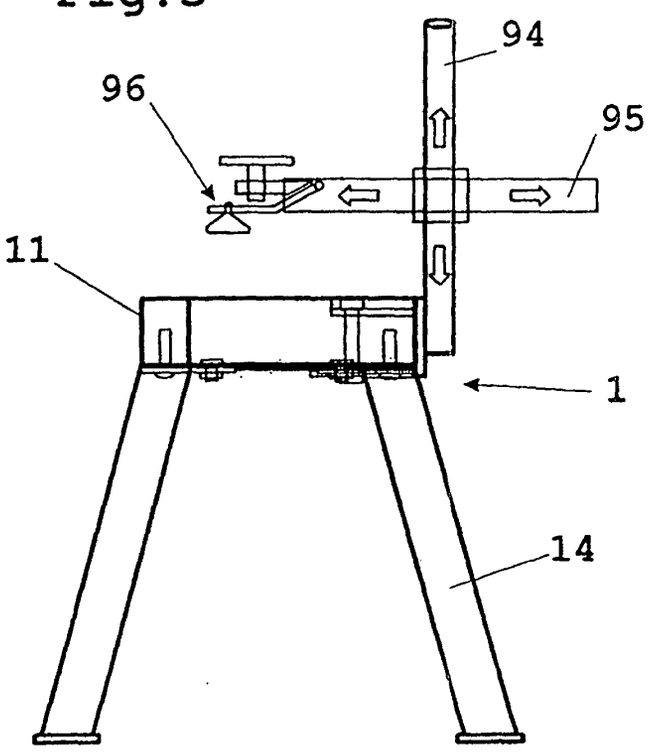
(54) PORTABLE WORK BENCH

(57) It includes a very solid frame that supports a table top and means to vertically hold a support for an attaching device of the parts to be machined, forming a horizontal arm able to communicate three basic movements to the parts: vertical, turning on its plate with respect to the vertical axis and horizontal. Applicable for in situ performance of auxiliary and complementary work and installation operations.

Fig.3



EP 1 479 481 A1

Description

SCOPE

[0001] This invention refers to a portable work bench intended to facilitate the performance of different mechanical and similar operations in various places, for example, on a construction work site or similar.

HISTORY

[0002] For the performance of work and construction complementary and auxiliary operations, occasionally tables to support devices and tools employed in said work are used. Often these tables lack suitable conditions for optimum performance of the work. In other cases the tables used do not have the means for suitably supporting the tools and devices needed to carry out the operations in question.

[0003] In the present state-of-the-art technique several workbench types and attaching elements are known, which are intended for the technicians to carry out different mechanical operations outside the workshop. Some of these benches do not have attaching devices for parts and elements to be machined or finished before their incorporation in the installations o work sites.

[0004] Invention patent no. P 200100003, whose titleholder is the applicant, describes a workbench with an attaching device that introduces some improvements as regards the types known at the date of the request.

[0005] It was becoming necessary to have a workbench with functional properties suitable for the needs of the operators when performing auxiliary technical operations of the type mentioned, such properties not being known in the previous performances.

BRIEF DESCRIPTION OF THE INVENTION

[0006] The new workbench consists of a solid frame and, at the same time, is easily portable thus permitting it to be transported in a vehicle. A solid base plate that defines the work plane and holds a movable and articulated arm on the head of which is an attaching device for the objects or parts to be treated, for example, their machining, is placed on the frame.

[0007] In order to facilitate the explanation, this description includes sketches in which a performance case of a portable workbench is represented for illustrative and non-limiting purposes, according to the principles of the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

Figure 1 is an overall and detailed view of the new workbench and figure 2 is a detail of the attaching device.

Figure 3 is a side elevated view of version of the bench mounted for use.

DETAILED DESCRIPTION OF THE INVENTION

[0009] The elements with numbers in the drawings correspond to the parts indicated below, forming functional sub-sets.

A. The carrying structure 1, which is very solid and resistant, constituted by a frame 11 with a preferably rectangular shape, defined by a vertical perimeter 12 and a horizontal plane board 13 on which the table top 2 of the bench rests immediately, and four supporting feet 14 made of an angular profile that are able to be folded or dismounted as regards the frame and possibly slightly leaning in divergence towards the floor. The set will be advantageously made of steel plate with a suitable thickness.

B. The workbench top 2 has the shape and sizes adjusted to those inside the perimeter 12 of the frame framework. It may be of one or various parts on the condition that it is resistant to deformation and its upper surface must be smooth but with a certain roughness to avoid the parts and tools from sliding in an undesirable way.

Typically, the bench top 2 will be of hard wood or light metal and will have means to attach it to the frame 1, which will be dismountable for transporting and storage. The back part has an orifice 21 corresponding to the orifice 15 of the frame framework.

C. The vertical axis 3 forms a support for the attaching device of the parts to be worked on and consists of a rod, preferably of carbon and tempered steel, with a shape and diameter suitable to make it highly resistant, taking into account the stresses it will have to withstand. Its foot has a screwed section 31 intended to be inserted into the orifices 15 of the frame 113 and 21 of the bench top 2 with the interposition of a washer 32 and final securing (dismountable) by means of a nut 33 with its washer or equivalent element.

D. The attaching device of the parts consists of an articulating block 5 with an orthoedric shape, provided with a vertical perforation 51, intended for insertion of the vertical carrying rod 3 and two parallel perforations for the passing of two horizontally moving rods 6 with the possibility of sliding. These are joined to a second orthoedric block 7, provided with a rectangular entrance 71 on one of the vertical faces and a transversal perforation 72. The block 7 carries a rod 73 for attaching an eccentric 8 with a preferably circular shape.

[0010] Attachment of the parts is made by a lever or arm 9 with a laid L shape. Its smaller section 91 is intended to be housed in the entrance 71 of the block 7, as indicated in figure 2, and has an orifice 92 that will correspond to the transversal perforation 72, permitting insertion of a pin 10.

[0011] The above elements define a horizontal arm that basically constitutes the supporting device of the parts to be machined, in which three basic movements are possible:

a) vertical of the horizontal arm, parallel to itself on the vertical axis 3;
b) turning of the horizontal arm on its plane with respect to the axis 3 itself, and
c) horizontal of the arm, on its plane, by sliding the rods 6 with respect to the block 5

[0012] The eccentric 8 has a cylindrical shape and a lateral arm 81 for operation, which facilitates the tightening of the retained parts. It determines the stress made on the lever 9 and the stress of the latter on the retained part at each moment during its machining.

[0013] The components of the described device are sized suitably in order to be able to resist and transmit considerable stresses, in accordance with the auxiliary operations it is anticipated will be carried out on the workbench.

[0014] Figure 3 shows a portable workbench the shape of which has some structural variants as regards the performance of figures 1 and 2, but maintaining the general idea of a supporting frame 1, a support that can adapt a vertical position 94 and a horizontal position 95, movable according to the arrows, with the possibility of having the three basic movements indicated above for the attaching device 96 and the desired positioning of the parts.

[0015] The invention, within its essentiality, could be put into practice in other ways of performance that differ in detail from the one indicated as an example in the description, and which could also reach the protection claimed. It could, therefore, be built in any shape and size with the most suitable materials and means as the whole set forms parts of the spirit of the claims.

Claims

1. Portable workbench intended to facilitate in situ performance of auxiliary and complementary operations of work and installations, **characterized by** the fact it includes a frame (1) supporting a table top (2), a vertical (3) able to be attached to the frame and the bench, and a movable horizontal arm (5, 6, 7) that immediately carries the parts to be machined.

2. Portable workbench, according to claim 1, **characterized by** the fact the frame (1) includes a rectangular framework (11) with means for supporting the table top (2) and for dismountable attachment of the vertical support (3).

3. Portable workbench, according to claim 1, **characterized by** the fact the vertical support (3) consists of a rod with its foot (31) screwed for attaching to the frame (1) and which is surrounded by a helicoidal spring (34) that helps to put the horizontal arm into an elevated position.

4. Portable workbench, according to claim 1, **characterized by** the fact the movable horizontal arm includes an orthoedric block (5) with a vertical perforation (51) for its coupling on the head of the support (3) and two horizontal perforations for the insertion of two rods (6), with the possibility of longitudinal sliding, carrying a second block (7) that forms the attaching device of the parts.

5. Portable workbench, according to claim 1, **characterized by** the fact the immediate attaching device of the parts that forms part of the horizontal arm includes an attaching lever (9) in the shape of an L the smaller section (92) of which is housed an a rectangular entrance (71) of the block (7) and is joined to the latter by means of a horizontal pin (10) inserted into the coaxial perforations of the block (7) and the section (92).

6. Portable workbench, according to claim 5, **characterized by** the fact the immediate attaching device of the parts to be machined also includes an eccentric mechanism formed by a rod (73) common to the block (7) and an eccentric (8) with a rounded shape that acts on the larger section (93) of the attaching lever (7) and is provided with an operating arm.

Fig.1

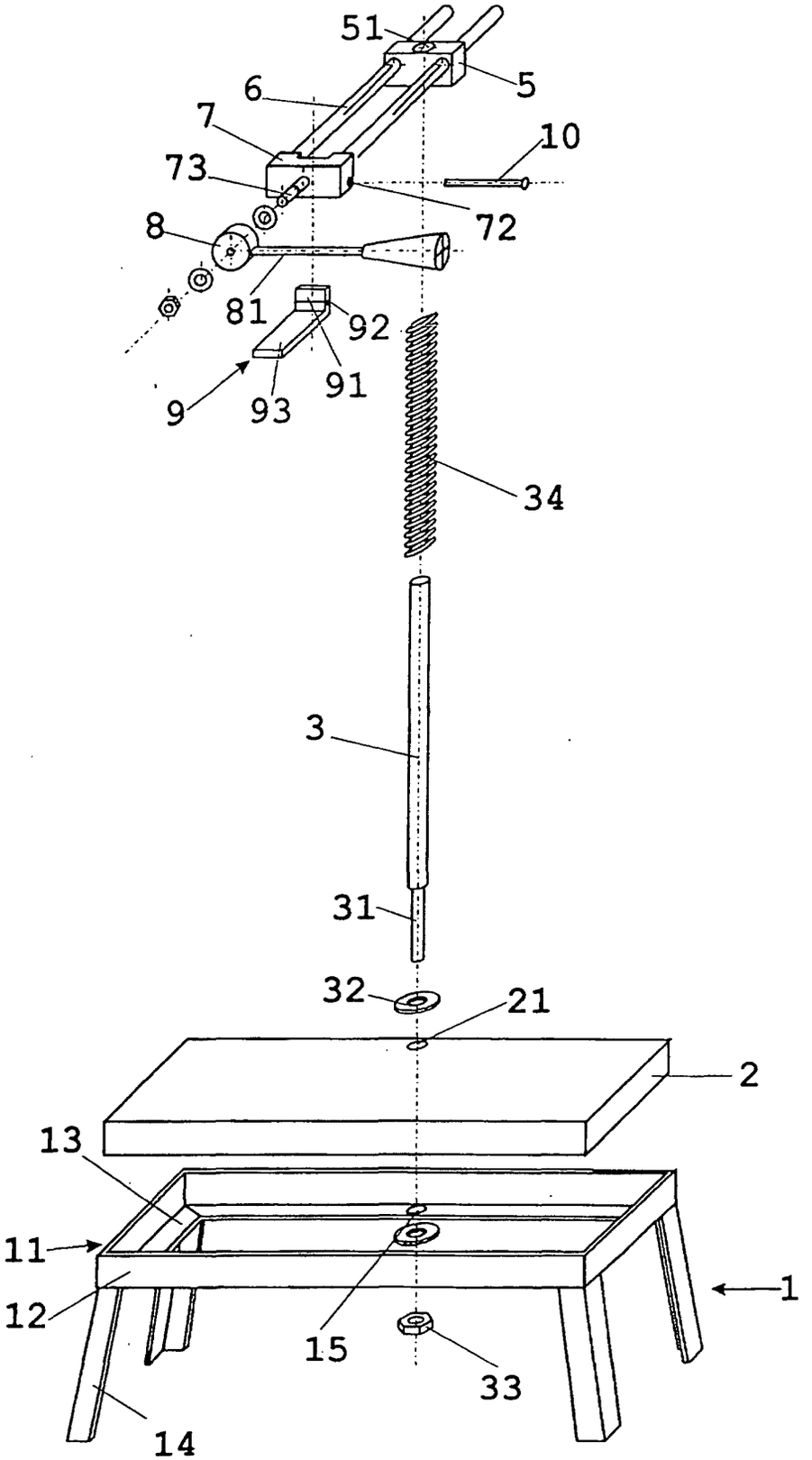


Fig.2

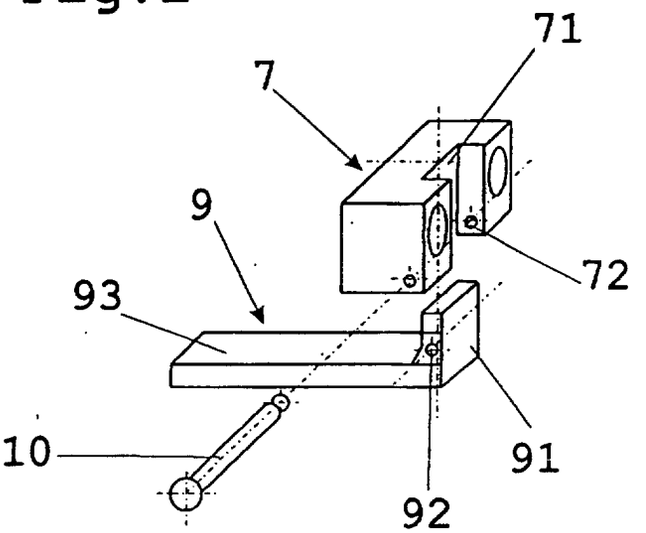
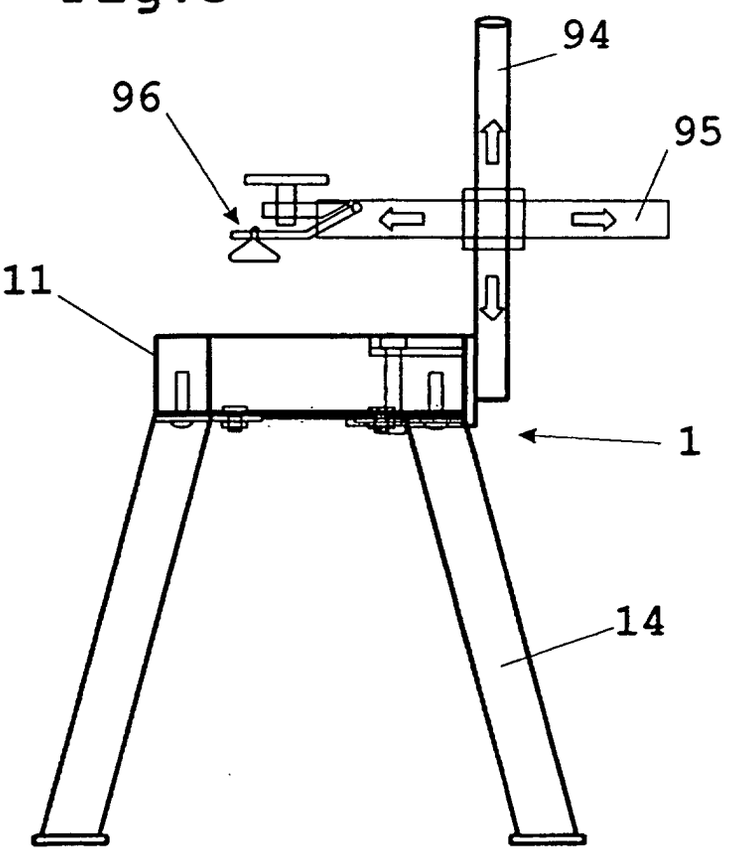


Fig.3



INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 03/00032

A. CLASSIFICATION OF SUBJECT MATTER [7]:

IPC7: B25B 1/22, B25H 1/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B25B+,, B25H +

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CIBEPAT, EPODOC, WPI, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 1818501 A (ODIN EUGENE A) 11 August 1931 (11.08.31), page 1, line 86- page 4, line 86 and figures	1,2 3,4
Y A	US 2997900 A (PUGSLEY LAURENCE E.) 29 August 1961 (29.08.61) column 3, line 17-column 4, line 39; figures 1-8	3 1,2
Y A	US 4509731 A (SCHAAL GUENTER et al.) 09 April 1985 (09.04.85) column 2, lines 4-57; the abstract and figures	4 1-3
X Y	GB 842094 A (CHARLES KELLER) 20 July 1960 (20.07.60), page 1, line 68-page 2, line 80, figures	1-2 4
Y	US 4619446 A (YANG TAI-HER) 28 October 1986 (28.10.86) column 9, line 47-column 10, line 40; the abstract and figures 1, 1-1, 1-2, 1-3	4

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 April 2003 (25.04.03)	07 May 2003 (07.05.03)
Name and mailing address of the ISA/ S.P.T.O Facsimile No.	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 03/000032

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9818603 A (LANG ARMAND) 07.05.1998; the abstract, figures	1-4
A	US 3815892 A (TULK G.) 11.06.1974; the whole document	1-4

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
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Form PCT/ISA/210 (patent family annex) (July 1992)