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(54) A device for working on work-pieces by means of pressure.

(57) An apparatus for the manufacturing of work pieces using pressure, such as bending, punching etc, said apparatus in principle compriving a surface (2), an adjustable carrier (3) regarding the surface, for a thereon affixed pressure device such as a hydraulic cylinder, said carrier (3) is adapted to be pivoted about an axis (A-A) parallel to said surface crossing the pressure axis (B-B) of the pressure device, whereby the pressure device can be placed at any desired angle in relation to the table, especially in a first position wherein the pressure line (B-B) is vertically to said surface, and in a second position wherein it runs parallel to it, such that the work pieces can be extended beyond the pivoting support within the working area of the pressure device.

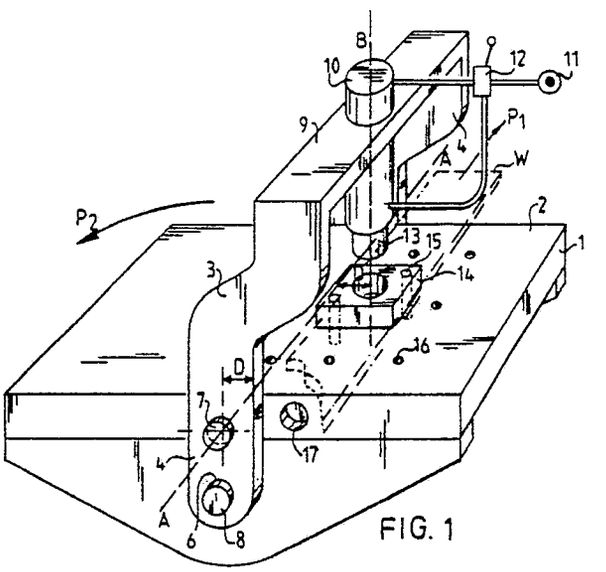

FIG. 1

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An apparatus for manufacturing on work pieces by means of pressure

The invention is related to an apparatus for manufacturing work pieces using pressure, such as bending, punching etc, said apparatus comprising principally a fixing surface and a carrier with respect to the table, for a thereon affixed pressure device such as a hydraulic cylinder.

An apparatus of the type described in the preamble is usually used for a single pressure stroke, for example the punching of work pieces, where the direction of the stroke is not suitable for pipe bending. The invention aims at providing a similar apparatus which is universal but nevertheless constructionally simple.

Thereto the invention provides an apparatus wherein the carrier is adapted to an axis parallel to the table, crossing the pressure axis of the pressure device.

Thanks to the pivoting, the pressure device can be brought under any desired angle regarding the table. Especially in the first position wherein the pressure line falls vertically on the table, and in the second position wherein it runs parallel thereto.

Other features and advantages of the invention will be evident from the detailed description of an embodiment herebelow.

In the drawing is:

Fig. 1: A plan view in perspective of the apparatus according to the invention wherein the pressure axis of the pressure device is vertical to the table.

Fig. 2: A similar perspective plan view to fig. 1 whereby the pressure axis of the pressure device runs parallel to the table.

In the figures a support table is indicated with the number 1, which can be mounted on any frame in any way desired.

The surface of the table 1 serves as a fixing surface 2, for the work piece to be machined. An example of which will be illustrated later hereunder.

A pivoting support 3 in the shape of a U shaped yoke straddles the table 1, so that the vertical cheeks or arms 4, of the yoke 3, are situated on either side of the table 1.

The free end of each arm posesses two through holes, 5, 6, through which a pivot pin 7 extends into the side of the table 1, and a locking pin 8 respectively. The two pivot pins 7 on both sides of the table form a hinge or pivot line A-A which runs parallel to the fixing surface 2 of the table 1. In the indicated construction the line A-A runs at a determined distance below the fixing surface 2, which distance is equal to the distance D between the front edge of the pivot arm 4, and the pivot line A-A. In the indicated construction each arm is also S or Z shape constructed, such that the body 9 of the yoke 3 springs out above the fixing table 1 with regard to the axis A-A.

This body plate 9 carries a pressure unit 10, in the form of a hydraulic cylinder which is operated via a pressure source 11, and a two way valve 12. The cylinder ram 13 moves up and down on a line B-B in figure 1.

According to a feature of the invention the pressure line B-B crosses the pressure line A-A, whereby the distance between these two lines is at least equal to distance D.

In the indicated construction it is greater than D.

This gives the advantage that the workpiece W on the fixing table can project on both sides of the table beyond the arms 4, whereby a movement of the workpiece is possible in the direction P1.

If the ram 13 of the cylinder 10 is fitted with a punch tool, and the fixing surface of 2 of the fixing table 1 is fitted with an anvil, then a punch unit is created very simply with the arrangement shown in fig. 1.

It will be noticed that the punch tool can be simply and easily fastened to the fixing table 2 using dowels 15 and the pre-drilled holes 16 in the table.

Naturally other punch units can be fitted to the fixing table 2 at suitable positions.

In the shown position of the apparatus the ram 13 of the cylinder 10 can naturally be fitted at will with any pressure tool for the thereon appropriate position.

Fig. 2 shows the apparatus in fig. 1 in an other position whereby the yoke 3 is pivoted counter clockwise following the arrow P2. This pivoting can be achieved by removing the locking pin 8 from the hole 6, lowering the yoke thereafter, and replacing locking pin 6 in the arm 4 in a second hole 17, in the side of the table 1.

In this position the cylinder 10 with ram 13 lies in such a way, that the pressure line B-B runs parallel to the fixing surface 2 of the table 1. Seeing that the distance between the pivot line A-A and the fixing surface of the table 1 is equal to distance D, the front of arm 4 lies level with or under the fixing surface of the table 1, so that the workpiece can project beyond the yoke arms 4.

This is indicated by a tubular workpiece W that is supported by two blocks 19, mounted at a distance from each other.

The ram 13 can push against the side of the workpiece W along a line B-B, whereby a bending action takes place.

It is clear that other support blocks 19 can be mounted on the fixing surface 2, making use of bolts and the tapped holes. Naturally, any suitable fixing method is possible.

The invention is not limited to the embodiment described above. Within the scope of the invention it is possible to give the yoke 3 another form, for example, as a projecting yoke with single arm, or an arm shaped other than the indicated S or Z shapes.

Claims

1. An apparatus for the manufacturing of workpieces using pressure, such as bending, punching etc, said apparatus comprising principally a fixing surface, a carrier having a pressure unit fitted thereon such as a hydraulic cylinder, and adjustable in relation to the fixing surface, characterized in that the carrier is adapted to be pivoted about an axis, parallel to the fixing surface and crossing the pressure axis of the pressure unit.

2. An apparatus according to claim 1, characterized in that the carrier is provided with one or two pivot arms, the side edge thereof nearest to the pressure axis is located at a certain distance from the pivot axis, said pivot axis extending for a least one half of said distance underneath the table surface.

3. An apparatus according to claim 1 or 2 characterized in that the distance between the offset crossing pressure and pivot axes is at least equal to half said distance.

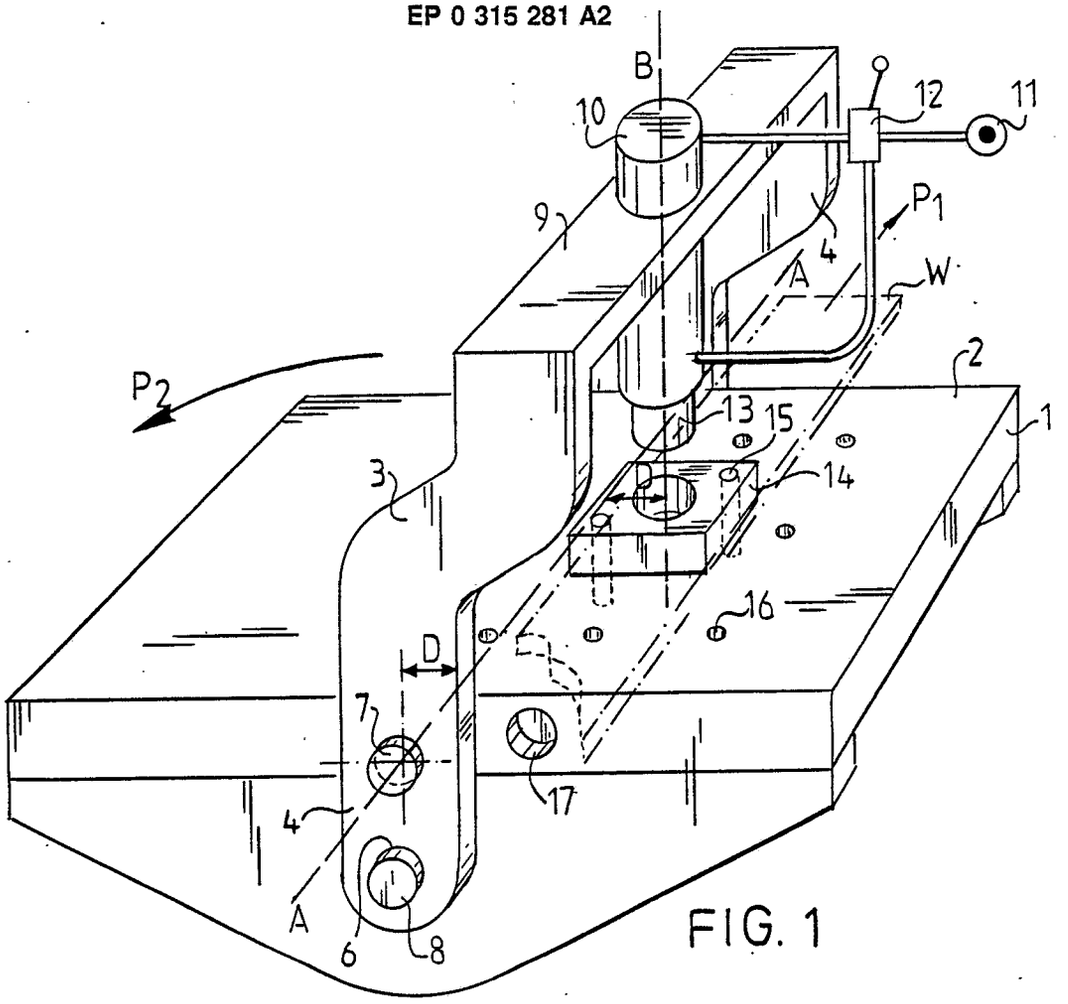
B
10
12
11
9
P1
4
A
W
2
P2
13
15
1
3
14
16
D
7
17
4
A
6
8

FIG. 1

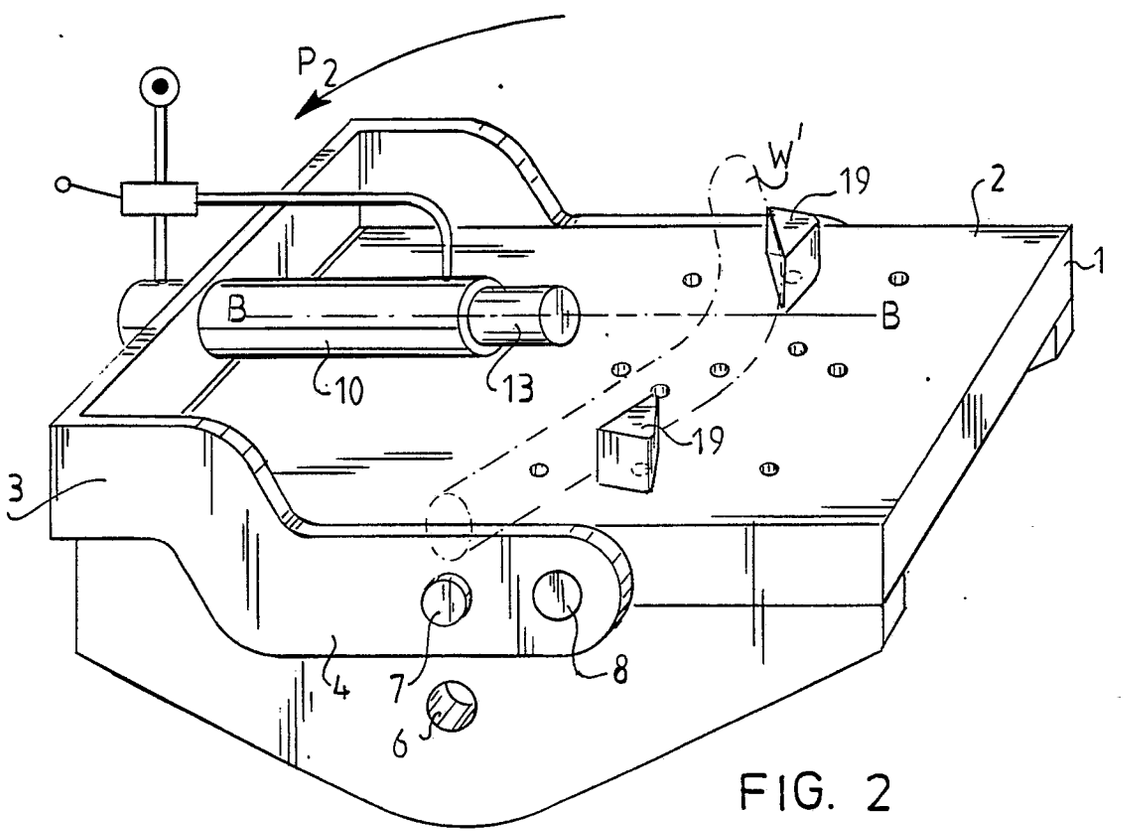
P2
W'
19
2
1
B
B
10
13
19
3
4
7
8
6

FIG. 2