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(51) INT CL^6
B25H 1/00

(52) UK CL (Edition P)
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(56) Documents Cited
EP 0018495 A1 **US 5462102 A** **US 5435411 A**
US 5299656 A **US 5064156 A**

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UK CL (Edition O) **B3B , B4X , B5L**
INT CL^6 **B23Q 1/76 3/00 3/02 3/04 3/10 , B25H 1/00**
1/02 1/04 1/06 1/08 1/10

(54) Abstract Title
Roller support apparatus

(57) A roller support 40 enables a work piece (100 fig 7), such as an elongate piece of wood, to be guided into a machine. A roller 44 is supported in a bracket 41 which is attached to one end of a rod 42. A work table or base 10 comprises a pair of frames 11 attaching to two beams (12 fig 2). The frames are braced by pivoted arms 20 and extendable links 15. A bar 30 is secured between arms 20. Rod 42 is slidably received in a hole 36 made in bar 30 and can be held in place by a threaded fastener 38. Plates 13,14 are located on the top of the beams and are movable relative to each other by bolts (121 fig 2) operated by handles (122 fig 2).

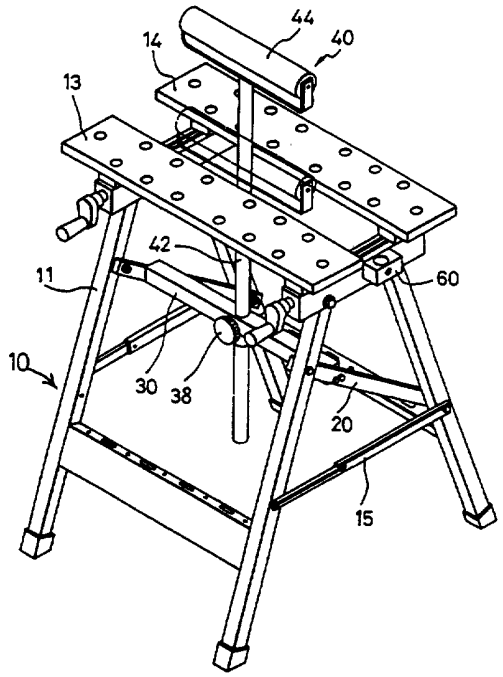

FIG. 1

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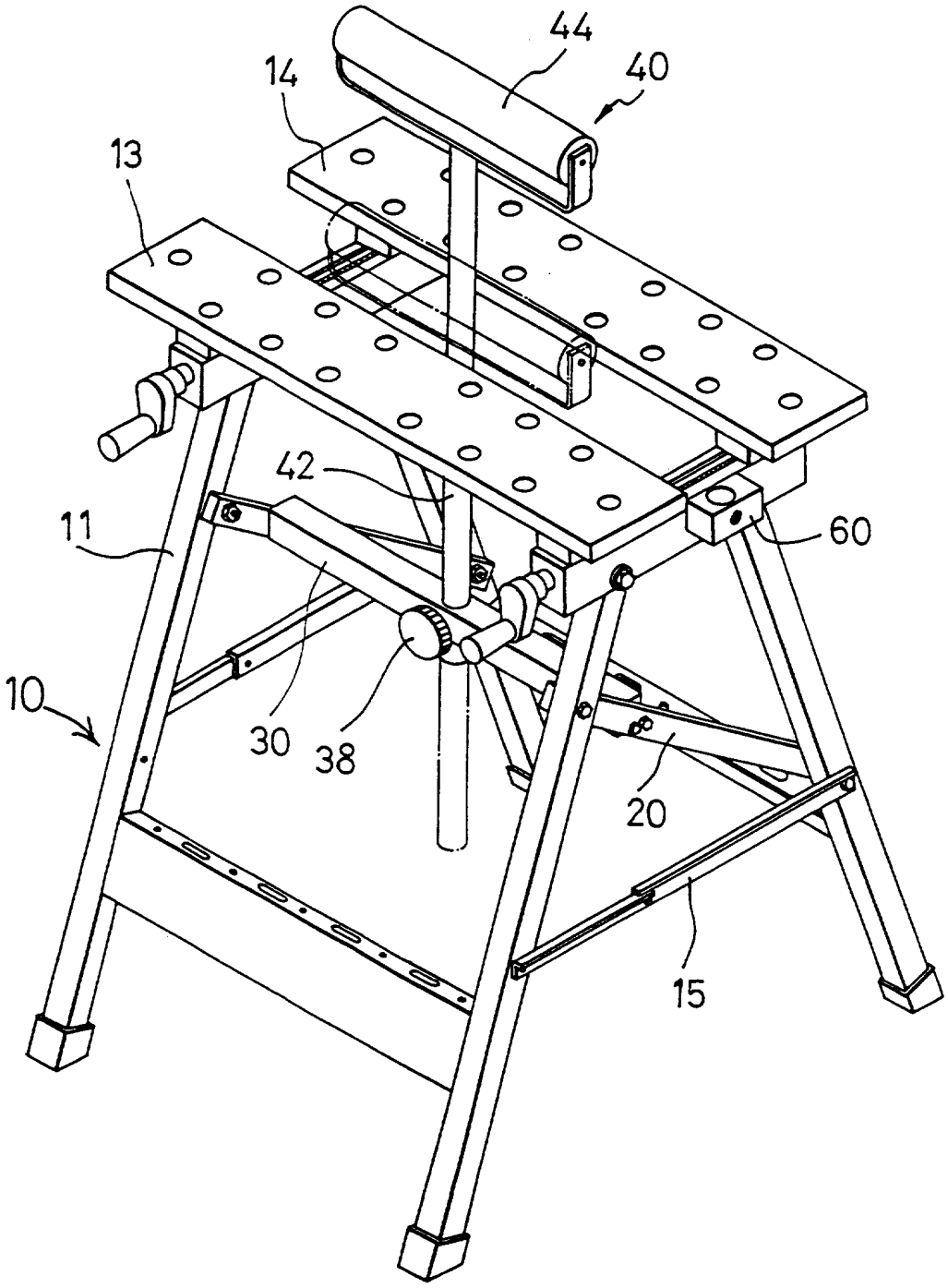

FIG. 1

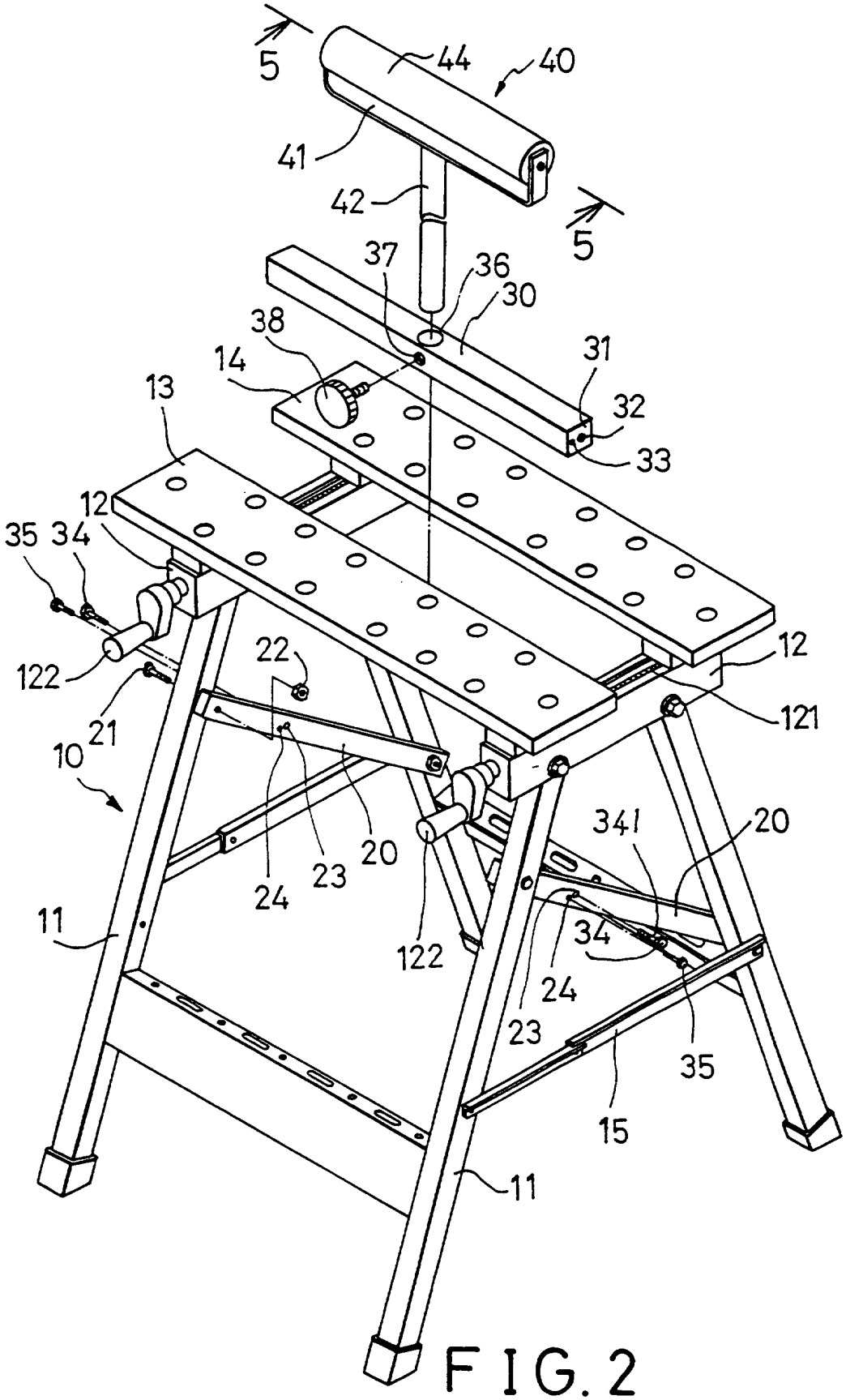
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FIG. 2

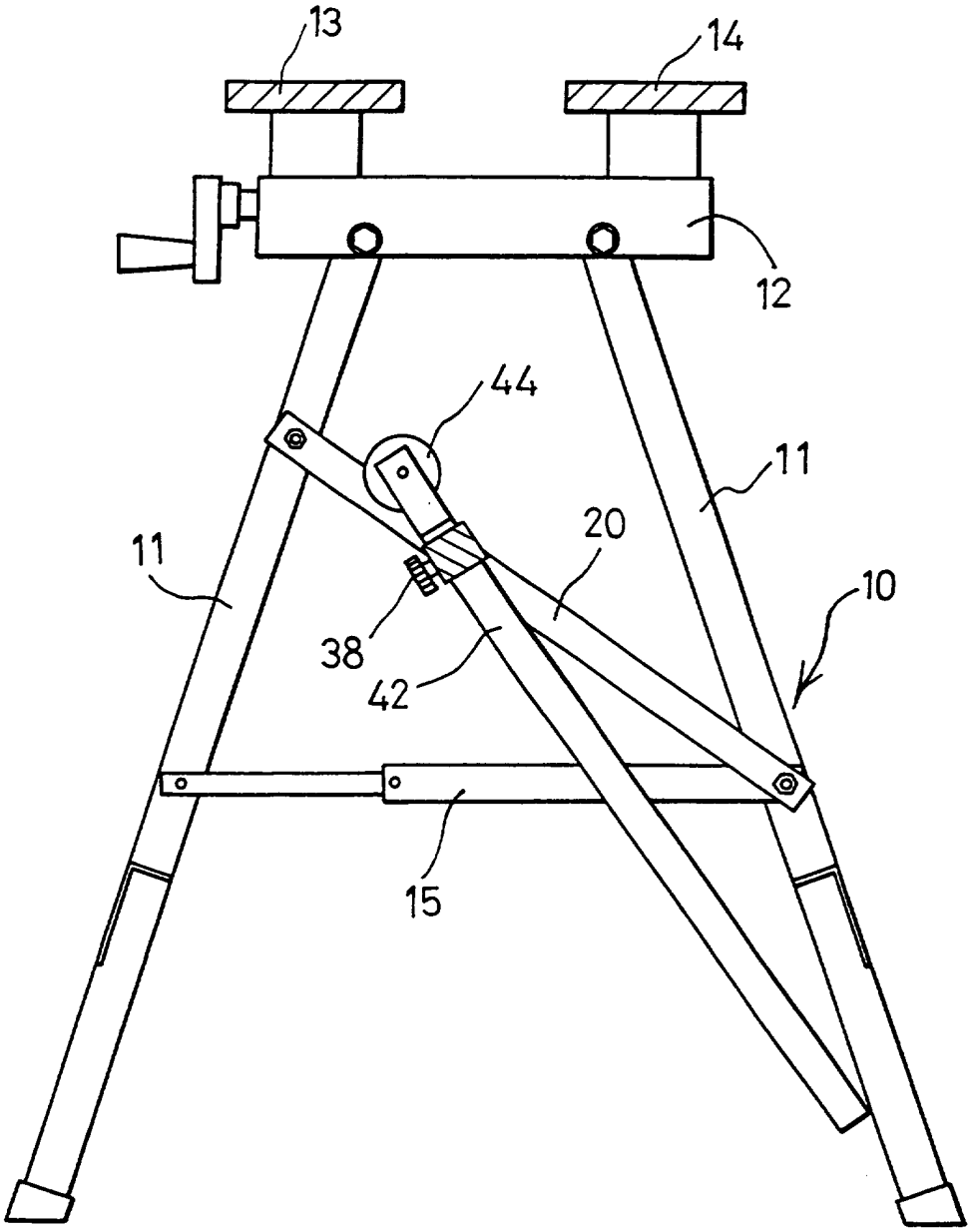

FIG. 3

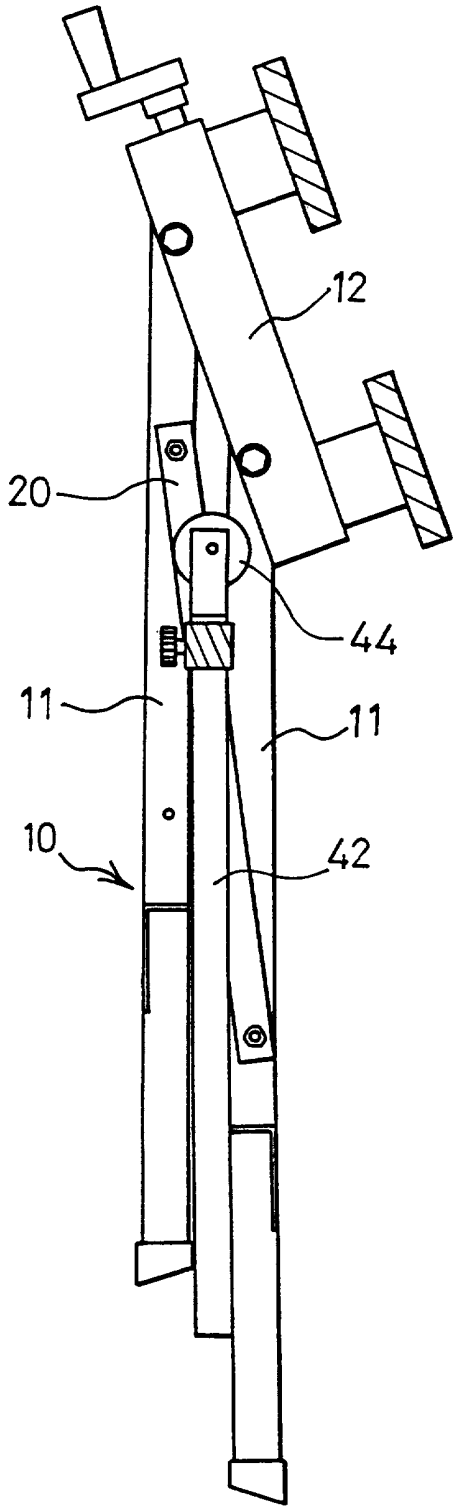

FIG. 4

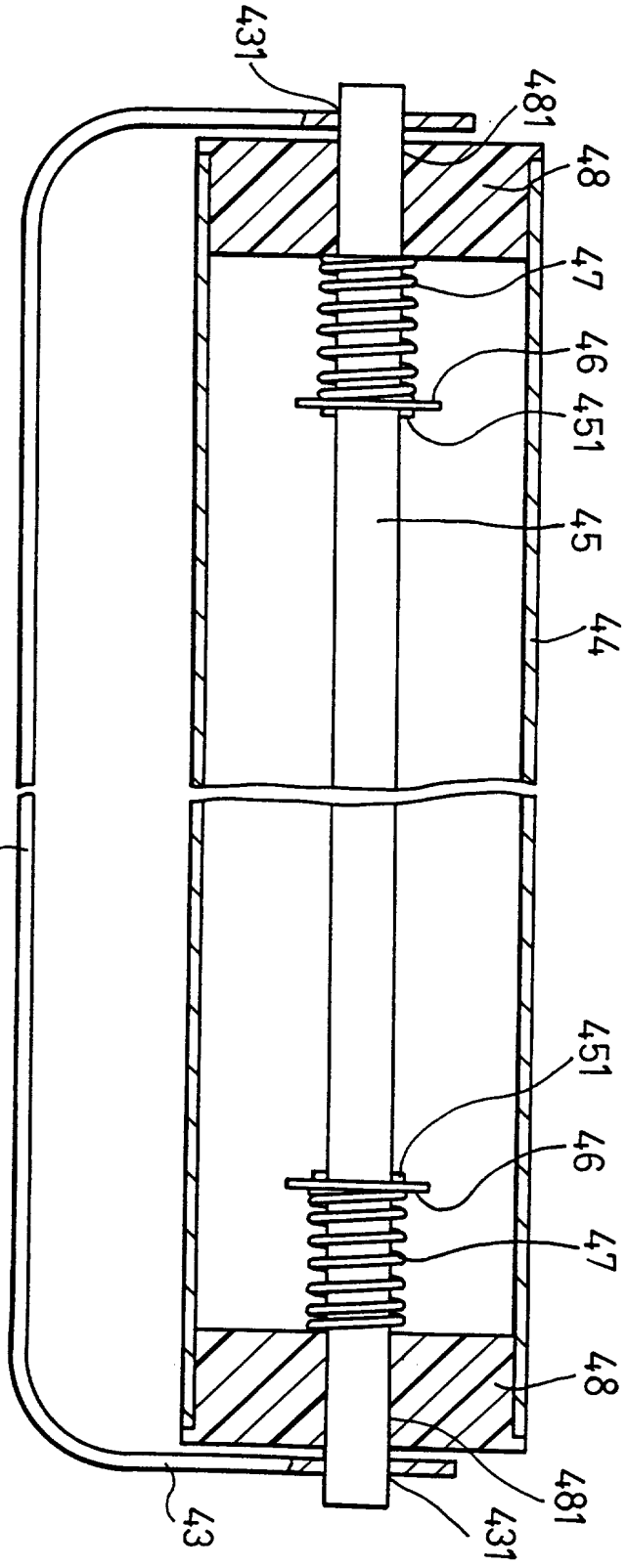

FIG.5

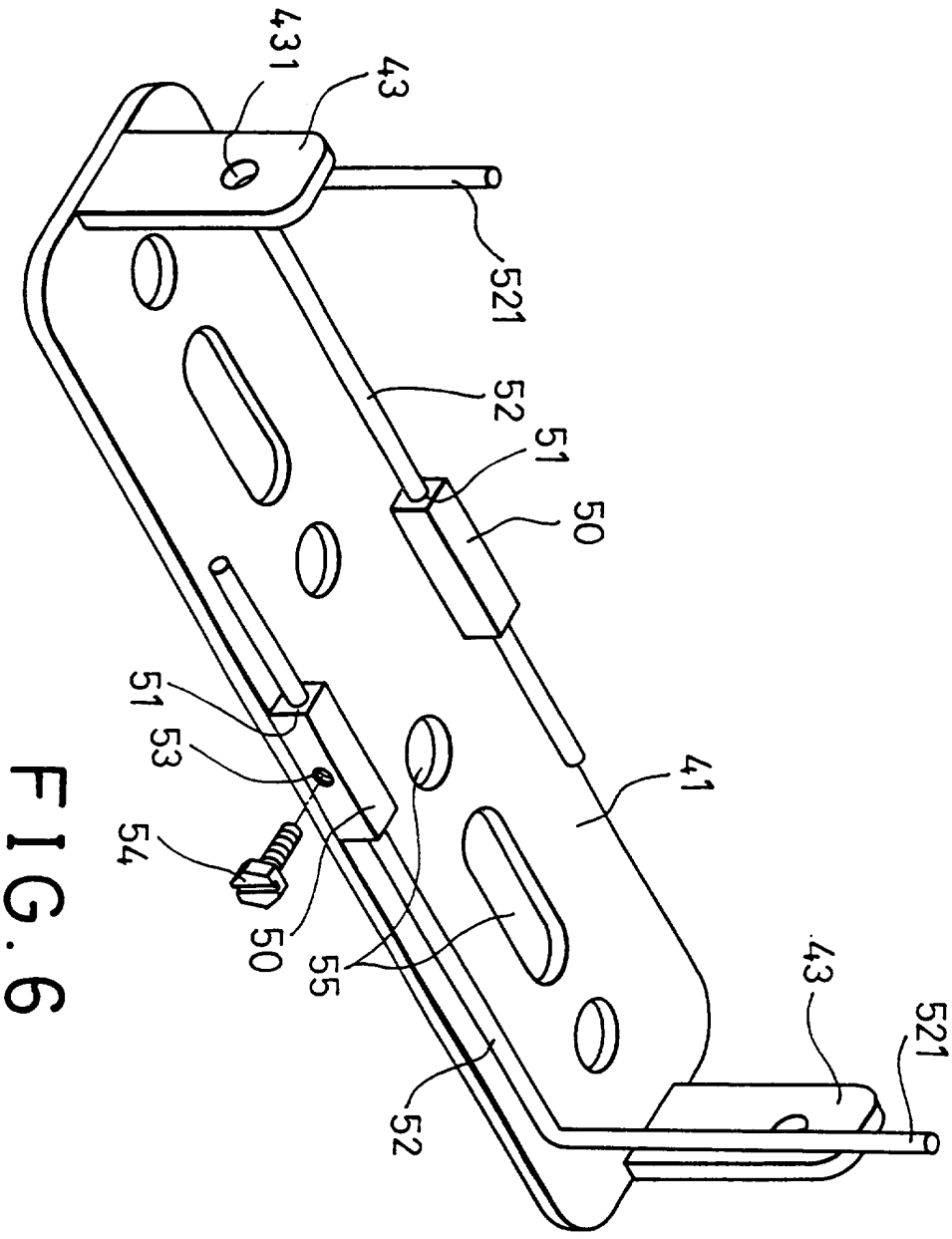

FIG.6

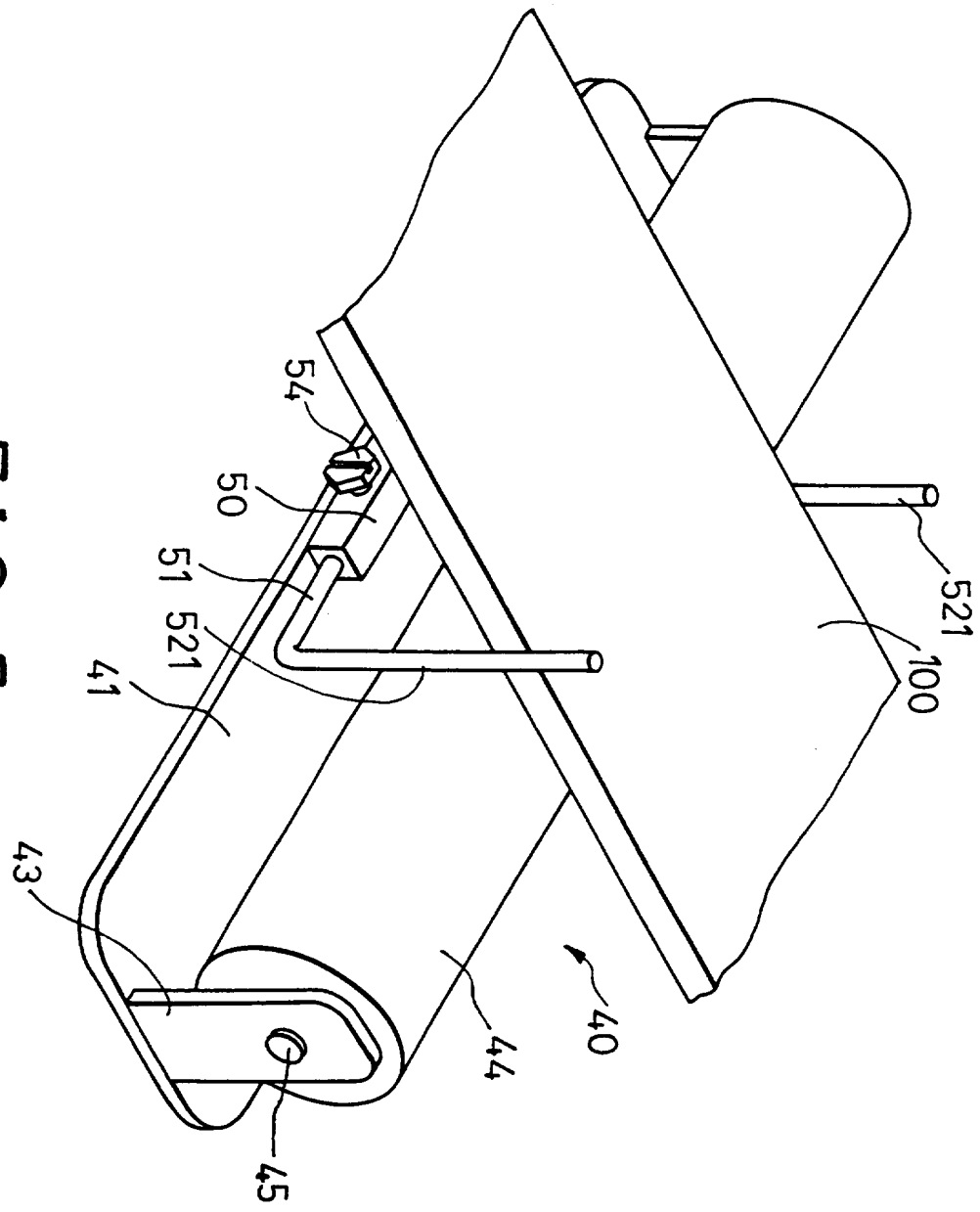

FIG. 7

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SUPPORT DEVICE FOR WORK PIECE

The invention relates to a support device for guiding a work piece into a working machine.

Typical wood working machines, such as planers, cutting machines, sewing machines, is required to be supplied with a long wood work piece. One free end of the work piece is held by another worker or simply supported by a table. However, the table may not be adjusted to different height for suitably supporting and supplying the work piece into the working machine.

It is accordingly an object of the present invention to provide a support device for suitably and smoothly supporting and supplying the work piece into the working machine.

According to the present invention, there is provided a support device for a work piece, the support device comprises:-

a) a base,

b) a bracket secured on the base, and

c) a roller rotatably supported in the bracket for engaging with and for supporting the work piece.

The base preferably includes a stick, the stick includes an orifice, the bracket includes a rod extended downward and slidably engaged in the orifice of the stick, and the stick includes means for securing the rod to the stick.

The base includes a pair of beams, a pair of

frames having an upper portion pivotally coupled to the beams, and a pair of bars secured between the frames, the stick is secured between the bars.

A first of the beams includes a bolt, the base includes a first plate secured on one end of the beams and includes a second plate threadedly engaged with the bolt, and means for rotating the bolt and for moving the second plate toward and away from the first plate.

The bracket includes a pair of flanges extended upward, the roller includes two end caps and includes a shaft having two ends rotatably supported in the flanges, the shaft includes two stops and two springs biased between the end caps and the stops for allowing the ends of the shaft to be moved inward of the roller against the springs.

The bracket includes a pair of blocks, a pair of poles slidably engaged in the blocks and each having an extension extended upward for engaging with the work piece and for preventing the work piece from moving laterally, and means for securing the poles to the blocks.

In the drawings:-

FIG. 1 is a perspective view of a support device;

FIG. 2 is a partial exploded view of the device;

FIGS. 3 and 4 are schematic views illustrating the folding operation of the support device;

FIG. 5 is a cross sectional view taken along lines

5-5 of FIG. 2, and

FIGS. 6 and 7 are perspective views illustrating the application of the roller supporting bracket.

Referring to FIGS. 1-3, a support device may support and smoothly supply a work piece 100 (FIG. 7) to a working machine. The support device comprises a work table or a base 10 including a pair of frames 11 having an upper portion pivotally coupled to a pair of beams 12 and having a middle portion coupled together by a pair of typical foldable links 15. A pair of bars 20 are further pivotally coupled between the middle portions of the frames 11. A first plate 13 is secured on top of the beams 12. The beams 12 each includes a rotatable bolt 121 which includes a handle 122 for rotating the bolt 121. A second plate 14 has a bottom portion engaged with the bolts 121 for allowing the second plate 14 to be moved toward or away from the first plate 13 by the bolts 121.

A stick 30 has two ends 31 engaged with the bars 20 and pivotally coupled to the bars 20 at a pivot axle by bolts 34 which are engaged through the holes 23 of the bars 20 and engaged with the holes 32 of the stick 30. The body 341 of one of the bolts 34 includes a longer length for allowing the stick 30 to be rotated about the pivot axle formed by the bolts 34. One or two bolts 35 may selectively engage through the holes 24 of the bars 20 and may engage with the holes 33 of the

stick 30 for securing the stick 30 in place. The stick 30 includes an orifice 36 formed in the middle portion and includes a screw hole 37 perpendicular to the orifice 36 for engaging with a fastener 38.

A roller support 40 includes a bracket 41 for supporting a roller 44 and a rod 42 extended downward form the bracket 41 for slidably engaging in the orifice 36 of the stick 30. The fastener 38 may secure the rod 42 to the stick 30 after the bracket 41 has been adjusted to the suitable height. As shown in FIG. 5, the bracket 41 includes a pair of flanges 43 extended upward from the side portions for rotatably supporting a shaft 45. The roller 44 has two end caps 48. The shaft 45 is engaged through the holes 481 of the end caps 48 and the holes 431 of the flanges 43. The shaft 45 includes two stops 451 for engaging with two washers 46 respectively. Two springs 47 are biased between the end caps 48 and the washers 46 for allowing the end portions of the shaft 45 to be moved inward of the roller 44 against the springs 47 and for allowing the roller 44 to be engaged onto the bracket 41.

Referring next to FIGS. 6 and 7, the bracket 41 includes a pair of blocks 50 provided in the middle portion and each having a hole 51 for slidably engaging with a pole 52. Two fasteners 54 may engage through the screw holes 53 of the blocks 50 for securing the poles 52 in place. The poles 52 each includes an extension

521 extended upward for engaging with the work piece 100 and for positioning the work piece and for preventing the work piece from moving laterally. The bracket 41 may include a number of openings 55 for supporting screw drivers, wrenches or other tools when the roller 44 is disengaged from the bracket 41.

Referring to FIGS. 3 and 4, the rod 42 may be lowered when the fastener 38 is disengaged from the rod 42. The stick 30 and the rod 42 may be rotated freely when the fasteners 35 are disengaged from the stick 30. The frames 11 of the base 10 may be folded to the compact configuration as shown in FIG. 4 when the typical foldable links 15 are folded either upward or downward. Accordingly, the support device may be folded to a rather compact configuration which is excellent for transportation and storing purposes.

As shown in FIG. 1, the base 10 may further includes a lug 60 having an orifice for engaging with the rod 42 and for allowing the rod 42 to be secured to the side portion of the base 10.

Accordingly, the support device includes a roller 44 that may be adjusted to the suitable height for smoothly supplying the work piece into the working machine. In addition, the extensions 521 may further stably supplying the work piece to the working machine.

CLAIMS:-

1. A support device for a work piece, said support device comprising:

a) a base,

b) a bracket secured on said base, and

c) a roller rotatably supported in the bracket for engaging with and for supporting the work piece.

2. A support device as claimed in claim 1, wherein said base includes a stick, said stick includes an orifice, said bracket includes a rod extended downward and slidably engaged in said orifice of said stick, and said stick includes means for securing said rod to said stick.

3. A support device as claimed in claim 2, wherein said base includes a pair of beams, a pair of frames having an upper portion pivotally coupled to said beams, and a pair of bars secured between said frames, said stick is secured between said bars.

4. A support device as claimed in claim 3, wherein a first of said beams includes a bolt, said base includes a first plate secured on one end of said beams and includes a second plate threadedly engaged with said bolt, and means for rotating said bolt and for moving said second plate toward and away from said first plate.

5. A support device as claimed in claim 1, wherein said bracket includes a pair of flanges extended

upward, said roller includes two end caps and includes a shaft having two ends rotatably supported in said flanges, said shaft includes two stops and two springs biased between said end caps and said stops for allowing said ends of said shaft to be moved inward of said roller against said springs.

6. A support device as claimed in claim 1, wherein said bracket includes a pair of blocks, a pair of poles slidably engaged in said blocks and each having an extension extended upward for engaging with the work piece and for preventing the work piece from moving laterally, and means for securing said poles to said blocks.

7. A support device substantially as herein described with reference to the accompanying drawings.

The Patent Office

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Application No: GB 9709119.3 **Examiner:** Hal Young
Claims searched: 1-7 **Date of search:** 27 June 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): B3B ; B4X ; B5L

Int Cl (Ed.6): B23Q(1/76 ; 3/00, 02, 04, 10) ; B25H(1/00, 02, 04, 06, 08, 10)

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	EP 0018495 A1	(SA MANUFACTURE), see figs 1,2 and 4.	1,2
X	US 5462102	(SEARFOSS), see figs 1,2,4 an 7.	1
X	US 5435411	(POWER TOOLS), see figs 1 and 2.	1,2
X	US 5299656	(GRILL), see fig 1.	1,2
X	US 5064156	(HIRSH), see figs 1-3,6 and 7.	1,2

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.