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(54) A work table with a guard device for a motor-driven circular saw.

(57) The work table (1) and guide device are for a circular saw which has a saw blade which can be raised through a slot (7) in a rotatable circular plate (6) forming a part of the work table. A guard (8) is mounted at the end of the upper arm (12) of a generally horizontal, U-shaped mounting or carrier bow (13), the lower arm (14) of which is attached to the lower side of the circular plate (6) so that the bow rotates with this plate. The lower arm (14) of the mounting bow has an arc-shaped portion (14*b*) connecting an outer portion (14*c*) of the arm with an inner portion (14*d*) which is angularly offset about the axis of rotation of the plate relative to the outer portion. Two adjacent legs (4, 5) of the work table are positioned or shaped so as to allow movement of the arc-shaped portion (14*b*) of the lower arm outside one leg (5) and inside the other (4), thereby allowing a large angle of rotation of the circular plate (6) and the mounting bow (13) without said bow interfering with the legs of the work table.

EP 0 007 796 A1

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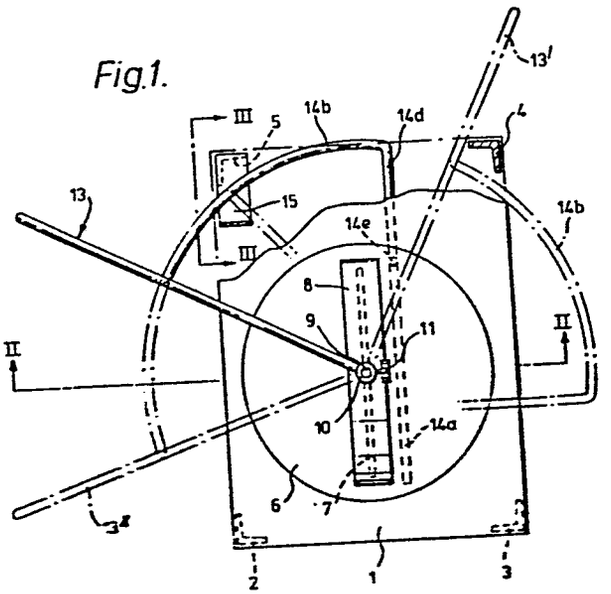
Fig.1.


13'
III
5
14b
14d
4
13
15
14e
14b
III
8
9
11
II
II
10
14a
6
7
3
2
1
3

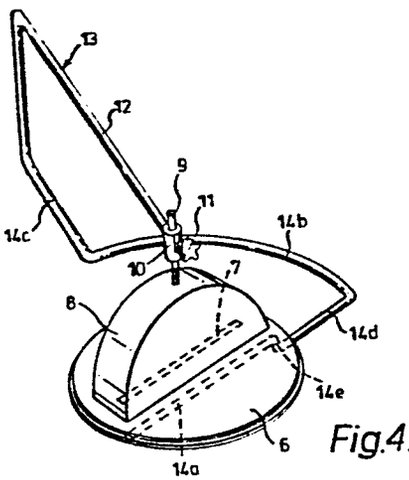

13
12
9
11
14b
14c
10
7
8
14d
14e
6
14a

Fig.4.

"A WORK TABLE WITH A GUARD DEVICE FOR A MOTOR-DRIVEN CIRCULAR SAW"

The present invention relates to a work table with a guard device for a motor-driven circular saw of the type in which the saw blade spindle is mounted in a mounting frame and the saw blade extends through a slot in the work table which has several legs, the mounting frame being suspended from a circular plate in which the slot is provided and which is rotatably mounted relative to the rest of the work table, a guard positioned above the slot being attached to the upper arm of a bow which is substantially U-shaped in elevation and extends outside the edge of the work table, its lower arm lying under the table and being connected to the circular plate for rotation with this plate.

Such a bow-shaped carrier device for a guard is prescribed by the Swedish Labour Inspection Authorities and is also known from Norwegian Patent Application No. 77 0660. Such a bow will necessarily interfere with the legs of the work table when rotating together with the circular plate. Usually it will be possible simply by designing one or more of the legs in special manners or by displacing the legs to obtain a total

rotatory movement of 90°, which is an absolute minimum. However, it is desirable for the circular plate to be rotatable at least 45° in both directions from a cross cutting position of the saw blade, for producing a bevel cutting, and at the same time it will be advantageous if the plate can be rotated 90° in one direction from the position of the plate and the saw blade during cross cutting, so as to allow use of the saw for ripping. This means that it is highly desirable if the saw blade and the circular plate and thereby the carrier bow for the guard can be rotated an angle of at least 135° in total.

The present invention aims at providing a guard of the type referred to initially, allowing a rotation of the saw blade and the circular plate of at least 135° without any substantial reduction of the stability of the work table.

The work table and guard device for achieving this is according to the invention characterized in that the lower arm of the bow in plan view comprises a substantially arc-shaped portion connecting an outer portion of the lower arm of the bow with an inner portion which is angularly offset relative to the outer portion about the axis of rotation of the plate, said arc-shaped portion lying at a distance from the axis of rotation of the plate such as to move inside one of the legs of the work table, but outside an adjacent leg. To allow the arc-shaped portion to be passed outside the said adjacent leg, this leg may be connected to the work table in a position which is closer to the axis of rotation of the plate than the distance from this axis to the said one leg. Alternatively the said adjacent leg may be shaped with an outwardly open U-shaped portion through which the arc-shaped portion can be passed.

An embodiment of the invention will be described in more detail below, by way of example, reference being had to the drawing.

Figure 1 is a plan view of a work table with a guard device according to the invention, a part of the table plate of the work table being removed to show underlying parts. The suspension of the saw blade and the motor below the work table is not shown.

Figure 2 is a cross section through the work table with guard device on the line II-II in Figure 1;

Figure 3 is an elevation of a corner of the work table from the line III-III in Figure 1;

Figure 4 is a perspective view of the guard with the carrier bow therefor and the circular plate to which the carrier bow is connected.

As already mentioned in connection with Figure 1, the saw blade, the saw blade spindle, the prime mover of the saw and a pivotal mounting frame on which the saw blade spindle is mounted, are not shown as these parts form no part of the present invention. Structures serving as a fence for the work piece etc. are also not shown for sake of simplicity, since also these structures are not relevant to the invention. The same is true for a possible guard for the part of the saw blade always positioned below the table.

In the embodiment illustrated the saw has a work table having a rectangular table plate 1 and four legs 2, 3, 4 and 5. The table plate 1 has a circular opening for rotatable mounting of a circular plate 6 forming a support for the work to be sawn, and lying flush with the rest of the table plate 1. In the circular plate 6 there is provided a slot 7 through which the saw blade (not illustrated) can be raised. The mounting frame for the saw blade spindle is of

course suspended from the plate 6 so as to rotate together with this plate, and the saw blade will rotate together with the slot 7. Means for rotating the plate 6 and locking it in various positions relative to the table 1 as well as means for raising the mounting frame and locking it in positions in which the saw blade protrudes through the slot 7, are not shown in the drawing, since they do not relate to the invention.

The guard device according to the invention comprises a guard 8 which on top carries a rod 9 which is guided in a sleeve 10. The rod 9 may be locked in a desired position in the sleeve 10 by means of a set screw having a knob 11. The sleeve 10 is rigidly connected to the upper arm 12 of a horizontally positioned bow 13 which extends outside the edge of the work table 1 and inwardly below the table, its lower arm 14 being connected to the circular plate 6. The means 9 to 11 for adjustable suspension of the guard 8 in the upper arm 12 of the bow 13 constitutes a strongly simplified example of the manner in which the guard may be suspended, and it will be understood that the connection between the guard and the upper arm 12 may be made in various other ways.

The lower arm 14 of the bow 13 consists of a number of different portions. At its outer end the arm 14 has an attachment portion 14a which contacts the lower side of the plate 6 parallel to the slot 7 and is for instance welded to the plate 6 or connected thereto in other ways. The most characteristic feature of the lower arm 14 of the bow 13 is a substantially arc-shaped portion 14b, which connects an outer portion 14c with an inner portion 14d which is angularly offset about the axis of rotation of the

plate 6 relative to the outer portion 14c. The inner portion 14d is parallel to the attachment portion 14a, but may be positioned somewhat below the attachment portion, the portions 14a and 14d being interconnected by a cranked portion 14e in order to provide a clearance between the portion 14d and the lower side of the work table 1.

As shown in Figure 3 one of the four legs is shaped somewhat differently from the other. Thus, the leg 5 at its upper end ends in an angle bar 15 which is connected to the work table at 16, i.e. in a position which is closer to the axis of rotation of the plate than is the leg 4. As a consequence of this design of the leg 5 the portion 14b of the bow 13 is movable outside the leg 5 at the upper end thereof, but inside the leg 4. It will be understood that this effect can be achieved with a number of other designs and arrangements of the leg. The leg 5 may for instance have an outwardly open U-shaped portion further down on the leg. Alternatively the leg 5 may extend straight down from the position 16 or possibly extend obliquely outwards from this position to provide the desired support.

From the position of the plate 6 shown in solid lines in Figure 1, which position constitutes the cross cutting position of the saw, the plate with the bow 13 may be rotated to the position of the bow illustrated by dash-dot-dot lines at 13'. Further rotation is prevented by abutment of the outer portion 14c of the lower arm 14 of the bow 13 with the leg 4. This is a position in which the plate 16 has been rotated 90° relative to the shown cross cutting position and which constitutes the ripping position of the saw. Additionally the saw may be rotated 45° in the opposite direction to the dash-dot position of

the bow 13 illustrated at 13". In this position the inner portion 14d of the lower arm of the bow will abut the angle bar 15 of the leg 5.

Thus, the angular displacement of the portions 14c and 14d of the bow adds to the rotational movement permitted between the legs 4 and 5 when a bow having a straight lower arm is used. Thereby it is possible to obtain the desired rotation of the saw without displacing or weakening the legs of the work table in a manner which might reduce the stability of the table.

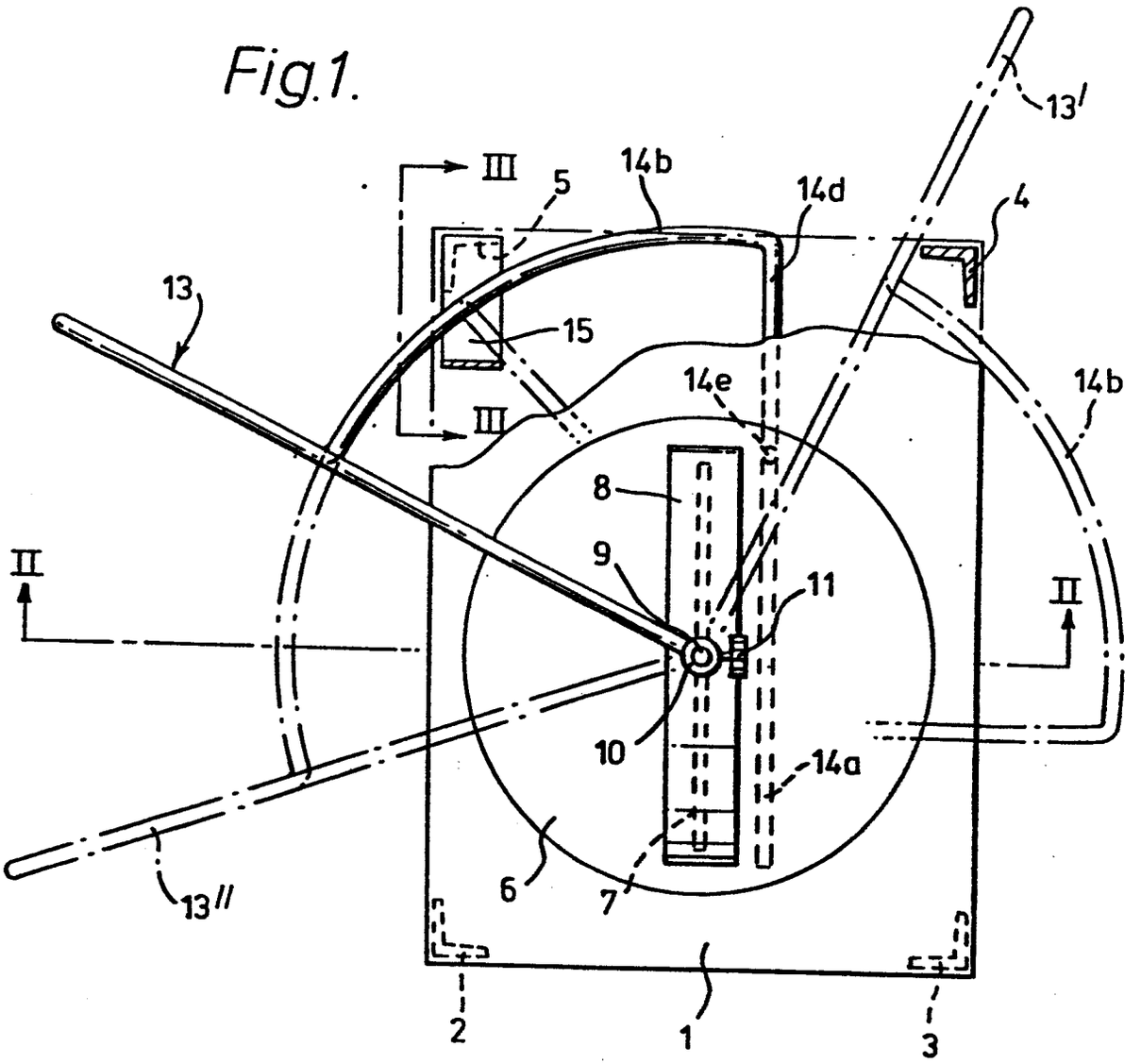
If the saw is of the type in which the saw blade is tilted, either the guard 8 must have a shape permitting such tilting of the saw blade inside the guard, or the bow with the guard must be tiltable in a corresponding manner so that the guard will follow also the tilting movement of the saw blade. This is not illustrated in the drawing, since it does not relate to the invention, and it will be evident to one skilled in the art how such a tiltable mounting may be obtained.

CLAIMS:

1. A work table with a guard device for a motor-driven circular saw of the type in which the saw blade spindle is mounted in a mounting frame and the saw blade extends through a slot (7) in the work table which has several legs (2, 3, 4, 5), the mounting frame being suspended from a circular plate (6) in which the slot (7) is provided and which is rotatably mounted relative to the rest of the work table, the guard device comprising a guard (8) positioned above the slot (7) and attached to an upper arm (12) of a bow (13) which is substantially U-shaped in elevation and extends outside the edge of the work table (1), the bow having a lower arm (14) lying under the table and being connected to the circular plate (6) for rotation with this plate, characterized in that the lower arm (14) of the bow (13) in plan view comprises a substantially arc-shaped portion (14b) connecting an outer portion (14c) of the lower arm (14) of the bow with an inner portion (14d) which is angularly offset relative to the outer portion (14c), about the axis of rotation of the plate (6), said arc-shaped portion lying at a distance from the axis of rotation of the plate such as to move inside one of the legs (4) of the work table, but outside an adjacent leg (5).

2. A work table as claimed in claim 1, characterized in that the said adjacent leg (5) is connected to the work table (1) in a position (16) which is closer to the axis of rotation of the plate than the distance from this axis to the said one leg (4) or is formed with an outwardly open U-shaped portion through which the arc-shaped portion (14b) can be passed in order to allow the arc-shaped portion (14b) to be passed outside the leg (5).

Fig.1.



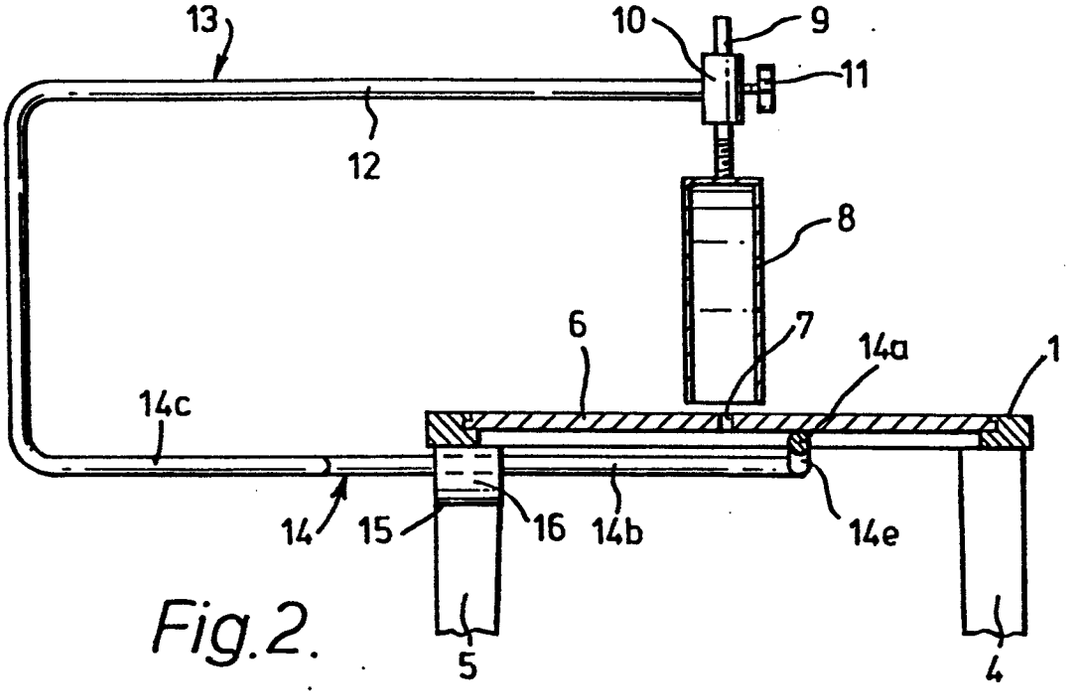


Fig.2.

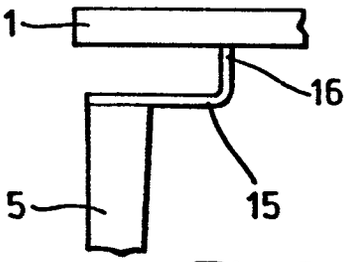


Fig.3.

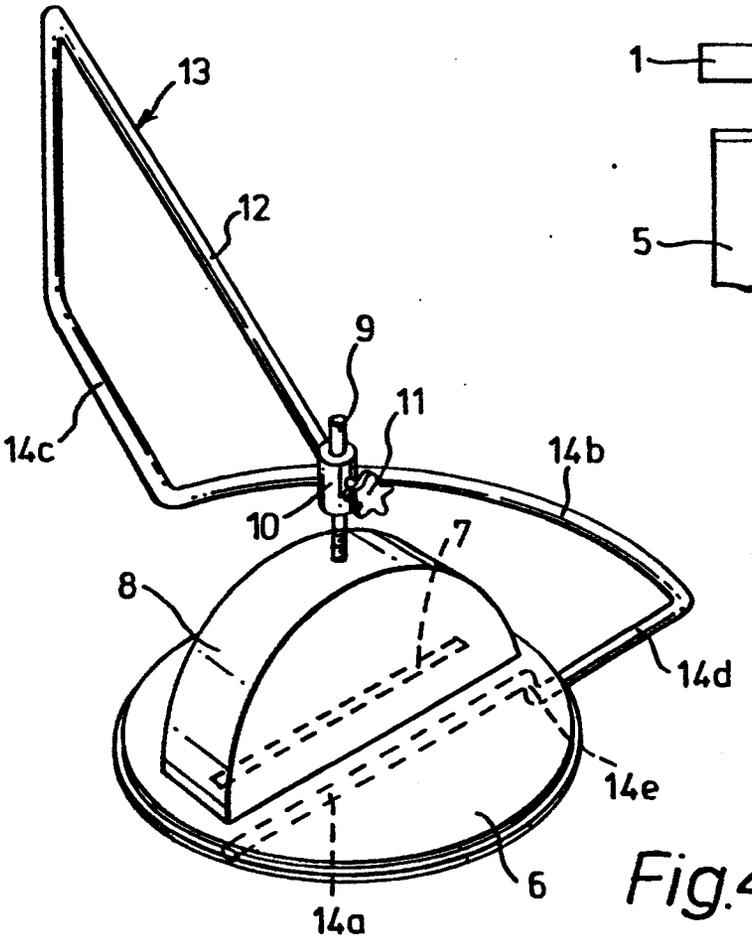


Fig.4.

European Patent Office

EUROPEAN SEARCH REPORT

Application number

EP 79 301 474.7

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	no citations	

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

B 27 G 19/02

TECHNICAL FIELDS SEARCHED (Int.Cl.³)

B 23 D 59/00
B 23 Q 11/08
B 25 H 1/20
B 27 B 5/00
B 27 G 19/00
B 27 G 21/00
B 27 G 23/00
F 16 P 1/00

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
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P: intermediate document
T: theory or principle underlying the invention
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D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	09-10-1979	HOFFMANN

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