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EUROPEAN PATENT APPLICATION

21 Application number: 85301876.0

51 Int. Cl.⁴: B 25 B 1/24

22 Date of filing: 18.03.85

30 Priority: 21.03.84 GB 8407344

43 Date of publication of application:
02.10.85 Bulletin 85/40

84 Designated Contracting States:
AT BE CH DE FR GB IT LI LU NL SE

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54 Vice.

57 The invention relates to vices, particularly but not exclusively of the handy-man type. It is the object of the inventions to provide a means of extending the range of opening of a vice. The objective is met by a construction comprising a body portion on which is provided a fixed jaw, a movable jaw mounted on at least one slide extending through a plain hole in the body portion and with a drive screw rotatably secured to the movable jaw and extending through a threaded hole in the body portion, characterised in that said movable jaw (5) is mountable on the body portion (1) in a first position to co-operate with and be movable towards and away from the fixed jaw (2), and in a second position where the at least one slide (6) and drive screw (7) extend in the opposite direction through the respective plain (3) and threaded (4) holes in the body portion (1), and whereby the movable jaw (2) co-operates with and is movable towards and away from a second fixed jaw (2,22) on the body portion (1) rearwardly of the first fixed jaw (2,21).

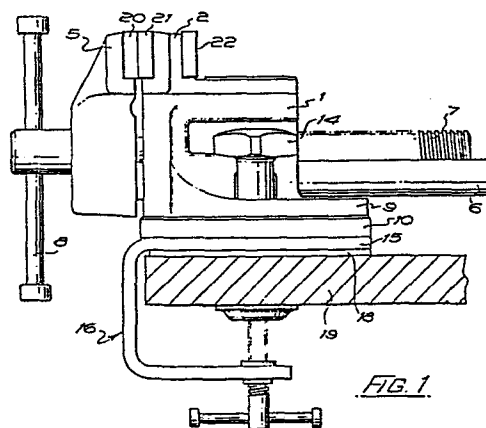


FIG. 1

VICE

This invention relates to vices and is particularly although not necessarily exclusively concerned with bench-mounted vices of the handy-man type.

5 Particularly in the DIY field it is not usual for a user to purchase more than one vice to allow for those occasions where an abnormally wide workpiece needs to be gripped. Thus when a conventional vice is being used
10 with a jaw opening of for example three to four inches maximum, the user experiences great difficulty in gripping e.g. planks of more than four inch width.

 The object of the present invention is
15 to provide a vice capable of accommodating workpieces of greater width than the normal jaw opening of the vice, in relatively simple and cost-effective manner.

 According to the present invention, a
20 vice comprises a body portion on which is provided a fixed jaw, a movable jaw mounted on at least one slide extending through a plain hole in the body portion and with a drive screw rotatably secured to the movable jaw and
25 extending through a threaded hole in the body

portion, said movable jaw being mountable on the body portion in a first position to cooperate with and be movable towards and away from the fixed jaw, and in a second position where the at least one slide and drive screw extend in the opposite direction through the respective plain and threaded holes in the body portion, and whereby the movable jaw cooperates with and is movable towards and away from a second fixed jaw on the body portion rearwardly of the first fixed jaw.

Thus, with the vice being of the bench-mounted type, the body portion may be rotatably secured to a mounting plate adapted to be secured to a work surface, with locking means provided to hold the body portion at a required disposition on the mounting plate. Thus during normal use the vice can be used in a conventional manner to hold workpieces of widths up to the maximum jaw opening provided. When a wider workpiece is to be held, the movable jaw can simply be unscrewed completely from the body member, the locking means released, the body portion rotated through 180°, the locking means re-applied, and the movable jaw relocated on the body portion such

that the movable jaw face co-operates with the further fixed jaw on the body. Thus the vice is provided with two ranges of opening, one up to, e.g., 3.1/2", and the other 3.1/2" minimum to 7" maximum. With this embodiment the rotatable mounting of the body portion on the mounting plate can simply be effected by providing a mounting plate with a circular opening which opening is recessed on its underside, to locate a rotatable locking plate when the mounting plate is secured to a work surface. Thus with at least one upstanding threaded stem on the rotatable plate passing through a hole in the body portion of the vice to be engaged by a threaded locking member, the locking member can be released to allow rotation of the body and the threaded locking member re-tightened when the body member is in the required alternative position.

Alternatively, the body portion may be secured to a work surface by e.g. a G-clamp, one leg of which passes through a plain hole in the body portion. In this case, the body portion can be reversed by simply releasing and removing the G-clamp, turning the body through 180° and replacing and re-

tightening the G-clamp, so that with the movable jaw relocated on the body portion the wider range of jaw opening is provided, in exceedingly simple manner. Alternatively, the G-clamp may be of plate construction, when the top plate of the clamp may be constructed in the same manner as the mounting plate of a bench-mounted vice, to enable release and rotation of the vice body as and when required.

A further advantage of the invention in its forms where the vice body is rotatably mounted on a mounting plate or the top plate of a G-clamp of plate construction is that the vice can be used after the manner of a conventional swivel-bodied vice with either of the ranges of vice opening in use.

The first fixed jaw may be provided by an upstanding projection from the body portion, when the second fixed jaw can be formed by the rearward face of the projection.

To enable the vice to grip a variety of workpieces in either of its operative positions the operative face of either or both of the first and second fixed jaws may be provided with reversible or replacable jaw

plates.

Two embodiments of the invention will now be described with reference to the accompanying drawings, in which:-

5 Figure 1 is a side elevation of one embodiment of vice according to the invention;

 Figure 2 is a plan view of Figure 1;

 Figure 3 is a front elevation of Figure 1;

10 Figure 4 is a section on the line 4-4 of Figure 2;

 Figure 5 corresponds to Figure 1 but shows the vice in its second operating condition;

15 Figure 6 corresponds to Figure 1 but shows a second embodiment of vice according to the invention; and

 Figure 7 corresponds to Figure 6 but shows the vice in its second operating condition.

20 In Figures 1 to 5, a vice comprises a body 1 having an upstanding fixed jaw member 2. As shown particularly by Figure 4, the body 1 has two plain through holes 3 and a threaded hole 4, all on parallel axes. The

25 vice has a movable jaw 5 provided with two

fixed slide rods 6 slidably mounted in the plain holes 3, and a rotatably mounted drive screw 7 engaging in the threaded hole 4, the drive screw extending through the movable jaw to an operating handle 8.

The vice body 1 has an integral base plate 9 located on an annular mounting plate 10. As shown by Figure 4, the annular mounting plate is recessed at 11, and in the recess is located a rotatable locking plate 12 provided with two upstanding threaded stems 13 which pass through corresponding holes in the base plate 9 to be engaged by respective lock nuts 14.

The annular mounting plate is located on the top plate 15 of a generally plate-like G-clamp 16, and there secured by four screws 17, a pad 18 of resilient friction material being provided on the undersurface of the top plate 15 of the G-clamp, to assist retention of the G-clamp and hence the vice on a surface 19 to which the clamp is secured.

Thus, in the operating condition illustrated in Figure 1, where the upstanding jaw member 2 is at the end of the body 1 of closest approach to the movable jaw, the jaw

face 20 of the movable jaw 5 can be closed on to the jaw face 21 of the fixed jaw. Thus, a relatively conventional handy-man vice jaw opening of say 0 to 3 inches is provided. However, for those occasions where a wider jaw opening is required, it is simply the case of removing the movable jaw 5 from the body 1, releasing the lock nuts 14 and rotating the body 1 through 180° , the lock nuts re-tightened, and the movable jaw relocated on the body, with the slide bars and the operating screw passing oppositely through the body. This condition is illustrated in Figure 5, from which it can be seen that the upstanding jaw member is now at the end of the body remote from the movable jaw, so that a second jaw face 22 can co-operate with the jaw face 20 on the movable jaw to provide a second range of jaw openings say from 3 inches to 6 inches.

In the second embodiment of vice according to the invention illustrated in Figures 6 and 7, an alternative manner of locating the vice on a surface is illustrated, in an otherwise identical vice construction.

In this embodiment, a bench-mounted

vice is provided, the integral base plate 9
being located on an annular mounting plate 10
adapted for relatively permanent securing to a
support surface 19, by having four screw holes
5 (not shown) at its corners, through which
screws extend, the screws passing through
corresponding holes formed in the support
surface.

It will be appreciated that the vice
10 of the invention in either of its embodiments
illustrated, in each of its operating
conditions, has the additional advantage of
serving as a rotatable vice, it simply being a
matter of releasing the lock nuts 14 and
15 rotating the body 1 to any desired angular
disposition, and re-tightening the lock nuts.

CLAIMS

1. A vice comprising a body portion on which is provided a fixed jaw, a movable jaw mounted on at least one slide extending through a plain hole in the body portion and with a drive screw rotatably secured to the movable jaw and extending through a threaded hole in the body portion, characterised in that said movable jaw (5) is mountable on the body portion (1) in a first position to co-operate with and be movable towards and away from the fixed jaw (2), and in a second position where the at least one slide (6) and drive screw (7) extend in the opposite direction through the respective plain (3) and threaded (4) holes in the body portion (1), and whereby the movable jaw (2) co-operates with and is movable towards and away from a second fixed jaw (2,22) on the body portion (1) rearwardly of the first fixed jaw (2, 21).

2. A vice as in Claim 1, characterised in that the body portion (1) is rotatably secured to a mounting plate (10) adapted to be secured to a work surface (19), with locking means (12, 13, 14) provided to

hold the body portion (1) at a required disposition on the mounting plate (10).

5 3. A vice as in Claim 2, characterised in that the rotatable mounting of the body portion (1) on the mounting plate (10) is effected by providing the mounting plate (10) with a circular opening which opening is recessed (11) on its underside, to locate a rotatable locking plate (12), at least one upstanding threaded stem (13) on the rotatable plate (12) passing through a hole in
10 the body portion (1) of the vice to be engaged by a threaded locking member (14).

 4. A vice as in Claim 2 or Claim 3, characterised in that the mounting plate (10) is secured directly to a work surface (19).

 5. A vice as in Claim 2 or Claim 3, characterised in that the mounting plate (10) is secured to the top plate (15) of a plate-like G-clamp (16).

 6. A vice as in Claim 1, characterised in that the body portion (1) is secured to a work surface (19) by a G-clamp, having an upper leg portion passing through a
5 plain hole in the body portion, and whereby the body portion can be located on the G-clamp

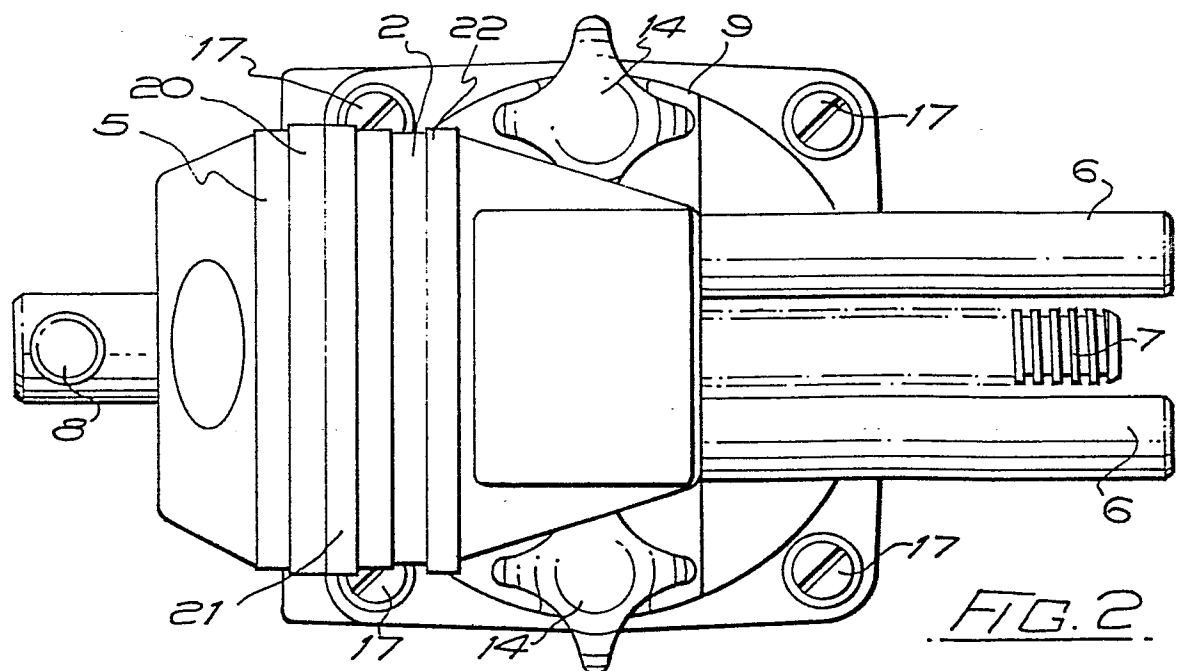
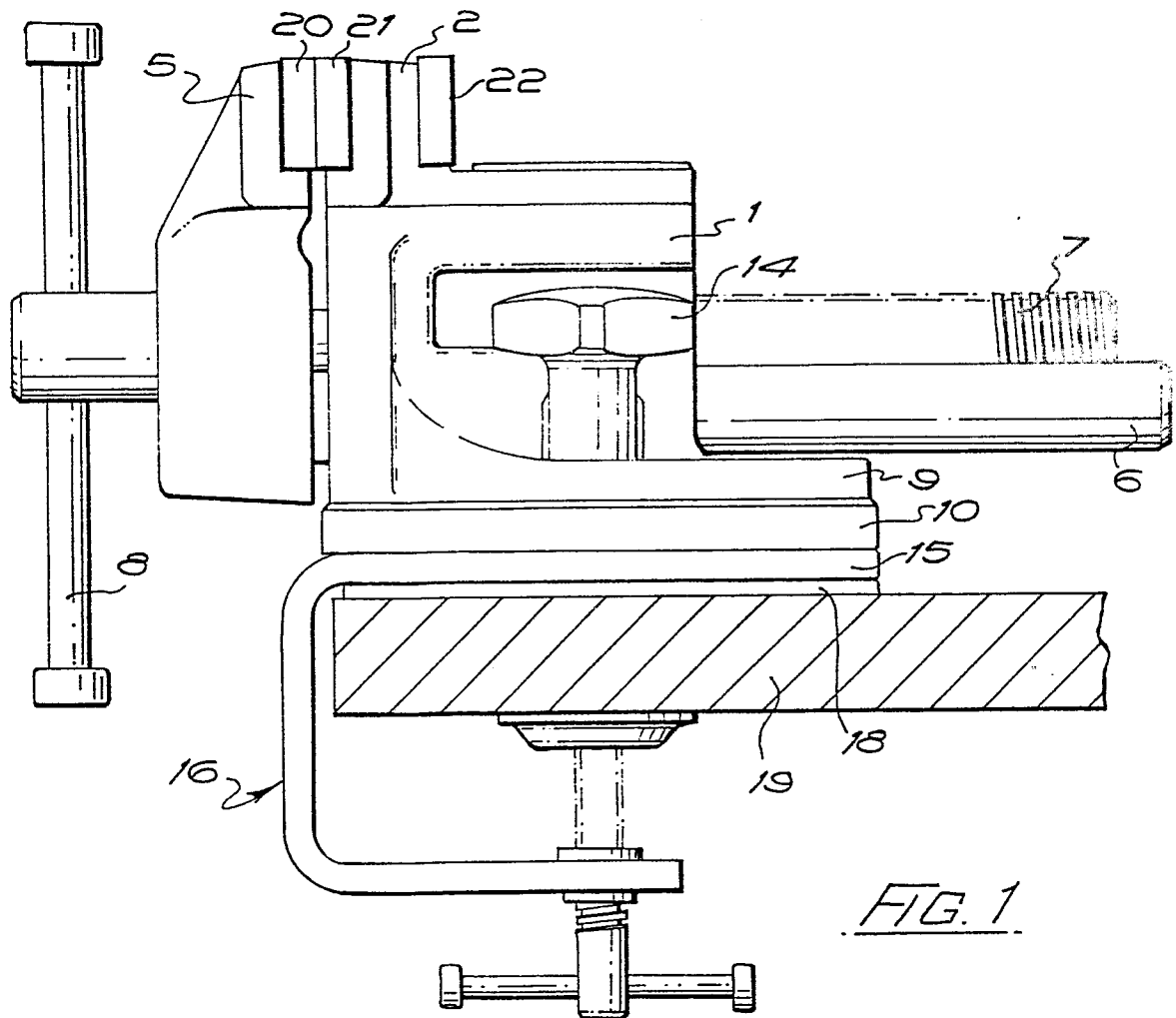
in either its first or second positions and secured to a work surface.

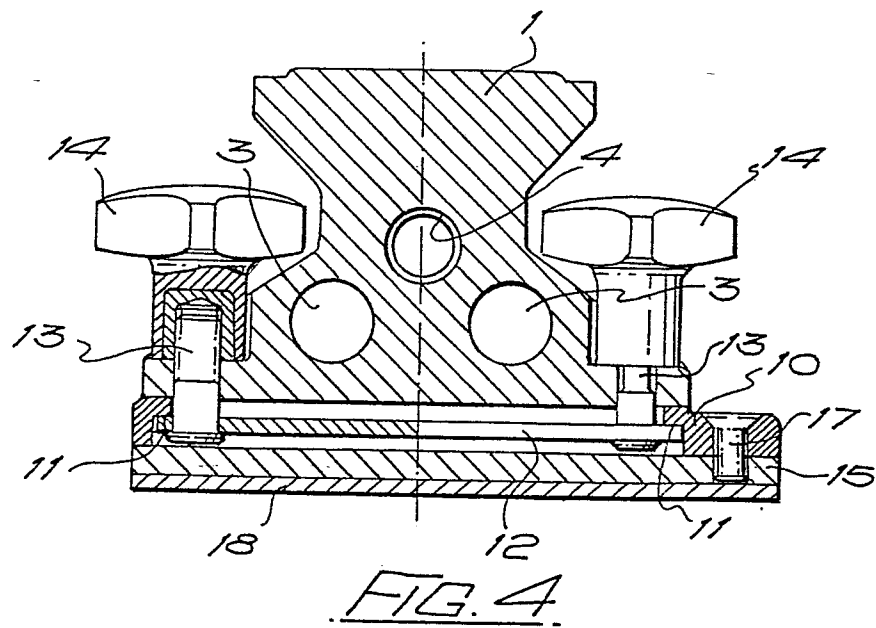
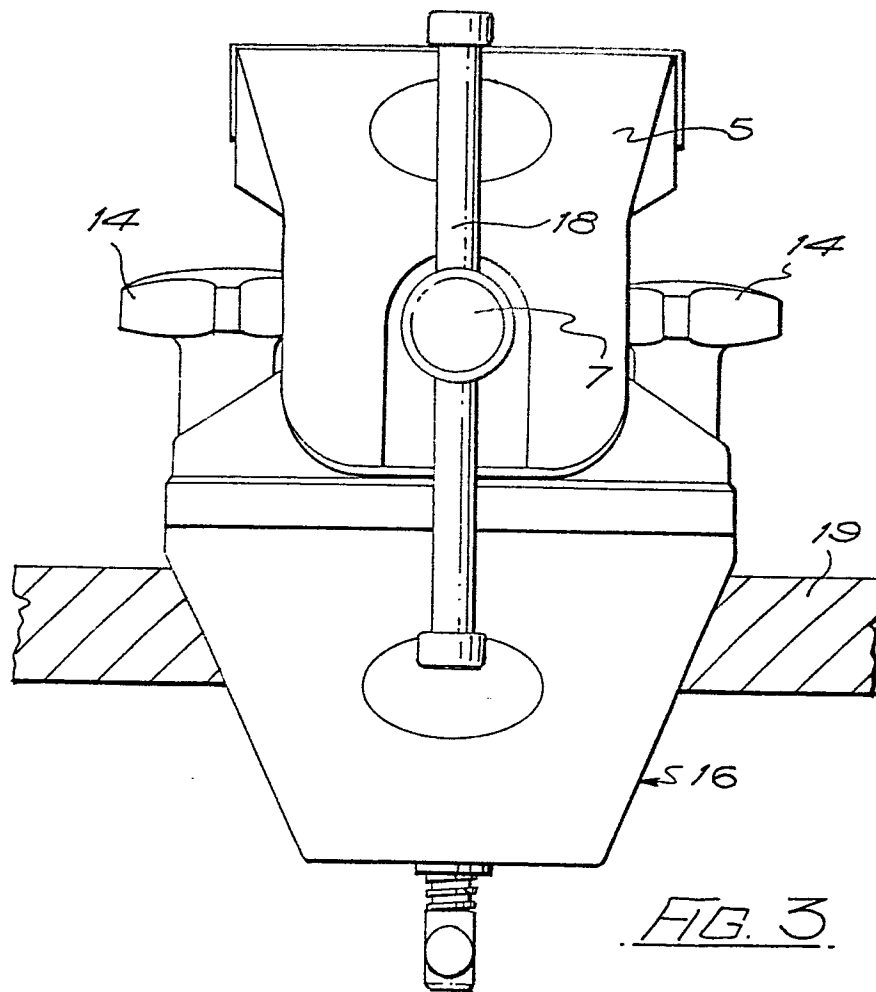
7. A vice as in any of Claims 1 to 6, characterised in that the fixed jaw (21) and the further fixed jaw (22) are provided to opposite sides of an upstanding projection (2) from the body portion (1).

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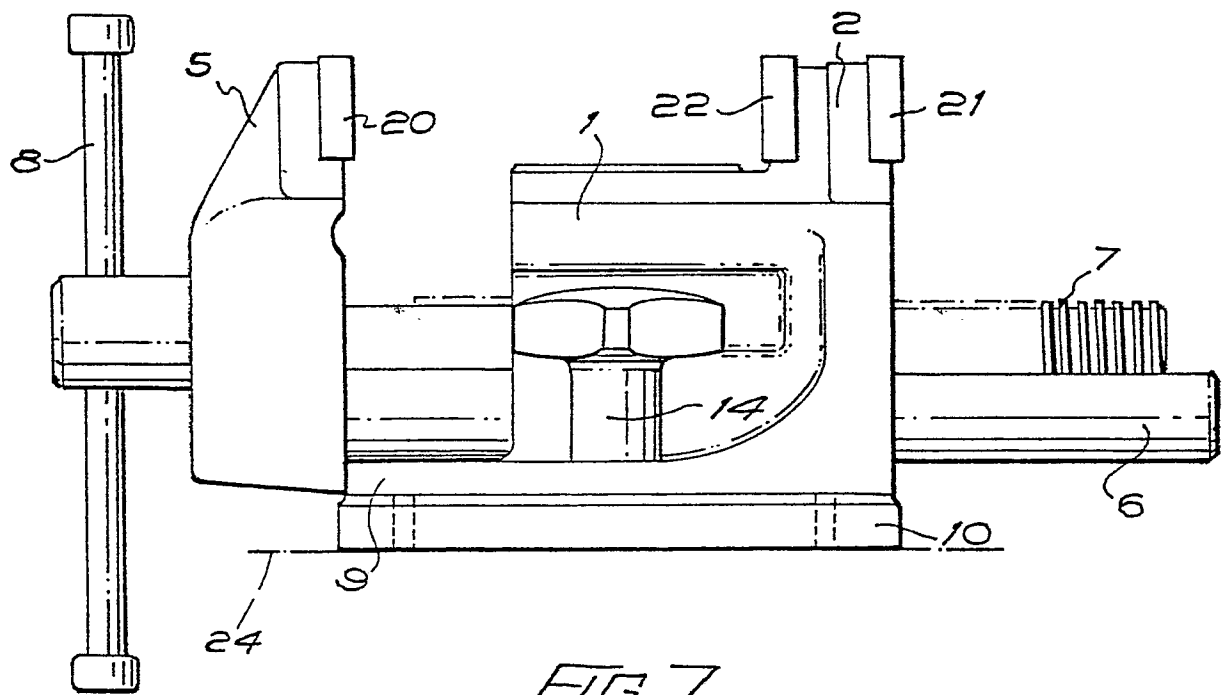
8. A vice as in any of Claims 1 to 7, characterised in that the fixed (2) and movable (5) jaws are provided with replaceable jaw plates (21, 22).

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European Patent
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EUROPEAN SEARCH REPORT

0156613

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 85301876.0
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
Y	EP - A2 - 0 032 476 (DOLEX) * Fig. 6,7 *	1	B 25 B 1/24
A	--	2,3,7,8	
Y	DE - C - 721 983 (KRISCHKE) * Totality *	1	
A	DE - A1 - 3 242 319 (BRUNO) * Fig. 1,2 *	1	
A	GB - A - 631 281 (GRAND SPECIAL-TIES) * Fig. 1,2,9 *	2,5	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			B 25 B 1/00
Place of search VIENNA		Date of completion of the search 10-06-1985	Examiner KREHAN
CATEGORY OF CITED DOCUMENTS			
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