(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number : **0 557 254 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number : **93830053.0**

(51) Int. Cl.[5] : **E06B 9/06**

(22) Date of filing : **16.02.93**

(30) Priority : **17.02.92 IT PS920004 U**

(43) Date of publication of application :
25.08.93 Bulletin 93/34

(84) Designated Contracting States :
AT BE CH DE DK ES FR GB GR IT LI LU NL PT SE

(71) Applicant : **TE. SI. FLEX S.r.l.**
Via Delle Rose n.6
I-47048 S. Giovanni In Marignano (Forli) (IT)

(72) Inventor : **Sparaventi, Franco**
Via Carbonia n.5
Riccione - Forli (IT)

(74) Representative : **Dall'Olio, Giancarlo**
Interbrevetti s.n.c. Via Del Cestello no. 13
I-40124 Bologna (IT)

(54) Extendable grate fitted to protect doors and windows.

(57) The subject invention concerns an articulated grate to protect doors and windows in general, that can be extended in such a way that it covers the whole space of the opening, when the place remains unattended and can be shifted laterally, freeing almost completely the space when the place is frequented.

The grate is formed by a series of uprights (2), constituted by particular aluminium section bars, having inside elements foranti-cut reinforcement and gliding slides of connection (3) between the transversal (2) bars, that allow to space apart or draw close the uprights, in order to cover or free the opening.

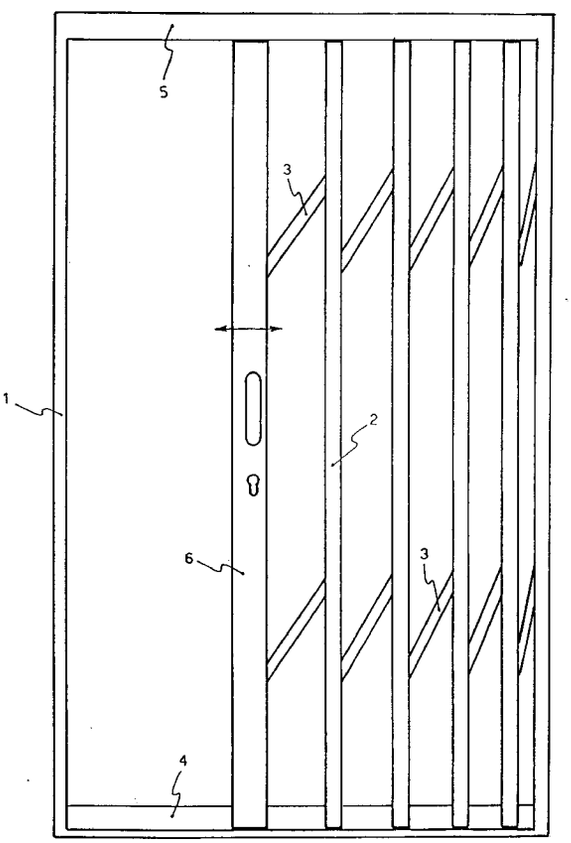

fig. 2

EP 0 557 254 A1

The subject invention concerns an articulated grate for protection of doors and windows in general, that can be extended to cover the whole span of the opening when the place is unattended, and can be shifted laterally, clearing almost completely the span when the place is attended.

There are known extendable grates for shops, that use articulated parallelogram elements, in iron plate.

These grates do not have adequate characteristics to be used in flats, because of the low level of the finishing, of the maintaining problems due to numerous articulations, subject to oxidizing, and because of the relative facility with which the plate can be cut.

There have been made extendable grates for residences, with better finishing and security characteristics, but the ones known at present have the disadvantage that they must be removed manually in order to free the opening, or, if gliding, they require a housing space in the wall, at the sides of the door of the window.

The creation of the space provokes considerable problems, specially in preexistent constructions.

The subject grate allows eliminates such disadvantages as, even if it is gliding, it does not require any housing space in the wall, nor frequent maintainance operations.

Moreover, it has adequate security and finishing characteristics and can be easily adapted to different opening widths to cover.

The grate is formed by a series of uprights, made of particular aluminium section bars, having inside elements for anti-cutreinforcement and gliding slides for connection of the transversal bars, that allow to distance or draw near one to another thevertical uprights, in order to cover or free almost completely the opening.

Now, the grate will be described in a detailed way, with reference to the enclosed drawings, that illustrate only as an example one of its possible embodiments.

Fig. 1, table 1, shows the grate in the closed position.

Fig. 2, table 2, shows the grate while it is being opened or closed in order to free or protect the opening.

Fig. 3, table 3 shows two uprights equipped with the respective connection bars.

Fig. 4, table 4, shows a particular of the lower part of an upright.

In the figures 1 and 2, reference numeral 1 indicates a perimetric frame, with 2 uprights made of particular aluminium section bars and numeral 3 indicates the connection bars of the uprights.

The uprights can be moved by gliding along the guides 4 and 5.

With 6 it is indicated the utmost upright, furnished with a handle and a lock.

Extending and drawing close the uprights 2 is made possible due to articulations shown in fig. 3.

As seen in that figure, the section bars 2 constituting the uprights are internally supplied with anti-cut round bars 7 that, are able to rotate and prevent the saw teeth from gripping and removing the metal.

With 8 it is indicated a reinforcement plate, that makes the upright structure rigid.

Numeral 9 indicates internal uprights slides that can glide longitudinally with low friction thanks to wheels 10 with which they are equipped.

The connection bars 3 have one end pivoted to the slides 9 in 11 and the other end crossed by the gudgeon 12, integral with the section bar.

In order to make possible to vary the inclination of the connection bars 3, that is necessary for drawing close or spacing out the uprights 2, the slides 9 have the slots 13 corresponding to the fixed gudgeons 12.

When the grate is extended, the connection bars 3 assume a less inclined position, in order to cover the distance between one vertical rod and another: each bar rotates on the fixed pin 12 and determines, with the other end, the slope of the relative slide 9, until it reaches the ledge of the stop 14, fig. 4.

This ledge is constituted by a registrable screw which inserts in the correspondent threaded hole of the body 15, blocked inside the section bar 2 by means of the screw 16.

The registrable ledges 14, by limiting the slope of the slides 9 allow to maintain constant the distance between the uprights 2 of the grate, irrespective of the width of the opening to protect.

There can be provided the additional security elements, constituted by steel nails 17, put on the bodies 15, that in such a case will be fastened to section bars by screws with gauged resistence that shear in case of an elevated pressure toward the bottom of the slides 9.

In such a way, an attempt to widen the grate over the provided measure will cause the breaking of the screw 16 and therefore the nail 17 will partially penetrate in the guide 4 blocking the sliding of the vertical rod.

Obviously, the number of the vertical rods and transversal connection bars, subdivided in two or more raws, can vary according to the dimensions of the opening to protect.

Furthermore the invention can be applied to grates which do not include uprights but horizontal down and up moving bars, connected to each other in the same way as described above.

In the present case a manually operated grate has been adopted, but it is clear that the invention can be applied to grates which are operated by means of motors, e.g. via wormscrews, belts or other similar means.

Claims

1) Extendable grate, adapted to protect doors and windows, **characterized in that** it is formed by a series of uprights that can be shifted by the virtue of transversal connection bars that can assume different inclinations, each of them having one end joined to a gudgeon fixed to an upright and the other end pivoted to a slide that can glide vertically inside the subsequent upright.

2) Grate as in the claim 1, **characterized in that** the slides inside the uprights are provided with slots, made in correspondence with gudgeons integral with sectional bars and with the wheels that facilitate the sliding thereof.

3) Grate as in the precedent claims, **characterized in that** the slope of the slides inside the section bars is limited by registrable ledges whose position determines the maximum distance between two adjacent uprights, thus allowing to subdivide any space into regular intervals.

4) Grate as in the precedent claims, **characterized in that** below the stop ledges of the slides there can be provided the nail elements that are pushed downward and are driven in the lower guide, blocking any further movement of the upright when an attempt at forced widening of the grate occurs, that provokes the breaking of the element of fastening of the stops supports, that in such a case will have a gauged resistence.

5) Grate as in the precedent claims, **characterized in that** inside the section bars, constituting the uprights, there are inserted anti-cut steel round bars, that can rotate, and other possible elements for reinforcement.

TAV. 1

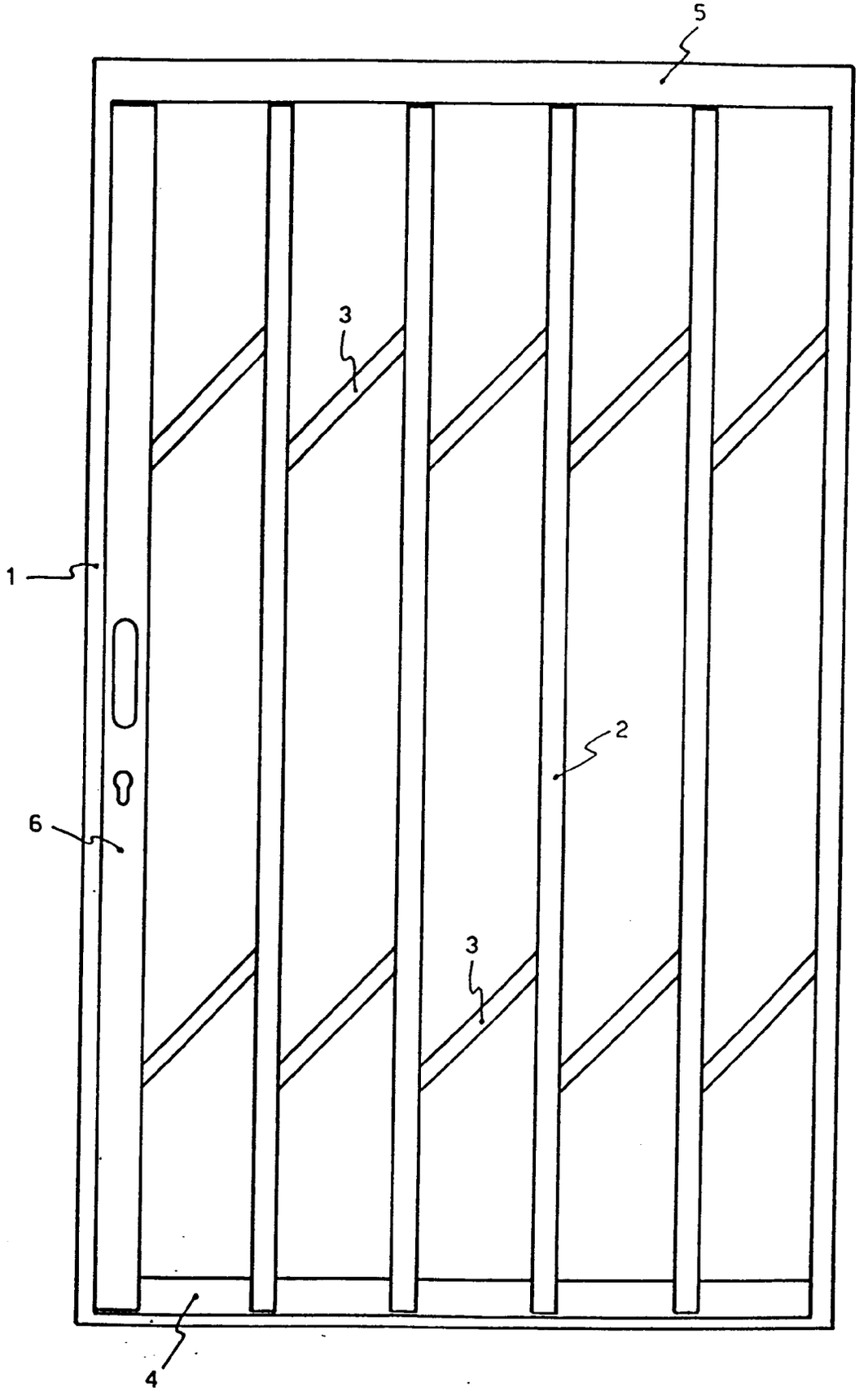

fig. 1

TAV. 2

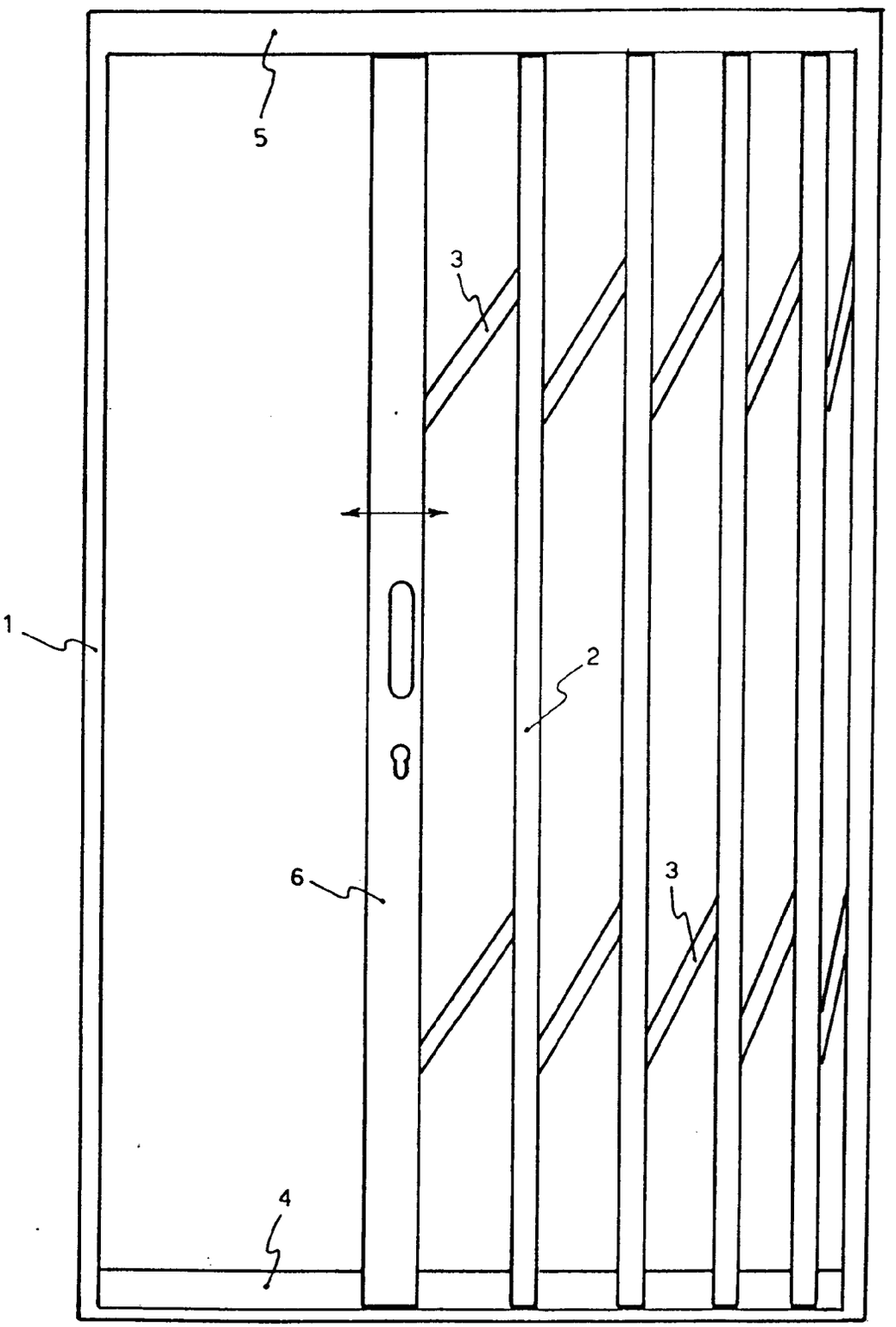

fig. 2

TAV. 3

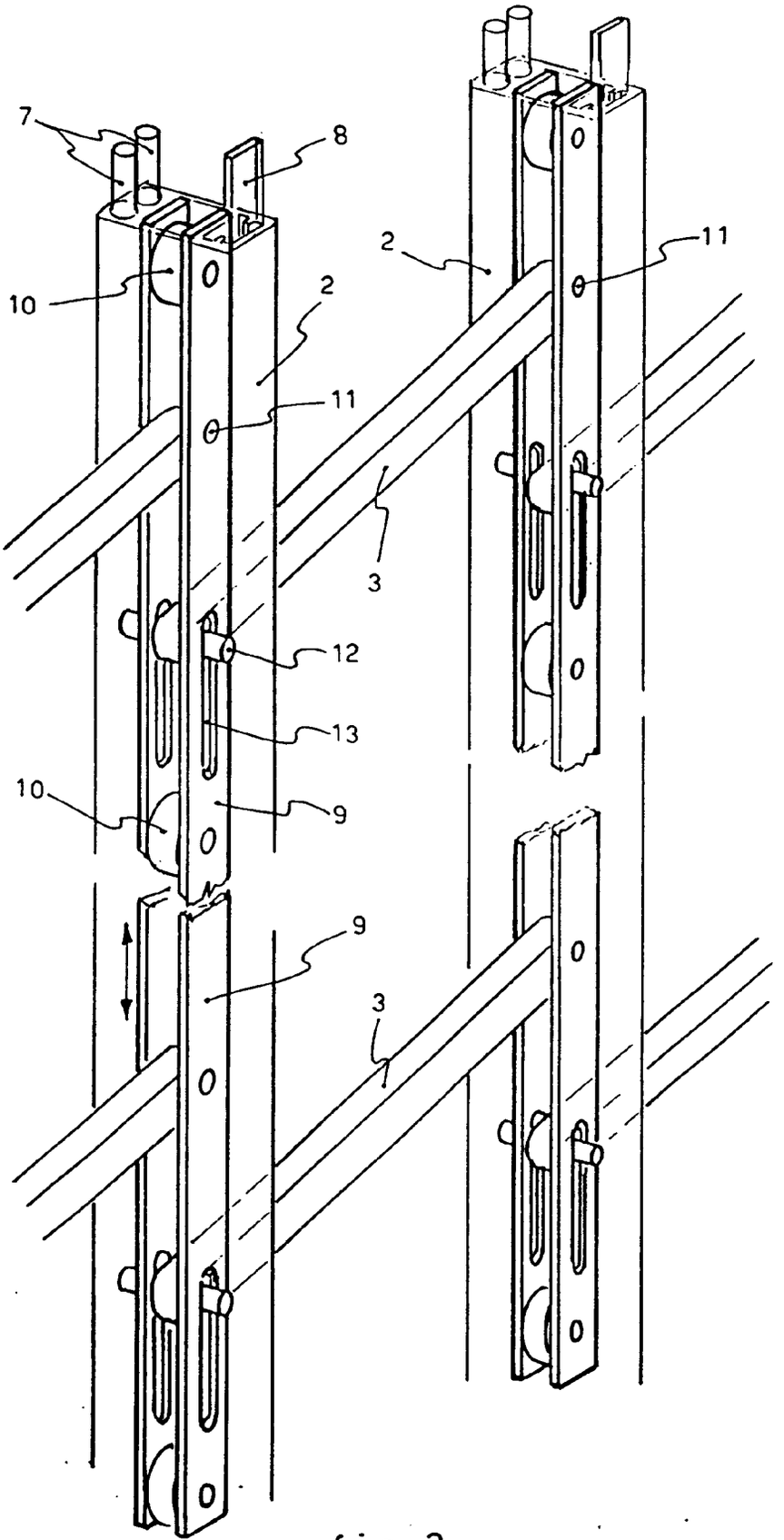

fig. 3

TAV. 4

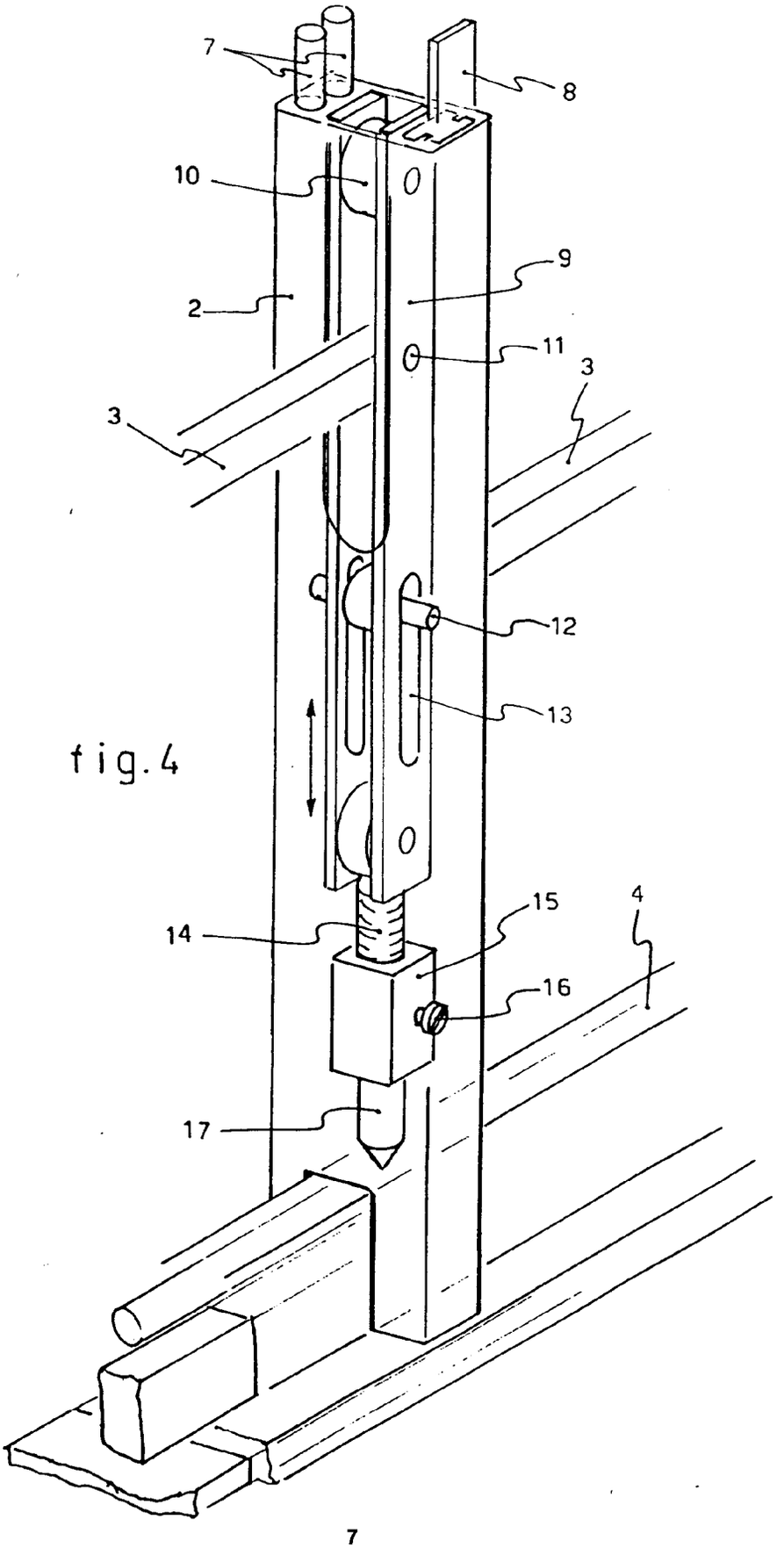

fig. 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 83 0053

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 006 768 (HORGAN) * column 4, line 26 - column 6, line 41; figures *	1	E06B9/06
A	DE-A-3 307 751 (CSERY) * page 19, last paragraph - page 20, paragraph 1; figure 4 *	1	
A	DE-U-8 714 746 (DERER) * the whole document *	1	
A	DE-A-3 430 779 (CSERY) * page 20, last paragraph - page 21, paragraph 2; figure 8 *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	19 MAY 1993	KUKIDIS S.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P0401)