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(71) Applicant: **TECNICA S.p.A**
I-31040 Giavera del Montello (Treviso) (IT)

(72) Inventors:
- **Sbrilli, Franco**
  30170 Mestre (Venezia) (IT)
- **Gabrielli, Andrea**
  38037 Predazzo (Trento) (IT)

(74) Representative: **Ferroni, Filippo et al**
DRAGOTTI & ASSOCIATI SRL,
Via Paris Bordone 9
31100 Treviso (IT)

(54) In-line roller skate, having a pin for mounting lateral wheels

(57) The invention relates to an in-line roller skate in which two or more wheels (3) are mounted on the frame (2) of the carriage outside the lateral walls (21, 22). To that end, the skate is provided with a pin having a length longer than the transverse length of the frame, in order to enable the external wheels to be fitted to its ends.

The skate so obtained is thus more stable than those having purely in-line wheels.

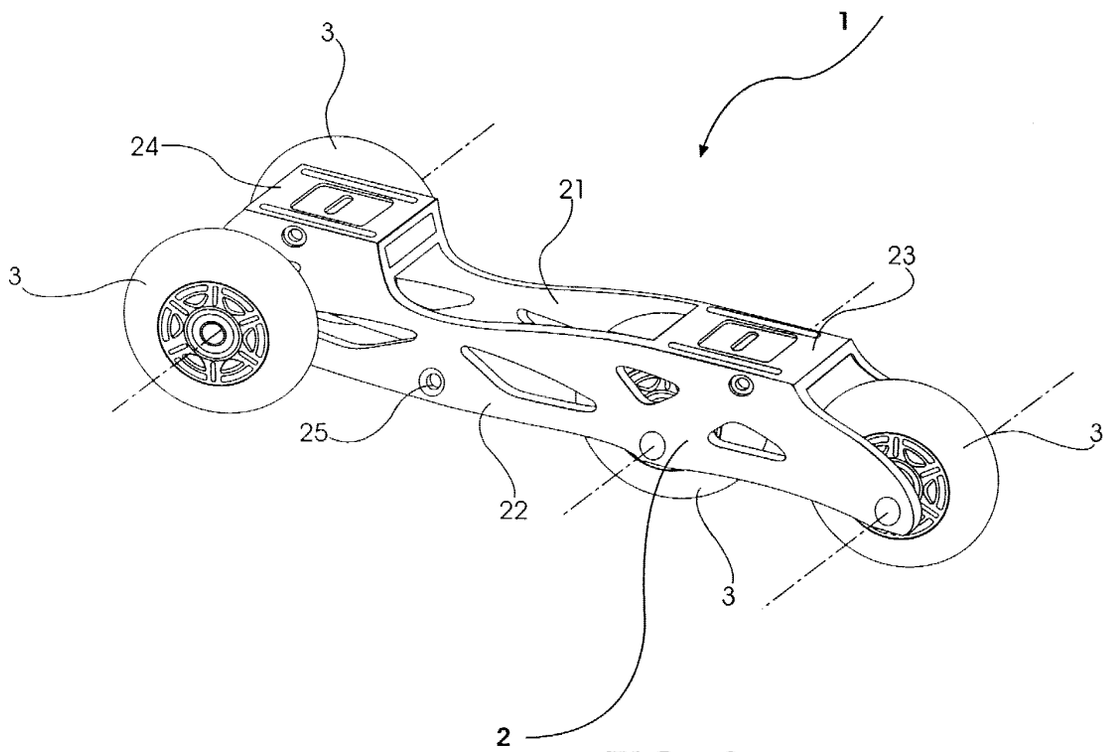

FIG. 2

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Description

[0001] The present invention relates to so-called "in-line" roller skates, which are very common nowadays, that is to say, skates in which the wheels are aligned in the longitudinal direction.

[0002] As is known, these skates comprise an item of footwear which is generally produced in considerably varied forms and materials from one case to another and which is secured to a carriage constituted by a support frame on which the in-line wheels are mounted.

[0003] The above-mentioned frame is normally constituted by two lateral walls which are arranged opposite one another in the longitudinal direction relative to the skate and which can be produced in one piece by extruding or moulding a shaped member of metal or plastics material, or in separate pieces and then assembled with other pieces to form the complete frame.

[0004] The frame also comprises supports for the sole and for the heel of the item of footwear, which supports are basically bridges which extend between the lateral walls in a front and rear position relative to the frame; in this case too, it is possible to have frames in which the bridges are formed in one piece with the lateral walls, and others in which the bridges are assembled with those walls by means of welds, rivets or other systems.

[0005] Then, holes which are arranged opposite one another in pairs and which are used for mounting the pins of the wheels are present along the lateral walls.

[0006] Before continuing it should therefore be noted that the present invention refers to all those types of skate and thus the terms used in the course of this description should be understood in the broad sense, unless otherwise indicated, so that all the possible configurations of the frames which have been mentioned above are included.

[0007] Having made this preliminary statement, it may be said that in-line roller skates permit the execution of remarkable moves owing to their versatility and manoeuvrability but beginners who have not yet become used to the particular balancing conditions which in-line wheels impose may sometimes find them difficult to use.

[0008] The object of the present invention is to remedy this situation.

[0009] In other words, the invention proposes to provide an in -line roller skate having structural and functional features that are such as to obtain improved support, thus promoting the use of the skates by beginners.

[0010] The object is achieved by a skate whose features are given in the claims which follow.

[0011] The skate of this invention will become clearer from the following description which relates to a preferred and non-exclusive embodiment thereof illustrated in the appended drawings, in which:

- Figure 1 is an axonometric view of the carriage of the above-mentioned example of a skate, in a first operative state in which the wheels are arranged in-line;
- Figure 2 is an axonometric view of the carriage of the preceding Figure, in a second operative state in which two wheels are arranged at the rear on the sides of the carriage;
- Figure 3 shows the carriage in a transitional state intermediate between those of the preceding Figures 1 and 2, with some components exploded;
- Figure 4 is a cross-sectional view of the carriage of Figure 2 in the region of the rear wheels;
- Figure 5 is a detailed view of a pin used in the carriage of the preceding Figures;
- Figure 6 is a cross-sectional view of a variant of the carriage of the other Figures.

[0012] With reference to the drawings just considered, 1 indicates a carriage of a skate according to the invention, which carriage comprises a frame 2 where a series of wheels 3 are mounted.

[0013] The frame 2 in this example is of the type produced in a single piece with a metal shaped member and comprises two lateral walls 21, 22 which are arranged opposite one another longitudinally relative to the skate; flat supports 23, 24 for the fitting of an item of footwear (not shown in the drawings) in a manner known per se extend between the lateral walls.

[0014] In this embodiment, the walls 21 and 22 are lightened by shaped openings formed therein; however, these openings are not indispensable and could thus be omitted or be in a form or number different from those shown in the drawings.

[0015] Arranged along the lower edge of the walls 21 and 22 are also four pairs of opposing holes 25 (only those on the wall 22 are shown in the drawings) in which the pins 30 for mounting the wheels 3 are fitted transversely to the frame 2.

[0016] Those pins are of a type already known per se and are of a length substantially equal to the distance between two opposing holes 25, or in other words to the distance between the lateral walls 21 and 22.

[0017] Advantageously, the carriage of the skate according to the invention is also provided with a further pin 31 (see Figures 4 and 5) which is longer than the other pins; more especially, this pin permits the mounting of two wheels in a lateral and external position relative to the walls 21 and 22 of the frame 2.

[0018] To that end, the pin 31 passes through a bush 32 which is arranged centrally between the above-mentioned two walls and which is preferably of a length equal to the thickness of the wheels, and two spacer washers 33 are also fitted on the pin 31, outside the lateral walls 21 and 22.

[0019] In order to secure the wheels on the pin, the latter is threaded internally at its ends in order to enable respective screws 34 to be fitted; under these circumstances, it should merely be pointed out that pins that are internally threaded at the ends for fitting the screws for mounting the skate wheels are already known in the

art and can also be used for the pins 30 of the wheels mounted in-line in this example. Naturally, other types of pin may also be used as an alternative to the one considered here.

[0020] The functional aspects of the skate carriage according to the invention can be readily understood from the above description and from the drawings.

[0021] It will be readily appreciated that, owing to the special pin 31, it is now possible to mount two wheels of the skate laterally outside the frame, in such a manner as to widen its support base and consequently also to increase its stability.

[0022] It should be emphasised that this advantageous result is obtained without having to modify the frame and the wheels of the carriage, which components can-thus be used in multiple ways in the various configurations: it is clear that this makes the skate of this invention rather favourable from the point of view of costs.

[0023] It follows as a logical corollary that the innovation described above can be applied directly to already-existing skates without having to adapt them or modify them for the purpose.

[0024] It should then also be considered that the teaching deriving from the present invention can be applied to practically any type of skate; in other words, the use of a pin longer than normal pins in order to be able to arrange the wheels on the external sides of the carriage and thus to increase the stability of the skate can be effected without any particular problems on any type of product.

[0025] Consequently, the frame of the skates according to the invention can be produced from plastics, metal or any other material, either in a single piece or in several assembled pieces.

[0026] Owing to all these possible uses, variants of the invention relative to the example of a skate which has been considered above cannot be excluded.

[0027] By way of example, it would be possible to produce a pin for mounting wheels outside the frame, without the bush 32 and/or the spacer washers 33.

[0028] Those members in fact serve to reinforce the pin 31 by containing its deflection on deformation, and to avoid possible axial movements thereof; however, they could be omitted or substituted by other equivalent members.

[0029] An example would be the case of a pin produced from particularly strong material: in such a case, the bush 32 could be omitted.

[0030] Similarly, the washers 33 could be replaced by plugs, split pins or the like fitted in holes extending transversely through the pin 31; however, that solution weakens the structure of the pin and should thus be used with due care.

[0031] Finally, it should be pointed out that although, in the example described above, the two wheels arranged laterally outside the frame were previously mounted in-line inside the frame, the teaching deriving from the present invention could nevertheless be applied whilst retaining a central wheel between the two side wheels.

[0032] This situation is illustrated in Figure 6 where the same numbering of the members already seen above has been retained.

[0033] As can be seen, in this variant a third wheel 3 is arranged in the central position relative to the frame, in addition to the two lateral wheels; consequently, the bush 32 seen above has now been substituted by two further spacer washers 35 arranged between the central wheel 3 and the lateral walls 21, 22 of the frame.

[0034] The washers 35 can be produced in the same manner as the spacer washers 33, that is to say, in the manner of free rings slipped onto the pin 31, or they may be obtained in one piece on the frame by drawing it or by other working.

[0035] Finally, the only point to be added is that the possibility of arranging the wheels laterally on the carriage, in accordance with what has been explained hitherto, is not limited to the rear axis only but should also be considered applicable to all the other axes of the skate (that is to say, to all the pairs of opposing holes 25) and in particular to the forward axis.

[0036] Consequently, following the teaching deriving from the present invention, it is possible to provide for skates having two pairs of lateral wheels outside the frame, two at the front and two at the back, similarly to the arrangement which existed formerly in skates having conventional wheels with all the advantages for the beginner.

[0037] However, it is possible to return with equal ease to the arrangement with the wheels in-line, by substituting the special pins by normal pins and arranging the wheels in accordance with the usual aligned configuration.

[0038] These and any other possible variants of the invention are covered by the scope of the following claims.

Claims

1. An in-line roller skate, comprising a frame (2) of a carriage (1), which frame has two lateral walls (21, 22) which are arranged side by side in the longitudinal direction relative to the skate, and a plurality of holes (25) which are arranged opposite one another in pairs along those walls for fitting pins (30) for mounting the wheels (3), characterised in that it comprises at least one pair of wheels (3) mounted outside the frame (2) on respective sides thereof, at the location of at least one of the pairs of opposing holes (25).

2. A skate according to claim 1, wherein the wheels (3) are mounted on a pin (31) which passes through the at least one pair of holes (25) and the ends of

which project to the outside of the frame (2) from respective sides thereof.

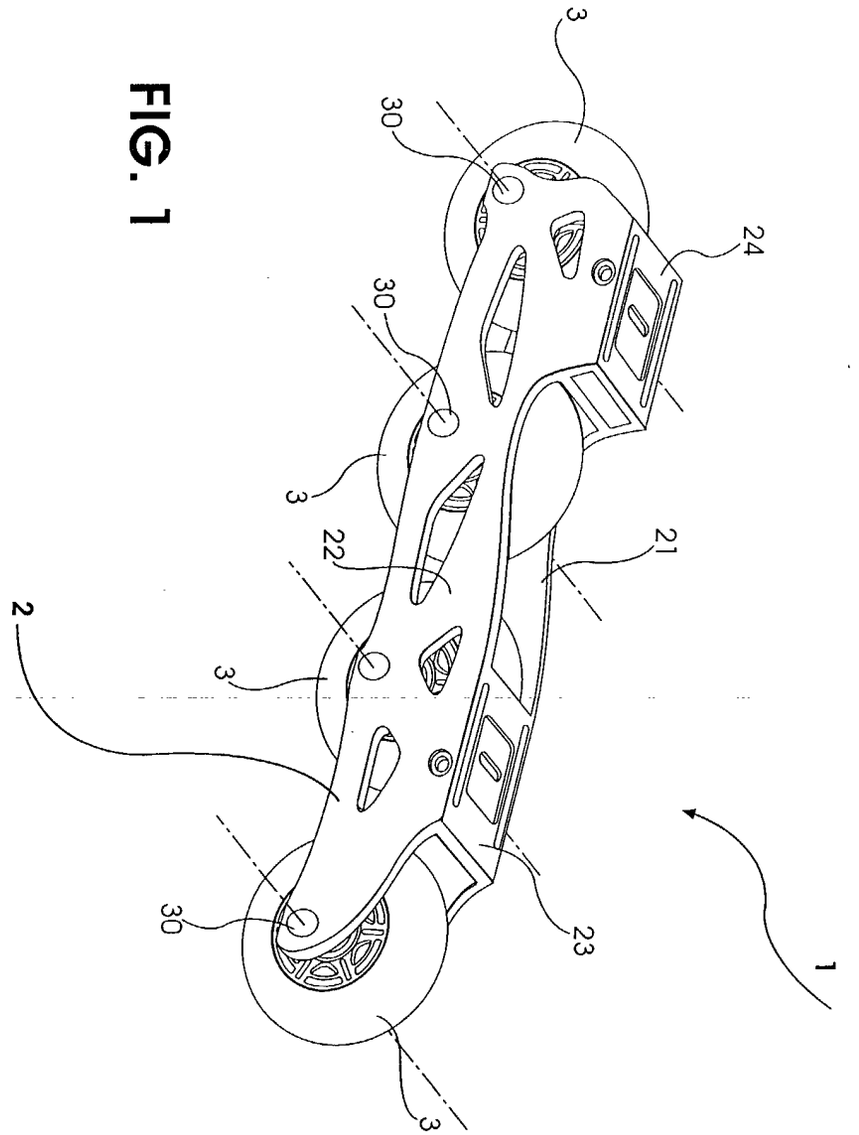
3. A skate according to claim 2, comprising a pair of spacer washers (33) that are to be fitted on the pin (31) outside the frame (2), in a position intermediate between each external wheel (3) and the adjacent lateral wall (21, 22).

4. A pin according to claim 2 or 3, comprising a bush (32) which is mounted on the above-mentioned pin (31) and which is of a length substantially equal to the distance between the walls (21, 22) of the frame (2).

5. A skate according to any one of the preceding claims, wherein a further wheel (3) is mounted in a position intermediate between the lateral walls (21, 22) of the frame (2).

6. A skate according to any one of the preceding claims, wherein the frame (2) is produced from a metal and/or plastics material.

FIG. 1



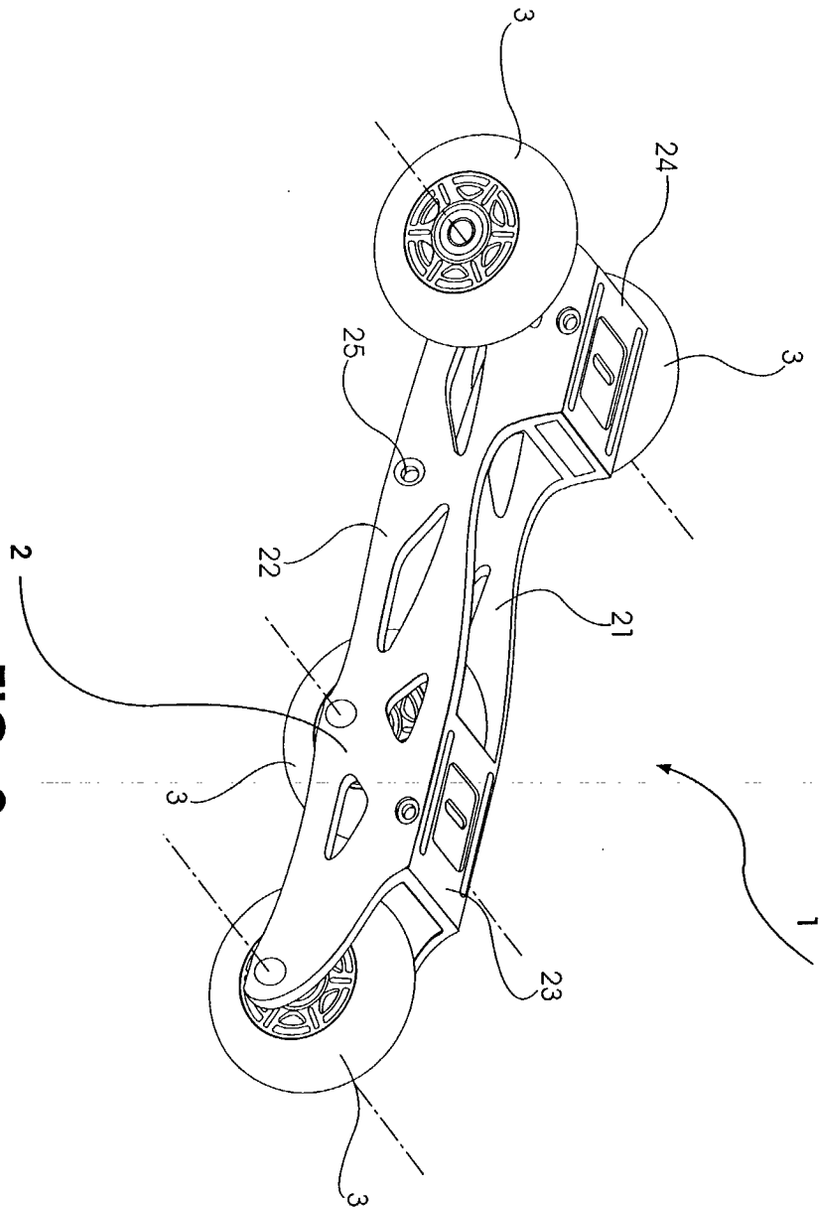


FIG. 2

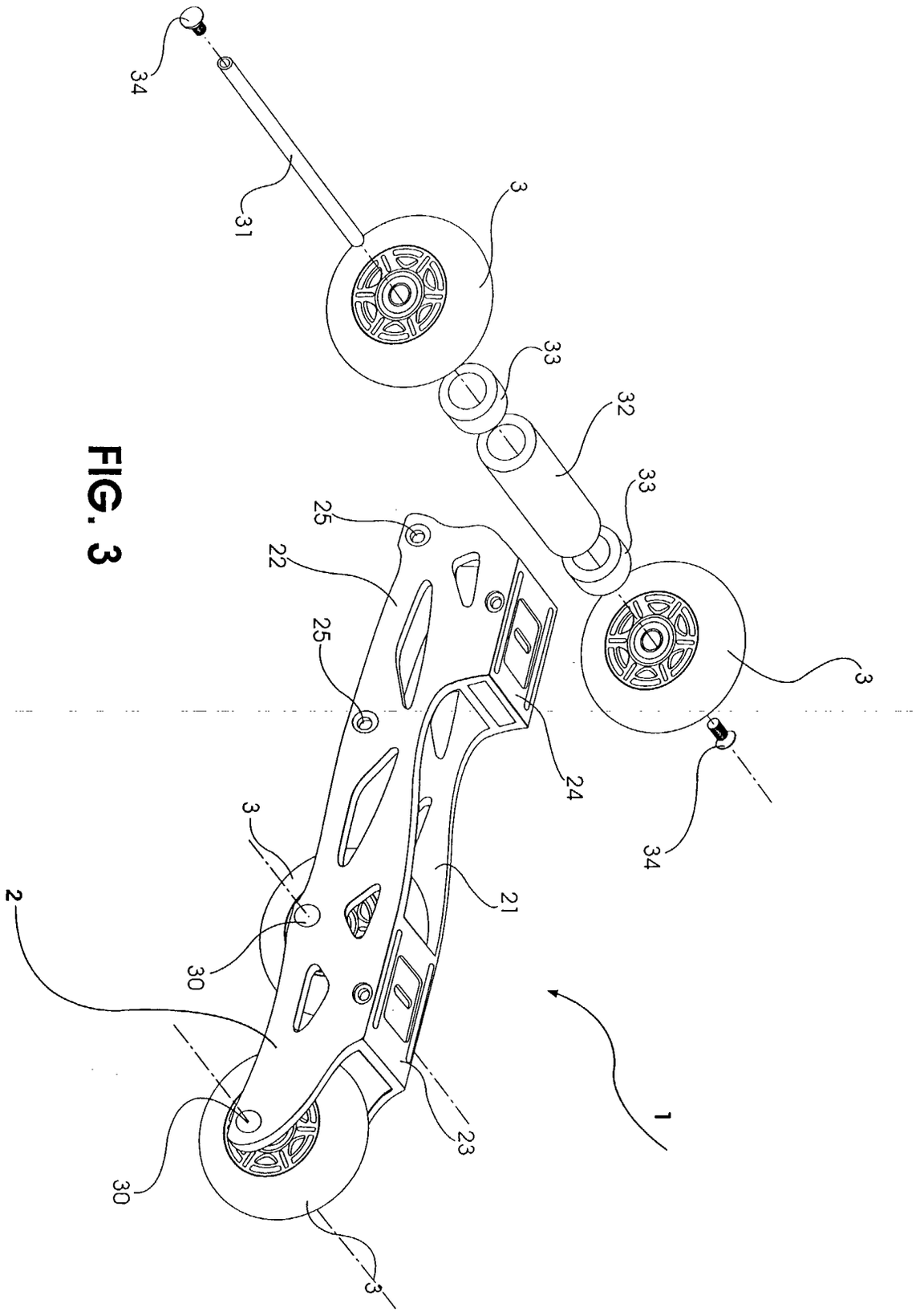


FIG. 3

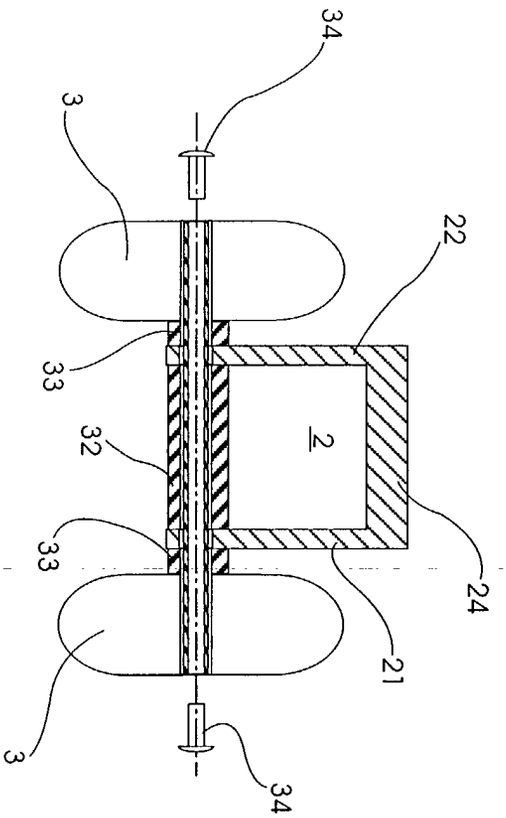


FIG. 4

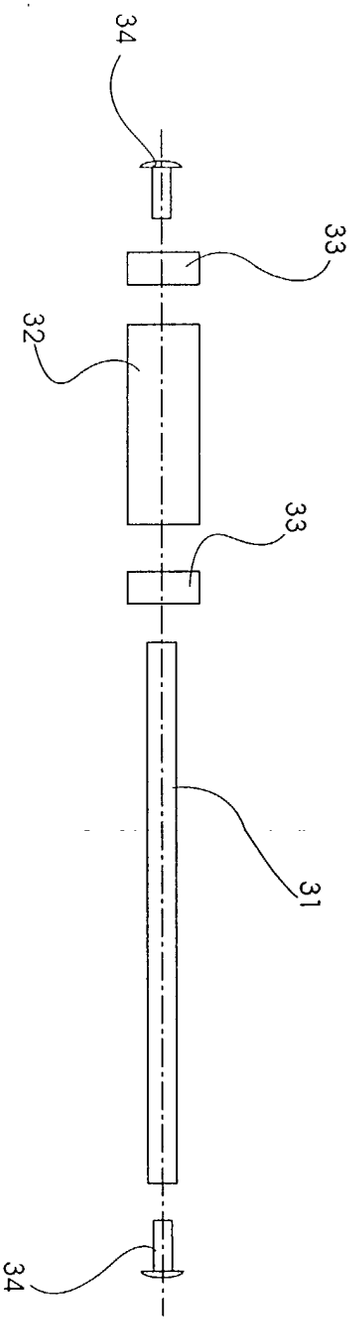


FIG. 5

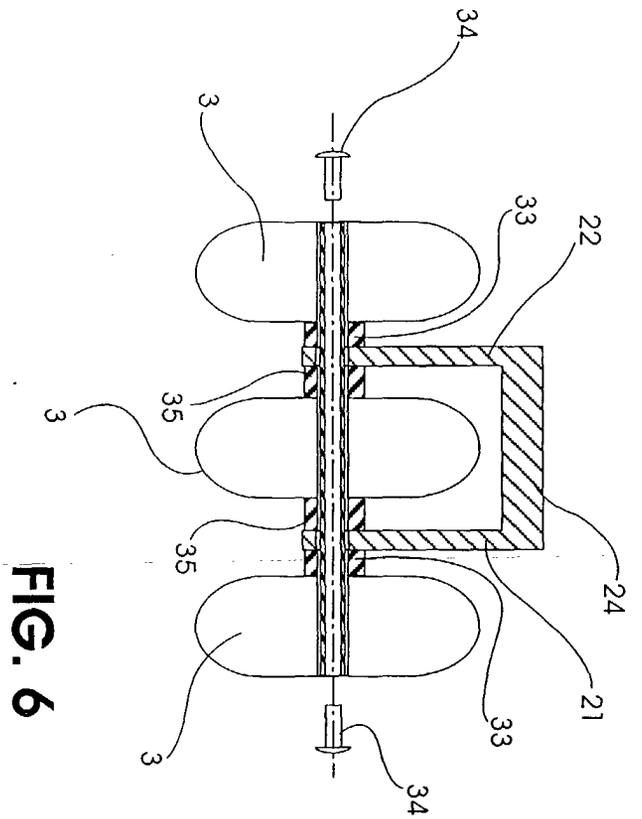


FIG. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 4563

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.7)
X	US 3 086 787 A (CHRISTINE A. WYCHE) 23 April 1963 (1963-04-23) * column 2, line 12 - column 3, line 11; figures 1,2 *	1-6	A63C17/04
X	WO 98 07480 A (JOHN NIGEL H) 26 February 1998 (1998-02-26) * figures 2,3 *	1,2,4,5	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A63C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	4 April 2000	Feber, L

CATEGORY OF CITED DOCUMENTS

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04-04-2000

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US 3086787 A	23-04-1963	NONE	
WO 9807480 A	26-02-1998	AU 4078497 A	06-03-1998

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82