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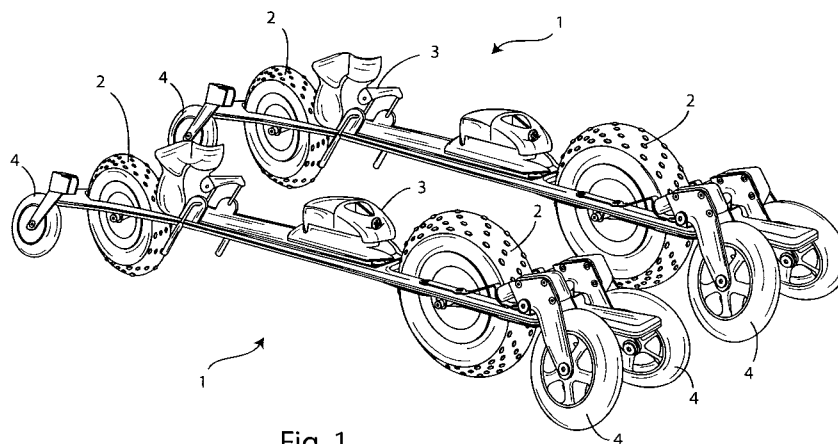


Fig. 1

(57) Abstract: The present invention relates to a roller ski (1) or board, said ski (1) or board providing in-line central rollers (2), centrally provided on the ski (1) or board body, and two pairs of additional rollers (4), respectively a front pair and a rear pair, said pair of rollers (4) being raised with respect to the ground on which ski (1) or board rests when the same ski (1) or board is substantially parallel with respect to the ground, and contacting the same ground when ski (1) or board is inclined, each one of the additional rollers (4) is coupled with the ski (1) or board by a support system comprising a fork (5), having one end coupled with the roller (4) and the other one faced toward the ski (1) or board, between the end of the fork (5) faced toward the ski (1) or board and the same ski (1) or board being provided with a resilient element (6).



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IMPROVEMENT IN ROLLER SKIS OR BOARDS

The present invention relates to an improvement in roller ski or boards.

5 More specifically, the invention concerns a solution relevant to the dampening system of rollers of roller ski or boards.

As it is well known, different solutions have been suggested recently about the realisation of roller ski, i.e. ski or boards permitting skiing along slopes without snow, such as lawns and like.

10 Different patents exist describing this kind of solutions, such as US patents n° 4,836,567, n° 6,237,960, n° 6,435,558, n° 5,855,385 and n° 5,195,781.

Recently, European patent n° 1 556 146 has been filed (October 28, 2002) and granted (May 24, 2006) in the name of Cristiano
15 Orlandi, concerning a roller ski or board permitting overcoming the problems of known solutions, with particular reference to stability and "skiing" of the ski with every condition.

Particularly, the solution suggested in the above European patent provides, in a roller ski or board comprising in-line central support
20 rollers and a plurality of additional front and rear rollers, raised with respect to the ground when the ski or board are (is) parallel with respect to the ground and that can alternatively rest on the ground when the ski or board are (is) tilted, mounting of the additional rollers on the ski or board occurring by a bearing.

25 The solution suggested in the above European patent is a first response to the problems of the available technology. However, still remains the needing of further improving the coupling between the additional rollers and the ski or board, in order to permit a better skiing under every situation.

30 In this context it is included the solution according to the present invention, permitting having a system for coupling additional rollers and the ski or board permitting easing the optimum skiing both along very steep slopes and for heavy skiers, or under maximum speed and lateral inclination conditions.

35 It is therefore specific object of the present invention a roller ski or board, said ski or board providing in-line central rollers, centrally provided on the ski or board body, and two pairs of additional rollers, respectively a front pair and a rear pair, said pair of rollers being raised

with respect to the ground on which ski or board rests when the same ski or board is substantially parallel with respect to the ground, and contacting the same ground when ski or board is inclined, each one of the additional rollers is coupled with the ski or board by a support system comprising a fork, having one end coupled with the roller and the other one faced toward the ski or board, between the end of the fork faced toward the ski or board and the same ski or board being provided a resilient element.

According to the invention, it is provided a sheets system for fixing said resilient element on the ski or board.

Furthermore, according to the invention, said resilient element is provided between the end of the fork faced toward the ski or board and the same ski or board.

Still according to the invention, ski or board and forks are realized integrally in a single piece, said resilient element being comprised of a specific material provided in the joining portion between ski or board and forks.

Preferably, according to the invention, means are provided on said resilient element for adjustment of hardness and inclination.

Particularly, according to the invention, said resilient element can be comprised of a rubber element, of an elastomeric element, or of a spring.

Always according to the invention, said sheets system for fixing the resilient element to the ski or board can provide a shaped sheet so as to operate as joint between the flat surface of the ski or board and the coupling angle of the fork.

The present invention will be described, for illustrative but not limitative purposes, according to its preferred embodiments, with particular reference to the enclosed drawings, wherein:

figure 1 is a perspective view of a first embodiment of skis according to the invention;

figure 2 is a perspective view of a roller ski showing the embodiment of the innovative solution according to the present invention shown in figure 1;

figure 3 is a top view of the particular of ski of figure 2;

figure 4 is an exploded view of the innovative particular of ski of figure 2;

figure 5 is a perspective view of a second embodiment of a roller ski according to the invention;

figure 6 shows innovative particular of ski of figure 5;

5 figure 7 is a perspective view of a particular of a ski according to a third embodiment according to the invention;

figure 8 shows a more detailed particular of ski of figure 7;

figure 9 is a lateral view of a particular of the embodiment of figure 7;

10 figure 10 is a perspective cut away view of a particular of the embodiment of figure 7;

figure 11 is a further perspective view of a particular of the embodiment of figure 7;

figure 12 is a lateral detailed view of embodiment of figure 7;

15 figure 13 is a perspective view of a fourth embodiment of the ski according to the invention;

figure 14 is a perspective view of a particular of ski of figure 13; and

figure 15 is a lateral view of particular of figure 14.

20 The specification will be addressed in the following to a ski, but the same can also be provided on a board.

Observing first figures 1 - 4 of the enclosed drawings, it is shown a first embodiment of the solution according to the present invention.

25 Ski, generically indicated by reference number 1, provides two in-line rollers 2, a fitting system 3, for ski-shoes (not shown), and two pairs of additional rollers 4, respectively front rollers and rear rollers.

30 Each roller 4 is supported by a fork 5, coupled with ski 1 by interposition of an elastic element 6 and a sheets system 7. Particularly, it is observed in the figures that said forks 5 are inclined with respect to ski 1, and that resilient element 6 is an ideal prosecution of fork 5, while sheets system 7 is the joint between fork 5 - resilient element 6 and flat surface of ski 1.

Resilient element 6 can be comprised of rubber, spring, or any other resilient element.

35 System made up of sheets 7 and resilient element 6 can further provide means for adjusting hardness and inclination, permitting to the skier to adapt ski to his/her needing.

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Coming now to describe the embodiment of figures 7 - 12, the same reference numbers will be used to indicate parts corresponding to those of the previous embodiment.

5 Main object of this embodiment is that of further reducing the number of elements comprising the device, so as to simplify its structure, without limiting its efficiency and flexibility and conformability to the different applications.

10 In the embodiment shown, resilient element 6 is provided between fork 5 end faced toward the ski or board and the same ski or board. Such an arrangement can be particularly observed from figures 9, 11 and 12. As it can be observed in figure 10, a transverse pin 8 is provided between the two forks 5 of each pair of additional rollers (only one of them is shown in figures 7 - 12).

15 Replacement of elastomeric elements 6 permits adjusting hardness of dampening.

Coming now to describe the embodiment shown in figures 13 - 15, the same reference numbers will be used to indicate parts corresponding to those of the previous embodiments.

20 Solution shown in these figures is the simplest one, with the maximum reduction of components. In this case, ski 1 body and forks 5 are comprised of a single element, thus entrusting to the material making up forks 5 reaction to flexion and torsion stresses transmitted by rollers to the tool "frame".

25 In order to realize the above, fork 5 is clearly separated with respect to the body, but in the origin section, so that ski 1 has geometrically ends with a "U" shape both in the front portion and in the rear portion, thus creating four shelves, to which it is delegated to roller 4 dampening function.

30 Elastic/dampening behavior of said shelves depends on geometry and dimensions of fork 5 section, as well as on material by which it is realized.

35 Said fork can be comprised by a single material, with suitable resistance and elasticity characteristics, but more likely, it is realized by a composite material, i.e. comprised of different cooperating materials which, as a whole, making the specific tasks. An example of realization of the above can be a co-molded material comprising steel and plastics,

wherein structural and resistance functions are made by metallic parts while the dampening functions are demanded to the plastic portion.

5 The above system permits obtaining the above advantages, permitting an optimum inclination of ski 1, perfectly simulating the action of skiing, regardless slope characteristics, speed, skier characteristics and its ability.

10 Present invention has been described for illustrative, but not limitative, purposes, according to its preferred embodiments, but it is to be understood that variations and/or modifications can be introduced by those skilled in the art without departing from the relevant scope as defined in the enclosed claims.

CLAIMS

- 5 1. Roller ski or board, said ski or board providing in-line central
rollers, centrally provided on the ski or board body, and two pairs of
additional rollers, respectively a front pair and a rear pair, said pair of
rollers being raised with respect to the ground on which ski or board rests
when the same ski or board is substantially parallel with respect to the
ground, and contacting the same ground when ski or board is inclined,
10 said ski or board being characterized in that each one of the additional
rollers is coupled with the ski or board by a support system comprising a
fork, having one end coupled with the roller and the other one faced
toward the ski or board, between the end of the fork faced toward the ski
or board and the same ski or board being provided a resilient element.
- 15 2. Roller ski or board according to claim 1, characterized in that
a sheets system for fixing said resilient element on the ski or board.
3. Roller ski or board according to claim 1, characterized in that,
said resilient element is provided between the end of the fork faced toward
the ski or board and the same ski or board.
- 20 4. Roller ski or board according to claim 1, characterized in that
ski or board and forks are realized integrally in a single piece, said resilient
element being comprised of a specific material provided in the joining
portion between ski or board and forks.
- 25 5. Ski or board according to one of the preceding claims,
characterized in that means are provided on said resilient element for
adjustment of hardness and inclination.
6. Ski or board according to one of the preceding claims,
characterized in that said resilient element is comprised of a rubber
30 element, of an elastomeric element, or of a spring.
7. Ski or board according to one of the preceding claims,
characterized in that said sheets system for fixing the resilient element to
the ski or board provides a shaped sheet so as to operate as joint between
the flat surface of the ski or board and the coupling angle of the fork.
- 35

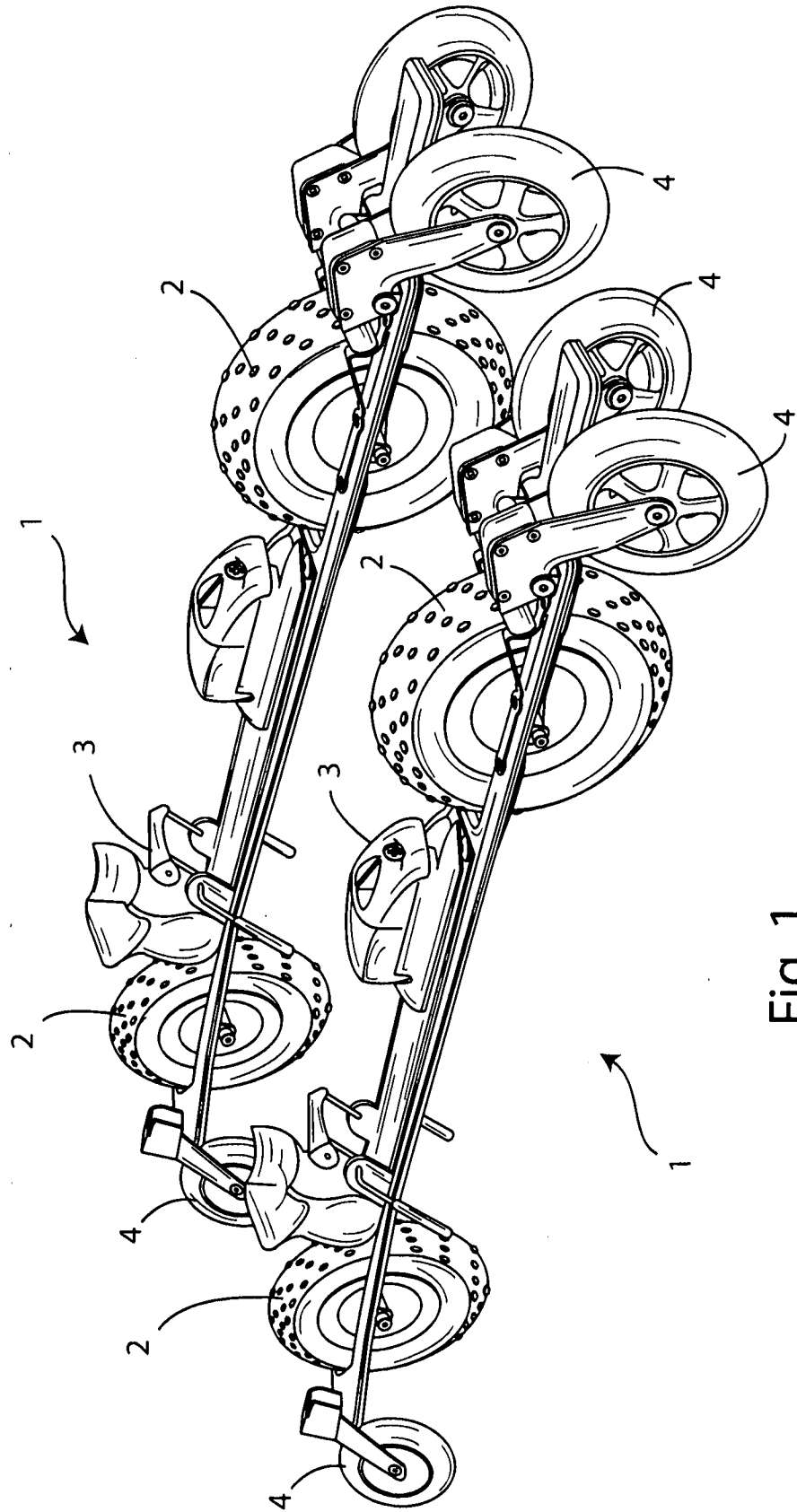


Fig. 1

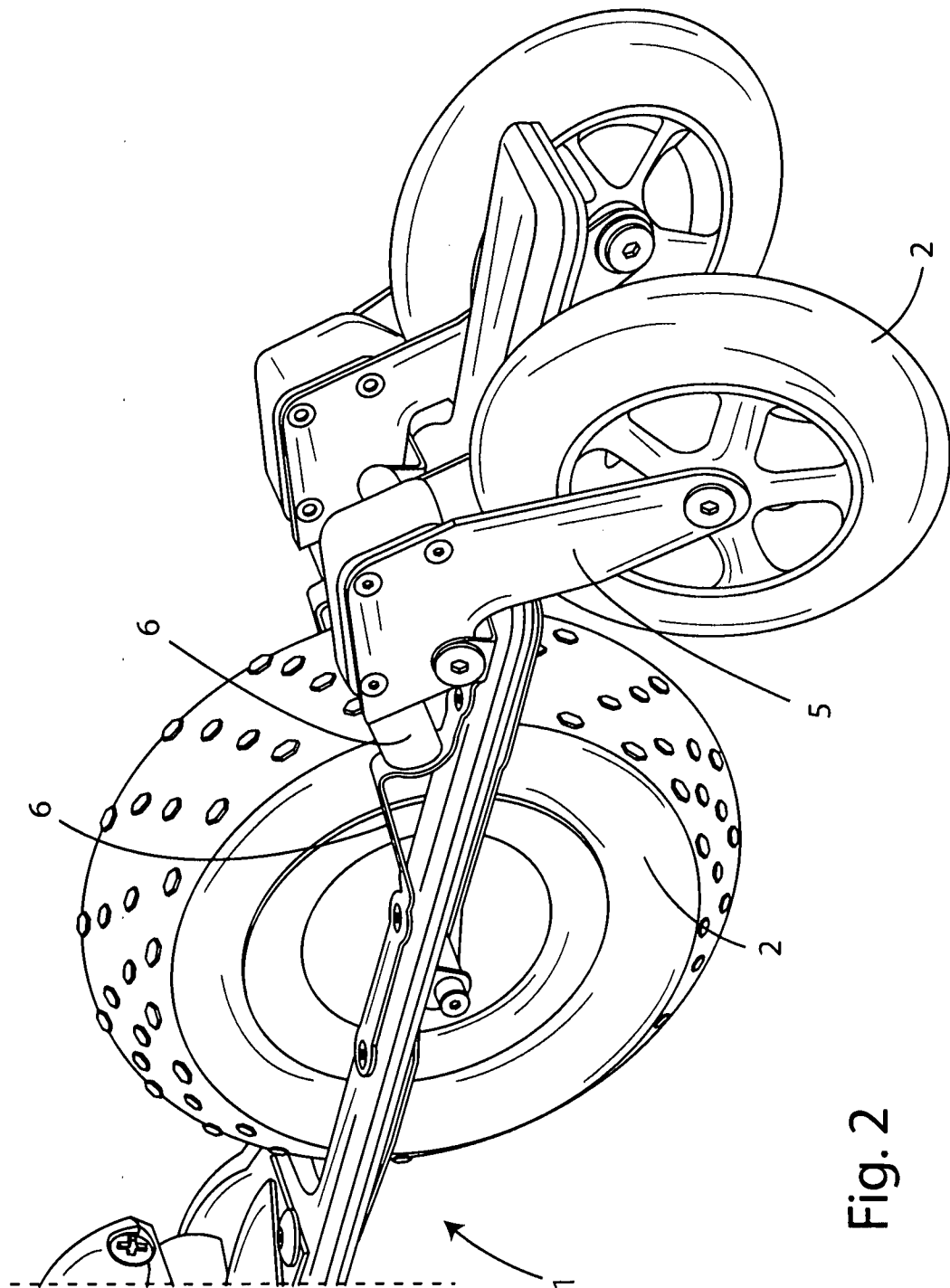


Fig. 2

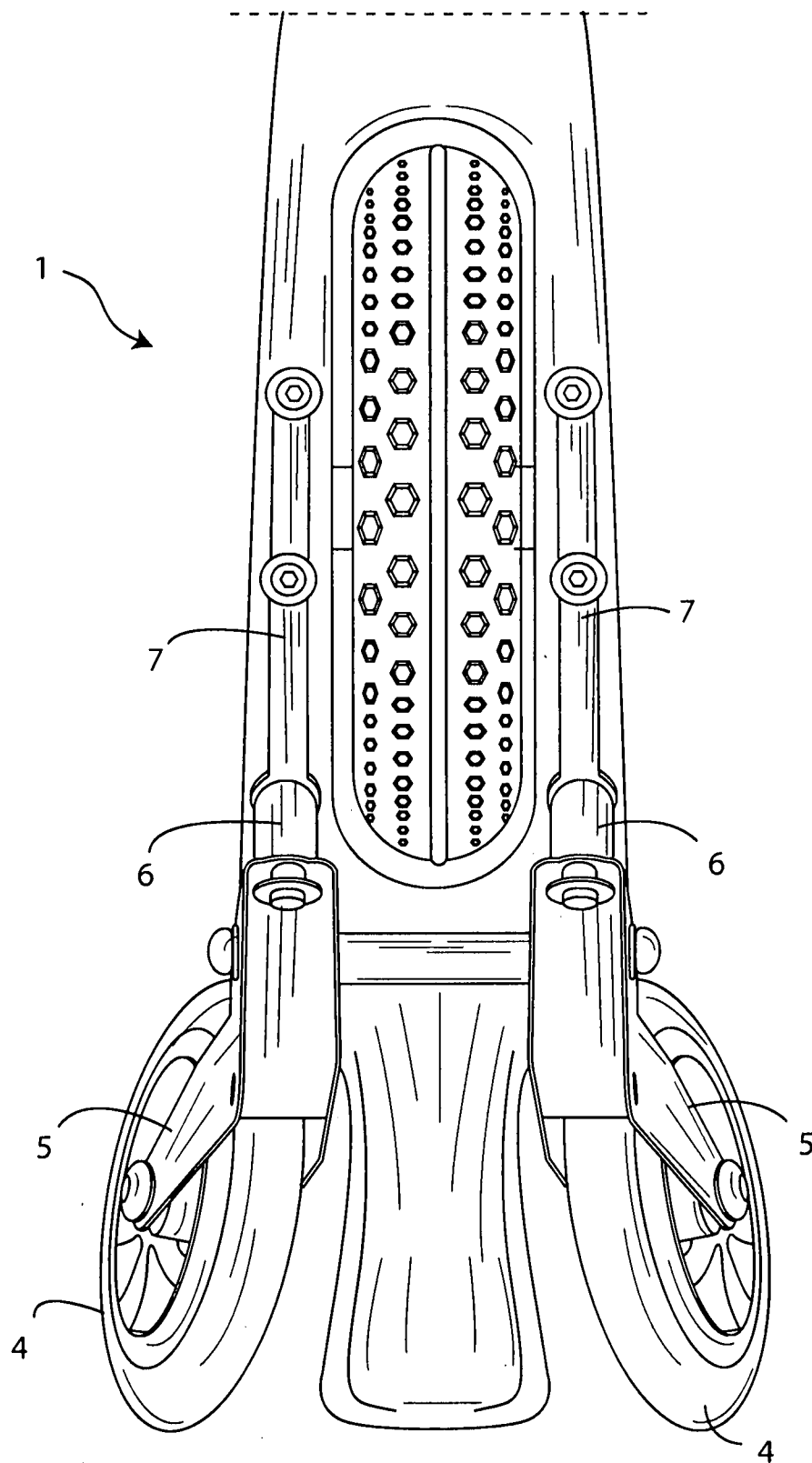


Fig. 3

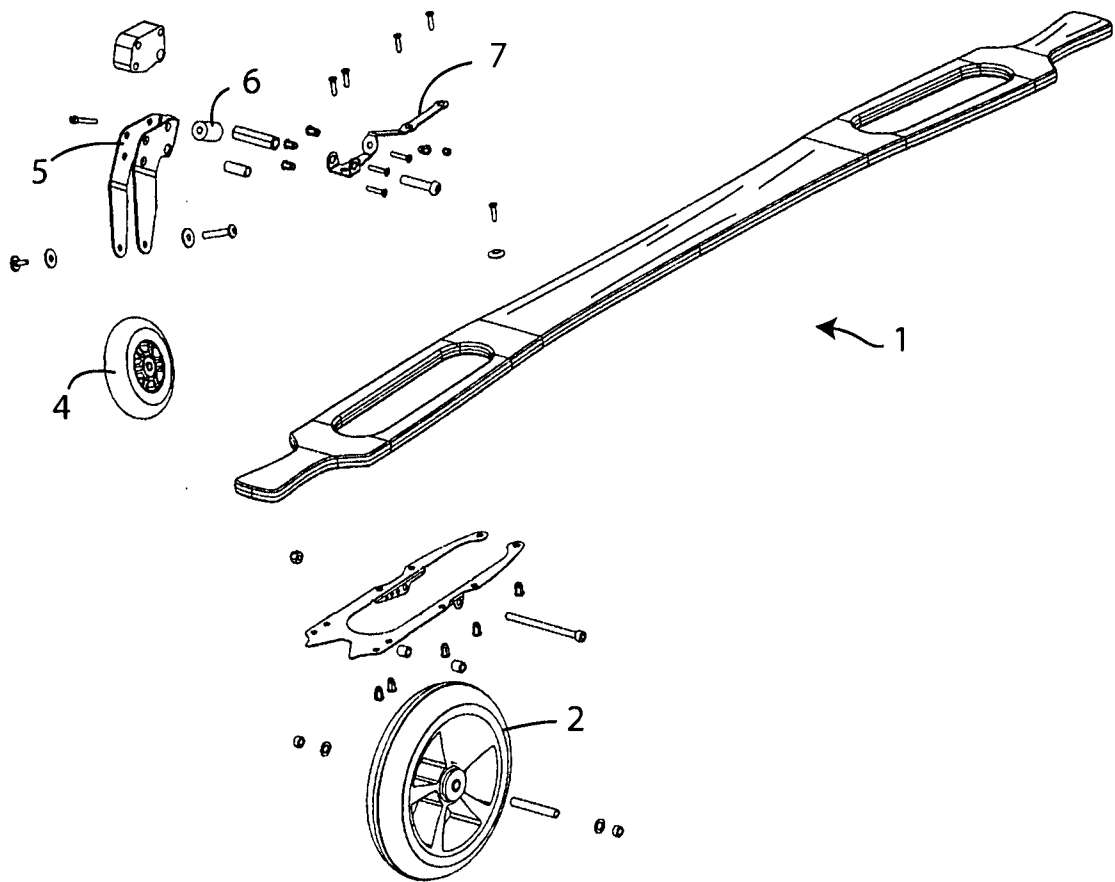


Fig. 4

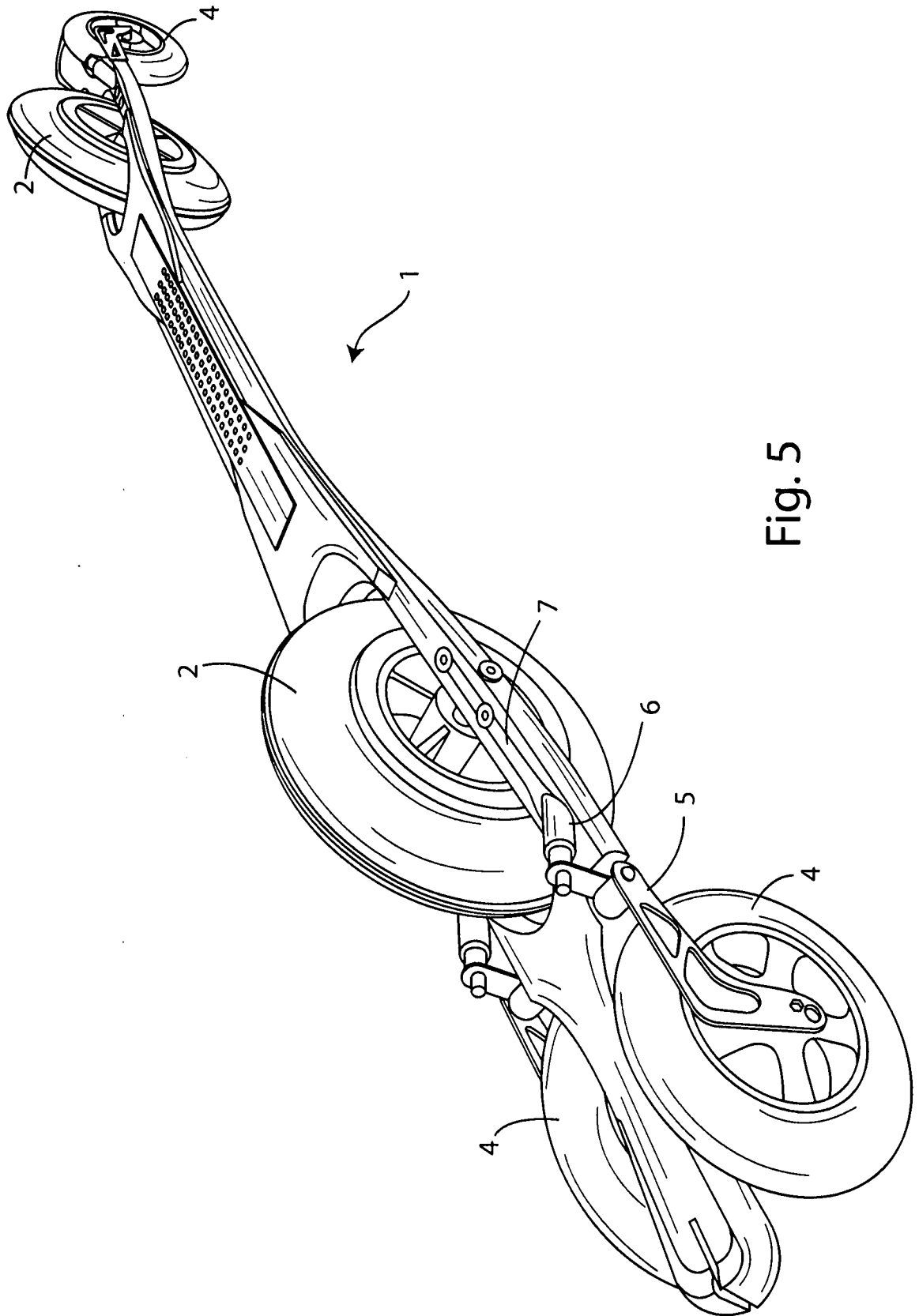


Fig. 5

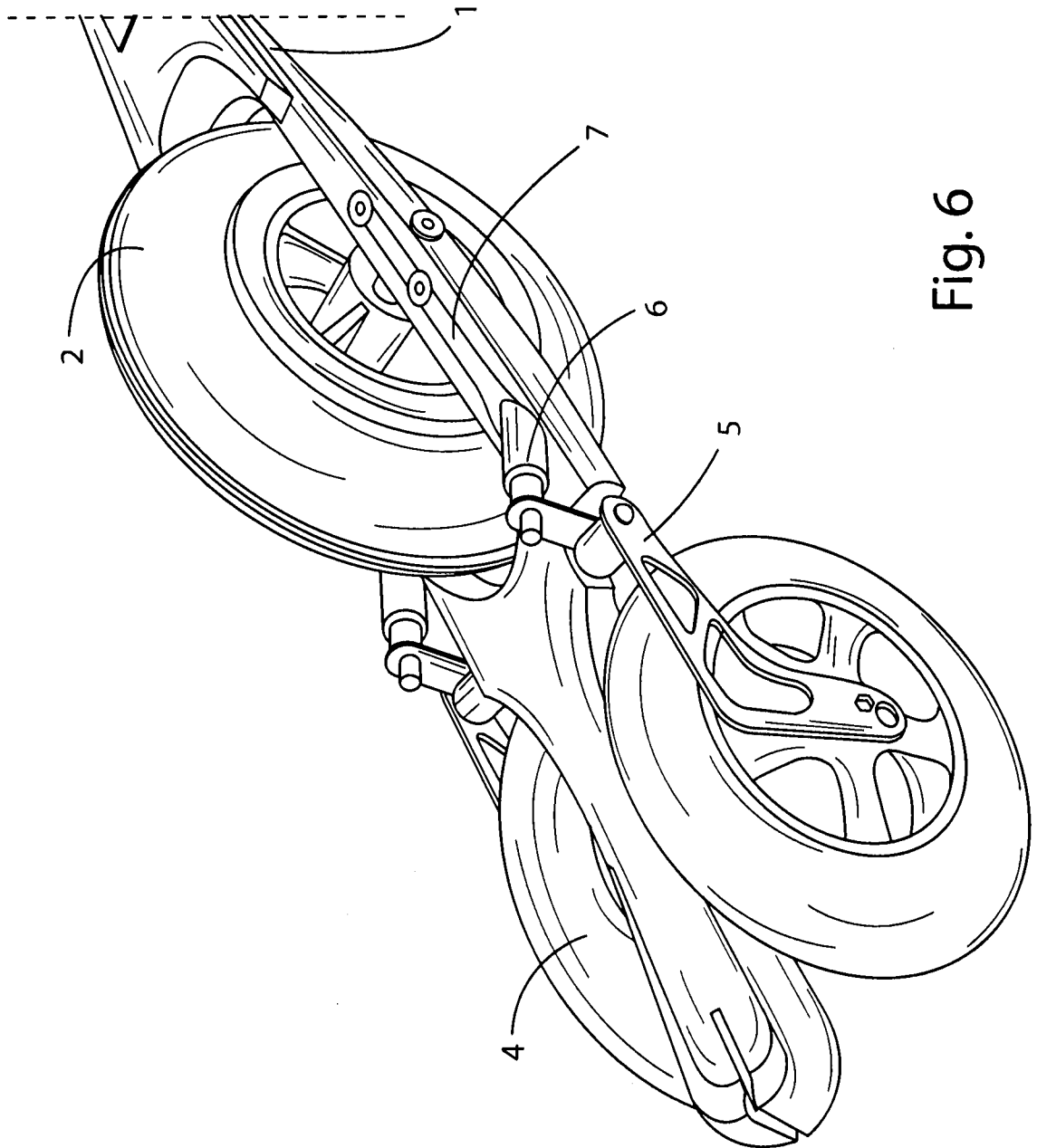


Fig. 6

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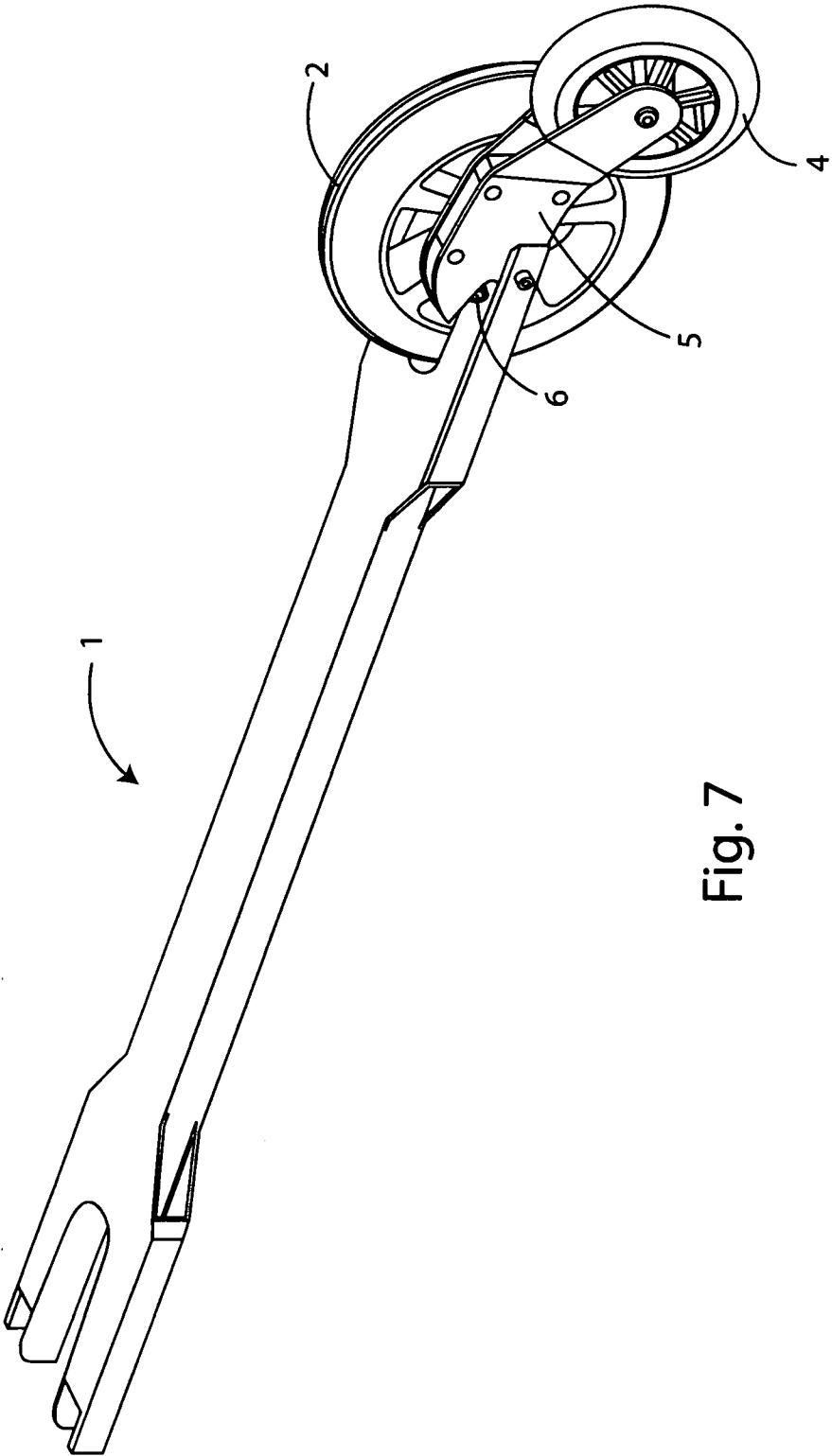


Fig. 7

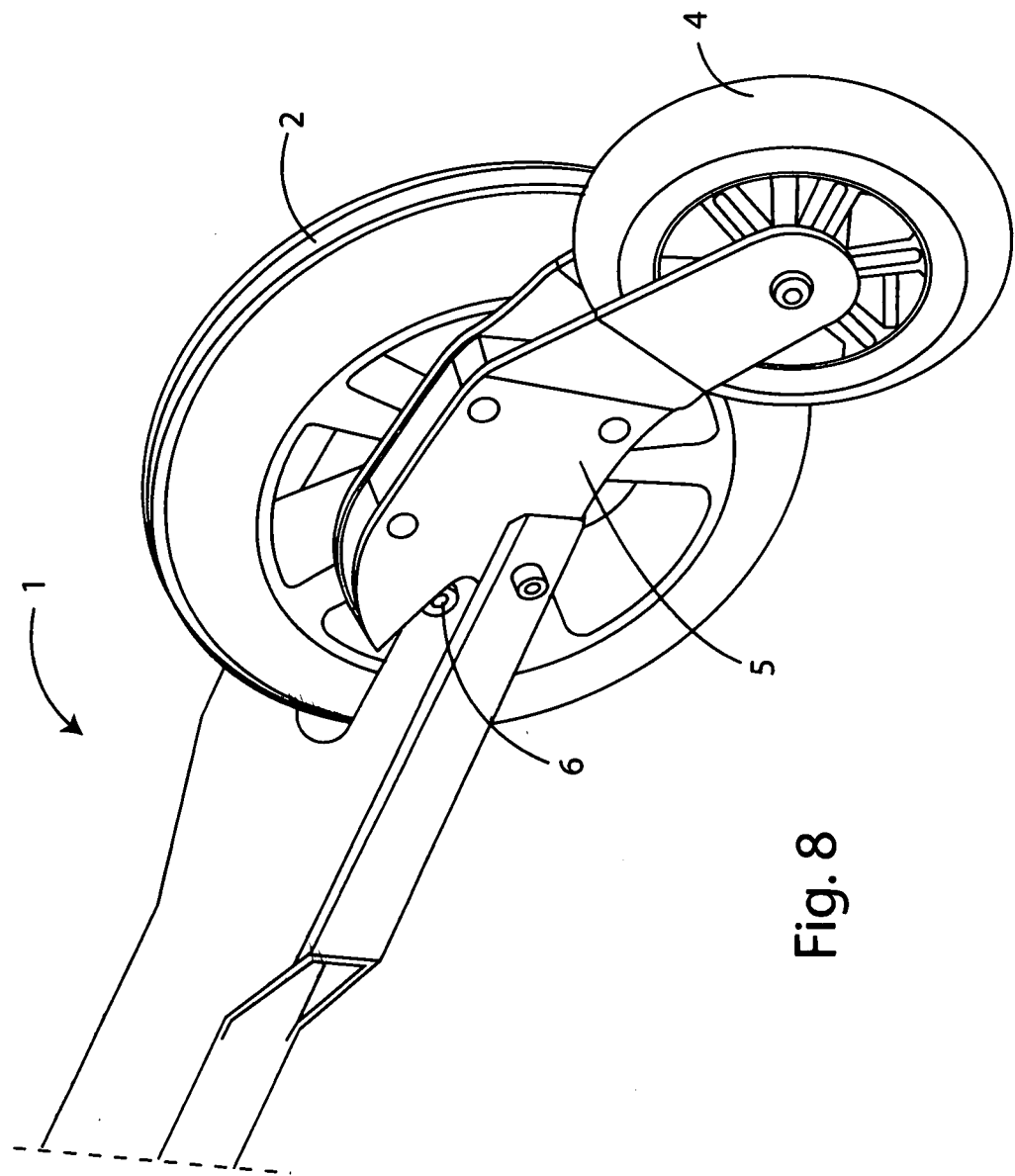


Fig. 8

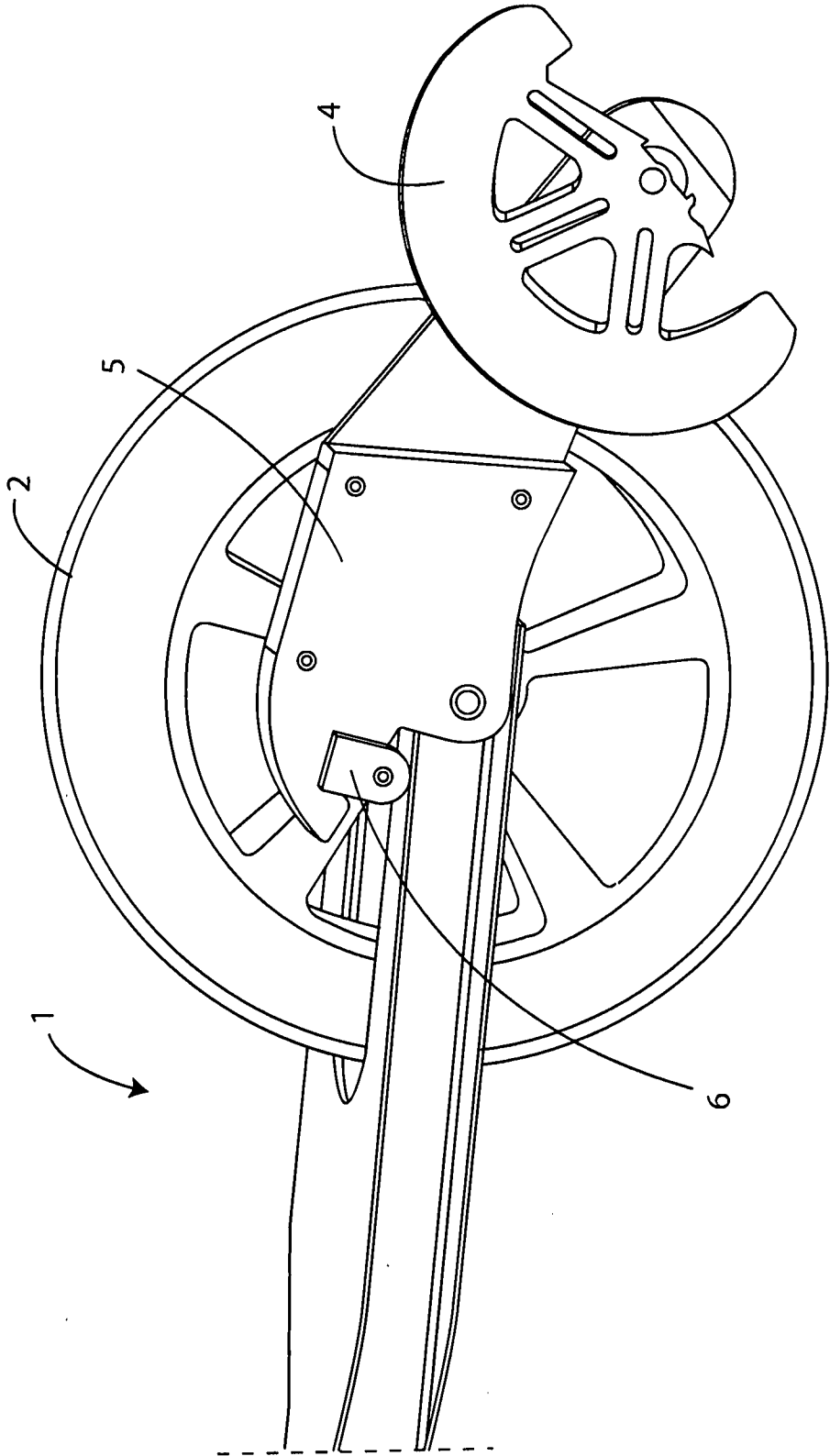


Fig. 9

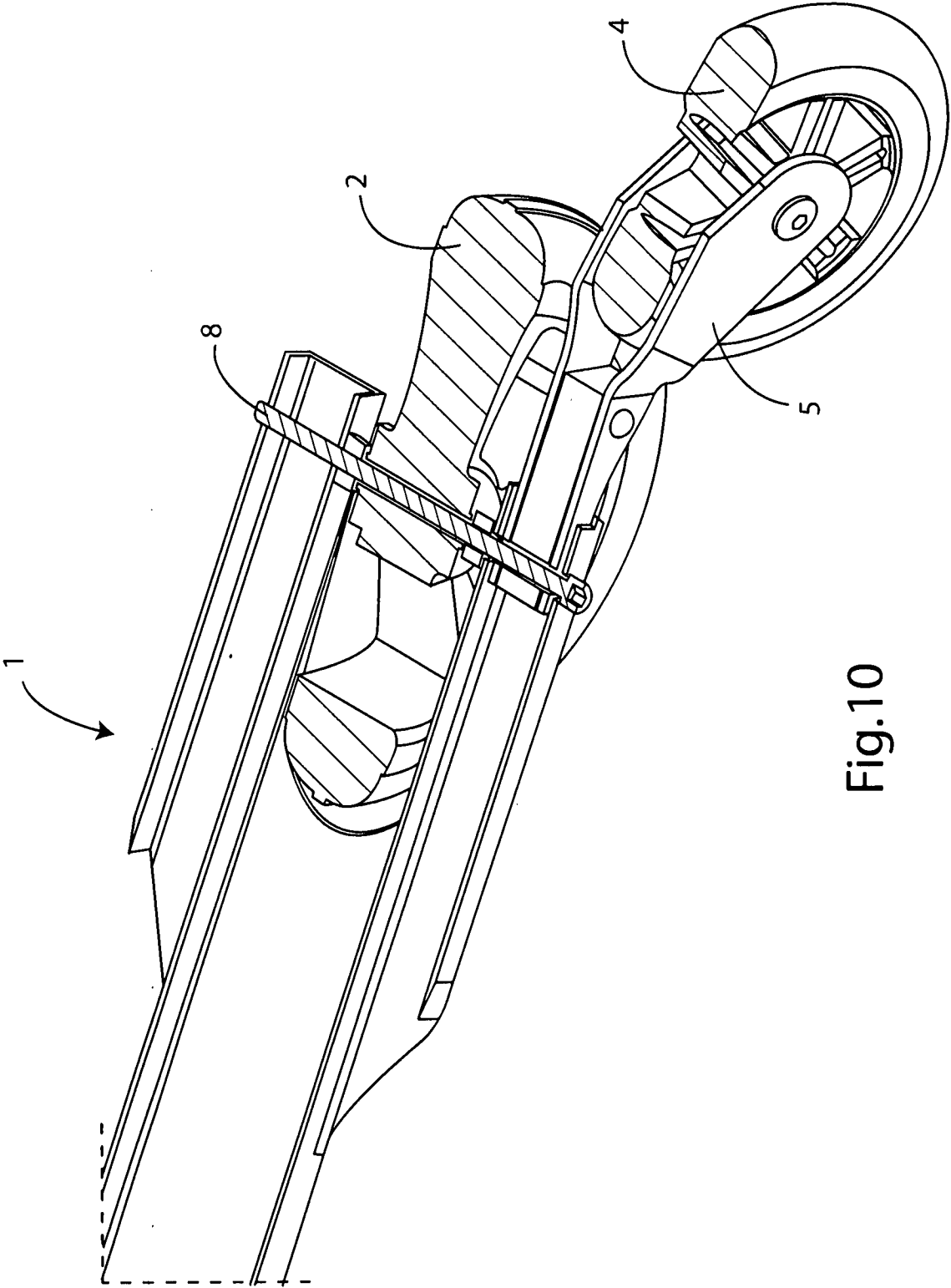


Fig.10

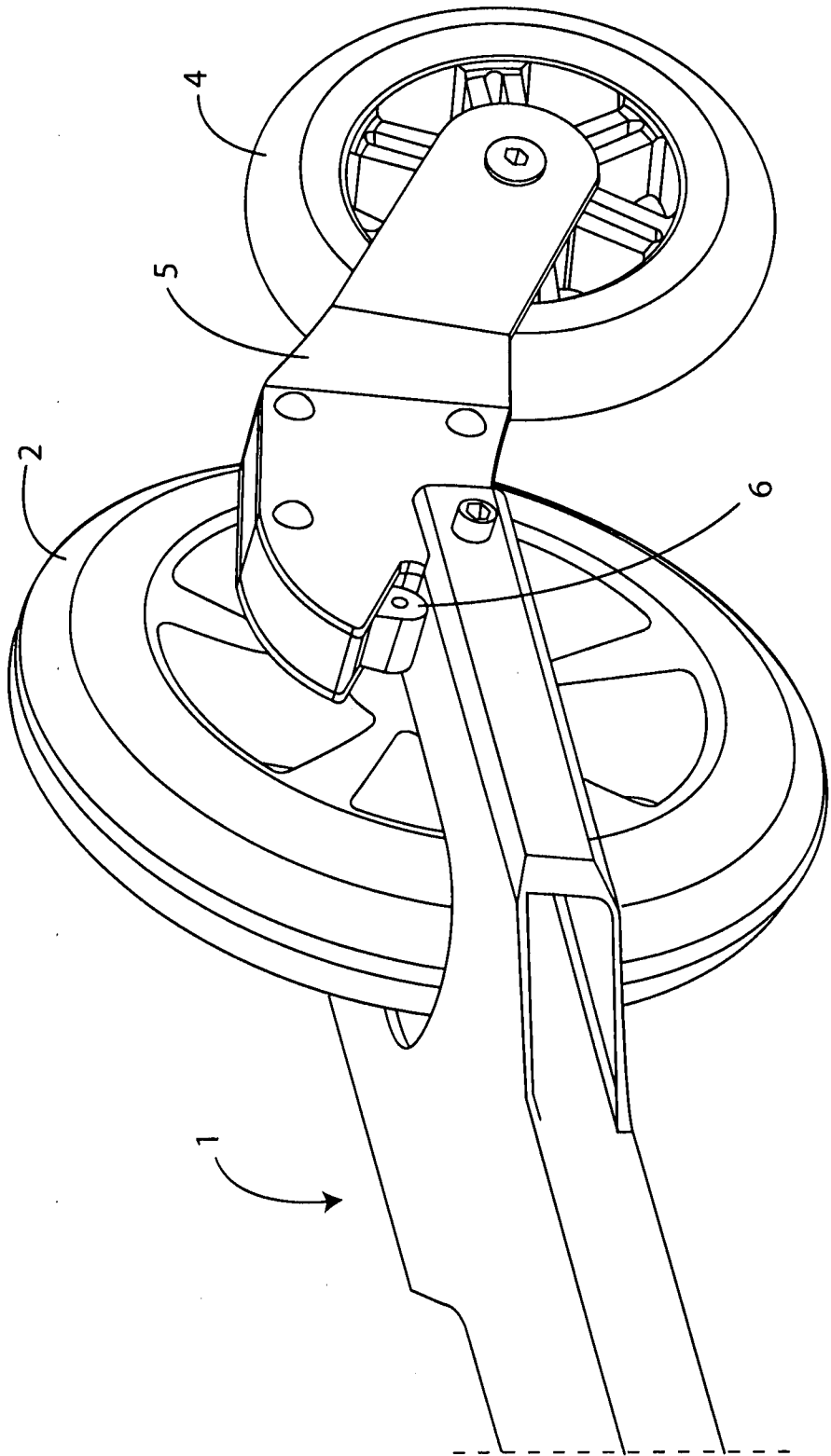


Fig. 11

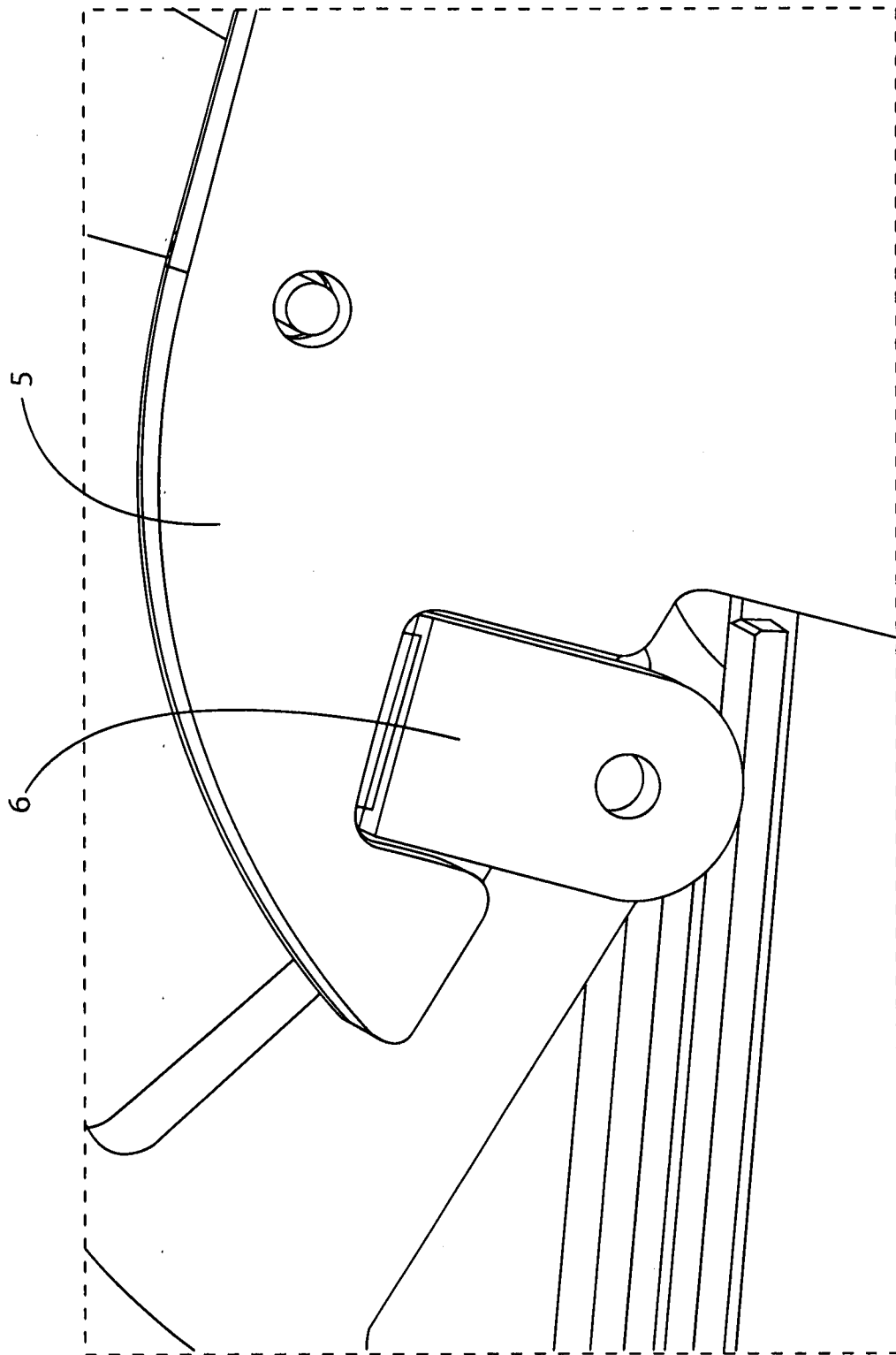


Fig. 12

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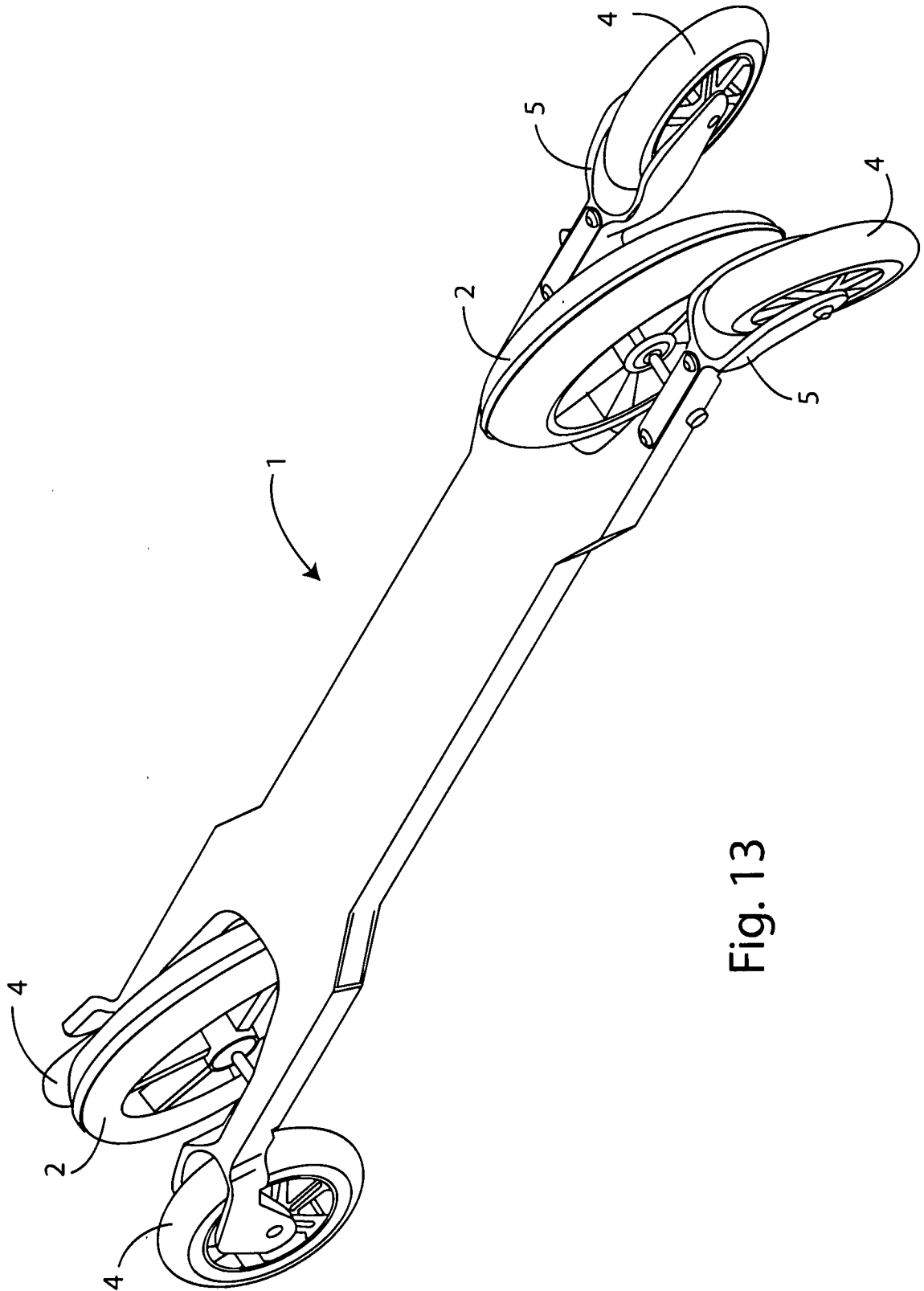


Fig. 13

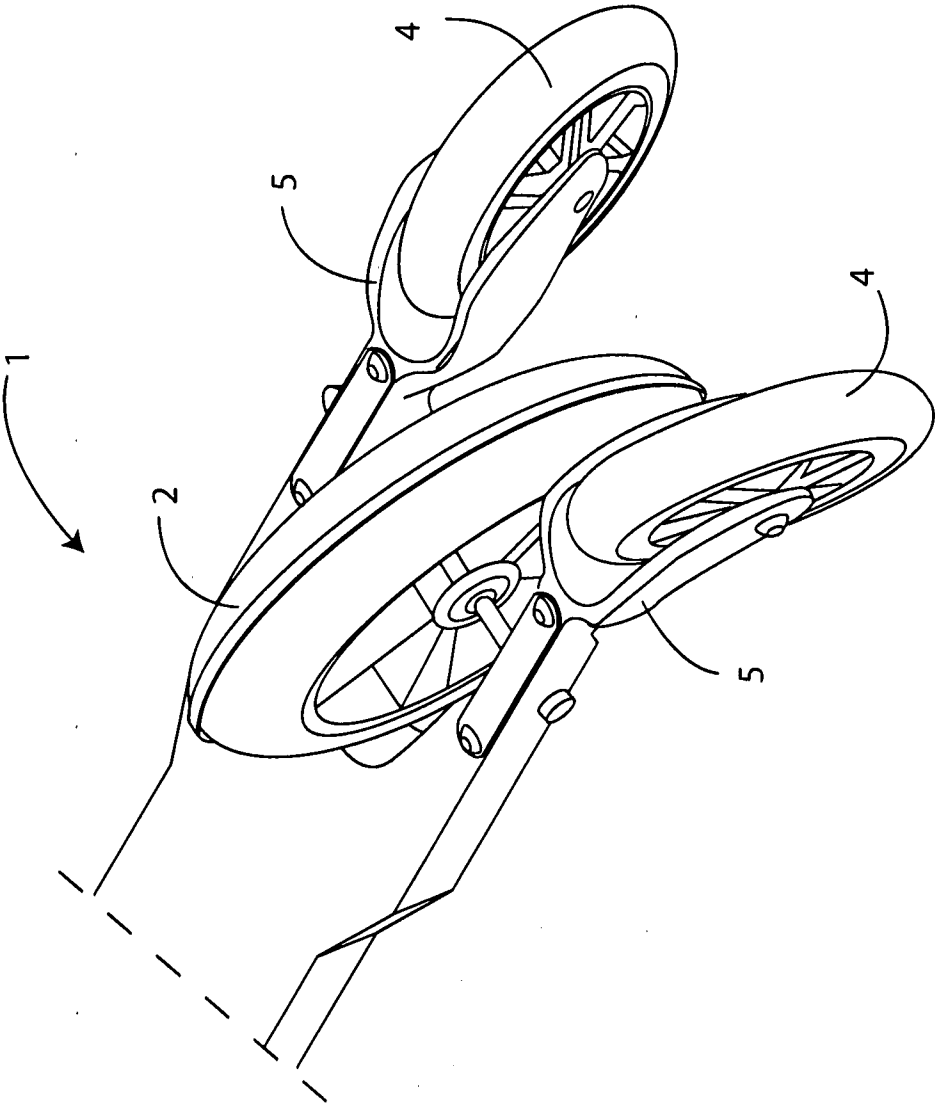


Fig. 14

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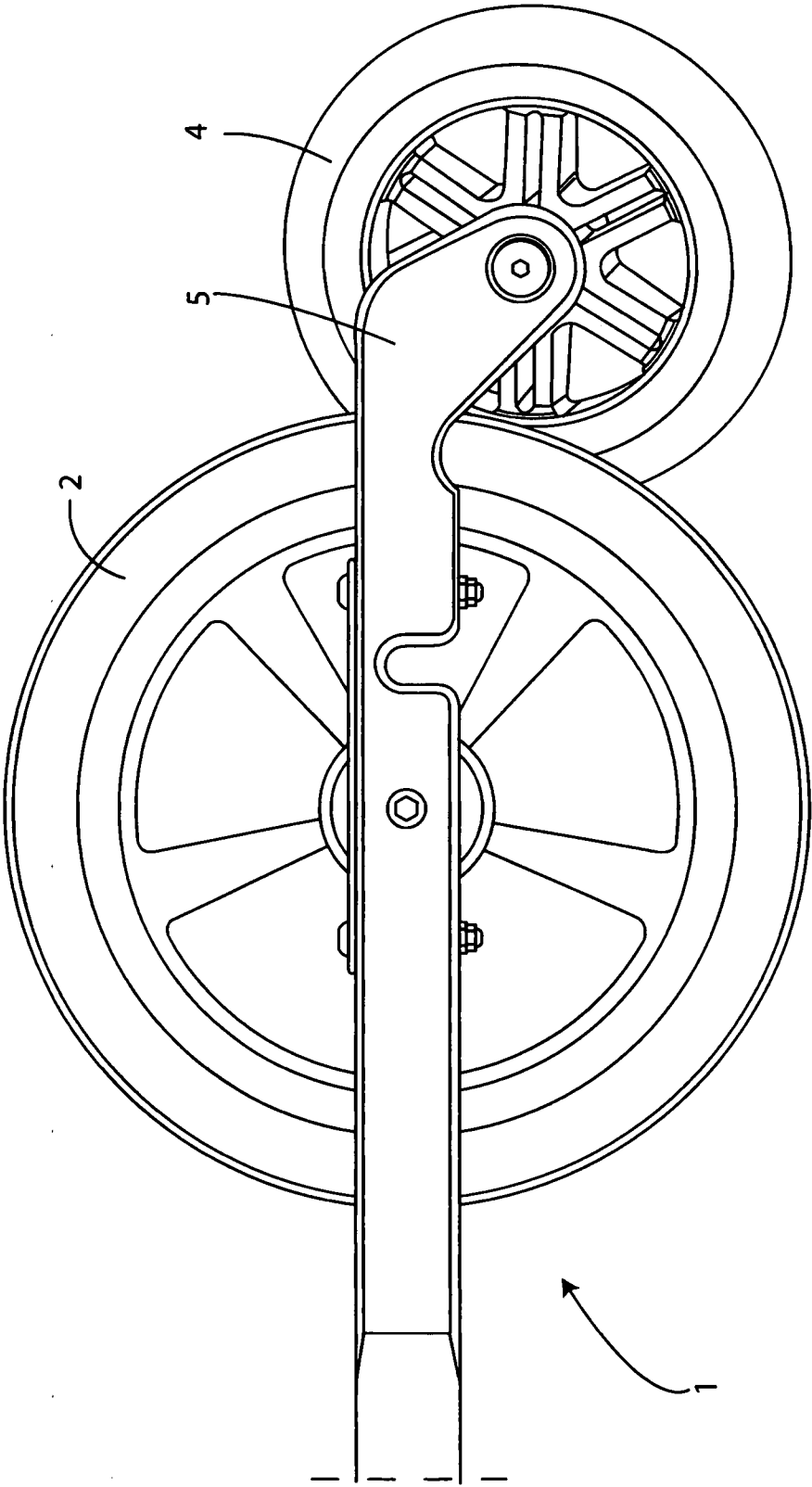


Fig. 15

INTERNATIONAL SEARCH REPORT

International application No

PCT/IT2010/000256

A. CLASSIFICATION OF SUBJECT MATTER

INV. A63C5/035 A63C17/01

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A63C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/037358 A1 (ORLANDI CRISTIANO [IT]) 6 May 2004 (2004-05-06) cited in the application page 5, line 30 – page 7, line 19; figures 1,2,4,7-9a	1-3,6,7
A	DE 296 11 481 U1 (GLASOW OTTO [DE]) 28 November 1996 (1996-11-28) page 1, paragraph 4; figures 1-7	1
A	US 2004/239065 A1 (SMITH JOHNNIE L [US]) 2 December 2004 (2004-12-02) figures 1-4b	1,7
A	US 5 975 546 A (STRAND STEEN [US]) 2 November 1999 (1999-11-02) figures 1,3,10-12	1
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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	GB 2 465 692 A (MOJAY-SINCLAE CHESTER PAUL [GB]) 2 June 2010 (2010-06-02) page 2, paragraph 4; figures 1-4 -----	1,4
A	FR 2 660 205 A1 (PICARD BERNARD [FR]) 4 October 1991 (1991-10-04) figures 1,8,9 -----	5

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IT2010/000256

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2004037358 A1	06-05-2004	AT 327012 T	15-06-2006
		AU 2002353512 A1	13-05-2004
		DE 60211757 T2	16-05-2007
		EP 1556146 A1	27-07-2005
		ES 2265059 T3	01-02-2007
DE 29611481 U1	28-11-1996	DE 19710626 A1	08-01-1998
US 2004239065 A1	02-12-2004	WO 2005000430 A2	06-01-2005
US 5975546 A	02-11-1999	AU 4424897 A	14-04-1998
		EP 1011824 A1	28-06-2000
		WO 9811960 A1	26-03-1998
		US 5833252 A	10-11-1998
GB 2465692 A	02-06-2010	NONE	
FR 2660205 A1	04-10-1991	NONE	