

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2019/018767

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl. A61G7/018 (2006.01) i, A47C19/04 (2006.01) i, A47C20/08 (2006.01) i, A61G7/043 (2006.01) i
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)
Int. Cl. A61G7/018, A47C19/04, A47C20/08, A61G7/043

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Published examined utility model applications of Japan 1922-1996
Published unexamined utility model applications of Japan 1971-2019
Registered utility model specifications of Japan 1996-2019
Published registered utility model applications of Japan 1994-2019

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	JP 2018-187022 A (PARAMOUNT BED CO., LTD.) 29 November 2018, paragraphs [0011]-[0086], [0093], [0101], fig. 1-6 & WO 2018/203476 A1	1, 8, 19 4, 6-7, 15, 17-18 2-3, 5, 9-14, 16, 20
Y A	JP 2016-5518 A (SHARP KABUSHIKI KAISHA) 14 January 2016, paragraphs [0031], [0034]-[0037] (Family: none)	4, 17 1-3, 5-16, 18- 20
Y A	JP 2016-55150 A (XILINMEN FURNITURE CO., LTD.) 21 April 2016, paragraphs [0003], [0012] & US 2016/0066703 A1, paragraphs [0004], [0015], [0016] & EP 2995253 A1 & CN 104188638 A	6-7, 18 1-5, 8-17, 19- 20

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
 "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed
 "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search 01.08.2019	Date of mailing of the international search report 13.08.2019
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Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer Telephone 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.
Y A	JP 2008-259630 A (SHINANO KENSHI CO.) 30 October 2008, paragraph [0005] (Family: none)	15 1-14, 16-20

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

[see extra sheet]

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

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(continuation of Box No. III)

Document 1: JP 2018-187022 A (PARAMOUNT BED CO., LTD.) 29 November 2018, paragraphs [0011]-[0086], [0093], [0101], fig. 1-6 & WO 2018/203476 A1

The claims are classified into the following ten inventions.

(Invention 1) Claims 1-3 and 16

Document 1 discloses an "electric bed (paragraph [0011]) comprising: a movable part 70 (paragraph [0011]) comprising a back bottom 70a, a knee bottom 70b, a leg bottom 70c, a height change section 70d, and the like; and a control device 160 (paragraphs [0014] and [0015]) comprising a first operation-receiving unit 20, the movable part 70 actuating when the first operation-receiving unit 20 is operated (paragraphs [0018]-[0021]), wherein: a control unit 42 automatically moves the movable part 70 on the basis of a state of a user detected by a detection unit 60 (paragraph [0054]), wherein the speed of the movable part 70 for when the movable part 70 moves automatically is lower than the speed of the movable part 70 for when the movable part 70 is moved by operation of the first operation-receiving unit 20 (paragraphs [0034], [0035], and [0076]). Claim 1 is deprived of novelty by document 1 and therefore does not have a special technical feature. Claim 2, which is a dependent claim of claim 1, however, does have a special technical feature in that "the aforementioned control unit, when the aforementioned support section is put through a first action, drives the aforementioned support section at a first speed, drives at a second speed slower than the aforementioned first speed, and drives at a third speed faster than the aforementioned second speed". Claims 3 and 16 also have the same technical feature as claim 2. As such, claims 1-3 and 16 are classified as Invention 1.

(Invention 2) Claims 4-5 and 17

Claim 4 cannot be said to have a special technical feature identical to or corresponding to that of claim 2 classified as Invention 1.

Though claim 4 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of prompting a user to wake in "driving the aforementioned support section when user body movement, heart rate, or breathing rate is sensed near a time where the user is trying to get out of bed, when the aforementioned support section is put through a second action", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising

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the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 4 cannot therefore be said to be inventively linked to claim 1.

Furthermore, claim 4 is not substantially identical to or similarly closely related to any of the claims classified as Invention 1.

The invention in claim 4 does have a special technical feature in "driving the aforementioned support section when user body movement, heart rate, or breathing rate is sensed near a time where the user is trying to get out of bed, when the aforementioned support section is put through a second action". Claims 5 and 17 also have the same technical feature as claim 4. As such, claims 4-5 and 17 are classified as Invention 2.

(Invention 3) Claims 6-7 and 18

Claim 6 cannot be said to have a special technical feature identical to or corresponding to those of claim 2 classified as Invention 1 or claim 4 classified as Invention 2.

Though claim 6 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of steadying breathing in "driving the aforementioned support section if the user's breathing has become unsteady when the aforementioned support section is put through a third action", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 6 cannot therefore be said to be inventively linked to claim 1. In addition, claim 6 is not a dependent claim of claim 4. In addition, claim 6 is not substantially identical to or similarly closely related to any of the claims classified as Invention 1 or 2. As such, claim 6 cannot be classified as either of Inventions 1 or 2.

The invention in claim 6 does have a special technical feature in "driving the aforementioned support section if the user's breathing has become unsteady when the aforementioned support section is put through a third action". Claims 7 and 18 also have the same technical feature as claim 6. As such, claims 6-7 and 18 are classified as Invention 3.

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(Invention 4) Claim 8 and 19

The invention in claim 8 cannot be said to have a special technical feature identical to or corresponding to those of cited claim 2 classified as Invention 1, claim 4 classified as Invention 2, or claim 6 classified as Invention 3.

Though claim 8 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of safely performing self-driving wherein "the aforementioned control unit, when the aforementioned support section is put through a fourth action, has the operating speed of the aforementioned support section for if the user is resting on the aforementioned support section be slower than the operating speed of the support section for if the user is not resting on the aforementioned support section", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 8 cannot therefore be said to be inventively linked to claim 1. In addition, claim 8 is not a dependent claim of claim 4 or claim 6. In addition, claim 8 is not substantially identical to or similarly closely related to any of the claims classified as Inventions 1-3.

The invention in claim 8 does have a special technical feature in that "the aforementioned control unit, when the aforementioned support section is put through a fourth action, has the operating speed of the aforementioned support section for if the user is resting on the aforementioned support section be slower than the operating speed of the support section for if the user is not resting on the aforementioned support section". Claim 19 also has the same technical feature as claim 8. As such, claims 8 and 19 are classified as Invention 4.

(Invention 5) Claims 9-10 and 20

Claim 9 cannot be said to have a special technical feature identical to or corresponding to those of cited claim 2 classified as Invention 1, claim 4 classified as Invention 2, claim 6 classified as Invention 3, or claim 8 classified as Invention 4.

Though claim 9 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of preventing aspiration

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after eating wherein "the aforementioned control unit, when the aforementioned support section is put through a fifth action, has the operating speed of the aforementioned support section for if ample time has not passed since the user ate be slower than the operating speed of the support section for if ample time has passed since the user ate", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 9 cannot therefore be said to be inventively linked to claim 1. In addition, claim 9 is not a dependent claim of claim 4, 6, or 8. In addition, claim 9 is not substantially identical to or similarly closely related to any of the claims classified as Inventions 1-4.

The invention in claim 9 does have a special technical feature in that "the aforementioned control unit, when the aforementioned support section is put through a fifth action, has the operating speed of the aforementioned support section for if ample time has not passed since the user ate be slower than the operating speed of the support section for if ample time has passed since the user ate". Claims 10 and 20 also have the same technical feature as claim 9. As such, claims 9-10 and 20 are classified as Invention 5.

(Invention 6) Claim 11

Claim 11 cannot be said to have a special technical feature identical to or corresponding to those of cited claim 2 classified as Invention 1, claim 4 classified as Invention 2, claim 6 classified as Invention 3, claim 8 classified as Invention 4, or claim 9 classified as Invention 5.

Though claim 11 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of assisting so as to be seated at the upper end of the bed wherein "when the aforementioned support section is put through a sixth action, the operating speed of the aforementioned support section for if the user's posture on the aforementioned support section is a first posture is slower than the operating speed of the support section for if the user's posture on the aforementioned support section is a second posture", which is the technical feature that is added to claim 1, is of little technical relevance to the

technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 9 cannot therefore be said to be inventively linked to claim 1.

In addition, claim 11 is not a dependent claim of claim 4, 6, 8, or 9. In addition, claim 11 is not substantially identical to or similarly closely related to any of the claims classified as Inventions 1-5.

The invention in claim 11 does have a special technical feature in that "when the aforementioned support section is put through a sixth action, the operating speed of the aforementioned support section for if the user's posture on the aforementioned support section is a first posture is slower than the operating speed of the support section for if the user's posture on the aforementioned support section is a second posture". As such, claim 11 is classified as Invention 6.

(Invention 7) Claim 12

Claim 12 cannot be said to have a special technical feature identical to or corresponding to those of cited claim 2 classified as Invention 1, claim 4 classified as Invention 2, claim 6 classified as Invention 3, claim 8 classified as Invention 4, claim 9 classified as Invention 5, or claim 11 classified as Invention 6.

Though claim 12 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of assisting so as that a body parameter will reach a predetermined state, which is inferred because "when the aforementioned support section is put through a seventh action, the operating speed of the aforementioned support section for if an amount of change in the user's heart rate exceeds a predetermined value is slower than the operating speed of the support section for if the amount of change in the user's heart rate does not exceed a predetermined value", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 12 cannot therefore be said to be inventively linked to claim 1.

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In addition, claim 12 is not a dependent claim of claim 4, 6, 8, 9, or 11. In addition, claim 12 is not substantially identical to or similarly closely related to any of the claims classified as Inventions 1-6.

The invention in claim 12 does have a special technical feature in that "when the aforementioned support section is put through a seventh action, the operating speed of the aforementioned support section for if an amount of change in the user's heart rate exceeds a predetermined value is slower than the operating speed of the support section for if the amount of change in the user's heart rate does not exceed a predetermined value". As such, claim 12 is classified as Invention 7.

(Invention 8) Claim 13

Claim 13 cannot be said to have a special technical feature identical to or corresponding to those of cited claim 2 classified as Invention 1, claim 4 classified as Invention 2, claim 6 classified as Invention 3, claim 8 classified as Invention 4, claim 9 classified as Invention 5, claim 11 classified as Invention 6, or claim 12 classified as Invention 7.

Though claim 13 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of having a drive speed corresponding to a range of motion of a body, which is inferred because "when the aforementioned support section is put through an eighth action, the operating speed of the aforementioned support section for if the user's sleeping posture is prone is slower than the operating speed of the support section for if the user's sleeping posture is not prone", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 13 cannot therefore be said to be inventively linked to claim 1.

In addition, claim 13 is not a dependent claim of claim 4, 6, 8, 9, 11, or 12. In addition, claim 13 is not substantially identical to or similarly closely related to any of the claims classified as Inventions 1-7.

The invention in claim 13 does have a special technical feature in that "when the aforementioned support section is put through an eighth action, the operating speed of the aforementioned support section for if the user's

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sleeping posture is prone is slower than the operating speed of the support section for if the user's sleeping posture is not prone". As such, claim 13 is classified as Invention 8.

(Invention 9) Claim 14

Claim 14 cannot be said to have a special technical feature identical to or corresponding to those of cited claim 2 classified as Invention 1, claim 4 classified as Invention 2, claim 6 classified as Invention 3, claim 8 classified as Invention 4, claim 9 classified as Invention 5, claim 11 classified as Invention 6, claim 12 classified as Invention 7, or claim 13 classified as Invention 8.

Though claim 14 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of having an angle of incline correspond to a range of motion of a body, which is inferred because "when the aforementioned support section is put through a ninth action, the aforementioned support section is set to a first angle if the user's sleeping posture is prone, the aforementioned support section is set to a second angle greater than the aforementioned first angle if the user's sleeping posture is on the side, and the aforementioned support section is set to a third angle greater than the aforementioned second angle if the user's sleeping posture is upright", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 14 cannot therefore be said to be inventively linked to claim 1.

In addition, claim 14 is not a dependent claim of claim 4, 6, 8, 9, 11, 12, or 13. In addition, claim 14 is not substantially identical to or similarly closely related to any of the claims classified as Inventions 1-8. The invention in claim 14 does have a special technical feature in that "when the aforementioned support section is put through an eighth action, the operating speed of the aforementioned support section for if the user's sleeping posture is prone is slower than the operating speed of the support section for if the user's sleeping posture is not prone". As such, claim 14 is classified as Invention 9.

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(Invention 10) Claim 15

Claim 15 cannot be said to have a special technical feature identical to or corresponding to those of cited claim 2 classified as Invention 1, claim 4 classified as Invention 2, claim 6 classified as Invention 3, claim 8 classified as Invention 4, claim 9 classified as Invention 5, claim 11 classified as Invention 6, claim 12 classified as Invention 7, claim 13 classified as Invention 8, or claim 14 classified as Invention 9.

Though claim 15 is a dependent claim of claim 1 classified as Invention 1, the technical feature for exerting the effect of having the drive speed correspond to the magnitude of a load, which is inferred because "when the aforementioned support section is put through a tenth action, the operating speed of the aforementioned support section for if a current value flowing to an actuator that drives the aforementioned support section exceeds a predetermined value is slower than the operating speed of the support section for if the current value flowing to the aforementioned actuator does not exceed a predetermined value", which is the technical feature that is added to claim 1, is of little technical relevance to the technical feature in claim 1 for exhibiting the effect of automatic control without creating danger and without surprising the user, which is inferred because "the speed of the support section for if the user operates the support section is greater than the speed where the support section is driven automatically". Claim 15 cannot therefore be said to be inventively linked to claim 1.

In addition, claim 15 is not a dependent claim of claim 4, 6, 8, 9, 11, 12, 13, or 14. In addition, claim 15 is not substantially identical to or similarly closely related to any of the claims classified as Inventions 1-9. The invention as in claim 15 does have a special technical feature in that "when the aforementioned support section is put through a tenth action, the operating speed of the aforementioned support section for if a current value flowing to an actuator that drives the aforementioned support section exceeds a predetermined value is slower than the operating speed of the support section for if the current value flowing to the aforementioned actuator does not exceed a predetermined value". As such, claim 15 is classified as Invention 10.