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(54) Title: TOILET SEAT LID WITH PEDAL OPENING AND CLOSING MECHANISM

(57) Abstract: Invention relates to an opening closing mechanism providing
hygienic opening and closing of toilet seat lower lids (K1) used in toilet seats
(K) without touching with hand.

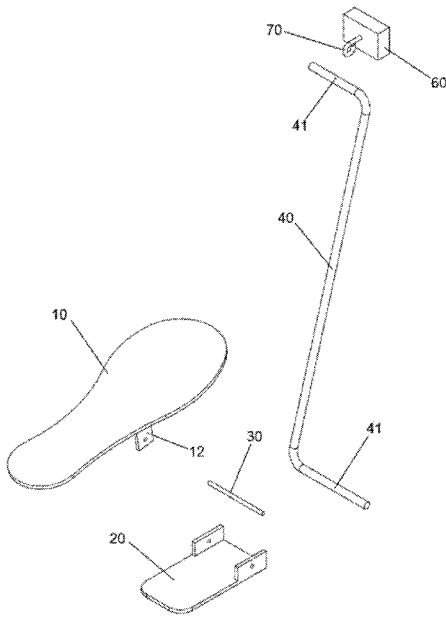


Figure 1



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Toilet Seat Lid with Pedal Opening and Closing Mechanism

5 Technical Field

The invention relates to opening-closing mechanism used in toilet seat lids.

The invention particularly relates to an opening-closing mechanism providing opening and closing of toilet seat lid by a foot pedal hygienically without hand touching.

10

Prior Art

In order to provide a hygienic use in the toilets and to make the seat comfortable and useful, the toilet lids and toilet bottom covers that are hinged on the toilets are conventionally lifted and lowered by hand. Keeping lids closed when toilet seats are
15 not used is essential for prevention of bacteria spreading.

In the current art automatic or spring closing systems used for closing toilet seats lids in open position are known. However, such systems are generally applied for toilet outer lids that prevent the spread of bacteria and thus provide hygienic use.
20 Particularly as toilet use in the toilets in public use area is high and adequate hygienic environment is not possible, toilet seat lids have high amount of microbes. For that reason, users are to open and close toilet seat lid with hand and sometimes try to hold the lid by toilet paper or cloth.

25 In the prior art, bars are used to be placed under toilet seat lids to prevent hand contact with the lids. Said bars are used to lift and put down the lid. However, since the bars are always under the lids, keeping them hygiene is not possible. Although there is no direct contact with the lid, microbe may infect as it is in the same place. In addition, such handles or bars are to be placed under each lid. Particularly when
30 going to toilets in use in places other than homes-, offices, since there is no such handle and user's carrying handle is not proper in hygiene terms, said handles or bars are not usable in practice.

When literature is searched, a document numbered TR2020/12180 can be shown as example thereof in the related art. The said document relates to a system and working method enabling manual opening and closing of the toilet seat lid which opens and closes automatically. Said invention discloses a system enabling opening and closing of toilet seat lid mechanically or in other words manually by user when connection of lid with actuator is ended after an opening or closing action made by means of an actuator for a toilet seat automatically opening and also automatically closing without need for user's contact by means of at least a sensor and an actuator. Since said system has a complicated structure, it is of high cost and establishing thereof is difficult.

As a result, the need for above mentioned problems and inadequacy of the existing solutions have made necessary to make a development in the related art.

15 **Purpose of the Invention**

This present invention relates to a toilet seat lid with pedal opening and closing mechanism eliminating above mentioned disadvantages and providing new advantages in the related art.

20 Primary purpose of the invention is to disclose an opening-closing mechanism providing opening and closing of toilet seat lid by a foot pedal hygienically without hand touching.

Purpose of the invention is to disclose an opening-closing mechanism providing a hygienic use by opening the toilet seat lid by pressing onto foot pedal by user and closing the toilet seat lid by re-pressing.

Another purpose of the invention is to disclose a low cost opening-closing mechanism which can be installed easily and used comfortably.

30

In order to achieve above mentioned purposes and those to be elicited from detailed description, the invention is an opening-closing mechanism providing hygienic opening and closing of toilet seat lower lids used in toilets without touching with hand and comprises

- a foot pedal located on the ground and providing opening of the toilet seat lower lid with raising of the lower lid when pressed on it by user with foot or closing by coming down
- an lower connection platform connected onto ground and providing fixing of foot pedal onto ground,
- A pedal spindle passed between foot pedal and lower connection platform and connected to lower connection platform of foot pedal in a manner to move up and down freely,
- a connection bar connected to foot pedal lower surface capable to make free return action and driving for opening and closing of toilet seat lower lid when foot pedal is pressed,
- a toilet seat connection member connected to lower surface of the toilet seat lower lid and providing connection of connection bar to toilet seat lower lid,
- a hook located on toilet seat connection member and connecting toilet seat connection member and connection bar.

The structural and characteristic features and all advantages of the invention will be understood better in the figures given below and the detailed description by reference to the figures. Therefore, the assessment should be made based on the figures and taking into account the detailed descriptions.

Figures to Help Understanding of the Invention

- Figure 1:** is view showing demounted form of opening closing mechanism of the invention.
- Figure 2:** is top perspective view of opening closing mechanism of the invention.
- Figure 3:** is bottom perspective view of opening closing mechanism of the invention.
- Figure 4:** is perspective view of opening closing mechanism of the invention from another angle.
- Figure 5:** is a view showing mounted form of toilet seat inner lid of the opening-closing mechanism of the invention.

Description of Part References

- 10.** Foot pedal
- 11.** Bar connection pipe
- 12.** Mounting flap

- 20. Lower connection platform
 - 30. Pedal spindle
 - 40. Connection bar
 - 41. Bar arm
 - 5 42. Hole
 - 50. Level determination arm
 - 60. Toilet seat connection member
 - 70. Hook
-
- 10 K. Toilet seat
 - K1. Toilet seat lower lid

Detailed Description of the Invention

In this detailed description, the preferred embodiment alternatives of the opening closing mechanism being subject of the invention have been described in a manner not forming any restrictive effect and only for purpose of better understanding of the matter.

Figure 1 is a view of opening closing mechanism of invention in demounted form. Accordingly, the opening and closing mechanism in its most basic form comprises a foot pedal (10) located on the ground and allowing the lower lid of the toilet seat to be opened or closed by going up or down when pressed with the foot by the user, the lower connection platform (20) fixing the foot pedal (10) on the ground, the pedal spindle (30) connecting the foot pedal (10) onto the lower connection platform (20) enabling free up and down movement; connection bar (40) connected to lower surface of foot pedal (10) by bar connection pipe (11) enabling free rotation and driving toilet seat lower lid (K1) opening closing movement; level determining arm (50) located onto connection bar (40) and providing height adjustment of connection bar (40) according to toilet seat (K) height; toilet seat connection member (60) providing connection of connection bar (40) to toilet seat lower lid (K1); a hook (70) connecting toilet seat connection member (60) and connection bar (40).

Foot pedal (10) forming main frame of the opening closing mechanism of the invention provides opening of the toilet seat lower lid (K1) when pressed with foot by user on the ground by going up or closing by going down. Foot pedal (10) is

preferably metal and can be made from similar materials that will not disturb user's foot.

A lower connection platform (20) is preferably provided on the ground to fix the foot pedal (10) onto ground. Said lower connection platform (20) can also be connected onto ground by connection members. As shown in figure 2 for connecting foot pedal (10) onto lower connection platform (20), mounting flaps (12) extending downward from both sides of foot pedal (10) and a foot spindle (30) through lower connection platform (20) are provided. Said pedal spindle (30) provides connection of foot pedal (10) onto lower connection platform (20) in a manner enabling free up and down movement.

As shown in figure 3 a bar connection pipe (11) providing connection of foot pedal (10) to connection bar (40) is provided on the lower surface of foot pedal (10). A connection bar (40) is connected inside said bar connection pipe (11) in a manner allowing rotation. Connection bar (40) is of extending and shortening structure and contains bar arm (41) extending from both ends on horizontal axis. Bar arm (41) in lower part of connection bar (40) is connected inside bar connection pipe (11) and upper bar arm (41) to a hook (70) on the toilet seat connection member (60) fixed to toilet seat lower lid (K1).

Connection bar (40) drives toilet seat lower lid (K1) for opening closing motion when foot pedal (10) is pressed. Connection bar (40) of extending and shortening structure have holes (42) thereon. Level determining arm (50) providing adjustment of connection bar (40) height in respect to height of the toilet seat (K) is placed inside one of the said holes (42). Length of connection bar (40) is adjusted according to height of the toilet seat (K) during mounting of opening closing mechanism and connection bar (40) length is adjusted by inserting said level determination arm (50) into appropriate hole (42).

Toilet seat connection member (60) glued preferably to lower surface of toilet seat lower lid (K1) provides connection of connection bar (40) to toilet seat lower lid (K1). Association of toilet seat connection member (60) to connection bar (40) via bar arm (41) above is provided by means of a hook (70) installed onto toilet seat connection member (60).

Working principle of opening closing mechanism made ready for use upon completion of mounting as shown in figure 5 is as follows;

When toilet seat lower lid (K1) is in closed position, with pressing onto foot pedal (10) with foot by user, foot pedal (10) moves and drives connection bar (40). Such motion of said connection bar (40) is transferred to toilet seat lower lid (k1) and with upward movement toilet seat lower lid (K1) raises up and opens.

To close toilet lower lid (K1), foot pedal (10) is pressed on again and upon driving of connection bar (40) toilet seat lower lid (K1) moves downward and closes. Thus opening and closing of toilet seat lower lid (K1) is provided without touching with hand.

CLAIMS

- 5 1. An opening closing mechanism providing hygienic opening and closing of toilet seat lower lids (K1) used in toilet seats (K) without touching with hand characterized by comprising;
- a foot pedal (10) located on the ground and providing opening of the toilet seat lower lid (K1) with raising of the lower lid when pressed on it by user with foot or closing by coming down,
 - 10 - a lower connection platform (20) connected onto ground and providing fixing of foot pedal (10) onto ground,
 - a pedal spindle (30) passed between foot pedal (10) and lower connection platform (20) and connected to lower connection platform (20) of foot pedal (10) in a manner to move up and down freely,
 - 15 - a connection bar (40) connected to foot pedal (10) lower surface capable to make free return action and driving for opening and closing of toilet seat lower lid (K1) when foot pedal (10) is pressed,
 - a toilet seat connection member (60) connected to lower surface of the toilet seat lower lid (K1) and providing connection of connection bar (40) to toilet seat lower lid (K1),
 - 20 - a hook (70) located on toilet seat connection member (60) and connecting toilet seat connection member (60) and connection bar (40).
- 25 2. The opening closing mechanism according to claim 1 characterized by comprising a bar arm (41) extending from both ends of said connection bar (40) and connected inside of bar connection pipe (11) and the hook (70).
- 30 3. The opening closing mechanism according to claim 1 characterized by comprising a bar connection pipe (11) located on lower surface of said foot pedal (10) and providing connection of foot pedal (10) to connection bar (40).
- 35 4. The opening closing mechanism according to claim 1 characterized by comprising a mounting flap (12) extending downward from both edge surfaces of said foot pedal (10) and providing connection of pedal spindle (30) to foot pedal (10).

5. The opening closing mechanism according to claim 1 characterized by comprising a level determination arm (50) located inside one of the holes (42) provided on said connection bar (40) and providing adjustment of height of connection bar (40) in the structure capable to extend and shorten as per height of the toilet seat (K).

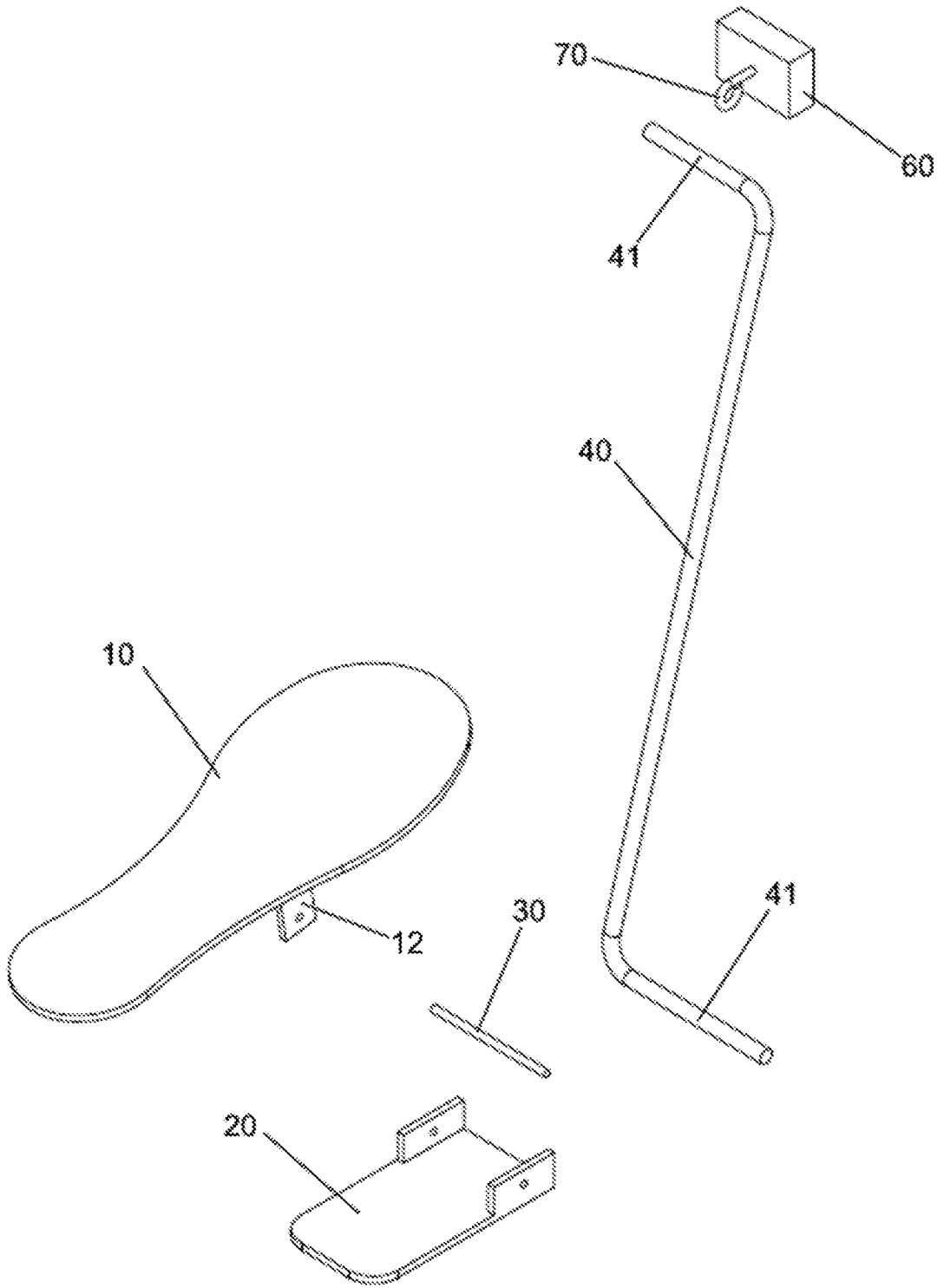


Figure 1

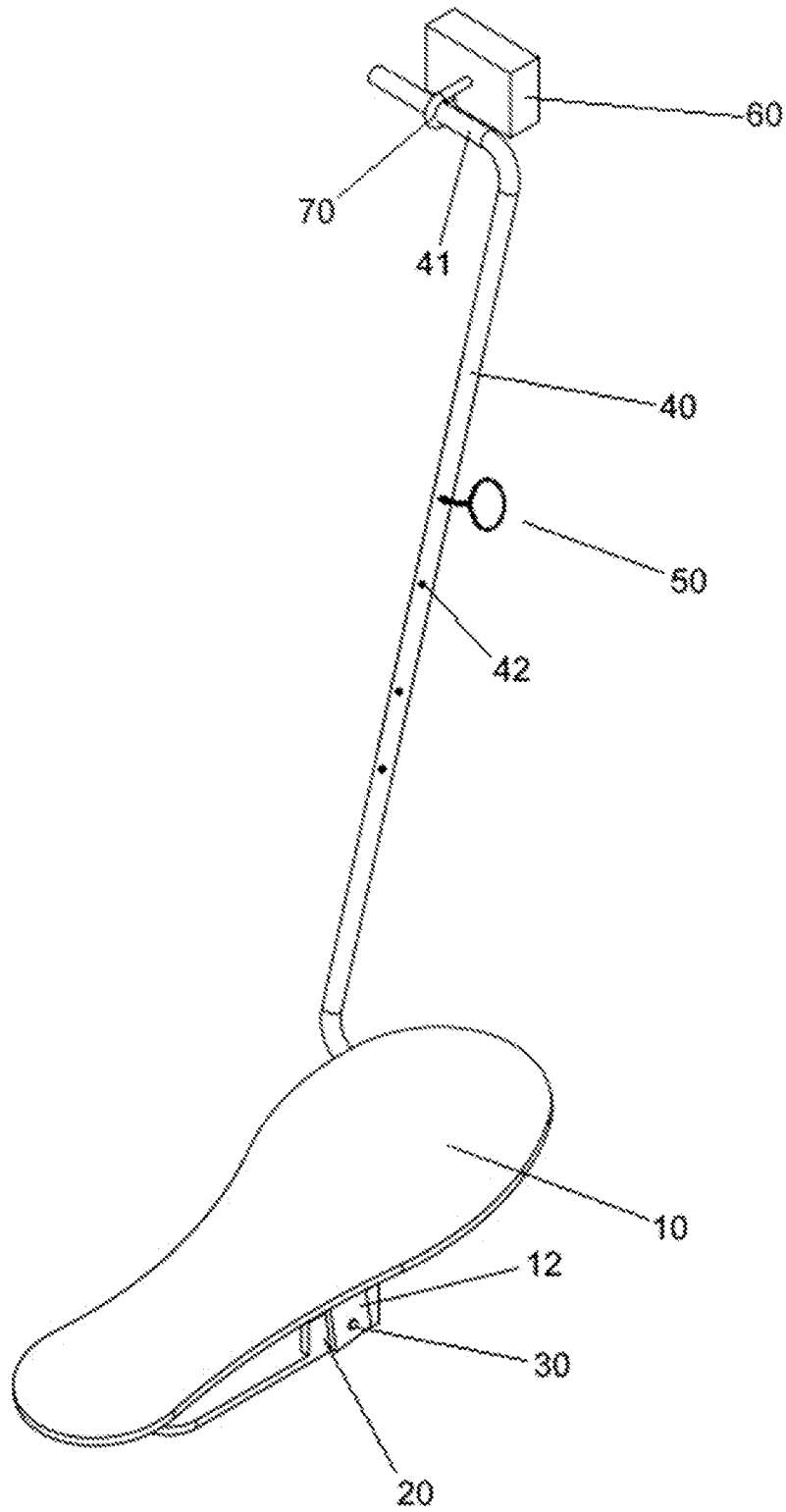


Figure 2

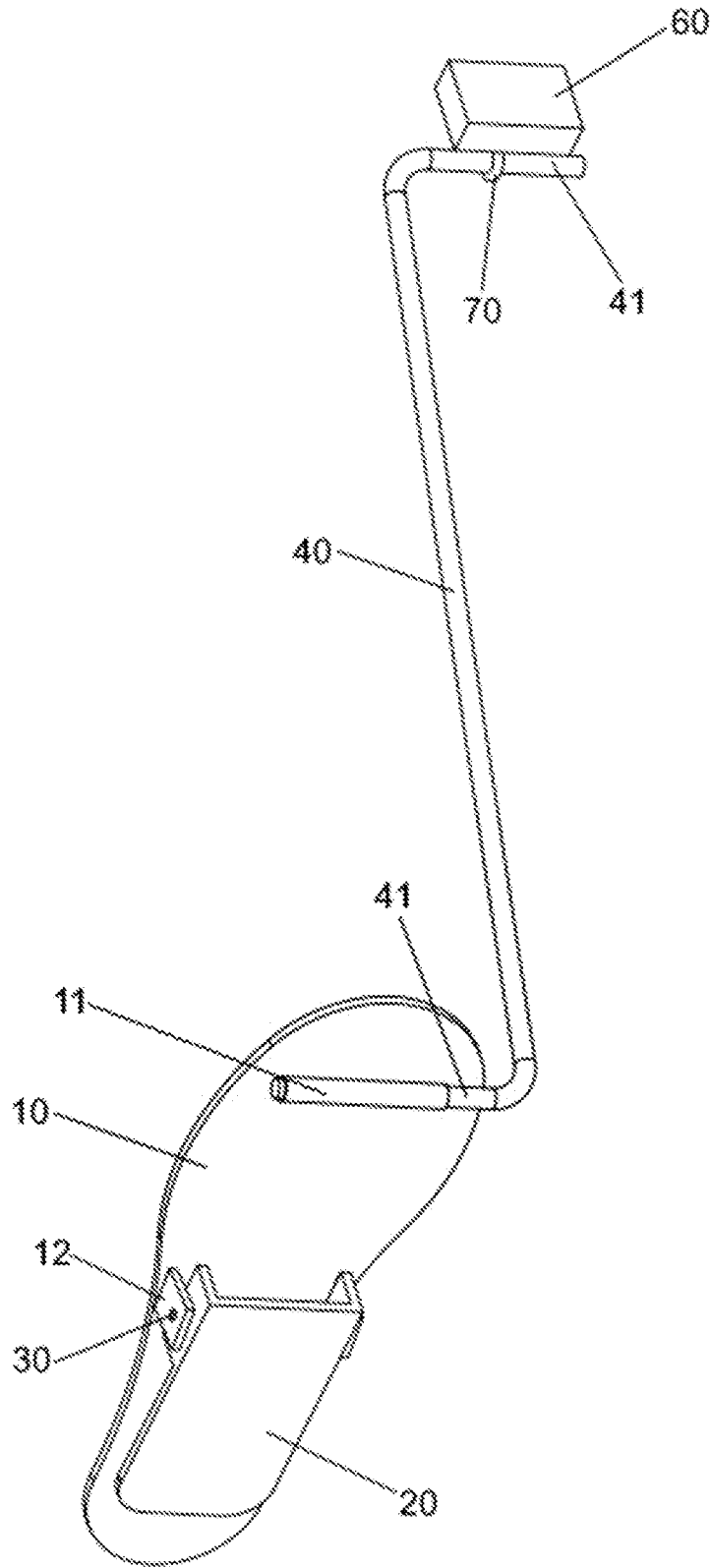


Figure 3

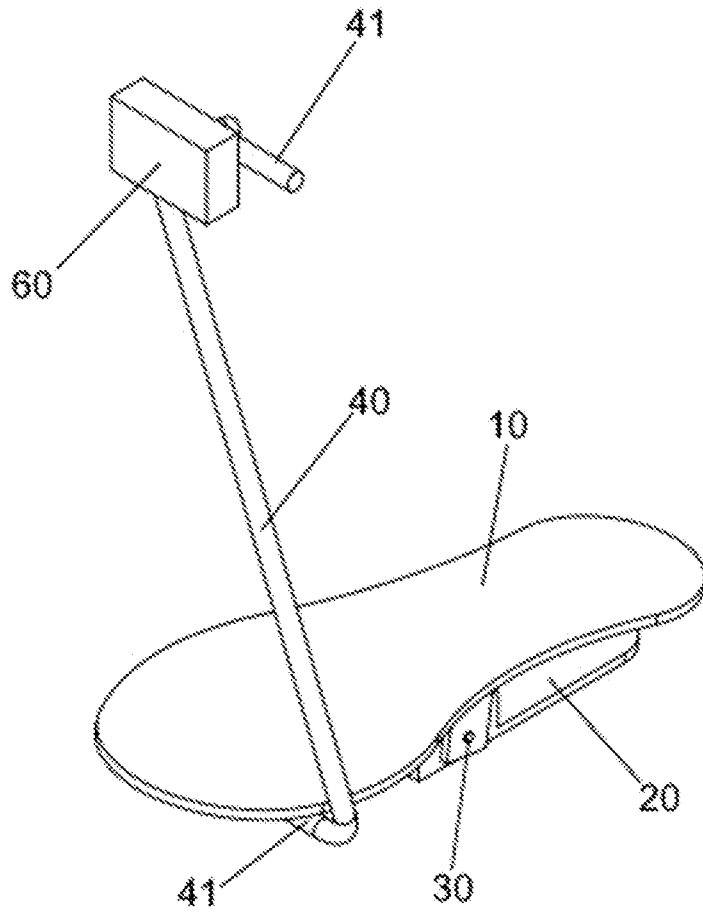


Figure 4

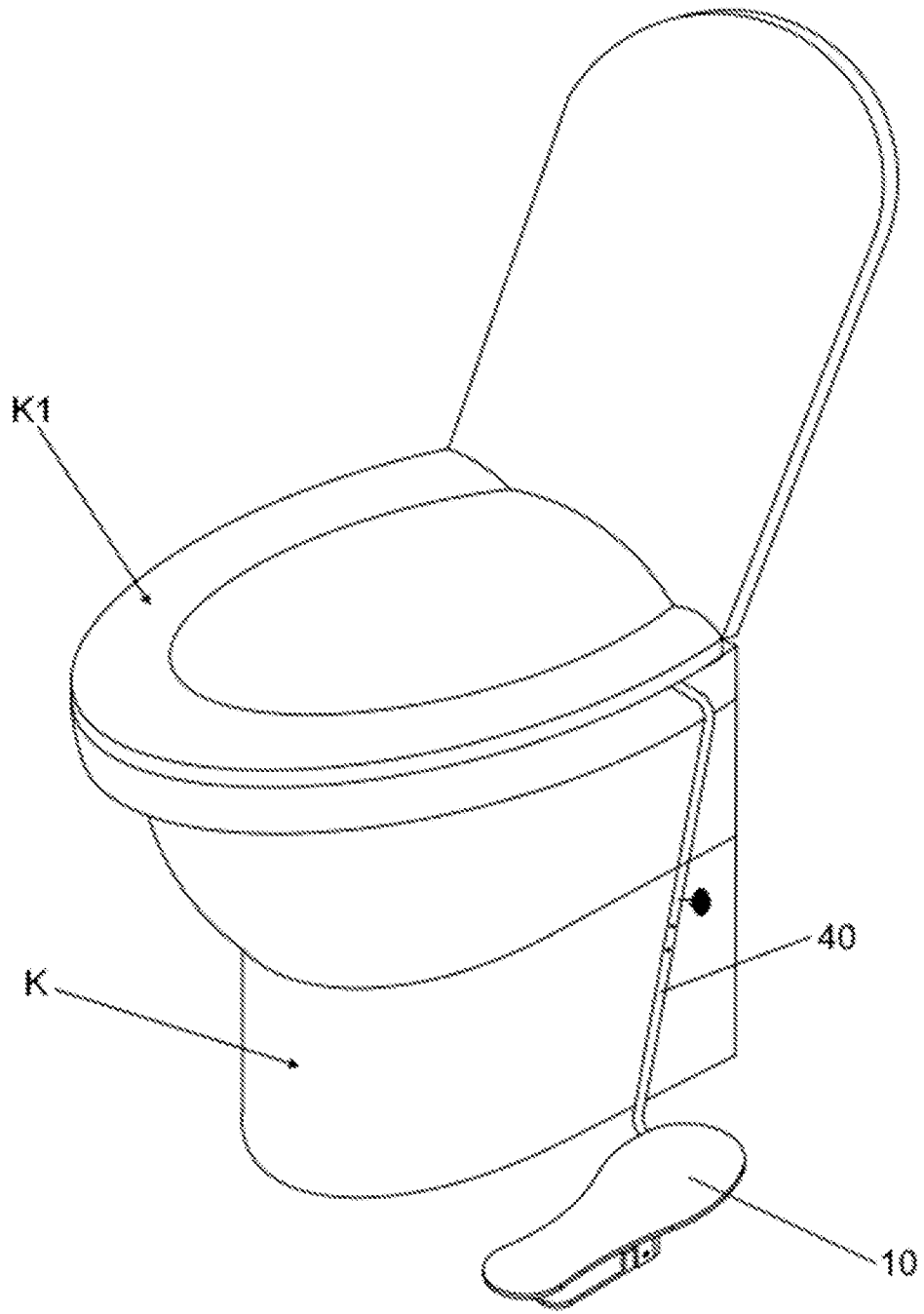


Figure 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/TR2022/051745

A. CLASSIFICATION OF SUBJECT MATTER A47K 13/10 (2006.01)i; E03D 5/08 (2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC		
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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6393623 B1 (STRICKLAND, JR. RUFUS WILLIE) 28 May 2002 (2002-05-28) abstract, figures 1-2	1-5
X	US 7987528 B1 (ROSS MICHAEL D [US]) 02 August 2011 (2011-08-02) abstract, figures 1-2	1-5
X	US 2155548 A (GEORGE HOMPESCH) 25 April 1939 (1939-04-25) Whole document	1-5
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search 28 March 2023		Date of mailing of the international search report 28 March 2023
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Information on patent family members

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US	6393623	B1	28 May 2002	WO	03003895	A1	16 January 2003
US	7987528	B1	02 August 2011	NONE			
US	2155548	A	25 April 1939	NONE			