

Smart bed to improve the quality of sleep and quality of life of the elderly

Lifestyle in old age and factors such as quality of sleep, happiness and physical activity are issues that affect the quality of life of the elderly. And we know that the elderly spend more time resting.

therefore paying attention to the elderly's independence in the conduct of their personal affairs, the importance of easy use, meeting primary and secondary needs related to bed, and comfort and ease in elderly care in physical and psychological levels are the most important factors which need to be taken into account in bed design for elderlies.

The intelligent system of the device and the bed, while establishing a friendly communication with the user through sensors and cameras, continuously measures the sleep, health and behavior of the user and takes appropriate measures. It can also help control the patient's sleep and wake time and exercise

With this bed, the quality of sleep of the elderly is regulated, and this leads to the improvement of their quality of life and happiness, and also the elderly no longer feel lonely. The elderly can connect to the IUT system at home to control the condition of the food or lock the doors or lamps.

The smart bed for the elderly is a bed with upgraded capabilities and also has special capabilities:

1- In sleep mode, the amount of oxygen around the user's head automatically increases, it will adjust the size of the headrest according to the user's condition.(It is a system that keeps pressure distribution balanced for comfortable sleep and also, it guarantees Comfort Sleep)

2- The existence of a safety and warning system for caregivers of the elderly who suffer from diseases such as cognitive impairment and dementia, this helps to increase the safety of these elderly people.

3- sleep thinking system, to relieve pressure and improve sleep quality. This system is an infrared sensor and a thermal sensor to monitor the sleep quality and behaviour information of an elderly lying on the bed.

the system continuously monitors one's body position and pressure distribution and automatically adjusts the bed's air support for maximum comfort.

also, zones adjusting to relieve pressure, and the elderly body temperature is also adjusted.

4- Installation of audio and video systems on the bed in order to prevent and improve consciousness disorders

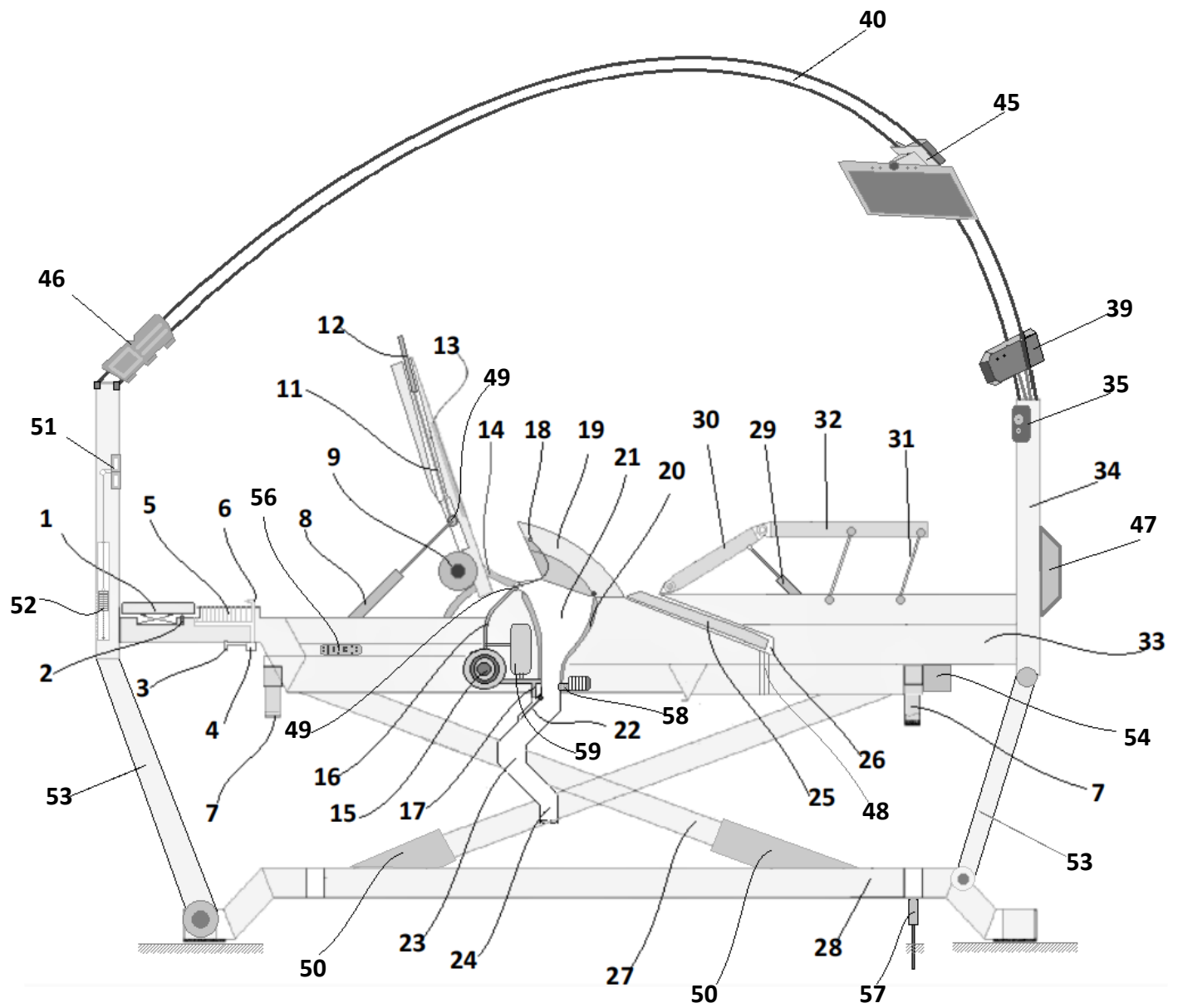
5- Using a wavy mattress to reduce pressure in a special place for the elderly who suffer from bed sores.

6- The smart toilet has sensors that can monitor the parameters of the feces, including the amount of creatine in the urine, and analyze the information obtained during a period with the help of artificial intelligence.

7- Using a suitable material, replacing fiberglass to reduce the vulnerability of the bed and the elderly who have bed sores.

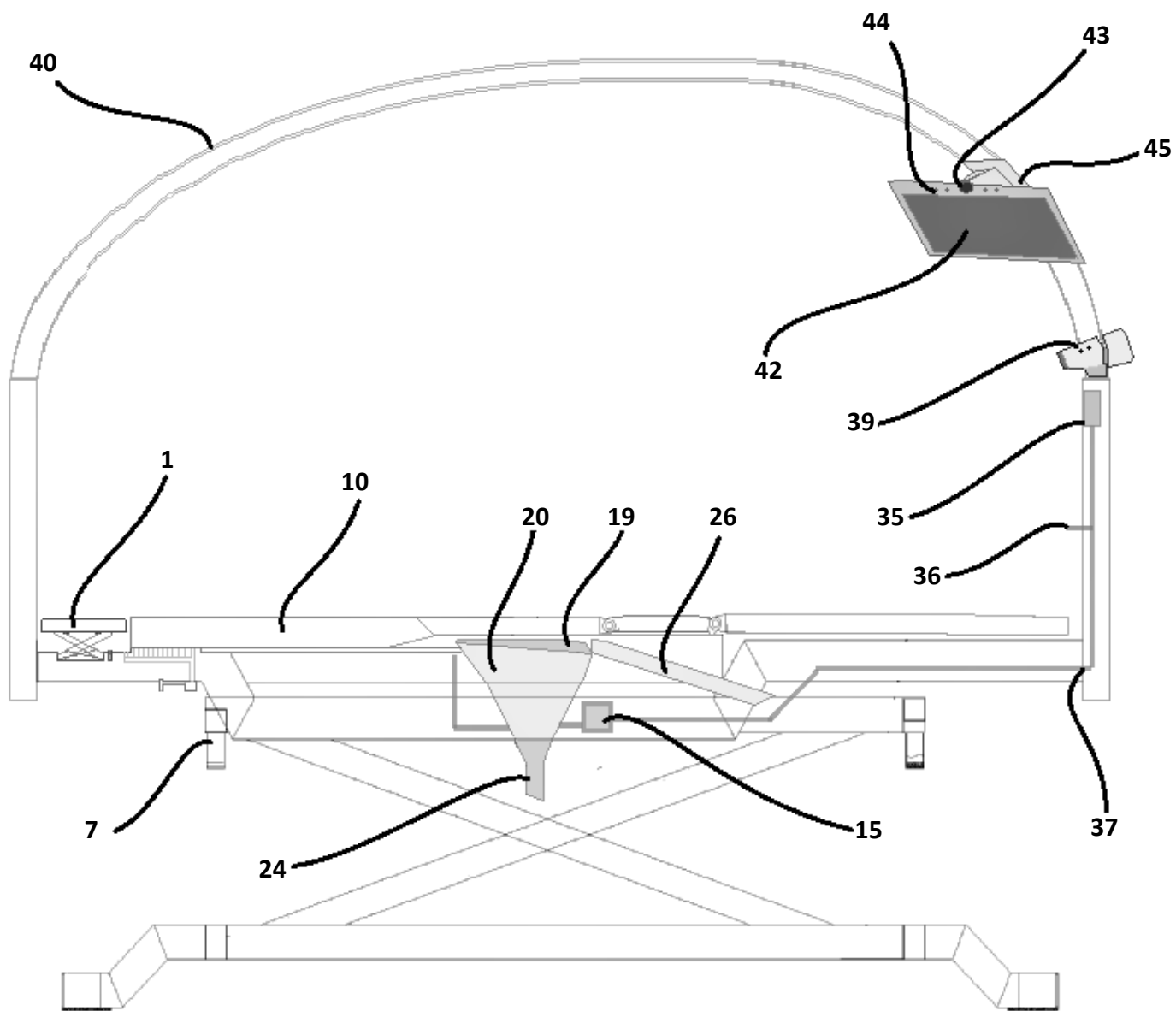
Other innovations and possibilities of this invention also include the following:

- Mobile smart camera and monitor**
- Continuous and intelligent monitoring of the patient**
- Smart home status monitoring**
- Embedding a smart toilet**
- Movable and adjustable backs**
- Intelligent system of talking to the patient**
- Intelligent oxygen delivery system**
- Adjustable bed height**
- Inform the nurse and the patient's family**
- Smart sub-series adjustment**
- Closing the bed guard intelligently**
- Face-to-face communication using a monitor**
- Intelligent fire extinguishing system**
- Heating pads**
- Has a sports device**
- Flat tilt adjustment jacks**
- Heater aerator**
- Helping robotic arm**

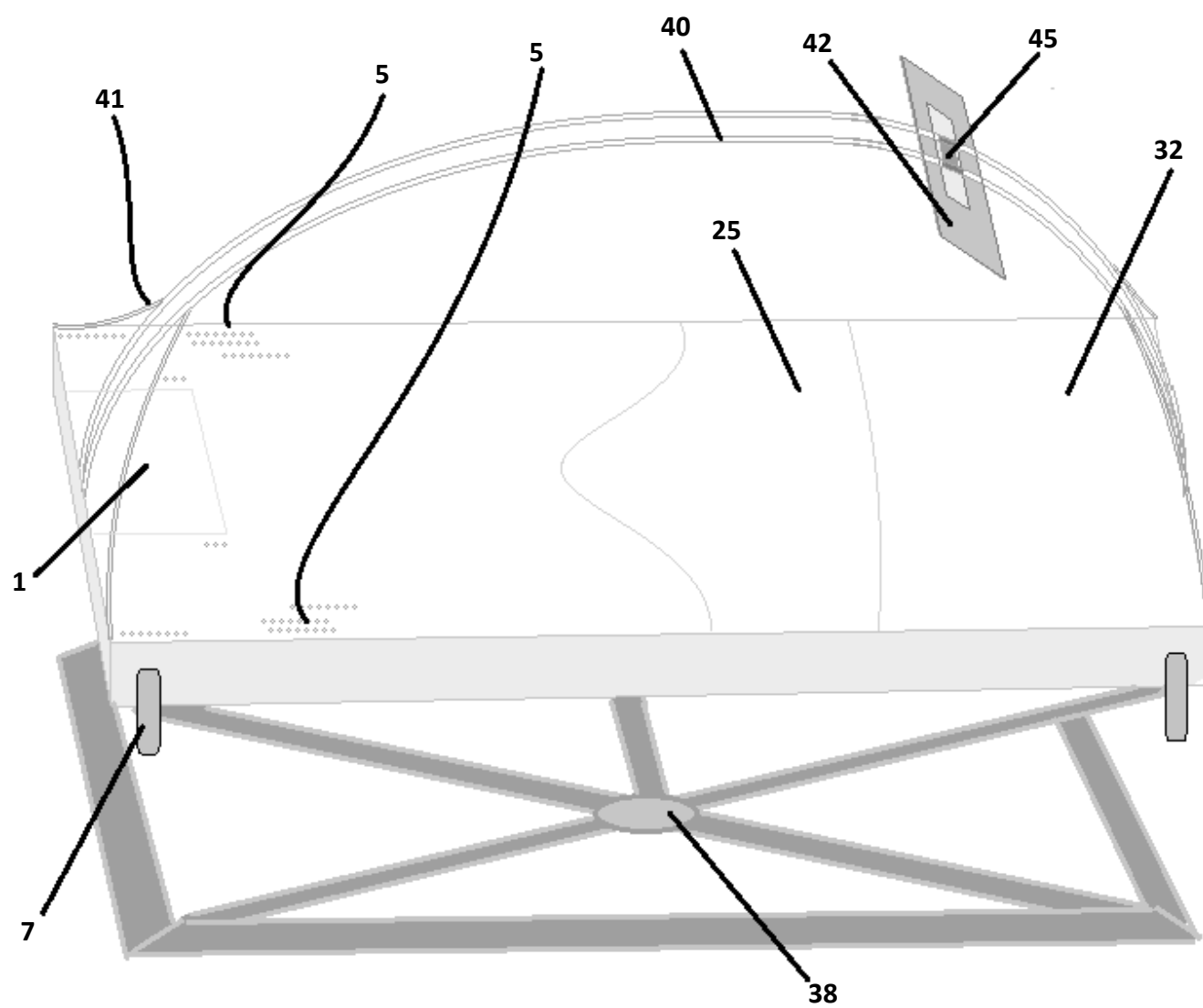


FIG; 1

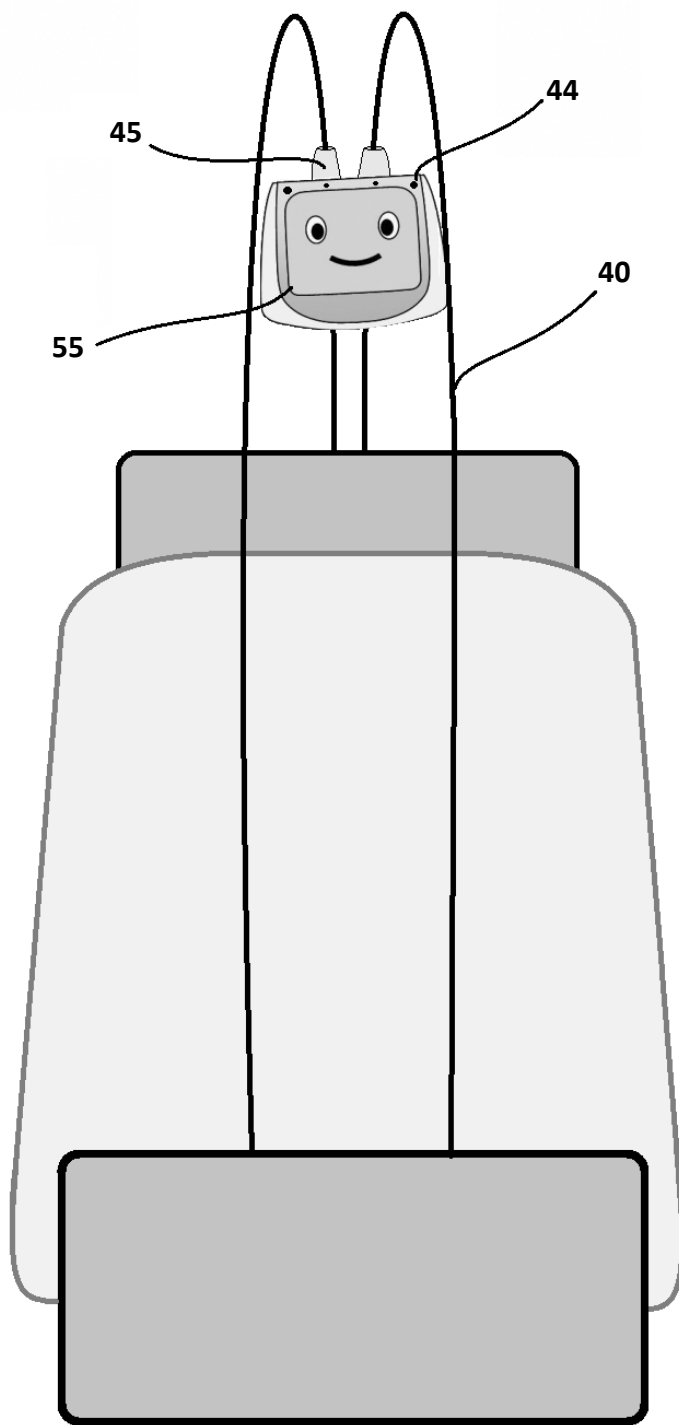
B1



FIG; 2



FIG; 3



FIG; 4