

Bieliyaieva A.Yu.,

Ph.D., associate professor,

Popok A.S., student

National Technical University

“Igor Sikorsky Polytechnic Institute”

LIFT FOR PEOPLE WITH SPECIAL NEEDS WITH A CHAIR-TRANSFORMER

The search for a device that could help an elderly person to take an upright position from a sitting position ended in failure. Quite a lot of sites were viewed, a search was conducted in patent databases, and this was also unsuccessful. Meanwhile, many elderly people suffer from all kinds of diseases of the joints and spine, and these diseases cause pain during such movements as getting up from a chair, sofa, bed, etc. In this case, ointments, tablets, all sorts of supporting bandages, etc., as a rule, relieve pain a little, and do not remove this pain at all.

To solve such a problem, a device was found, which was taken as a prototype and for its transformation into a mechanism that is able to help people with joint and back diseases to take an upright position from a sitting position almost painlessly. At the same time, while it is mobile, that is, a base on wheels and an assistant are needed. But in the future, there is an idea to adapt such a manipulator directly in the area where a person with special needs is most of all, in order to achieve such a function using a remote control or a voice command without an assistant.

In fig. 1 shows a lift-lift for people with disabilities [1], which was chosen as a prototype.

Below are the technical characteristics of this device, namely:

- Loading capacity: 136 kg
- Maximum stroke: 1260 mm

- Water entrance: 650 mm
- Time for the swimmer to descend into the water: 20 sec.
- Swimmer lifting time: 25 sec
- Autonomy: 60 working cycles
- Battery: 12V
- Voltage: 24 V
- Mobile keypad
- Moisture protection: IPX06
- Wheel diameter: 200 mm
- Parking brake on rear wheels
- Swivel rear wheels
- Two-point seat belt
- Painted stainless steel construction for parts in contact with water.



Fig. 1

Yes, this structure is used to help people with disabilities go down into the pool, move from one place to another. However, it does not provide for the fact that a person will not be able to take an upright position due to pain in the joints and / or back.

By transforming the lifting mechanism itself and the chair, you can achieve the above task. Namely - helping people with problem joints to take an upright position from a sitting position without effort.

Information sources:

1. <https://waterstore.com.ua/digi-project-ecopool-lift-podemnik-dlya-lyudej-s-ogranichennyimi-sposobnostyami/#description>