

DESIGN AND FABRICATION OF PARALYSIS PATIENT LIFTER

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Abstract - Machine is a transportable contraption that appears nothing like a chair and permits you to sit down on it each time you choose and anyplace you want. This flexible, ergonomic system appears extra like an exoskeleton Its supposed use is for paralysis patients at clinic and residence For the user's first-class of work existence is expanded whilst for the factory, there will be discount of the work-related ache of the patient. It is intended to decrease employee fatigue and work-related accidents whilst enhancing productivity. It can be custom-made to suit all sizes and outfits. For the hospital, house administration is an vital factor. Unnecessary chairs and resting locations can be averted via maximizing the use of this system. This machine is used to shift the affected person from one area to every other with a alleviation and much less efforts one man or woman is solely required.

Key Words: Lifter system, paralysis patient, Wheelchair

1.INTRODUCTION

Ergonomics is a department of science that goals to research about human capabilities and limitations, and then follow this getting to know to enhance people's interplay with products, structures and environments. Ergonomics goals to enhance workspaces and environments to limit danger of damage or harm. So as applied sciences change, so too does the want to make certain that the equipment we get right of entry to for work, relaxation and play are designed for our body's requirements.

Exoskeletons have been developed to help human locomotion and supply scientific rehabilitation. In particular, the area of scientific rehabilitation has utilized exoskeletons in an increasingly more fantastic manner, and quite a few fairly compact powered exoskeletons for cell functions have lately been demonstrated, however the period of usage is regularly restrained due to electricity constraints. A leg exoskeleton should gain humans who have interaction in load carrying with the aid of growing load capacity, lessening the probability of leg or returned injury, enhancing metabolic locomotory economy, or decreasing the perceived degree of difficulty.

2. OBJECTIVE

- 1) To design a simple mechanism.
- 2) To reduce the human efforts
- 3) To give the human comfort
- 4) To make a machine which is economical
- 5) To obtain a standard product
- 6) To develop the abilities such as working in groups, sharing responsibilities, initiative, perseverance
- 7) To make a ecofriendly device
- 8) To make a device which can be easily handled by all
- 9) To make a device with will reduce accident

3. WORKING

as we have seen that they are lots of problem take place with the hospital to shift the patient or so take him to bathroom, so strong person is required to do this work as this is a major problem we have plan with this project in which the mechanism is so simple that any person can operate this machine and also the patient also can operate and move from one place to another the major problem was to shift the patient from bed to toilet, in this machine basic parts we have used so that all the parts are standard and available easy in market the machine is a structure with some mechanism to lift the mechanism is derived with the toggle jack which is powered with a dc motor with the help of battery which is operated the toggle the function of the jack is to lift the patient up and down, caster wheels are attach so in order to move easily from one place to another. The rechargeable battery is used and the battery can be charged without problems thee shape is stiff data that it can maintain the weight of one individual in which the mild steel material is used

3. DIAGRAM



Fig 3.1 Diagram

4. FABRICATION

1. Shaft: Material: Mild steel
Operation: cutting, facing, turning
2. Tube: Material: Mild steel
Operation: welding, Fitting.
3. Motor: Material: assembly
Operation: fitting
4. Fasteners: Material: assembly
Operation: Fitting.
5. Flat plate: Material: Mild steel
Operation: cutting, welding
6. Switch Material: assembly
Operation: Fitting.
7. Battery 12volts 7.2amps
Material: assembly
Operation: Fitting.
8. Bush Material: mild steel
Operation: cutting, facing, turning
9. Wiring: Material: assembly
Operation: fitting
10. jack : Material: assembly
Operation: fitting
11. wheels: Material: assembly
Operation: fitting

5. OPERATIONS:

5.1 TURNING

Turning is the manner whereby a single factor slicing device is parallel to the surface. It can be finished manually, in a typical shape of lathe, which often requires

non-stop supervision by using the operator, or with the aid of the use of a pc managed and automatic lathe which does not. This kind of desktop device is referred to as having laptop numerical control, higher recognized as CNC and is many times used with many different sorts of desktop device without the lathe.

5.2 DRILLING

Drilling is a slicing procedure that makes use of a drill bit to reduce or increase a gap in stable materials. The drill bit is a multipoint, quit reducing tool. It cuts through making use of stress and rotation to the work piece, which types chips at the reducing edge.

5.3 GRINDING

The grinding of strong things happens below publicity of mechanical forces that trench the shape by means of overcoming of the indoors bonding forces. After the grinding the nation of the strong is changed: the grain size, the grain dimension disposition and the grain shape.

Grinding may serve the following purposes in engineering:

- increase of the surface area of a solid
- manufacturing of a solid with a desired grain size
- pulping of resources

5.4 BORING

In machining, boring is the procedure of enlarging a gap that has already been drilled (or cast), with the aid of skill of a single-point reducing device (or of a boring head containing various such tools), for instance as in boring a cannon barrel. Boring is used to acquire higher accuracy of the diameter of a hole, and can be used to reduce a tapered hole. Boring can be seen as the internal-diameter counterpart to turning, which cuts exterior diameters.

5.5 WELDING

Welding is a fabrication or sculptural system that joins materials, commonly metals or thermoplastics, by means of inflicting coalescence. This is regularly accomplished through melting the work portions and including a filler cloth to shape a pool of molten fabric (the weld pool) that cools to end up a sturdy joint, with stress occasionally used in conjunction with heat, or by way of itself, to produce the weld. This is in distinction with soldering and brazing, which contain melting a lower-melting-point fabric between the work portions to shape a bond between them, except melting the work pieces.

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that cools to grow to be a robust joint, with strain now and again used in conjunction with heat, or with the aid of itself, to produce the weld. This is in distinction with soldering and brazing, which contain melting a lower-melting-point cloth between the work portions to shape a bond between them, besides melting the work pieces. Many one-of-a-kind power sources can be used for welding, which includes a gasoline flame, an electric powered arc, a laser, an electron beam, friction, and ultrasound. While regularly an industrial process, welding can also be carried out in many specific environments, which includes open air, underneath water and in outer space. Welding is a doubtlessly hazardous mission and precautions are required to keep away from burns, electric powered shock, imaginative and prescient damage, inhalation of toxic gases and fumes, and publicity to radiation. The important Types of welding used in enterprise and by way of domestic engineers are often referred to as MIG welding, Arc welding, Gas welding and TIG welding.

5.6 Arc welding

These strategies use a welding energy grant to create and preserve an electric powered arc between an electrode and the base cloth to soften metals at the welding point. They can use both direct (DC) and alternating (AC) current, and consumable or non-consumable electrodes. The welding place is on occasion included via some kind of inert or semi-inert gas, recognized as a protective gas, and filler fabric is occasionally used as well.

6. ADVANTAGES

- 1) Portable
- 2) Environmental friendly.
- 3) No external source
- 4) Easy to setup
- 5) Light weight.
- 6) Easy maintenance.
- 7) No skill operator required.
- 8) Pure mechanical.
- 9) Easy in operation.
- 10) Low cost
- 11) Simple construction.
- 12) Adaptable.
- 13) High capacity.
- 14) Performance.

7. APPLICATION

- 1) Moving the paralysis patient to another bed
- 2) Moving the handicap person to required place
- 3) Moving persons to Lateran

8. FUTURE SCOPE OF THE PROJECT

We sense the undertaking that we have achieved has a true future scope in sector. The essential constraint of this system is the excessive preliminary price however has low working costs. Savings ensuing from the use of this gadget will make it pay for itself with in quick length of time & it can be a incredible accomplice in any discipline dealing with rusted and unused metals. The gadget affords masses of scope for modifications, in addition upgrades & operational efficiency, which have to make it commercially reachable & attractive. If taken up for business manufacturing and marketed properly.

9. CONCLUSIONS

We have taken up this undertaking as actual challenge, as we have been now not journey in the mechanical field. We commenced our work on this mission dealing with new hurdles initially.

The maneuverability of the machine is pretty excellent and the dealing with is pretty simple. For industrial cause one can enhance the effectivity of the machine efficiently with the aid of growing the dimension of the device.

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