Alternative Designs Report

Standing Gardener

By

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Alternative Design 1

As previously proposed, the Standing Gardener will add many features to the Leckey Freestander design that it does not already have to make it more comfortable for Sean Stinglein, and to make it easier for him to complete the tasks required to garden. A basic side view of the design can be found in Figure 1.

![Diagram of Alternative Design 1](image)

Figure 1: Alternative Design 1 – Side-View

A main feature of this Standing Gardener is that it can telescopically grow with Sean. To allow this to occur, all of the six legs (three legs on each side of the device) of the Gardener will be adjustable in length by being able to retract or grow if the need presents itself. Sean will be supported in the standing position with straps, along with a knee cushion and hip support system. The hip supports will also be able to telescopically grow in length in the case that Sean’s hips or waist becomes larger. The
six legs of the device along with the base that Sean will stand on will provide a very stable workspace for Sean to accomplish his gardening tasks.

A top view of the Standing Gardener workspace can be seen in Figure 2.

![Figure 2: Alternative Design 1 – Top-View of Standing Gardener Workspace](image)

The key feature of the workspace that the Leckey Freestander does not have is that the Standing Gardener will specifically be used for gardening purposes. The Standing Gardener will have a hose holder so that Sean cannot drop the hose on the floor, and a water bottle or bag holder in case Sean gets thirsty. The plant tray holder will hold the plants that have yet to be potted. The adjustable pot holder will be a large hole that can have different “pot molds” that fit into it. This feature will allow for Sean to easily switch the support structure to match the type of pot he will be using, whether it is a small round pot, large round pot, or a square pot. The soil table will be a smaller
table that will be elevated off of the workspace so that Sean can easily push soil into the pot with his hand or arm. Once the plant has been potted and the pot is finished, it will be placed into one of the few finished pot holders where it will wait for someone working with Sean to take it and move the pot on to packaging.

Certain positions help Sean in maintaining control of his limbs. When Sean’s elbows are kept at a 90 degree angle and closer to his body he has the most control of his arms. Therefore by having this device be able to change its size Sean will be able to work in whatever position he finds to be most comfortable.
Alternative Design 2

Since the standing gardener will not be frequently moved by the costumer, this design disregards weight as a factor. Figure 3 shows the top view of the standing gardener.

![Diagram of Alternative Design 2]

**Figure 3: Alternative Design 2 – Top-View**

The work station will have a circular hole cut in the center. A circular template that fits the hole will be constructed so that it has holes which can hold the four different pot shapes used by the Stenglein family. This template will be connected to a bar that runs from underneath and is attached to the template’s center giving it the ability to rotate. This will enable each pot hole to be positioned as close as possible to the user. The template will be located slightly underneath the workstation. This will enable the user to slide the soil off the work station and into a pot; a process which requires little muscle control. It will also make it possible to place a hole-free circular
cover over the template in case the pot-holes are not required. The circular cover will have a small handle to allow removal from the workstation. On the left side of the workstation, a rectangular piece will be removed to construct a hose hook, and a circular piece will be removed to construct an adjustable water bottle holder. A sliding bar with a plant tray holder and finished pot holder attached will be connected to the right side of the workstation. A handle connected to the sliding bar will enable the user to bring either the plant tray holder or the finished pot holder closer to his proximity.

Figure 4 shows the side view of the standing gardener.

![Diagram](image)

**Figure 4: Alternative Design 2 – Side-View**

A soil catcher will be attached to the workstation beneath the pot-template. The middle of the soil catcher will have a circular, rubber coated hole which will fit snugly around the rotation bar. Coming off on a tangent from this circular hole, will be a
rectangular hole extending to the edge of the soil catcher covered by an opening hatch; this will make it possible to remove and insert the soil catcher underneath the pots’ template. A support bar will be connected to the standing gardener’s legs underneath the workstation, preventing the standing gardener’s legs from spreading apart and also allowing the connection of the rotation bar. This standing gardener will have four body support locations; feet, knee, waist, and chest/arms. Including a chest support ensures that the user’s arms are at a 90 degree angle while he is using the standing gardener. A safety bar will also be included as shown in Figure 4 to ensure that the standing gardener does not tip over if the user’s weight is shifted forward. All bars will be telescopically adjustable in order to ensure proper support, safety, and comfort.

The legs of the standing gardener as well as any support bars will be made of 304 stainless steel. The work station as well as the hole-free template cover will also be made of 304 stainless steel while the pot-template will be made of plastic. The body supports will be made with high density flexible polyurethane foam covered by a nylon/polyester double coated vinyl fabric to ensure durability.
Alternative Design 3

In this design, the standing gardener will have a support system to hold Sean in the standing position. This system will consist of a waist support where Sean’s hips will lie against. The waist support will have a cushion on it to prevent any discomfort for Sean. Along with the waist support there will be a waist strap to stabilize Sean and hold him in position. Also, the support system will have knee supports to prevent damage to Sean’s knees if he has a spasm. The knee supports will have cushions on them. Sean will be standing on a platform which will have foot stabilizers with straps to keep his feet in the same spot. These straps will either be made of a strong Velcro® or made with a strong fastener to make sure his feet do not slip out. Also the foot stabilizers will be adjustable in size to fit any footwear Sean might be wearing.

Sean will have a workspace, which can be seen in Figures 5 and 6, where he will do his work. The workspace will have a place to hold a tray of plants which need transplanting. Also there will be a place where Sean can place his pots which will stabilize the pots while he is transplanting. To make it easier to transfer soil into the pot there is a soil table where soil will be placed and Sean can easily slide the soil into the pot. When Sean is finished with one of his pots, he can place it into one of the holsters on the outside of the table. A couple extra features included on the workspace are the hose holster and the water bottle holster. Once Sean has transplanted a plant he will need to give it water and will need a hose nearby. Also it was made very clear that Sean tends to get thirsty often and a water bottle holder is necessary.
As far as the mechanical aspects go, the frame of the standing gardener will be able to be increased and decreased in size to fit Sean’s size. Since Sean is growing it is important that his standing gardener will fit him until he is fully grown. Also the table will have the ability to slide in a circular motion around Sean so he can utilize the entire workspace.

Figure 5: Alternative Design 3 – Side-View
Figure 6: Alternative Design 3 – Top View