

2 The Bounce-n-Walk – Modified Baby Walker

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Figure 1. Front View of the Bounce-n-Walk



Figure 2. Side View of the Bounce-n-Walk

INTRODUCTION

In this design project, a special baby walker was custom-designed to assist a five-year-old girl. She was diagnosed with multiple syndromes, including Seckel syndrome, Dandy-Walker syndrome, hypertonicity, etc., and is unable to walk or crawl and even tends to lose her breath when extending her neck backwards. There is no existing solution in commercial products. Our design uses the child's weight to move the device, and all that the user needs to do is to bounce and move her legs up and down. Extra support is also provided to prevent her from arching her neck backward.

SUMMARY OF IMPACT

Our device allows the client to sit or stand while using her own movement to move the device forward when desired. Such a lightweight mobile device meets the present needs of both the child and the caregivers. The additional benefits include providing a learning tool for walk and enabling the child to play with other children, which lead to a more child-like experience. The client's life quality will be improved. Our client and her family were very happy to see the prototype, and the client wanted to get right on and use it. The prototype will be delivered to the client after finalization.

TECHNICAL DESCRIPTION

The user will control the device through the use of a pedal. A curved bar from under the pedal connects to the cable and pulls it when the pedal is rotated downward. A pulley directs the cable from the pedal to a spring-loaded drum. The purpose of using such a component is that the shaft will transmit the rotation in one direction and allows the cable to retract to its start position. On every down-stroke of the pedal, a cog-set turns the front wheel to move the baby walker. The pedal then returns to its start

position such that next down stroke can be made. Square tubes were welded to the mechanism to provide support. The above assembly was designed as an attachment to a standard baby walker. With two bent steel plates, it can be clamped onto the plastic frame of the walker near the caster wheels. The pedal and its pivots were made of metal plate, but a soft rubber was used to cover the pedal to soften the impact of the client's feet.

As its base, a baby walker was chosen such that it would not obstruct attachment of the device from behind. A head support was added to the seat. It was made of insulation material that is soft and pliable. Underneath this material is a coil spring that allows the client's head to move forward but not backward.

Our design in fact converts a baby walker into a walker trainer on which the client can lean in a standing position and bounce on the pedal.

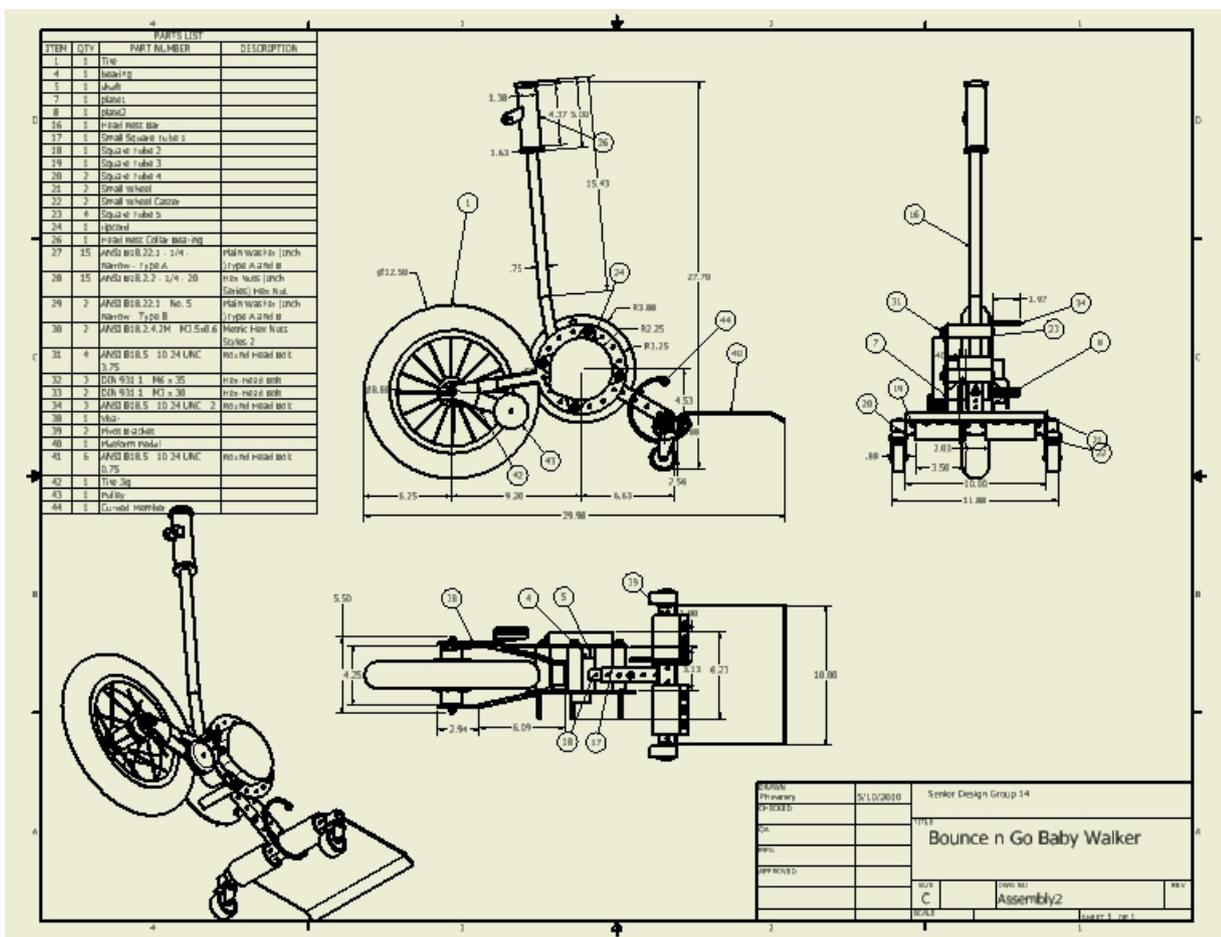


Figure 3. CAD Drawing of the Bounce-n-Walk