INTRODUCTION

Lack of adequate muscle control caused by cerebral palsy interferes with some artist’s ability to draw and paint. The first part of the Versatile Painting Solution consists of a support system that mimics the movement of an arm in order to prevent difficulty with painting and drawing due to limited mobility. The support system is made to easily attach to the side of a wheelchair. It is adjustable in terms of height, arm length, and positioning angle. The arm rests in a comfortable support to allow for an extended painting session. The second component of the Versatile Painting Solution Support System is a wrist attachment. This element is designed to provide a mechanism for optimizing marker control. The wrist attachment is modified wrist guard that has a comfortable fit. The art of painting requires fine motor skills and precise movements; however, some CP patients lack this motor control, and therefore, require assistance from outside sources. The support system coupled with the wrist attachment together make up the Versatile Painting Solution. These devices operate collectively to enhance the artistic experience.

SUMMARY OF IMPACT

The task of painting with limited hand and arm mobility requires the attention of an aid. This support was designed for a client that needs an aid to hold his arm extended towards the canvas while brush strokes are made with small movements of his wrist. This device allows more independence for the artist and requires less physical attention from the aid. The aid can make adjustments to the joint position and the support will remain static while the artist works on that part of the canvas. The wrist attachment allows any size marker to be held at the wrist with maximum comfort.

TECHNICAL DESCRIPTION

The Articulating Arm Positioning Support is a device designed for a user to rest his arm on during painting. The cushion will provide support for the user’s arm and allow for a longer, easier, and more satisfying painting experience. The device features an ergonomic design with a molded composite arm support. The fiberglass
composite support is a lightweight and durable material which can endure the stress of everyday use. The aluminum stock and joints provides light weight structure for several ranges of motion that include movements from side to side, up and down, adjustable arm angle and even rotation.

The Articulating Arm Positioning Support features a variety of mechanisms to maximize the amount of positions available for a user in a wheel chair. Two ultra-high molecular weight polyethylene linear slides offer a durable low friction method to adjust the height and side position of the support. These slides are durable and long lasting since they are constructed with such a quality plastic. The five locks allow the device to be positioning in the exact necessary support position and also offer a method to adjust the device quickly and easily. The three joints in the support provide many supporting positions and also allow for easy no-lock positioning adjustments. Each joint is interfaced with durable nylon washers which allow easy movement of pivots. All bolts use a nylon locking mechanism which prevents loosening of the bolt caused by vibrations and operation.

The device features an ergonomic molded composite arm rest. The fiberglass arm rest was made with 9 layers of fiberglass mat and polyester resin. The composite rest is covered with foam cushioning and a durable cloth cover that provides a comfortable resting surface. The device can be optionally attached to the arm by Velcro and elastic straps. The cushioned arm rest has a 360 degree swivel mechanism which allows the support to be adjusted to the ideal position. The swivel is designed with three durable 1 1/8” nylon washers. It has integrated Velcro straps for additional support.

The wrist support is a small spring action dial attached to a wrist support. The wrist support provides comfortable structure. The dial allows for angle adjustment of the marker by pulling out the tube and twisting into the notches. The aluminum tube tightens down on the marker and fits into the dial with a spring.

Overall the devices are designed to provide an engineering solution to limited hand and arm mobility. This ergonomic design enhances the artistic ability of the user and can also be used for a variety of other applications.

The approximate cost: $600