

Face Cradle  
2/5/2009

Nate Cira, leader  
Patrick Kurkiewicz, BSAC  
Annie Loevinger, communicator  
Matt Hoffman, BWIG

Client: Susan Frikken

## **Product Design Specifications**

### **Function**

Current static massage chair face cradles do not adjust as the subject becomes more relaxed. This results in the subject's neck and head remaining in an uncomfortable strained position. This device must perform two important functions. First, it must support the neck and head of a patient receiving a chair massage. Second, it must dynamically adjust as the patient relaxes to accommodate a different position.

### **Client Requirements**

This device must facilitate mental and physical relaxation. To do so it must be comfortable for all users and accommodate various positions as the patient relaxes. It must visually appear comfortable. Specifically the cradle must allow for changes in posture as cervical muscles relax.

### **Design Requirements**

#### **1. Physical and Operational Characteristics**

- a. *Performance Requirements*: The device must accommodate 16 massages lasting 30 minute per day.
- b. *Safety*: The device should not adversely interact with human skin for periods of up to an hour. The device should
- c. *Life in Service*: With proper use and maintenance the cradle should last for five years.
- d. *Operating Environment*: The device will be used in Ms. Frikken's home office, and a variety of indoor environments.
- e. *Ergonomics*: The device must comfortably support clients from children to larger adults.

f. *Size*: The face cradle mount must be compatible with the two prong receiver of the chair.

g. *Weight*: The device must be manageable to transport and less than five pounds.

h. *Aesthetics*: The design should appear comfortable and match the chair.

i. *Materials*:

-*Covering*: The material used should not adversely interact with the skin of the user and should tolerate moisture and oils. The material should be washable with soap and water.

-*Padding*: Padding for the device should be comfortable yet firm and capable of conforming to various faces sizes and shapes.

-*Frame*: The frame should be rigid under loads. Metal is preferred by the client.

## **2. Production Characteristics**

a. *Quantity*: One device will be prototyped for under \$100. The chosen design should allow for mass production.

b. *Target Product Cost*: Final retail price should be comparable to current face cradles (\$45-\$100).

## **3. Miscellaneous**

a. *Standards and Specifications*: The device will be classified as a Class I medical device. It will have minimal potential harm to the user.

b. *Customer*: Our customer is concerned about the ease of any face cradle adjustments during a massage, as they typically last less than 30 minutes. Any adjusting should be automatic or nearly so. She also would like to keep the budget under 100 dollars for the first prototype developed.

c. *Patient-related concerns*: Patient related concerns are primarily related to their comfort while using the face cradle. We will be certain not to use any materials that could cause any adverse reaction during prolonged contact.