mode the position icon **316** maintains its position relative to the perimeter of the active window while the underlying image is scrolled.

ADJUSTMENTS FOR FINGER LENGTH

[**0153**] In an alternative embodiment to what is disclosed in **FIG. 10, FIGS. 16, 17** and **18** describe an adjustable system for altering the touch switches for the length of the user's fingers.

[**0154**] **FIG. 16** shows the molded channel for the index finger **216** and the molded channel for the middle finger **220**. Cross section AA of **FIG. 16** is shown in **FIG. 17**. Thus, **FIG. 17** shows a portion of the molded channel for the index finger **216** and the light beam **420** that traverses the channel from the source **404** to the sensor **408**. A preferred embodiment uses beam windows **424** to pass the light beam (such as an infra-red light beam). It is preferred to have beam windows **424** with parallel faces so the beam window adjacent to the finger channel is not curved.

[**0155**] In this embodiment the light source **404** and light sensor **408** are mounted on a carriage **504** that can be moved in a frame **508** relative to the channel **216** in order to move the light beam **420** along the channel towards or away from the wrist so as to adjust for a range of finger lengths. One input means for finger length adjustment is the rotation of an externally accessible adjustment screw **512**. The conversion of rotation of the adjustment screw **512** to motion of the carriage **504** can be accomplished by any of the ways known in the art. A simple pin and slot mechanism suitable for small ranges of rotation is shown here but the invention is not limited to that particular embodiment. The screw may be replaced by another input mechanism such as a lever or knob. A rack and pinion arrangement or other alternative would suffice. Electromechanical mechanisms to accomplish the movement, including mechanisms receiving digital input may be suitable for certain applications.

[**0156**] A series of position indicator markings **516** as best seen in **FIG. 18** may be added to assist users in noting the amount of rotation that the user applies. In the preferred embodiment, one adjustment screw is used to move the light beams for both the index finger channel **216** and the middle finger channel **220**.

[**0157**] As seen on **FIG. 18, a** set of one or more tilt adjustment screws **520** allows the user to make some adjustment to the tilt of the touchscreen to further personalize the pointing device to the user's hand.

[**0158**] Those skilled in the art will recognize that the methods and apparatus of the present invention have many applications and that the present invention is not limited to the specific examples given to promote understanding of the present invention. Moreover, the scope of the present invention covers the range of variations, modifications, and substitutes for the system components described herein, as would be known to those of skill in the art. It is anticipated that other electronic actuators or x-y input devices will be developed or improved subsequent to the filing of this patent such that those components could be advantageously substituted for the components suggested within this patent while staying within the inventive concepts disclosed herein.

[**0159**] The legal limitations of the scope of the claimed invention are set forth in the claims that follow and extend to cover their legal equivalents. Those unfamiliar with the legal tests for equivalency should consult a person registered to practice before the patent authority which granted this patent such as the United States Patent and Trademark Office or its counterpart.

I claim:

1. An input device for receiving an x-y input and input from at least one input actuator on the input device wherein the device is adapted to allow a user to use the device while holding the device in the user's hand with the hand in an open-grip posture with the thumb pointing forward at the top.

2. The input device of claim 1 further comprising a device housing with an input sensor to receive input from the user's thumb such that placement of the user's thumb in a position to provide input causes an interaction between the user's hand and a palm fin portion of the housing that contacts the palm of the user, adapted to interact with the length of a user's thumb such that a user with a large hand and long thumb grasps a first segment of the palm fin and a user with a small hand and short thumb grasps a second segment of the palm fin wherein the height of the palm fin at the midpoint of the second segment is less than the height of the palm fin at the midpoint of the first segment.

3. An input device adapted for use by a seated user for receiving an x-y input and input from at least one input actuator on the input device; the input device comprising:

a) a housing adapted to fit within the hand of a user while the user's hand is resting on the user's lap;

b) the housing comprising a main body section with a long axis substantially parallel to a line in the body of a user grasping the pointing device running through the arm of the user to the tip of the user's extended thumb;

c) the housing further comprising a platform for containment of an x-y input device, the platform placed to be substantially perpendicular to the long axis of the main body section;

d) the housing having a channel for placement of the user's index finger;

e) the housing having a channel for placement of the user's middle finger;

f) the channels positioned to place the user's index and middle fingers below and substantially orthogonal to the orientation of the user's thumb while the user is grasping the device; and

g) an x-y input sensor placed at the end of the input device distal to the user's wrist such that the x-y input is provided to the x-y input sensor by pivotal movements of the thumb.

4. The input device of claim 3 wherein the x-y input is provided by the thumb tip of the user.

5. The input device of claim 4 wherein the x-y input device is curved to approximate the arc of travel of the thumb tip of the thumb during pivotal travel while a user is grasping the input device.

6. The input device of claim 3 wherein at least one of the input actuators comprises a zero force touch switch.

7. The input device of claim 6 wherein the zero force touch switch detects contact of the user's finger.