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Bone et al.

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(54) **TOUCH SCREEN STAY-CLEAN FINGER
MITTEN**

(52) **U.S. Cl. 2/163**

(57) **ABSTRACT**

(76) Inventors: **John Bone**, Hermitage, TN (US);
Carolyn Ray, Hendersonville, TN
(US)

A fingertip covering for prevention of smudges, dirt accumulation and germ transfer to and from an electronic touch-screen device. The covering comprises a cylindrical construction with an open end and a closed end, and a two-part construction. An antistatic microfiber material comprises the contact region and interface with the touchscreen, while an elastic material comprises the body of the covering. The use of a microfiber contact region provides a conductive interface for use with multiple touchscreen technologies. A fingernail opening is provided to accommodate users with longer fingernails, while the elastic body region conforms to different size fingers. The disclosed invention is an alternative to touchscreen covers that dull the display, reduce feedback and are prone to imbedded air bubbles that erode touch sensitivity. The coverings may be used with capacitive and resistive touchscreen without reduction in performance, and to provide a means that eliminates unwanted smudging or fingerprints on the screen.

(21) Appl. No.: **13/105,931**

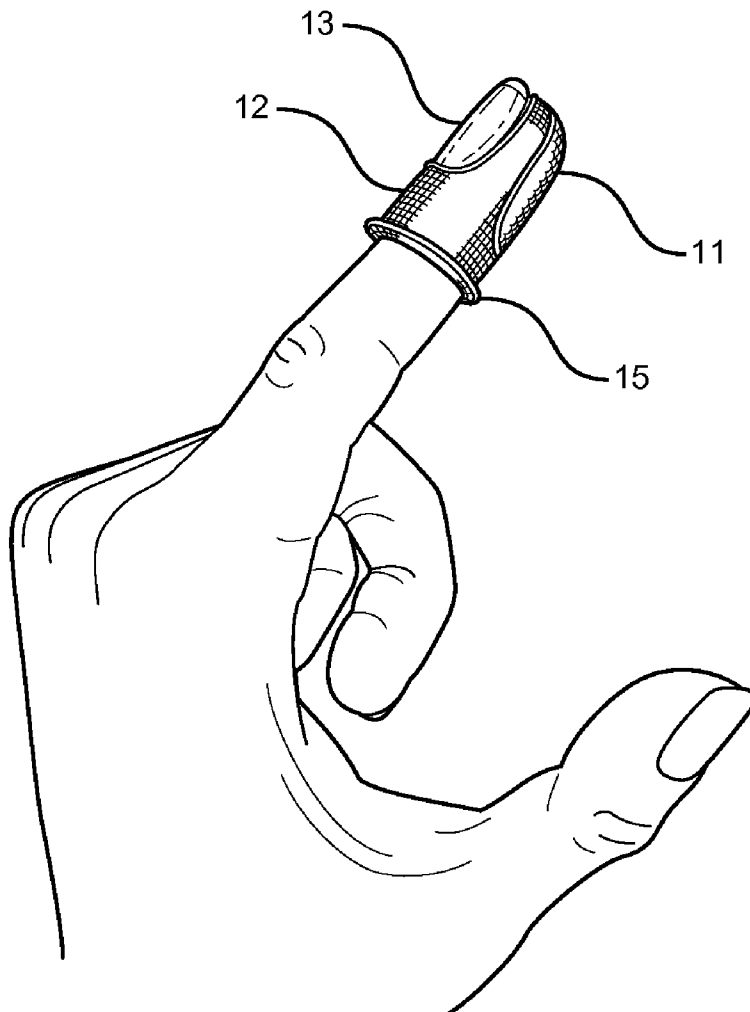
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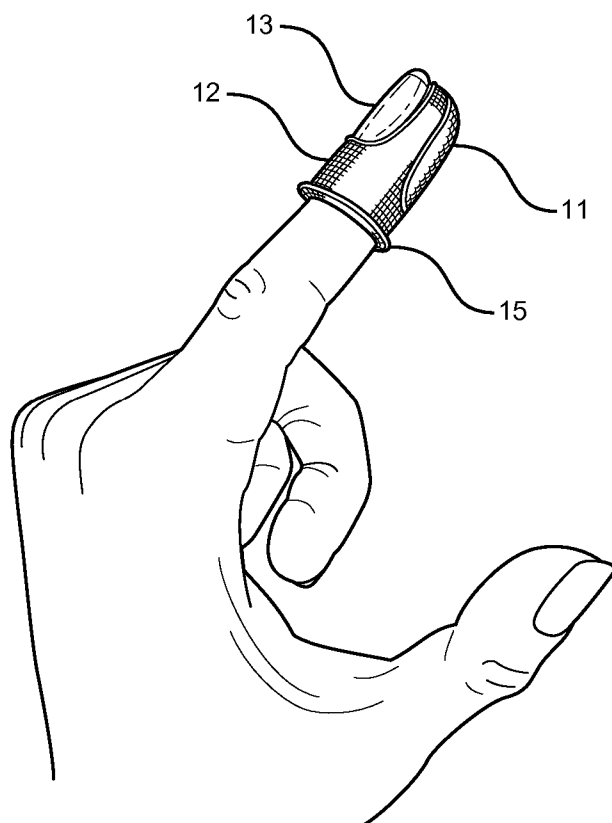


FIG. 1

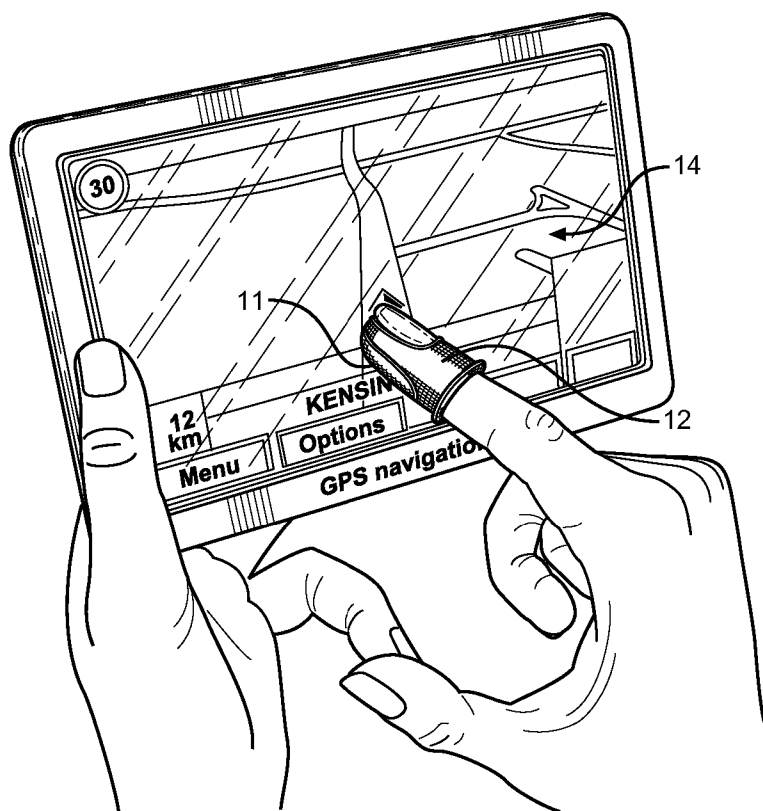


FIG. 2

**TOUCH SCREEN STAY-CLEAN FINGER
MITTEN**

**CROSS REFERENCE TO RELATED
APPLICATION**

[0001] This application claims the benefit of U.S. Provisional Application No. 61/418,605 filed on Dec. 1, 2010, entitled “Touch Screen Stay-Clean Finger Mitten.”

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to touchscreen protectors. More specifically, the present invention relates to fingertip coverings that provide a user with a method of interacting with a touchscreen without introducing smudges or dirt on the screen or onto the user’s finger. The present invention may substitute for current screen protectors, which intend the same purpose but utilize a clear covering across the touchscreen.

[0004] 2. Description of the Prior Art

[0005] Touchscreen devices have become increasing popular with the advent of high powered computers and cellular devices. Touchscreen technology allows a user to directly interact and control a computer interface, typically without the need for a mechanical device such as a stylus or mouse. A user may manipulate a touchscreen and control the actions of the device by simply placing his or her hand or fingers on the screen and performing operations thereon. These devices have grown in complexity and in popularity as electronic devices have become smaller, smarter and more powerful.

[0006] The technology behind touchscreen surfaces involves three main categories of electrical devices, namely: resistive touchscreens, surface acoustic wave screens and capacitive sensing touchscreens. Resistive touchscreens operate by stacking two electrically conductive layers on top of one another with a narrow gap between the two. When a user contacts the touchscreen, the first layer contacts the second layer, creating a situation where the pair serves as a voltage divider for a larger circuit to interpret. Surface acoustic wave screens utilize ultrasonic waves that pass through the screen. Touching the screen in different locations creates different acoustic waves that are interpreted as different inputs. Finally, capacitive sensing screens register a change in the screen’s electrostatic field based on input from a conductive source, such as a human finger or conductive stylus. This screen technology utilizes an insulator, such as a layer of glass, coated with a transparent conductor to interpret signals from the user.

[0007] Common applications for touchscreens include personal computers, mobile phones and satellite navigation systems. Utilization of a touchscreen with these devices has vastly improved their functionality and popularity in recent years. The touchscreen eliminates the need for an external mechanical input, such as a keyboard and cursor controller, as the user is provided with a graphical interface that allows scrolling and command of menus by touch only. The use of such interfaces has rapidly broadened the usability and functionality electronic devices, and their application has expanded to include devices used every day.

[0008] The most common touchscreen device used today in cell phone devices is capacitive sensing. This technology is based on electrostatic fields and measured changes in response to contact with a conductor on the touchscreen sur-

face. It is because of this, these screens not compatible with gloved fingers or nonconductive pointer devices. Users must interact with a touchscreen without finger coverings or protection, which can lead to several problems. Constant use of such devices can lead to smudges, dirt marks and the buildup of germs along the touchscreen interface. The touchscreen surface is constantly contacted, smeared and tapped to input different user commands, which introduces dirt and oil from the user’s hands. Many users are not able to wash their hands regularly, and doing so prior to every contact with such a device is impractical and not always possible. The result of which is a dirty, non-hygienic surface that can be harmful to users and to the device itself if left uncleaned. Freshly washed hands also introduces problems, as any water placed on the screen can quickly render a touchscreen inoperable for a period of time, as commands are not communicated from the user’s fingertips while water is on the touchscreen surface.

[0009] Remedies to these common problems have been introduced, with the goal of protecting the cell phone from accumulating dirt, fingerprints and scratches. The most common of these is a laminate cover that provides capacitive input and a transparent structure for operating the screen. While this provides a covering that prevents dirt and smudge buildup, these screens dull the clarity of the screen and are prone to reduced touch sensitivity. Nonuniform contact between the screen and the cover may also manifest itself as air pockets under the film, which can be unattractive and reduce the functionality of the screen. Alternatively, touchscreens can be coated with oleophobic coatings that prevent smearing and smudge development. These coating are comprised of lipophobic compounds that repel lipids (fat), which are particularly useful for repelling fingerprint oils. These coatings are useful, but not entirely effective. They do not completely solve the issue of smudges and fingerprint residue.

[0010] Patents disclosed in the prior art have attempted to remedy this common problem. These include finger-mounted devices that provide a stylus for improved input, particularly on a touchscreen or keyboard device. These devices employ a projected stylus, as opposed to allowing the user’s finger to input commands on the touchscreen. These devices are particularly suited for devices with small keyboards and resistive touchscreen technology. Alternatively, U.S. Published Patent Application No. 2010/0090966 to Gregorio describes a glove device that provides use with capacitive touch screen devices. Its construction shields a user’s hand and fingers, while its fingertip material provides a conductive interface for use with capacitive screens. This device provides a hand and finger covering, but makes no mention of microfiber material as the preferred embodiment for its construction. Rather, it discloses an electrically conductive material that is placed at the tip of each finger.

[0011] The present invention is a finger tip covering that prevents oil and dirt transfer onto a touchscreen device, while allowing a user the ability to utilize all current touchscreen technologies. Microfibers and conductive yarns are contemplated for the contact region of the finger covering to provide improved response while still providing a conductive interface for capacitive screens. The device therefore substantially diverges in design elements from the prior art and consequently it is clear that there is a need in the art for an improvement to existing touchscreen finger cover devices. In this regard the instant invention substantially fulfills these needs.

SUMMARY OF THE INVENTION

[0012] In view of the foregoing disadvantages inherent in the known types of touchscreen finger coverings now present

in the prior art, the present invention provides a new touchscreen finger covering wherein the same can be utilized for providing convenience for the user when preventing dirt and oil transfer from a user's finger to a touchscreen device.

[0013] It is therefore an object of the present invention to provide a fingertip covering device that prevents dirt and oil transfer from the user's finger to a surface.

[0014] Another object of the present invention is to provide fingertip covering that can be utilized on a user's forefinger or thumb, and one that provides a penetration through which a user's nail may exit.

[0015] Another object of the present invention is to provide a fingertip covering constructed in two parts. First, a microfiber or similarly conductive material provides the contact region on the fingertip for use with capacitive touchscreens. Second, a body region is defined by an elastic cylinder that conforms to different fingers and provides support for the contact region.

[0016] Yet another object of the present invention is to provide a fingertip covering that is inexpensive, easy to manufacture and easy to use.

[0017] A final object of the present invention to provide a new and improved fingertip covering device that has all of the advantages of the prior art and none of the disadvantages.

[0018] Other objects, features and advantages of the present invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0019] FIG. 1 shows a perspective view of the present invention in its working position, placed on the forefinger of a user.

[0020] FIG. 2 shows a perspective view of the present invention in use, wherein a user is manipulating a touchscreen device.

DETAILED DESCRIPTION OF THE INVENTION

[0021] Referring now to FIG. 1, there is shown a perspective view of the fingertip covering in its working position. A user places the covering over a forefinger or thumb, as desired, for preventing oil and dirt transfer onto a touchscreen device. The fingertip covering is a cylindrical structure with an open first end and a closed second end. The second end rests flushly against the end of the user's finger, while the open end is pulled from the fingertip to ensure a snug fit of the covering against the end of the user's finger. The covering is comprised of two main regions. The first region is a contact patch **11** that covers the fingerprint area of the finger and allows the user the ability to interface with the touchscreen. This region is comprised of a thin, microfiber or suede material allows proper feedback from the screen and use thereof.

[0022] The second section of the finger covering comprises a body section **12**. The body **12** is made from an elastic material such as rubber, polyester or other stretchable material. The body **12** connects with the contact patch region **11** and extends around the finger and down towards the knuckle. Its function is to keep the covering on the user, and to stretch itself to accommodate different sized fingers. Along the top of the body region **12**, opposite the contact region **11**, is an opening **13** that accommodates a user's fingernail. This allows the device to be utilized by those with longer fingernails. At the base **15** of the body section is a termination,

which may comprise either a termination of the elastic material or an elastomeric ring of material that is held firmly around the circumference of the finger to prevent sliding or loosening of the covering while in use. For removal, the finger covering may be rolled from the base to the tip of the finger to roll onto itself and remove itself from the user. Alternatively, the covering may be pried or otherwise pulled from the fingertip for removal.

[0023] Referring now to FIG. 2, there is shown a perspective view of the finger covering in its working state. The finger covering is applied to the end of a user's finger, providing oil and smudge protection while used in conjunction with a touchscreen device **14**. The user may utilize the screen as he or she would normally, as the covering provides no interference or reduction in feedback while in use. The contact region **11** of the covering is comprised of a thin layer of microfiber or suede material to provide adequate feel and capability with common touchscreen technology, including capacitive and resistive type screens. The body **12** of the covering provides adaptation to different sized fingers, and a snug fit while the covering is in use. The snug fit ensures the covering will not slide or move while scrolling or swiping the touchscreen **14**.

[0024] In use an individual may prevent an electronic touchscreen from accumulating smudges, smear marks and fingerprints by utilizing the present invention. Oil and dirt from a user's hand easily transfers to the glass surface of most touchscreens, leaving them covered in oil and residue. The present invention provides a user with a fingertip covering that eliminates transfer of oil and dirt during touchscreen use, and one that is comfortable to wear and useful for all current touchscreen technologies.

[0025] The construction of the coverings may include stitching between the elastic body region and the microfiber contact region. Materials contemplated for the contact region include microfiber, suede or other suitable material that allows input to capacitive touchscreens. The surface of the contact region may also include indentions or undulations to provide improved feedback to the user. The body of the covering may be rubber or any elastic material that is comfortable and conformable to different finger geometries. The preferred embodiment of the contact region is a microfiber material, while the covering itself is comprised of a largely cylindrical shape and may be provided in a number of colors to accommodate user preference and market demand.

[0026] With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[0027] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

I claim:

- 1) A touchscreen fingertip covering, comprising:
 - a cylindrical section adapted to cover a fingertip with a first open end and a second closed end;

said cylindrical section comprising two regions, a body region and a fingertip contact region;

said contact region comprising an area defined by a user fingerprint, comprising a material suitable for conduction of a user's finger on a capacitive touchscreen.

2) A device as in claim 1, wherein said contact region material is microfiber.

3) A device as in claim 1, wherein said contact region material is suede.

4) A device as in claim 1, wherein said body region is comprised of an elastic material.

5) A device as in claim 4, wherein said elastic material is rubber.

6) A device as in claim 1, wherein said body region includes a penetration positioned opposite from said contact region for accommodating longer finger nails.

7) A device as in claim 1, wherein said contact region surface includes undulations to improve feedback to a user fingertip.

8) A device as in claim 1, wherein said first closed end terminates with an elastic ring structure for securing said first end to said finger.

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