directly onto the display **10** in the same method as is used to apply the second display electrode **26**, during manufacturing.

[**0063**] FIG. **8** shows a side view of a fully integrated system, in which the writing of the display media and the touch sensing occur simultaneously. In this embodiment, the first display electrode **25** is formed as a single, common sheet. The second display electrode **26** is patterned into individual pixels, which can be of any shape or size. Non-conductive spacers **42** are applied to the display, and the assembly can be laminated to a continuous conductive sheet, forming the first touchscreen electrode **31**. Depending on the sensing method used, either the first display electrode **25** or the first touchscreen electrode **31** can be connected with the appropriate electrical components to form a capacitive touchscreen and the drive plane for the display material. This is possible, as both capacitive touchscreens and liquid crystal display layers are voltage driven systems. In the preferred embodiment, the first touchscreen electrode **31** is connected to electrical components that can generate sufficient voltages to electrically write the display imaging layer **22** to either focal conic or planar states. The electrical components can be further capable of sensing the position of a contact by a conductive material with a finite capacitance by measuring the current at the multiple corners of the display. The first display electrode **25** can be set to ground. In this embodiment, pixels can be addressed by applying either the focal conic or planar voltages to the first touchscreen electrode **31**, then applying point pressure to deform the assembly such that one or more of the pixels that form the second display electrode **26** come into electrical contact with first touchscreen electrode **31**. The pixel or pixels that are put in contact will become a written pixel **53** that is put into an optical state as is defined by the drive signal on the first touchscreen electrode. Pixels can be written to the opposite state by changing the voltage on the first touchscreen electrode **31** and deflecting the system again to put the two electrodes into contact. If the first touchscreen electrode **31** is also wired to be a capacitive touchscreen, then the position of the contact can be sensed and recorded, as was described in FIG. **2**.

[**0064**] One advantage of this system is that it does not require a conductive probe to be used, as is the case with typical capacitive touchscreens. This is the case because the display electrode is what actually makes contact with the capacitive touchscreen, so the electrical properties of the input device are irrelevant. Additionally, the touchscreen electrode is buried behind the display, protecting it from damage and allowing transparent or opaque materials to be used. The true elegance of this system is that a fully addressable, pixilated display can be made with a very small number of drive input channels. For the display portion, only two drive input channels are required, one on the first display electrode, and one on the first touchscreen electrode. That is a significant advantage over active, or even passive matrix systems, which require hundreds, thousands, or even millions of drive channels to be used. Such as system could have broad use in any application that required manual input of electronic information with instantaneous display to the viewer, such as signature displays, electronic notation boards, PDAs, or the like.

[**0065**] FIGS. **9**, **10**, **11**, and **12** describe an alternate device, based on the same pixel-writing system as in FIG. **8**, but with the ability to automatically write the display in addition to the manual write. This could be a simple, bulk reset of the optical state of all the pixels, or it could be a passive matrix write of selected pixels. This ability could be desirable in the situation where it is undesirable to require physical contact for every change of the display.

[**0066**] FIG. **9** is a side view of one potential system that could allow manual and automatic writing. In this system, a third display electrode **27** and an insulating layer **28** are added between the display imaging layer **22** and the second display electrode **26**. In this embodiment the display imaging layer **22** can be written by applying an electric field either between the first and second display electrodes **25**, **26**, or between the first and third display electrodes **25**, **27**. The second display electrode can be activated as described in FIG. **8**, and the third display electrode can be activated by permanent or temporary electrical contact with additional drive electronics.

[**0067**] In this embodiment the second display electrode **26** can still be patterned into pixels, and the third display electrode **27** can be either patterned or unpatterned. If the first and third display electrodes are unpatterned, then the system will only be capable of bulk writing the entire display to either planar or focal conic states. If the first and third display electrodes are patterned to form a passive matrix and connected to sufficient electronics, then individual areas of the display can be made to selectively switch.

[**0068**] FIG. **10** is a front view of a display of the type described in FIG. **8** or FIG. **9**. The input device **2** applies point pressure to the material causing the unwritten pixels patterned into the second display electrode **26** to become written pixels **53**. Changes to the voltage applied to the system could reverse the writing either automatically or during manual entry depending on the configuration of the assembly.

[**0069**] FIG. **11** is a side view of the configuration from FIG. **9**, with the written pixels automatically switched back to the opposite state. FIG. **12** is a front view of this same embodiment.

[**0070**] It should obvious to one skilled in the art that all of the embodiments described in FIGS. **5** through **12** can be made independently or combined. A display could be made with one or more portion as an active touchscreen, or one or more portion as an active display. Displays could also be made with one or more portion capable of manual writing or one or more portion capable of automatically writing. Pixel or matrix patterning can be in any shape or size, including but not limited to, polygonal, segmented, iconic, or bulk.

[**0071**] One area that has not been discussed in detail in this specification is the spacer. FIG. **13** is a front view of a typical spacer configuration on the touchscreen assembly **30**. The display plane is not shown. In this embodiment the spacer **42** consists of an array of small, dots of a transparent, non-conductive material applied onto the first or second touchscreen electrode **31**, **32**, depending on what type of touchscreen is used. The dots are typically as small and infrequent as possible, to minimize visual disruption of the display, in the traditional display-in-back assembly configuration. The sensing electrodes **33** are typically arranged outside of the spacer **42** and viewing area perimeter, and can be inside or outside of the touchscreen seal **45**. The seal **45**