connecting wires **50** to the OLED device and provide environmental protection in the vicinity of the connecting wires **50**.

Alternatively, as depicted in FIG. **7**, the bottom surface **24** of the raised edge **22** may be affixed to the main surface of the substrate **11** rather than the outside edge. This arrangement, with a flat substrate **10** and cover **20**, is also shown in prior-art FIG. **2**. It is also known in the art to provide encapsulating covers without raised edges.

The flexible, curved substrate **11** may be positioned and conformed to the curved cover so that either the OLED layers **14** and electrodes **12** and **16** are on a concave side of the curved cover (as shown in FIG. **1**) or on a convex side of the curved cover (as shown in FIG. **3**). In either configuration, either a bottom-emitter or a top-emitter OLED device configuration may be employed.

It may be preferred to ensure that the edges of the rigid, curved encapsulating cover are flush with the corresponding edges of the flexible substrate **11** when the flexible substrate **11** is bent. This may be accomplished by forming the flexible substrate **11** with a size and edges such that when the flexible substrate is bent, the edges of the flexible substrate **11** are in a plane with the edges of the rigid, curved encapsulating cover **21**. Means to accomplish this are well known in the manufacturing art.

As noted above, OLED devices typically utilize substrates and covers of glass and plastic. While glass substrates are less flexible than most plastic materials, many applications may only require an OLED device with a relatively modest curvature, so a relatively thin glass material may be employed for the flexible substrate. Examples of such applications may include panoramic displays, desktop displays, computer monitors, and some area illumination light sources. Applicants have determined that the requirements of these applications may be met using commercially available glass materials, ITO electrodes, and OLED materials. In these applications, stress due to bending an OLED device formed on a substrate does not result in significant damage to the materials deposited on the substrate. For example, for such applications requiring only modest curvature, it is preferred that flexible substrate **11** comprise thin glass (for example less than 0.5 mm thick), and that the rigid, curved cover **21** comprise relatively thicker glass. While the rigid, curved cover **21** will be thicker than the flexible substrate **11** if they are made of the same materials, the actual possible thicknesses of the rigid curved encapsulating cover **21** and flexible substrate **11** will vary depending on the amount of curvature required for a specific application. A glass material is preferred for the substrate of OLED devices because it is already established that glass provides a much more stable, flat surface resistant to high temperatures and environmental stress such as humidity. Relatively thin glass may be employed as the flexible substrate in the present invention, at a thickness that allows it to be bent to conform to a relatively rigid encapsulating cover. Typically, once the rigid encapsulating cover is affixed to the substrate, the combination becomes even more rigid and difficult to bend than even the cover itself.

In a further embodiment of the invention, spacers may be located between the OLEDs and a main surface of the rigid, curved encapsulating cover to prevent the OLEDs from contacting the main surface of the encapsulating cover. Referring to FIG. **4**, e.g., raised areas which project over the OLEDs may be formed over the flexible substrate **11** to prevent the OLEDs from contacting the rigid, curved encapsulating cover **21**. These raised areas **30** may be made of, for example, silicon oxides, silicon nitrides, or cured photoresists and are structured using conventional photolithographic means. The raised areas **30** serve to provide increased rigidity to the OLED device and to protect the electrode **16** from contacting the inside of the rigid, curved encapsulating cover **21** if the cover **21** or the flexible substrate **11** is deformed by external pressure. This is particularly helpful for large OLED devices since the electrode **16** and the inside of the rigid, curved encapsulating cover **21** are relatively close together (for example, less than 50 microns) and only a small external pressure may be necessary to deform the cover or substrate sufficiently to contact the electrode **16** and the rigid, curved encapsulating cover **21**. Alternatively, referring to FIG. **5**, the raised areas **31** may be formed over and located on the main surface of the rigid, curved encapsulating cover. In this case, the raised areas may be formed using methods known in the manufacturing arts, for example the raised areas **31** may be molded into place as the cover is made or screen printed on. A wide variety of materials may comprise the raised areas **31**, for example glass, cured epoxy, or cured photo-resist. In a further alternative, the spacers may be formed separately and subsequently located over the OLEDs. In any case, the raised areas **30** or **31** or separately formed spacers may be coated with an adhesive to adhere the rigid, curved encapsulating cover **21** to the raised areas so that the rigid, curved encapsulating cover **21** may be affixed to the flexible substrate **11** (FIG. **4**), or to the electrode **16** (FIG. **5**), to provide greater rigidity and stability to the OLED device. Preferably, the raised areas **30** or **31** are located in areas of the OLED device that do not emit light, for example between pixels or over conductors, transistors, or the like. The raised areas **30** or **31**, while not generally expected to emit light, may also be coated with organic layers **14** or electrodes **12** and/or **16**. Any gap between the rigid, curved encapsulating cover **21** or flexible substrate **11** and between the raised areas **30** or **31**, if present, may be filled with a liquid material that may be cured form a solid, thereby providing additional rigidity and stability to the OLED device.

Referring to FIG. **8**, in an additional embodiment of the present invention, a rigid, curved substrate **50** may be employed over the flexible substrate **11** to provide additional environmental protection to the flexible substrate **11**. Such a rigid curved substrate may be part of a larger apparatus and affixed when the OLED device is permanently positioned within a desired piece of equipment or it may be a separate component designed for transportation with the flexible substrate **11**, layers **14**, electrodes **12** and **16**, and rigid, curved encapsulating cover **21**.

OLED devices of this invention can employ various well-known optical effects in order to enhance its properties if desired. This includes optimizing layer thicknesses to yield maximum light transmission, providing dielectric mirror structures, replacing reflective electrodes with light-absorbing electrodes, providing anti glare or anti-reflection coatings over the display, providing a polarizing medium over the display, or providing colored, neutral density, or color conversion filters over the display. Filters, polarizers, and anti-glare or anti-reflection coatings may be specifically provided over the cover or an electrode protection layer beneath the cover.

The various embodiments of the present invention may be employed in a variety of applications. For example, the OLED device may be a display and the one or more OLED elements are pixels. Such a display may a panoramic display having a wide-format curved viewing surface, a desktop display, or a computer monitor. Alternatively, the OLED device may be an area illumination light source. In various