embodiments, the predetermined pattern will define at least one aspect of a tamper-resistant security mark.

Embodiments wherein the predetermined pattern is printed in a soluble ink are of particular interest. For example, it is possible to sputter a layer of conductive material onto the printed substrate and then rinse the substrate so as to remove the soluble ink. This also removes the sputtered layer above the soluble ink. If the fiducial marks are not soluble in the solvent, the location of the pattern in the sputtered layer can be known, even if that pattern is invisible, or has such low contrast with the substrate that it is effectively invisible.

In one exemplary embodiment, the disclosure describes a method of patterning a substrate, comprising: providing a printing roll, a first ink dispenser, and a printer, wherein the printing roll has a predetermined pattern thereon, the predetermined pattern having both fiducial marks and main pattern marks; dispensing a first ink soluble in a selected solvent onto the printing roll with the first ink dispenser; advancing the substrate against the printing roll, printing the negative of the predetermined pattern onto the substrate with the first ink; advancing the substrate past a printer and applying a second ink that is non-soluble in the selected solvent onto the fiducial marks; overlaying a layer of functional material onto the substrate over the predetermined pattern; and rinsing the substrate with the selected solvent thereby removing the soluble ink, leaving on the substrate the functional material in the predetermined pattern of the main pattern marks and the non-soluble ink in the predetermined pattern of the fiducial marks on the substrate .

In another exemplary embodiment, the disclosure describes a method of patterning a substrate with a predetermined pattern having both fiducial marks and main pattern marks, comprising: coating at least a first visible ink and a second ink in at least one longitudinal lane each onto the substrate; applying a predetermined pattern with a resist material onto the first and second inks, the predetermined pattern having both fiducial marks within the lane(s) coated with the first visible ink and main pattern marks within the lane(s) coated by the second ink; hardening or curing the resist material; over coating the pattern with a strippable polymer layer; peeling the strippable polymer layer from the substrate, thereby removing the portions of the first and the second inks not protected by the resist.

There is also disclosed a touch screen display comprising a patterned substrate prepared by the method as described above.