

COATING METHOD AND COATING APPARATUS, AND MANUFACTURING METHOD AND
MANUFACTURING APPARATUS OF THE COMPONENTS FOR DISPLAYS

ABSTRACT

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This invention relates to a coating method and a coating apparatus capable of efficiently discharging intruded gas inside a coating die of a die coater which coats a coating liquid on surface of a member to be coated such as glass substrate, and a manufacturing
10 method of the components for displays using the same and a manufacturing apparatus comprising the same.

By applying this coating method and the coating apparatus, it is possible to effectively discharge gas in a short time since a liquid pressure generated from a difference of height between
15 the highest and the lowest part of each of the gas drainage channels does not work as resistance and a siphoneage is available for quickening to discharge gas, because the gas drainage channels connected to the gas discharge outlets of the coating die are located at the positions being almost as high as the gas outlets or being
20 lower than the gas outlets, and further, the outlets of the gas drainage channels are located at the positions being lower than the discharging aperture, to thereby discharge the coating liquid mixed with the gas from the gas outlets while feeding a liquid from the liquid feed means by opening the open/shut-valves of the gas
25 drainage channels.

Furthermore, from a gas feed channel connected to any one of the coating die, the liquid feed channel or the gas drainage channels, more than a predetermined volume of gas is fed to the manifold of the coating die, to thereby unite micro bubbles to a gas region
30 formed inside, and after removing the micro bubbles, the gas fed

is discharged outside with a small amount of the coating liquid, and accordingly, it becomes possible to discharge micro bubbles, which are very difficult to discharge, outside in a short time, effectively and quite certainly.

- 5 Furthermore, since a coating die, in which the cross-sectional area of the manifold in the coating width direction decreases from the feed port to the gas outlets, and an upper side of the manifold is parallel to the discharging aperture surface including the discharging aperture, or slopes upward from the feed port to the
- 10 gas outlets relatively to the discharging aperture surface as a base, is used, even if the coating die is upsized, the gas inside the manifold quickly moves to the gas outlets because the velocity of the flow of the coating liquid inside the manifold from the feed port toward the gas outlets is high, and further, since the moving
- 15 of the gas is not prevented by the inclination of the upper side of the manifold, it becomes possible to discharge the gas outside, further in a short time, effectively and quite certainly.

Figure 1