CLAIMS

1. A light projecting device comprising:

a flat plate-shaped light guide plate and a light source body that introduces light from a side peripheral surface of the light guide plate to the inside thereof, wherein

a plurality of concave parts are formed on a first plate surface of the light guide plate,

the light guide plate is configured to reflect and spread the light entering the light guide plate at the concave parts, emit the light to the outside from a second plate surface of the light guide plate, and then irradiate the light to a predetermined object such that the object can be observed through the light guide plate from a side of the first plate surface of the light guide plate,

the surface of each of the concave parts is formed with a smooth concave curved surface, and

a tangential angle that is an angle between a tangential line at an opening edge of the concave part and the plate surface is set to be greater than or equal to 55° and less than or equal to 75° in a cross-sectional shape of the concave part cut by a plane that is both perpendicular to the plate surface and passing through a center of the concave part.

2. The light projecting device described in claim 1, wherein the concave part is in a partially concave sphere shape.

3. The light projecting device described in claim 1, wherein the concave part has an opening diameter of greater than or equal to 0.02 mm and less than or equal to 0.2 mm.

4. The light projecting device described in claim 1, wherein a pitch between adjacent concave parts is greater than or equal to twice and less than or equal to five times the opening diameter of the concave part.

5. A light projecting device comprising:

a plate-shaped light guide plate and a light source body that introduces light from a side peripheral surface of the light guide plate to the inside thereof, wherein

a plurality of concave parts are formed on a first plate surface of the light guide plate,

the light guide plate is configured to reflect and spread the light entering the light guide plate at the concave parts, emit the light to the outside from the other plate surface of the light guide plate, and then irradiate the light to a predetermined object such that the object can be observed through the light guide plate from a side of the first plate surface of the light guide plate,

the concave part is a partially concave spherical surface with a center angle of greater than or equal to 110° and less than or equal to 150°.

6. An inspection system comprising the light projecting device of claim 1 and a camera arranged on the side of the first plate surface of the light guide plate, wherein the object arranged on a side of the second plate surface of the light guide plate can be inspected by taking a picture with the camera through the light guide plate.