Claims

1. LED illuminating device, comprising:
   a housing (2), within which an array of LED elements (26) is arranged,
   a plurality of lenses (28) which are associated with the LED elements (26), as well as
   a supporting plate (20) with openings (34) for receiving the lenses (28), wherein
   the openings (34) for the lenses (28) in the supporting plate (20) are arranged, at least in part,
   out-of-center with respect to the LED elements (26).
2. LED illuminating device according to claim 1, **characterized in** that the LED elements (26) are arranged perpendicularly to the plane supporting plate (20).
3. LED illuminating device according to claim 1 or 2, **characterized in** that the lenses (28) each comprise a guiding projection (36) within which they are centered in the openings (34) of the supporting plate (20).
4. LED illuminating device according to claim 3, **characterized in** that the guiding projection (36) is a cylindrical wall whereby the LED elements (26) extend into the guiding projection (36) also in case of an out-of-center-position thereof.
5. LED illuminating device according to one of the claims 1 to 4, **characterized in** that the openings (34) are arranged in the supporting plate (20) with respect to the LED elements (26) in such positions that the light arrays emitted from the LED elements (26) effect a homogenous illumination of a surface (46) to be illuminated.
6. LED illuminating device according to claim 5, **characterized in** that a deflection of the light beams of the LED elements (26) which deflection is with respect to a vertical line through the center of the LED array directed away from the vertical line to the outside and is becoming larger with the increasing distance from the vertical line.
7. LED illuminating device according to one of the claims 1 to 4, **characterized in** that the openings (34) in the supporting plate (20) and, thereby, the lenses are located with respect to the LED elements at such positions that the light beams emitted from the LED elements are focused to a focus area (66) of a surface (46) to be illuminated.
8. LED illuminating device according to any of the claims 1 to 4, **characterized in** that the openings (34) in the supporting plate (20) and, thereby, the lenses are located with respect

to the LED elements at such positions that light beams emitted by a group of LED elements are focused for each group to a focus area (76, 78) on a surface (46) to be illuminated.

9. LED illuminating device according to claim 1, **characterized in** that a supporting plate (20) with corresponding openings (34) for receiving the lenses (28) is associated with each illuminating mode, and that the supporting plate (20) is fixed to the housing (2) in an exchangeable manner.

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Translation of Claims

1. LED illuminating device comprising:
a housing (2), within which an array of LED elements (26) is arranged,
a plurality of optical elements (28) which are associated with the LED elements (26), as well as
a supporting plate (20) with openings (34) for receiving the optical elements (28) which each comprise a guiding projection (36) by which are received and centered in the openings (34) in the supporting plate (20),
characterized in that
the optical elements are lenses (28), and that
the openings (34) for receiving the guiding projections (36) of the lenses (28) in the supporting plate (20) are arranged, at least in part, out of center with respect to the LED elements (26).

2. LED illuminating device according to claim 1, **characterized in** that the LED elements (26) are arranged perpendicularly to the plane supporting plate (20).

3. LED illuminating device according to claim 1, **characterized in** that the guiding projection (36) is a cylindrical wall whereby the LED elements (26) extend into the guiding projection (36) also in case of an out-of-center-position thereof.

4. LED illuminating device according to one of the claims 1 to 3, **characterized in** that the openings (34) are arranged in the supporting plate (20) with respect to the LED elements (26) in

such positions that the light arrays emitted from the LED elements (26) effect a homogenous illumination of a surface (46) to be illuminated.

5. LED illuminating device according to claim 4, **characterized in** that a deflection of the light beams of the LED elements (26) which deflection is with respect to a vertical line through the center of the LED array directed away from the vertical line to the outside and is becoming larger with the increasing distance from the vertical line.

6. LED illuminating device according to one of the claims 1 to 3, **characterized in** that the openings (34) in the supporting plate (20) and, thereby, the lenses are located with respect to the LED elements at such positions that the light beams emitted from the LED elements are focused to a focus area (66) of a surface (46) to be illuminated.

7. LED illuminating device according to any of the claims 1 to 3, **characterized in** that the openings (34) in the supporting plate (20) and, thereby, the lenses are located with respect to the LED elements at such positions that light beams emitted by a group of LED elements are focused for each group to a focus area (76, 78) on a surface (46) to be illuminated.

8. LED illuminating device according to claim 1, **characterized in** that a supporting plate (20) with corresponding openings (34) for receiving the lenses (28) is associated with each illuminating note, and that the supporting plate (20) is fixed to the housing (2) in an exchangeable manner.

Claims

1. LED illuminating device, comprising:
a housing (2), within which an array of LED elements (26) is arranged,
a plurality of lenses (28) which are associated with the LED elements (26), as well as a supporting plate (20) with openings (34) for receiving the lenses (28), wherein,
the openings (34) for the lenses (28) in the supporting plate (20) are arranged, at least in part,
out of center with respect to the LED elements (26).

2. LED illuminating device according to claim 1, **characterized in** that the LED elements (26) are arranged perpendicularly to the plane supporting plate (20).

3. LED illuminating device according to claim 1 or 2, **characterized in** that the lenses (28) each comprise a guiding projection (36) within which they are centered in the openings (34) of the supporting plate (20).

4. LED illuminating device according to claim 3, **characterized in** that the guiding projection (36) is a cylindrical wall whereby the LED elements (26) extend into the guiding projection (36) also in case of an out-of-center-position thereof.

5. LED illuminating device according to one of the claims 1 to 4, **characterized in** that the openings (34) are arranged in the supporting plate (20) with respect to the LED elements (26) in such positions that the light arrays emitted from the LED elements (26) effect a homogenous illumination of a surface (46) to be illuminated.

6. LED illuminating device according to claim 5, **characterized in** that a deflection of the light beams of the LED elements (26) which deflection is with respect to a vertical line through the center of the LED array directed away from the vertical line to the outside and is becoming larger with the increasing distance from the vertical line.

7. LED illuminating device according to one of the claims 1 to 4, **characterized in** that the openings (34) in the supporting plate (20) and, thereby, the lenses are located with respect to the LED elements at such positions that the light beams emitted from the LED elements are focused to a focus area (66) of a surface (46) to be illuminated.

8. LED illuminating device according to any of the claims 1 to 4, **characterized in** that the openings (34) in the supporting plate (20) and, thereby, the lenses are located with respect to the LED elements at such positions that light beams emitted by a group of LED elements are focused for each group to a focus area (76, 78) on a surface (46) to be illuminated.

9. LED illuminating device according to claim 1, **characterized in** that a supporting plate (20) with corresponding openings (34) for receiving the lenses (28) is associated with each illuminating note, and that the supporting plate (20) is fixed to the housing (2) in an exchangeable manner.