MARKS AWARDED: 57

QUESTION PAPER REFERENCE: FD3

Claims

Claim 1

A casing for variable-message display devices, of the type comprising a box-like body for housing electronic circuit panels and an array of light-emitting elements, closed at the front by a perforated plate with an array of holes, wherein in the assembled state, each of the light-emitting elements is aligned with a corresponding hole of the perforated plate, wherein the casing further includes a screen provided with a plurality of horizontally projecting fins and an array of openings, the openings corresponding to the holes in the perforated plate, in order to allow the light from the corresponding light-emitting element to pass through the hole and and the opening; and wherein the casing further comprises a planar sheet of anti-reflective material arranged on the front of the perforated plate, thereby separating the perforated plate from the screen.

2. A casing according to claim 1, in which the box-like body includes a plurality of metal side plates connected to the edge of the perforated plate, in order to provide a tight seal.

3. A casing according to claim 1 or 2, in which the fins extend over each row of openings in the screen

4. A casing according to any preceding claim, in which both the perforated plate and the screen are made up of a plurality of adjoining mating portions.

5. A casing according to any of claims 1 to 4, wherein the planar sheet is a semi-opaque or translucent plastic material or glass.

6. A casing according to any of claims 1 to 4, wherein the planar sheet is a transparent sheet housing an anti-reflection coating.

7. A casing according to any of the preceding claims, wherein the planar sheet is of uniform thickness.

8. A casing according to any of the preceding claims wherein the perforated plate is made of a metal material.

9. A casing according to any preceding claim, wherein the fins extend perpendiculer to the screen.

10. A casing according to any preceding claim, wherein the perforated plate has upstanding ride walls.

11. A net of parts comprising:

    - a casing according to any one of the preceding claims,

- a plurality of light emitting elements mounted on a printed circuit board

12. A casing, substantially as described herein, with reference to the attached drawings.

MARKS AWARDED: 22/35

Response Letter

Letter to UK IPO

Dear Sirs

I write in response to the Examination Report dated 16 July 2016.

I enclose herewith an amended claim set and request that the amended claim set replace the version of the claims currently on file.

Claim amendments.

Claim 1 has been amended to require that the casing further comprises “a planar sheet of anti-reflective material arranged on the front of the perforated plate, thereby separating the perforated plate from the screen”.

Basis for this amendment to claim 1 can be found at page 4, lines 5-9 and 11-12 of the present application.

Claim 1 has been further amended to specify that each of the light-emitting elements is aligned with a corresponding hole of the perforated plate “in the assembled state”. Basis for this amendment can be found at page 2, line 6 of the present application. This amendment addresses the Examiner’s objection of lack of clarity.

Claims 2 corresponds to claim 2 as originally filed.

Claim 3 corresponds to claim 3 as originally filed.

Claim 4 corresponds generally to claim 4 as originally filed except that the term “finned plate” has been replaced with “screen” as there is no antecedent basis for finned plate. Page 2, lines 25-27 of the application as filed clearly indicates that these terms are interchangeable.

Previous claim 5 has been deleted and new claim 5 introduced to specify that the planar sheet is a semi-opaque or translucent plastic material or glass. Basis for this amendment can be found at page 4, l 4-5 of the application as filed.

Claim 6 is new, and specifies that the planar sheet is a transparent sheet having an anti-reflection coating. Basis for this amendment can be found at page 4, l 9-10 of the application as filed.

Claim 7 is new, and specifies that the planar sheet is of uniform thickness. Basis for this claim can be found at page 4, l 6-7 of the application as filed.

Claim 8 is new and specifies that the perforated plate is made of a metal material. Basis for this amendment can be found at page 4, l 2 of the application as filed.

Claim 9 is new, and requires that the fins extend perpendiculer to the screen. Basis for this claim can be found at page 4, l 31 of the application as filed.

Claim 10 is new, and requires that the perforated plate has upstanding side walls. Basis for this amendment can be found at page 5, l 4-5 of the application as filed.

Claim 11 is new & relates to a lot of parts comprising a casing according to any one of the preceding claims and a plurality of light-emitting elements mounted on a permited circuit board. This claim finds basis at page 3, l 21-27.

Claim 12 is an omnibus claim, and corresponds generally to claim 6 as originally filed.

Novelty

As discussed above, claim 1 has been amended to require that the casing comprises a planar sheet of anti-reflective material arranged on the front of the perforated plate thereby separating the perforated plate from the screen.

D1 discloses a variable-message display device with a perforated plate 2 having holes 21, aligned with the LEDs 6, and a lower plate 4 comprising a screen plate 42, having fins 43, and an array of openings 41.

However, D1 does not disclose a planar sheet of anti-reflective material arranged on the front of the perforated plate, thereby separating the perforated plate from the screen.

D1 does not disclose a convex lens plate 3 located between the mask plate2 and the screen plate. This can be made of elastic material such as transparent silicon rubber, neoprene rubber, ureltene rubber (see D1, p2, l 4-7).

This is not an planar sheet of anti-reflective material according to amended claim 1. It is further noted that D1 does not disclose a box-like body or housing according to claim 1.

For at least the reasons above, claim 1 is novel over D1.

D2 discloses a perforated plate (lattice frame 27) positioned between a front cover window 28 and a reflector unit 23.

The casing of D2 (i.e. the lamp) has its own light shield above the display surface. D2 does not disclose a screen provided with a plurality of horizontally projecting fins and an array of openings according to claim 1, wherein the screen is separated from the perforated plate by a planar sheet of antiflective material.

Claim 1 is therefore novel of D2.

Inventive Step

The test for the consideration of inventive step is Pozzoli. This is a 5 step test.

The first step is to identify the person skilled in the art. In this case, the person skilled in the art is a designer or manufacturer of light-emitting display devices.

The next step is to identify the common general knowledge of that person. It is difficult to establish what is the common general knowledge without expert witness. However, the person skilled in the art would be expected to be aware of the devices discussed at page 1, l 12-23 of the present application.

The next step is to identify the inventive concept. This is identified at page 1, line 25 to 31 of the application as filed, and is the provision of a casing for display devices which is reliable & safe in operation, reliably sealed against the environment, and allows displayed messages to be easily read out under any light conditions.

The Examiner has cited two pieces of prior art, D1 & D2.

The differences over these references are discussed above under the heading of novelty.

Starting from D1, the difference over D1, namely the use of a planar sheet of anti-reflective material located between the screen and the perforated plate improves message readability.

It would not be obvious from D1 alone to use a planar plate according to claim 1 since D1 does not disclose such a planar plate.

In D1, a convex lens plate is bonded to the mask plate 2, and located between the mask plate and the lower plate. The person skilled in the art would have no motivation to incorporate a planar sheet of antireflective material according to claim 1 into the device of D1. The device of D1 relies on layering. The skilled person would also not arrive at claim 1 by combining D1 and D2.

MARKS AWARDED: 24/35

Notes to Clients

Client memo

- Since the response is not due until 16 November, we have not yet filed the response & enclose a copy in draft for your review.

- Have amended claim 1 to require a planar sheet of anti-reflective material between the perforated plate and the screen since you indicated that this feature was important.

- Also considered amending claim 1 to include the metal side plates of the box-like structure and the side walls of the perforated plate. This appeared to be novel, but difficult to argue inventive step.

- Included a test claim to the casing with the LEDs mounted on a circuit board sine you indicated you are thinking of selling assembled displays in the future.

- I did not see any need for a divisional application.

- As regards your question about the ‘single slot” embodiment, I believe this is covered by the wording of claim 1, The “array of openings” could cover rows of extended slits.

MARKS AWARDED: 11/30