THE PATENT S ACT, 1970

&

THE PATENTS RULES, 2003

SECTION 15 & 25(1)

In the matter of Application number : 201811005501

dated 14th Feb 2018 of Sterlite Technologies Limited .....Applicant

AND

In the matter of Pre-grant opposition under section

25(1) filed by HFCL LIMITED.....Opponent

DECISION

Applicant - Sterlite Technologies Limited

Hearing Date: 20th December 2024

Attorney Present for hearing : Applicant represented by agent : Abhishek & Shubham Nayyar from Anand and Anand Advocates

Opponent represented by agent : Eashwer Athresh from Saikrishna & Associates Advocates.

An application number 201811005501 having title of the invention " CYLINDRICAL ENCLOSURE FOR OPTICAL WAVEGUIDE CABLE " was filled at Patent Office, on 14/02/2018 for grant of Patent.

The brief facts of the application are as fallow:

S.NO	Detail of the application	Dates of activity
1	Application No 201811005501	Filing Date 14/02/2018 (complete)
2	Request for examination filed	27/12/2021
3	Publication U/S 11(A)	16/08/2019
4	Pre Grant opposition filed	27/05/2023
5	FER was issued to the Applicant	26/05/2022
6	Statement and evidence in Reply to Pre Grant opposition	13/06/2024
97	FER Reply	25/11/2022
10	Hearing Notice	18/11/2024

11	Hearing u/s 25 & Hearing u/s 14	20/12/2024
12	Written submission after hearing filed by applicant and opponent respectively	03/01/2025 & 04/01/2025

Representation U/s 25(1):

1. A representation u/s 25(1) by way of opposition to the grant of patent in respect of application No : 201811005501 was filed by HFCL, opponent dated 27-05-2023 on the following grounds:

a. Section 25(1)(b):

that the invention so far as claimed in any claim of the complete specification has been published before the priority date of the claim – i. in any specification filed in pursuance of an application for a patent made in India on or after the 1st day of January 1912; or

ii. in India or elsewhere, in any other document; Provided that the ground specified in sub-clause

(ii) shall not be available where such publication does not 2 constitute an anticipation of the invention by virtue of subsection (2) or subsection (3) of section 29

b. Section 25(1)(e): that the invention so far as claimed in any claim of the complete specification is obvious and clearly does not involve any inventive step, having regard to the matter published as mentioned in clause (b) or having to regard to what was used in India before the priority date of the applicant's claim

c. Section 25(1)(f): that the subject of any claim of the complete specification is not an invention within the meaning of this Act, or is not patentable under this Act

d. Section 25(1)(g): that the complete specification does not sufficiently and clearly describe the invention or the method by which it is to be performed.

2. A reply statement under Rule 55(4) of the Patents Rules, 2003, in response to the pre-grant opposition filed by the applicant on 13/06/2024, addressing each ground of opposition.

3. A hearing under Sections 25(1) and 14 of the Patents Act was held successively on 20/12/2024. The above-mentioned agent attended the hearing on behalf of both the applicant and the opponent.

4. The claims at the time of filing the application, on which the pre-grant opposition was filed, are reproduced as follows

WE CLAIM

1. An optical waveguide cable (100) defined by a longitudinal axis (101) passing

through a geometrical center of the optical waveguide cable (100), the optical waveguide cable (100) comprising: one or more optical waveguide bands (102) positioned substantially along the longitudinal axis (101) of the optical waveguide cable (100), wherein each of the one or more optical waveguide bands (102) has a plurality of light transmission elements (103), wherein the plurality of light transmission elements (103) being made of silicon based glass; and one or more layers substantially concentric to the longitudinal axis (101) of the optical waveguide cable (100), wherein the one or more layers surround the one or more optical waveguide bands (102) and wherein each of the one or more layers being substantially along the longitudinal axis (101) of the optical waveguide cable (100), the one or more layers comprising: a cylindrical enclosure (106) positioned substantially along the longitudinal axis (101) of the optical waveguide cable (100), wherein the cylindrical enclosure (106) has density of at most 0.935 gram per cubic centimeter, wherein the cylindrical enclosure (106) has a melt mass-flow rate of 0.70 gram per 10 minutes and wherein the cylindrical enclosure (106) has a kink radius of 4D.

2. The optical waveguide cable (100) as claimed in claim 1, wherein the density is measured at a plurality of conditions, wherein the plurality of conditions comprises a temperature range of 21 degree Celsius to 25 degree Celsius and a relative humidity of 40% to 60%, wherein the plurality of conditions being required for at least 40 hours before the density of the cylindrical enclosure (106) being measured and wherein the density of the cylindrical enclosure (106) being at most 40% of density of the plurality of light transmission elements (103).

3. The optical waveguide cable (100) as claimed in claim 1, wherein the one or more layers comprises a first water blocking element (104) inside the cylindrical enclosure (106), wherein the first water blocking element (104) surrounds the one or more optical waveguide bands (102).

4. The optical waveguide cable (100) as claimed in claim 1, wherein the cylindrical enclosure (106) is made of a medium density polyethylene material, wherein the medium density polyethylene material has an environmental stress cracking resistance of at least 500 hour, a tensile strength of 4000 mega Pascal, a brittleness temperature of at most 100 degree Celsius and a tensile elongation at break of 1000 percent.

5. The optical waveguide cable (100) as claimed in claim 1, wherein the one or more optical waveguide bands (102, 202) is defined by a waveguide factor of 44% and wherein the waveguide factor is a ratio of average cross-sectional area of the one or more optical waveguide bands (102, 202) to average cross-sectional area of the cylindrical enclosure (106, 210) wherein the one or more optical waveguide bands (102, 202) being coupled longitudinally with the cylindrical enclosure (106, 210), and wherein at least one corner of the one or more optical waveguide bands (102, 202) being coupled with the one or more layers.

6. The optical waveguide cable (100) as claimed in claim 1, wherein the protective

cover (110) is made of a medium density polyethylene material, wherein the medium density polyethylene material has a density of 0.935 gram per cubic centimeter, a melt mass flow rate of 0.70 gram per 10 minute, an environmental stress cracking resistance of at least 500 hour, a tensile strength of 4000 mega Pascal, a brittleness temperature of at most 100 degree Celsius, and a tensile elongation at break of 1000 percent.

7. The optical waveguide cable (100) as claimed in claim 1 further comprising a plurality of robust components (112a-112d), wherein the plurality of robust components (112a-112d) being embedded inside the protective cover (110) of the optical waveguide cable (100).

8. The optical waveguide cable (100) as claimed in claim 1, wherein the one or more layers are selected from a group, wherein the group comprises a fire resistance tape, a water swellable tape layer, an ECCS armor layer, a glass roving yarn layer, a binder yarn layer and an aramid yarn layer.

9. The optical waveguide cable (100, 300) as claimed in claim 1, wherein the cylindrical enclosure (106, 302) is at a diagonal distance of 0.9 millimeter from the one or more optical waveguide bands (102, 304).

10. The optical waveguide cable (100) as claimed in claim 1, wherein the plurality of light transmission elements (103) has an attenuation change of at most 0.05dB/km at a wavelength of 1550 nanometer at a temperature range of -40 degree Celsius to +70 degree Celsius in a time period of 2 cycles with 12 hours per cycle, wherein the plurality of light transmission elements (103) has a maximum attenuation of 0.36dB/km at a wavelength of 1310 nanometers at a temperature range of 20 degree Celsius to 25 degree Celsius, wherein the plurality of light transmission elements (103) has a maximum attenuation of 0.24dB/km at a wavelength of 1550 nanometers at the temperature range of 20 degree Celsius to 25 degree Celsius, wherein the plurality of light transmission elements (103) has a maximum attenuation of 0.26dB/km at a wavelength of 1625 nanometers at the temperature range of 20 degree Celsius to 25 degree Celsius.

11. The optical waveguide cable (100) as claimed in claim 1, wherein the one or more optical waveguide bands (102) have a fill factor of 0.445, wherein the plurality of light transmission elements (103) has a fill factor of 0.109.

5. The opponent has relied upon the following grounds of opposition:

a. Anticipation by prior publication (Sec. 25 (1)

b. Obviousness/ Lack of Inventive step (Sec. 25 (1) (e))

c. Not patentable under Section 3(f) of the Act (Sec. 25 (1) (f));

d. Insufficiency section 25(1)(g)

(i) GROUND-NOVELTY [25(1)(b)]:

Applicant stated that, D1 discloses a fiber optic ribbon cable includes a jacket of the cable, the jacket having a cavity defined therein, an optical element including an optical fiber and extending within the cavity of the jacket, and a dry water-blocking element extending along the optical element within the cavity. The dry water-blocking element is wrapped around the optical element with at least a portion of the dry water-blocking element disposed between another portion of the dry water-blocking element and the optical element, thereby defining an overlapping portion of the dry water-blocking element. The optical element interfaces with the overlapping portion to provide direct or indirect coupling between the optical element and the jacket.

D1 does not disclose that a cylindrical enclosure (106) positioned substantially along the longitudinal axis (101) of the optical waveguide cable (100), wherein the cylindrical enclosure (106) has density of at most 0.935 gram per cubic centimeter, wherein the cylindrical enclosure (106) has a melt mass-flow rate of 0.70 gram per 10 minutes and wherein the cylindrical enclosure (106) has a kink radius of 4D.

Moreover claim 1 recites that density is at most 0.935 gram per cubic centimeter, melt mass-flow rate of exactly 0.70 gram per 10 minutes, and has a kink radius of 4D. The melt-mass flow rate as claimed in claim 1 is exactly 0.7g/10min, while the prior art discloses a large range of melt-mass flow rate. Thus, the opponent allegation that density and melt-mass flow rate are inherent is completely incorrect and misleading. The cited document D1 does not disclose any information about density, melt mass flow rate, and kink radius.Therefore, claim 1 is clearly novel over D1 as D1 does not disclose all the features of claim 1.The dependent claims are also novel over D1 due to their dependency on claim 1.

Furthermore the claim 1 does not limit the cylindrical enclosure to MDPE. In fact, the specification of present application '501 does not limit the cylindrical enclosure to MDPE only. Paragraph 46 of the applicant specification clarifies that the cylindrical enclosure may be made up of any material such as High Density Polyethylene, polypropylene, medium density polyethylene, polyvinyl chloride, Low density polyethylene and polyethylene or ethylene vinyl acetate (EVA) base Low smoke zero halogen . Thus, the opponent's limitation of the cylindrical enclosure to only MDPE is incorrect and biased.

In view of the foregoing distinguishing features of the applicant invention the ground raised by the opponent under section 25(1) (b) is dismissed.

Ii) INVENTIVE STEP [25(1)(e)]:

The opponent has cited following documents: D1: US 9,170,388 B2 D2: US 10,502,913 D3: US 9,411,114 B2 D4: Copy of Technical Information sheet for DOW™ MDPE NG 7525 D5: Copy of ASTM D792 standard D6: Copy of Technical Information sheet for DOW™ MDPE DPDA3170 NT 7 D7: Copy of Properties of MDPE D8: Copy of Product Datasheet of ITU-T G.652.D Fiber-Sterlite®OHLITE® Single Mode Optical Fiber D9: Copy of US 8,571,369 B2 (D9).

The applicant correctly pointed out that out of D1-D9, only D1-D3 has been considered for claim 1 by the opponents in their written statement, while D4-D9 have been considered only for the dependent claims.

D2 US 10502913 : D2 discloses a buffer tube type optical fiber cable, while the applicant's claim 1 directed towards ribbon/band type optical fiber cables. D2 discloses a polymeric composition, comprising a polybutylene terephthalate; an ethylene-based polymer having a density of at least 0.93 g/cm3 ; and a maleated ethylenebased polymer having a density of at least 0.93 g/cm3 . D2 does not disclose one or more optical waveguide bands (102) positioned

substantially along the longitudinal axis (101) of the optical waveguide cable (100), wherein each of the one or more optical waveguide bands (102) has a plurality of light transmission elements (103), wherein the plurality of light transmission elements (103) being made of silicon based glass. Rather D1 discloses optical fiber cable 1, buffer tubes 2 are positioned radially around a central strength member 4, with a helical rotation to the tubes in the axial length. The helical rotation allows bending of the cable without significantly stretching the tube or the optic fibers 6. D2 does not disclose one or more optical waveguide bands (102) positioned substantially along the longitudinal axis (101) of the optical waveguide cable (100) . D2 does not disclose one or more layers substantially concentric to the longitudinal axis (101) of the optical waveguide cable (100), wherein the one or more layers surround the one or more optical waveguide bands (102) and wherein each of the one or more layers being substantially along the longitudinal axis (101) of the optical waveguide cable (100). D2 does not disclose a cylindrical enclosure (106) positioned substantially along the longitudinal axis (101) of the optical waveguide cable (100), wherein the cylindrical enclosure (106) has density of at most 0.935 gram per cubic centimeter, wherein the cylindrical enclosure (106) has a melt mass-flow rate of 0.70 gram per 10 minutes and wherein the cylindrical enclosure (106) has a kink radius of 4D as recited in claim 1.

D3: US 9411114, D3 discloses a loose-tube optical fibre cable comprising: a. A cable core 110 comprising buffer tubes 114 and optical fibre 112 within it; b. Strength member 116; c. Binding material 118; d. Jacket 120 having interior surface 124 and exterior surface 122. D3 discloses a buffer tube type optical fiber cable while the applicant claim 1 is directed towards ribbon/band type optical fiber cable.Thus in the absence of cylindrical enclosure in D2 and D3, the characteristics of the cylinder enclosure as disclosed in the present invention cannot be derived from the documents D2 and D3.
The cited documents D1-D3 in combination do not disclose at least following features of claim 1: one or more layers substantially concentric to the longitudinal axis (101) of the optical waveguide cable (100), wherein the one or more layers surround the one or more optical waveguide bands (102) and wherein each of the one or more layers being substantially along the longitudinal axis (101) of the optical waveguide cable (100). Therefore, the cited documents D1-D3 fail to disclose the foregoing technical features of the applicant's invention and address different technical problems, a person skilled in the art would not be motivated to combine the documents of D1-D3.

D4: The cited document D4 discloses that melt-mass of MDPE is 22g/10min. Whereas the applicant's claim 1 recites that melt-mass index of cylindrical enclosure is 0.7g/10min. Thus, the melt-mass index in D4 differs from claimed invention.
The applicant mainly contested that the cylindrical enclosure of IN'501 is made of MDPE (though not limited to it), and the cited document D4, which discloses melt index of MDPE as 22g/10 min clearly had a distinct melt index value as compared to the disclosure of IN'501 specification.

D5: The cited document D5 discloses, a measuring density but does not disclose anything about optical fibers.

D6: The cited document D6 discloses that melt-mass of MDPE is 22g/10min. Whereas the claim 1 recites that melt-mass index of cylindrical enclosure is 0.7g/10min. Thus, the melt-mass index in D6 is entirely different from claimed invention. Furthermore, D6 is a technical paper on MDPE and does not disclose anything about optical fiber having waveguides.

D7: The cited document D7 discloses that the melt-mass of MDPE is 0.200-21.0g/10min,

Whereas the claim 1 recites that melt-mass index of cylindrical enclosure is 0.7g/10min. The applicant mainly contested that melt-mass index of cylindrical enclosure is 0.7g/10min, while that of the cited document D7 is 0.200-21.0g/10min clearly showing the distinction in the variation of the melt mass index density. Furthermore, D7 does not disclose anything about optical fiber with waveguides and that cylindrical enclosure is made of MDPE.

D8 : The cited document D8 is a document of the applicant(Sterlite Technology) and the cited document D8 does not explain anything about density of cylindrical enclosure, melt-mass flow rate and kink radius of the cylindrical enclosure. Furthermore D8 does not disclose any features of applicant's claim 1.

D9: The cited document D9 relates to "the optical-fiber module includes one or more optical fibers surrounded by an intermediate layer. The intermediate layer typically includes a polymeric medium with a liquid lubricant dispersed therein. A buffer tube encloses the optical fibers and the intermediate layer. Document D9 discloses about the loose-tube type optical fiber and not ribbon/band type optical fiber.Furthermore, D9 fails to disclose the density, melt mass flow rate and kink radius of the cylindrical enclosure.

In view of the foregoing distinguishing features of the applicant's invention, the ground raised by the opponent u/s 25(1) (e) is dismissed.

Ground : Non-Patentability [3(f)]:

The opponent fails to provide any logical or valid reasoning and explanation as to how the claims of the present invention fall within the scope of Section 3(f). The opponent also fails to establish their allegations, as the opposition does not disclose or provide anything to prove that the claims of the present invention relate to mere arrangement or re-arrangement or duplication of known devices, and that each of these devices would function independently of one another in a known way . In the absence of valid reasoning to establish anything with regard to the above, the opponent's assertions are nothing more than baseless allegations. The applicant submits that the optical fiber in claim 1 is not a mere arrangement, rearrangement and combination of known devices as recited in claim 1 . In fact, there are no devices in claim 1, rather claim 1 recites a new waveguide cable. In view of the failure to provide concrete evidence to support the above ground and due to the lack of evidence, the ground of opposition u/s 3(f) is dismissed .

Ground : Insufficiency [25(1)(g)]:

The applicant has submitted a detailed explanation, particularly in paragraph 44 and 54 in response to the opponent's allegation of insufficiency . The specification clearly discloses the advantages of the invention and provides a detailed discussion of the characteristics of the optical fiber. A person skilled in the art would be able to perform the invention based on the specification, as the specification clearly discloses the invention. Considering the argument submitted by the applicant in response to the insufficiency ground raised by the opponent in the pregrant representation, the applicant has successfully provided a detailed disclosure in the description, along with the figures and has clearly described the invention as claimed in claims. Therefore the ground of the opposition u/s 3(g) is dismissed .

6. Considering the cited documents raised in the pregrant opposition by the opponent, and based on the foregoing discussion, none of the cited documents D1-D9 disclose the technical features recited in applicant Independent claim-1 such as ," An optical waveguide cable (100) defined by a longitudinal axis (101) passing through a geometrical center of the optical waveguide cable (100), the optical waveguide cable (100) comprising: one or more optical waveguide bands (102) positioned substantially along the longitudinal axis (101) of the optical waveguide cable (100), wherein each of the one or more optical waveguide bands (102) has a plurality of light transmission elements (103), wherein the plurality of light transmission elements (103) being made of silicon based glass; and one or more layers substantially concentric to the longitudinal axis (101) of the optical waveguide cable (100), wherein the one or more layers surround the one or more optical waveguide bands (102) and wherein each of the one or more layers being substantially along the longitudinal axis (101) of the optical waveguide cable (100), the one or more layers comprising: a cylindrical enclosure (106) positioned substantially along the longitudinal axis (101) of the optical waveguide cable (100), wherein the cylindrical enclosure (106) has density of at most 0.935 gram per cubic centimeter, wherein the cylindrical enclosure (106) has a melt mass-flow rate of 0.70 gram per 10 minutes and wherein the cylindrical enclosure (106) has a kink radius of 4D".

Dependent claims 2-11 define additional features of the invention, and are also novel and inventive over the cited prior arts D1-D9, at least in view of their dependency on claim 1.

7. In view of the submissions made by both the opponent and the applicant, and based on the foregoing discussion, it is clear that none of the opposition grounds under sections 25(1)(b), 25(1)(e), 25(1)(f) and 25(1)(g) h a v e b e e n proven by the opponent. Therefore, I hereby dismiss the pregrant opposition filed by the opponent against application No 201811005501 .

Date:07/03/2025.

(Santosh K.Mehtry)
Assistant Controller of Patent & Designs)

Section 15:

DECISION.

HEARING U/S 14:

The following objections are raised in the hearing notice:

Objections

Formal Requirement(s)

1. Information and undertaking regarding foreign applications is submitted u/r-12(3) and u/s8(2) of the Indian Patent Act .

Invention u/s 2(1)(j)

1. 1.Your observation regarding reply to FER is carefully considered, but the amended claims still lacking in inventive step in view of cited documents: 1)D1: US 9,170,388 2) D2: US 10,502,913 3) D3: US 9,411,114 4) D4: Copy of Technical Information sheet for DOW™ MDPE NG 7525 5)D5: Copy of ASTM D792 standard 6)D6: Copy of Technical Information sheet for DOW™ MDPE DPDA-3170 NT 7 7) D7: Copy of Properties of MDPE 8) D8: Copy of Product Datasheet of ITU-T G.652.D FiberSterlite®OH-LITE® Single Mode Optical Fiber 9) D9: US 8,571,369. Keeping brevity the detail paragraphs of the citation not reproduced here, however you can refer D1 page 3,line 5-25,page 4,line 40-50,page 11,line 40-60, page 15, line 25-40 and claims along with the detail citations of the opponent opposition document dated 27/05/2023 The applicant, however did not elaborate the difference of the technical features differs with the cited documents of D1-D9. The difference pointed out in the applicant statement and evidence may be found in the above paragraphs of the D1. A person skilled in art can easily combine the features of D1-D9 to achieve the features of amended claims 1-11. Hence amended claims 1-11 lacking in inventive step under section 2(1)(j) of The Patents Act, 1970. Further the applicant did not submit the argument sufficiently in respect of the grounds of opposition u/s 25(1)(b),25(1)(e),25(1)(f) and 25(1)(g) of the opponent opposition filed on 27/05/2023. 2. (i) A hearing adjournment request filed by the applicant, a fresh hearing rescheduled . On consideration of the statement and evidence filed by the applicant, the representation u/s 25(1) filed by the opponent(HFCL Ltd) dated 27/05/2023, (ii) A prima facie case is made out in the representation. A hearing u/s 25(1) is rescheduled on 20/12/2024 ,time 10Am to 1.30Pm. The applicant was filed statement and evidence in support of his application, with a copy to the opponent(as per Rule 55) and can be seen in the uploaded document. 3. If either party to the proceeding desires to be heard, he shall inform the Controller by a notice along with the fee as specified in the First Schedule, as per Rule 62(2) of the Patents Amendments Rules 2024.

Other Requirement(s)

1. A hearing u/s 14 of the Patents Act rescheduled on 20/12/2024 at 3 to 4 Pm.

ORDER:

Considering the arguments submitted in the written submission, the objection under section 2(1)(j) and other objections raised in the hearing notice are hereby waived. The cited documents D1-D9 either alone or in combination do not provide any hint or motivation to a person skilled in the art to arrive at the configuration or the technical effect achieved as presented in the claim1 of the present invention. Furthermore, none of the opposition grounds h a v e b e e n proven by the opponent.

Therefore, I hereby dismiss the pregrant opposition filed by the opponent against application No 201811005501 and proceed with the grant of the application u/s 15 with claims 1-11 filed along with FER reply on 25/11/2022.

Date:07/03/2025.

(Santosh K.Mehtry)
Assistant Controller of Patent & Designs)

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