WHAT IS CLAIMED IS:

1. A cable splice enclosure for branch splicing operation of a backbone cable, comprising:

at least one cable entry board;

at least one connection part configured on the cable entry board and having a fixing element configured to fix a mechanical waterproof component with the cable entry board to waterproof a connection between the backbone cable and an external side of the cable splice enclosure; and

at least one first hollow cylindrical tube formed on the connection part and configured to waterproof the connection between the backbone cable and the at least one first hollow cylindrical tube at the external side of the cable splice enclosure with one of a heat-shrink tube and a flexible shrinkable tube.

2. The cable splice enclosure as claimed in Claim 1, wherein the backbone cable has a first segment extending through the connection part to form a U-turn in the cable splice enclosure and a second segment extending through the connection part out of the cable splice enclosure.

3. The cable splice enclosure as claimed in Claim 2, further comprising at least one of a heat-shrink tube and a flexible shrinkable tube, each of which has one end waterproofing the connection part, and a second end waterproofing the first and the second segments at the external side of the cable splice enclosure.

4. The cable splice enclosure as claimed in Claim 3, further comprising at least one mechanical waterproof component configured on the connection part to form a first waterproof structure thereon and fixing the first and the second segments to form a second waterproof structure thereon.

5. The cable splice enclosure as claimed in Claim 4, wherein the first and the second segments have a fixing area, and the mechanical waterproof component comprises a pair of fixtures each of which has an inside portion, plural fixing screws for fixing the pair of fixtures, one of a waterproof glue having characteristics of adhesion and plasticity and an adhesive material to be disposed on the fixtures and the fixing area to form the second waterproof structure, and an elastic waterproof pad disposed on the connection part to form the first waterproof structure.

6. The cable splice enclosure as claimed in Claim 3, wherein the connection part and the first hollow cylindrical tube form a connection being waterproofed by the second end.

7. The cable splice enclosure as claimed in Claim 6, further comprising at least one branching clip urging the second end between the first and the second segments downward until the second end has a middle portion rested on a top of the first hollow cylindrical tube, wherein the heat-shrink tube wraps an exterior of the first hollow cylindrical tube after shrunk by heating and a part of the first and the second segments to form a third waterproof structure.

8. The cable splice enclosure as claimed in Claim 6, further comprising at least one waterproofing auxiliary device, which fixes the first and the second segments and cooperates with the flexible shrinkable tube and the first hollow tube having an external end to form a fourth waterproof structure, wherein the flexible shrinkable tube wraps an exterior of the first hollow cylindrical tube and the waterproofing auxiliary device protruding from the external end to form a fifth waterproof structure.

9. The cable splice enclosure as claimed in Claim 8, wherein the first and the second segments have a fixing area, the waterproofing auxiliary device comprises a pair of fixtures, each of which has an inside portion, plural fixing screws for fixing the pair of fixtures, and one of a waterproof glue having characteristics of adhesion and plasticity and an adhesive material to be disposed on the fixtures and the fixing area to fix the first and the second segments so as to form the fifth waterproof structure .

10. The cable splice enclosure as claimed in Claim 6, wherein the cable entry board has at least one second hollow cylindrical tube, through which the first and the second segments pass the optical fiber cable enclosure.

11. The cable splice enclosure as claimed in Claim 10, wherein the one of flexible shrinkable tube and the heat-shrink tube wraps an exterior of the second hollow cylindrical tube and a portion of the first and the second segments to form a sixth waterproof structure.

12. The cable splice enclosure as claimed in Claim 6, further comprising at least one first fixture device therein, wherein the backbone cable includes an optical fiber core wire forming the U-turn, and the at least one fixture device is one selected from a group consisting of a ring fastener, a band fastener, a clamp joint and a combination thereof, and fixes the optical fiber core wire thereon.

13. The cable splice enclosure as claimed in Claim 12, further comprising therein at least one brace having an optical fiber collection disk, wherein the

first hollow cylindrical tube is located on the connection part at a position without the possibility of causing the backbone cable being blocked and interfered by the optical fiber collection disk while the backbone cable passes the cable splice enclosure via the first hollow cylindrical tube along the axis thereof.

14. The cable splice enclosure as claimed in Claim 13, wherein the at least one cable entry board mounts thereon at least one second hollow cylindrical tube, and the second hollow cylindrical tube is located on the connection part at a position without the possibility of causing the backbone cable being blocked and interfered by the optical fiber collection disk while the backbone cable passes the cable splice enclosure via the second hollow cylindrical tube along the axis thereof.

15. The cable splice enclosure as claimed in Claim 14, further comprising therein at least one second fixture device for fixing the at least one brace, wherein the second fixture device matches with the at least one cable entry board to provide a first position for the backbone cable to pass the cable splice enclosure via the second hollow cylindrical tube along the axis thereof so as to fix the brace at a second position different from the first position.

16. The cable splice enclosure as claimed in Claim 15, wherein the cable splice enclosure comprises an exterior portion and at least one third fixture device, wherein the third fixture device has at least one first fixing part having two fixing holes and two screws, and at least one second fixing part configured thereon and including a fixing component being one selected from a group

consisting of a ring fastener, a band fastener, a clamp joint and a combination thereof, the first fixing part fixes the third fixing device via the two fixing holes and the two screws, the fixing component fixes the backbone cable on the exterior portion thereof, and the backbone cable extends through the first hollow cylindrical tube, has a waterproof treatment with the one of the flexible shrinkable tube and the heat-shrink tube, and is fixed to the third fixture device.

17. The cable splice enclosure as claimed in Claim 15, further comprising at least one third fixture device having at least one first fixing part fixed to the cable entry board, and at least one second fixing part, wherein the backbone cable going through the cable entry board and into the cable splice enclosure is fixed to the second fixing part by one being selected from a group consisting of a screw, a mortise, a clamp joint, a ring fastener, a band fastener and a combination thereof.

18. A cable entry board for a cable splice enclosure, comprising:

a connection part having a fixing element configured to fix a mechanical waterproof component with the cable entry board to waterproof a connection between a cable and an external side of the cable splice enclosure; and

~~a~~ at least one first hollow cylindrical tube formed on the connection part and configured to waterproof the connection between the cable and the at least one first hollow cylindrical tube at the external side of the cable splice enclosure.

19. A cable splicing method for splicing a cable in a cable splice enclosure, comprising:

providing a cable entry board on the cable splice enclosure;

configuring on the cable entry board a connection part having a fixing element;

forming a first hollow cylindrical tube on the connection part;

when a mechanical waterproof component is used in a first instance to waterproof a connection between the cable and an external side of the cable splice enclosure, removing the first hollow cylindrical tube and fixing the mechanical waterproof component with the cable entry board via the fixing element; and

when one of a heat-shrink tube and a flexible shrinkable tube is used in a second instance, using the one to waterproof the connection between the cable and the external side of the cable splice enclosure.

20. The cable splicing method as claimed in Claim 19, wherein the cable has a first segment and a second segment in the cable splice enclosure, further comprising steps of:

passing the first segment through the connection part to form a U-turn in the cable splice enclosure; and

passing the second segment through the connection part out of the cable splice enclosure.