CLAIMS

【Claim 1】

A cable installation device comprising:

a guide rail included in a power conduit;

a moving cart fastened with the guide rail to be moved along the guide rail;

a sling belt coupled to the moving cart to support a cable, and configured to be moved together with the moving cart; and

a driving part configured to move the moving cart along the guide rail, and

wherein the driving part transfers the cable by pulling out a connection wire connected to the cable to guide the moving cart to be moved along the guide rail, and

wherein the driving part comprises a winch configured to apply driving power to pull out the connection wire and a winding part configured to wind the pulled-out connection wire.

【Claim 2】

The cable installation device of claim 1, wherein the guide rail comprises an I-beam or an H-beam including an upper flange, a lower flange, and a wave connecting the upper and lower flanges.

【Claim 3】

The cable installation device of claim 2, further comprising:

a guide-rail fixing bracket configured to fix the upper flange;

a guide-rail support bracket coupled to a guide support arranged in the power conduit; and

a connection adjustment part arranged between the guide-rail fixing bracket and the guide-rail support bracket, and configured to adjust a distance between the guide-rail fixing bracket and the guide-rail support bracket.

【Claim 4】

The cable installation device of claim 3, wherein the connection adjustment part comprises a screw thread on an outer circumference surface thereof to be meshed with the guide-rail support bracket, and

the distance between the guide-rail fixing bracket and the guide-rail support bracket is adjusted by rotating the connection adjustment part.

【Claim 5】

The cable installation device of claim 2, wherein the moving cart comprises:

a body part supported by coupling the sling belt thereto below the lower flange;

a main roller coupled to the body part to be rotatable on the lower flange;

first auxiliary rollers coupled to the body part to be rotated in contact with a side surface of the lower flange; and

second auxiliary rollers coupled to the body part to be rotated in contact with a lower surface of the lower flange,

wherein when the connection wire is pulled out by the driving part, the main roller is rotated on the lower flange to move the moving cart along the guide rail.

【Claim 6】

The cable installation device of claim 5, wherein the first auxiliary rollers are arranged to correspond to opposite side surfaces of the lower flange, and prevent the moving cart from deviating to a left or right side of the guide rail when the moving cart is moved along the guide rail.

【Claim 7】

The cable installation device of claim 5, wherein the second

auxiliary rollers are arranged between the lower surface of the lower flange and the body part, and configured to prevent the body part from being raised and bumped against the lower flange.

【Claim 8】

A method of installing a cable in a power conduit using the cable installation device of any one of claims 1 to 7, the method comprising:

installing the cable installation device in the power conduit; and

transferring a cable using the cable installation device,

wherein the cable installation device comprises:

a moving cart configured to be moved inside the power conduit to transfer the cable; and

a driving part configured to move the moving cart.

【Claim 9】

The method of claim 8, wherein the installing of the cable installation device comprises:

installing a rail fixing part at a guide support formed at a side of the power conduit;

installing a guide rail on the rail fixing part; and

installing a moving cart to be movable along the guide rail, the moving cart configured to move the cable.

【Claim 10】

The method of claim 8, wherein the cable installation device further comprises a support belt coupled to the moving cart to support the cable and configured to be moved together with the moving cart, and

the transferring of the cable comprises:

supporting the cable by placing the cable on the support belt; and

transferring the cable by pulling out a connection wire

connected to the cable by the driving part to move the moving cart along the guide rail.

【Claim 11】

The method of any one of claims 8 to 10, wherein the driving part comprises:

a winch configured to provide driving power to pull out the connection wire; and

a winding part configured to wind the connection wire, and

the transferring of the cable comprises transferring the cable by pulling out the connection wire using only a turning force applied by the winch and winding the connection wire around the winding part by controlling a speed of rotation of the winding part.

【Claim 12】

The method of claim 9, wherein the guide rail comprises an I-beam or an H-beam including an upper flange, a lower flange, and a wave connecting the upper flange and the lower flange.

【Claim 13】

The method of claim 12, wherein the rail fixing part comprises:

a guide-rail fixing bracket configured to fix the upper flange;

a guide-rail support bracket coupled to a guide support arranged in the power conduit; and

a connection adjustment part arranged between the guide-rail fixing bracket and the guide-rail support bracket, and configured to adjust a distance between the guide-rail fixing bracket and the guide-rail support bracket, and

the installing of the cable installation device further comprises adjusting the distance between the guide-rail fixing bracket and the guide-rail support bracket using the connection adjustment part.

【Claim 14】

The method of claim 13, wherein the connection adjustment part comprises a screw thread on an outer circumference surface to be meshed with the guide-rail support bracket, and

the distance between the guide-rail fixing bracket and the guide-rail support bracket is adjusted by rotating the connection adjustment part.

【Claim 15】

The method of claim 12, wherein the moving cart comprises:

a body part being supported by coupling the sling belt thereto below the lower flange;

a main roller coupled to the body part to be rotatable on the lower flange;

first auxiliary rollers coupled to the body part to be rotated in contact with a side surface of the lower flange; and

second auxiliary rollers coupled to the body part to be rotated in contact with a lower surface of the lower flange, and

when the connection wire is pulled by the driving part, the main roller is rotated on the lower flange to move the moving cart along the guide rail.

【Claim 16】

The method of claim 15, wherein the first auxiliary rollers are arranged to correspond to opposite side surfaces of the lower flange, and prevent the moving cart from deviating to a left or right side of the guide rail when the moving cart is moved along the guide rail.

【Claim 17】

The method of claim 15, wherein the second auxiliary rollers are arranged between a lower surface of the lower flange and the body part to prevent the body part from being raised and bumped against the lower flange.

【Claim 18】

The method of claim 10, wherein the supporting of the cable comprises monitoring a moving distance of the moving cart and placing the cable on the support belt.

【Claim 19】

The method of claim 10, wherein the guide support comprises at least one hanger configured to place the transferred cable thereon,

the guide rail is formed on the guide support to be spaced a certain distance apart from the hanger in a direction roughly perpendicular to the hanger, and

the cable transferred by moving the moving cart along the guide rail is separated from the support belt and placed on the hanger.