Trial decision

Invalidation No. 2015-800093

Osaka, Japan
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The case of trial regarding the invalidation of Japanese Patent No. 5465733, qentitled "Cable grip," between the parties above has resulted in the following trial decision.

Conclusion

The demand for trial of the case was groundless.

The costs in connection with the trial shall be borne by the demandant.

Reason

No. 1 History of the procedures

The history of the procedures on the application for the invention relating to Japanese Patent No. 5465733 is as follows.

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|---|---|
| January 15, 2010 | application for utility model registration (Utility model registration No.3163196) |
| January 24, 2012 | conversion to patent application (Japanese Patent Application No. 2012-12175) |
| January 31, 2014 | establishment of the patent right |
| received on March 31, 2015 | demand for the invalidation trial |
| received on July 7, 2015 | written reply for the trial case |
| as of September 16, 2015 | notification of trial examination |
| received on October 26, 2015 | oral proceedings statement brief (demandee) |
| received on October 29, 2015 | oral proceedings statement brief (demandant) |
| received on October 29, 2015 | written refutation (demandant) |
| received on October 29, 2015 | written statement (demandant) |
| November 10, 2015 | oral proceedings |
| received on November 16, 2015 | written statement (demandant) |

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| received on December 21, 2015 | written statement (demandant) |
| as of February 25, 2016 | notice of conclusion of proceedings |

Although the demandee was requested to appear for the oral proceedings, no one appeared.

The demandant, Nagaki Seiki Co., Ltd., demanded a trial for invalidation (Invalidation No. 2011-400009) for Utility model registration No. 3163196, on November 30, 2011. However, the decision, "The demand for trial of the case was groundless" was made (Evidence B No. 1), and the decision became final and binding on July 24, 2012.

No. 2 The patent invention

The invention (hereinafter referred to as "the Patent invention") relating to Claim 1 of the patent of the case is recognized as follows as described in Claim 1 of the scope of claims.

"[Claim 1]
A cable grip which is configured to grip a cable by loading tensile force to a ring part of a long lever and using the principle of leverage, while twisting the ring part provided at a rear end of the long lever at an angle of 15 to 45 degrees with respect to a plane including the long lever and the cable"

No. 3 The demandant's allegation

The demandant requested the trial decision, "The patent for the invention according to Claim 1 in the scope of claims of Patent No. 5465733 shall be invalidated. The costs in connection with the trial shall be borne by the demandee". Reasons for invalidation alleged by the demandant, means of proof, and the outline of the allegation relating to the reasons for invalidation are as follows.

1 Reasons for invalidation

(1) Reasons for invalidation 1

The patent invention relating to Claim 1 of the case could have been easily invented by a person skilled in the art before the application for utility model registration on which the patent of the case is based, on the basis of the invention described in Evidence A No. 1 and well-known arts described in Evidences A No. 2 to No. 4. Therefore, a patent should not be granted for the invention in accordance with the provisions of Article 29(2) of the Patent Act. The patent falls under Article 123(1)(ii) and should be invalidated.

(2) Reasons for invalidation 2

The detailed description of the invention in the specification attached to the application is not clear and sufficient enough to enable a person ordinarily skilled in the art of a technical field of the invention to carry out the invention, in accordance with the Ordinance of the Ministry of Economy, Trade and Industry. The description does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act, and falls under Article 123(1)(iv). The patent should be invalidated.

2 Means of proof

(1) Evidences submitted with the written demand for trial

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|---|---|
| Evidence A No. 1 | U. S. Patent Publication No. 1942625 and translation |
| Evidence A No. 2 | Japanese Unexamined Patent Application Publication No. 2002-199568 |
| Evidence A No. 3 | Japanese Unexamined Patent Application Publication No. 2010-226872 |
| Evidence A No. 4 | Japanese Unexamined Patent Application Publication No. 2000-245024 |

(2) Evidences submitted together with the oral proceedings statement brief

| | |
|---|---|
| Evidence A No. 5-1 | U. S. Patent Publication No. 3599297 and translation |
| Evidence A No. 5-2 | pictorial illustration for drawings of U. S. Patent Publication No. 3599297 |
| Evidence A No. 6 | Japanese Unexamined Patent Application Publication No. H10-255547 |
| Evidence A No. 7 | Japanese Patent Publication No. S42-10075 |
| Evidence A No. 8-1 | Japanese Unexamined Utility Model Application Publication No. S54-102800 |
| Evidence A No. 8-2 | microfilm of Japanese Utility Model Application No. S52-176706 |
| Evidence A No. 9 | Japanese Unexamined Patent Application Publication No. 2005-89084 |
| Evidence A No. 10 | Japanese Unexamined Patent Application Publication No. 2000-288952 |
| Evidence A No. 11 | Japanese Unexamined Patent Application Publication No. 2003-181539 |
| Evidence A No. 12 | Japanese Unexamined Patent Application Publication No. 2008-48488 |
| Evidence A No. 13 | Japanese Unexamined Patent Application Publication No. 2005-205492 |
| Evidence A No. 14 | Japanese Unexamined Patent Application Publication No. H10-146619 |

3 Outline of the demandant's allegation relating to the reasons for invalidation

(1) Regarding Reasons for invalidation 1

A Outline of the demandant's allegation in the written demand for trial

The Patent invention is configured to draw a center of the ring part closer to a center of the cable so as to prevent an upper section of the ring part from interfering with the cable by twisting the ring part provided at a rear end of the long lever at an angle of 15 to 45 degrees with respect to a plane including the long lever and the cable, while the invention described in Evidence A No. 1 is configured to draw the center of an eye 37 corresponding to the ring part closer to the center of the cable so as to prevent an upper section of the eye 37 corresponding to the ring part from interfering with the cable by adjusting curvature of a handle 32 corresponding to the "long lever" of the Patent invention and a pivotal connection 33. They are different from each other in the

above points.

Evidence A No. 1 belongs to the same field as the Patent invention, and is configured to prevent a wire from being bent or twisted, by adjusting curvature of the handle 32 and the pivotal connection when a pulling load is applied to the eye 37 for stretching the wire 38, so that it obviously exerts the same function and effect as the Patent invention.

According to the description in Evidence A No. 1, "The axis (center line) of the wire 38 in its clamped position is thus disposed in a direction toward the eye 37. Therefore, the wire will not be bent or kinked when a pulling load is applied to the eye 37 for stretching the wire, and the pulling action will always be substantially axially of the wire", it can be said that Evidence A No. 1 indicates the problem to be solved by the Patent invention, "to eliminate bending tendency, damage, and the like, to be caused on the surface of the cable, due to bending of the cable".

In the inventions of Evidences A No. 2 to No. 4 belonging to the same field as the Patent invention, "twisting" a metal plate body is well-known as described in Evidences A No. 2 and No. 3, and "bending" the metal plate body is well-known as described in Evidence A No. 4.

Even when the ring part provided at a rear end of the long lever of the Patent invention is twisted at an angle of 15 to 45 degrees in its operation direction, the effect of preventing the damage to the surface of the cable can hardly be obtained in some embodiments, and it cannot be recognized as an effect of the Patent invention.

By applying the well-known arts to technical idea of Evidence A No. 1, a person ordinarily skilled in the art of a technical field of the invention would have easily conceived a configuration of drawing the center of the ring part closer to the center of the cable so as to prevent an upper section of the ring part from interfering with the cable by twisting the ring part 2 of the long lever of the cable grip at an angle of 15 to 45 degrees.

Thus, a person skilled in the art would have easily obtained a configuration of the Patent invention relating to different features, by applying the well-known arts to Evidence A No. 1 invention.
(written demand for trial p.3 l.26-p.10 l.2)

B Outline of the demandant's allegation in the oral proceedings statement brief
(A) Regarding twisting the handle in Evidence A No. 1

Regarding the cable grip, a person skilled in the art knows from experience that bending tendency, damage, and the like, to be caused on the surface of the cable due to bending of the cable can be prevented by drawing the ring part closer to the cable, as is clear from Evidences A No. 1 and No. 7-9, and therefore the necessity of preventing contact (interference) between the ring part and the cable could be a well-known technical problem.

In order to solve the problem, in Evidence A No. 1, the contact (interference) with the cable is prevented by "bending" or "curving" the cable. In Evidences A No. 5 and No. 6, the center of the ring is drawn closer to the center of the cable, while preventing the upper section of the ring part from interfering with the cable. The "twisting" technique is recognized as a well-known art or technical common sense heavily used generally.

As technical means of solving the problem, it is only an alteration of design to

prevent the contact (interference) between the ring part and the cable by "bending" or "curving" the cable, or by "twisting" the cable as described in the Patent invention.
(oral proceedings statement brief p.2. l.17-p.3 l.32)

(B) Regarding application of Evidences A No. 1 to No. 4

In order to solve the problem of the invention, the application to technical means of a related technical field is for a person skilled in the art to exert ordinary creativity. The technical field of Evidence A No. 1 is the same as those of Evidences A No. 2 and No. 3.

The technical problems of the Patent invention are technical problems well-known by a person engaging in wiring construction, and are solved in the inventions described in Evidences A No. 1, No. 5, No. 7, No. 8-1, No. 8-2, and No. 9. Evidences A No. 5 and No. 6 describe that the center of the ring part of the long lever is drawn close to the center of the cable so as to prevent an upper section of the ring part from interfering with the cable.

Evidences A No. 10-No. 14 describe a technology of reaching an article from one aspect to another aspect without causing interference with the article.

To "twist" a part of a member of a technical field relating to a person skilled in the art is well-known technical means. To apply the "twisting" technical means to the cable grip is natural, and is recognized as ordinary exertion of creativity of a person skilled in the art. There is motivation to employ well-known technology of "twisting" described in Evidences A No. 2 and No. 3 in order to eliminate bending tendency, damage, and the like to be caused on the surface of the cable due to bending of the cable in the invention of Evidence A No. 1, accordingly.
(oral proceedings statement brief p.3 l.33-p.10 l.16)

(2) Regarding Reasons for invalidation 2

A Outline of the demandant's allegation in written demand for trial

The Patent invention is configured to "twist the ring part at an angle of 15-45 degrees with respect to a plane including the long lever 1 and the cable 3". However, it is not clear what corresponds to the "plane including the long lever 1 and the cable 3", and for what the ring is twisted at an angle of 15-45 degrees. The cable 3 seems to have no plane, while the Patent invention is configured to twist the ring at an angle of 15-45 degrees with respect to the plane of the cable 3. The presence of the plane is unclear.

Thus, technical means corresponding to the matters specifying the invention in Claims is only described abstractly and functionally in the detailed description of the invention, while a configuration or a method for embodiment is unclear and cannot be understood by a person skilled in the art on the basis of the technical common sense upon filing the application, thereby requiring excessive trial and error or experiment, or resulting in impossibility of implementing the invention relating to Claims. The specification of the patent does not describe the matters necessary for a person ordinarily skilled in the art of a technical field of the invention of the problem to be solved by the invention and solution thereof to understand the technical significance of the invention.
(written demand for trial p.10 l.3-p.11 l.7)

B Outline of the demandant's allegation in oral proceedings statement brief

The description in the matters specifying the invention of the Patent invention, "twisting the ring part at an angle of 15-45 degrees with respect to a plane including the long lever and the cable" is described only in the "solution for the problem" in the specification, and the description of symbols includes only the description, "twisted position", while the drawings are not based on trigonometry. A connection state of the cam, the triangle lever, and the long lever is not clear from the drawings. A shape of each of components cannot be grasped from the non-trigonometric drawings. The invention cannot be implemented.

What the plane of the "long lever" in the matters specifying the invention indicates is unclear, and what the "plane of the cross-sectional circular cable" indicates is unclear.

(oral proceeding statement brief p.10 l.17-p.11 l.7)

No. 4 The demandee's allegation

The demandee requested the trial decision, "The demand for trial of the case was groundless. The costs in connection with the trial shall be borne by the demandant". The outline of the allegation and means of proof are as follows.

1 Outline of the demandee's allegation relating to the reasons for invalidation 1

(1) Outline of the demandee's allegation in the written reply

Evidence A No. 1 is different in that the invention is formed not by twisting the ring part of the long lever, but by applying parallel step-like bending on the side opposite the ring part of the long lever, and that a distance between the center of the ring part with the parallel steps and the center of the cable is longer than the twisted ring part, thereby increasing a bending moment to be applied to the cable. Evidences A No. 2- No. 4 are formed by twisting a soft-steel thin plate member, which is not the cable grip of the Patent invention, at 90 degrees for connecting to another member, and are different from a hard-steel forged product twisted for a cable grip configured not to twist the cable.

The cable grip of the Patent invention is not one kind of cable grip that is adapted to all sizes of cables, but it is configured to twist the ring part at a smaller angle for a cable of a thin wire diameter, or at a larger angle for a cable of an extra-thick wire diameter, so that a designer may freely decide an optimal angle in its angle range, depending on a grip range requested from the market.

If the Patent invention could be easily conceived by a person skilled in the art on the basis of Evidences A No. 1 to No. 4, a product corresponding to the Patent invention would have existed for about 76 years from the date of invention of Evidence A No. 1, January 9, 1934, to the date of original application for the Patent invention, January 15, 2010.

(written reply for the trial case "5. Reasons (1)-(3), (5)")

(2) Outline of the demandee's allegation in oral proceedings statement brief

The cable grip should have three major features, robust, durable, and compact and lightweight. The features cannot be satisfied by a general soft steel material to be used for cable hardware of Evidences A No. 2-No. 4.

(oral proceedings statement brief "4. Statement brief (1)")

2 Outline of the demandee's allegation relating to the reasons for invalidation 2
(1) Outline of the demandee's allegation in the written reply

A person skilled in the art who has knowledge in ordinary metal forging could easily implement the invention, on the basis of the twisting position and twisting direction described in the Patent invention and the commercial products of the Patent invention, as described in Evidence B No. 3.
(written reply for the trial case "5. Reasons (4)")

(2) Outline of the demandee's allegation in oral proceedings statement brief

In FIGs. 1 (a) and (b) of the specification of the patent,

- the twisting position (4) is specified,
- the ring part (2) is twisted toward the rear of the cable (3),
- the sectional view of A-A' line also specifies the twisting direction.

Therefore, the Patent invention is described clearly and sufficiently in the specification of the patent.
(oral proceedings statement brief "4. Statement brief (2)")

3 Means of proof

The evidences submitted by the demandee are as follows:

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|---|---|
| Evidence B No. 1 | trial decision of invalidation No. 2011-400009 |
| Evidence B No. 2 | relationship diagram for the twisting angle of the ring part and cable external diameter |
| Evidence B No. 3 | a picture of a small-diameter cable and a large-diameter cable in the grip range, which are gripped by the same cable grip and held close to the center of the ring part, and a picture showing an effect of eliminating bending of the cable in the invention by comparing the effect between the invention and an existing product under tension |

No. 5 Judgment by the body

1 Regarding Reasons for invalidation 1
(1) The Patent invention

The patent invention is as recognized in "No. 2 The Patent invention", and is shown again as follows.

"[Claim 1]
A cable grip which is configured to grip a cable by loading tensile force to a ring part of a long lever and using the principle of leverage, while twisting the ring part provided at a rear end of the long lever at an angle of 15 to 45 degrees with respect to a plane including the long lever and the cable"

(2) Invention described in Evidence A No. 1

Evidence A No. 1 describes the following matters on "WIRE GRIP" (title of the invention), together with FIG. 1-FIG. 4.

(A1a) "One object of the invention is to provide an improved serviceable and efficient

wire grip adapted to be employed in gripping and stretching or otherwise handling wires of various sizes.

Another object of the invention is to provide a wire grip in which a material length of the wire to be gripped is engaged, thereby preventing binding or kinking of the 'wire at or about the location of its gripping surface and without injury to, or mutilation of, wires of the insulated type.

Another object of the invention is to provide a wire grip which is light and simple in construction, thus facilitating its manual operation in conjunction with wires above the ground, and which is further advantageous because it will not catch or lock upon wires when it is being removed therefrom." (p.1 left column l.6-l.23)

(A1b) "One form of wire grip 10 embodying the invention comprising a housing or frame 11 having a body portion 12 and an arm 15 forming with the body a substantially U-shaped configuration. Adjacent the junction of the body 12 and the arm 15, a laterally extending oblong jaw 16 is integrally formed and is provided with a grooved face 17 which can be of any desired cross sectional form, such as arcuate or V-shaped.

A bell crank 18 formed with a shorter arm 20 and a longer arm 21 is pivoted upon a fulcrum pin 22 that is rigidly carried adjacent the outer extremity of the body 12 opposite the face of the jaw 16, and the shorter arm 20 has a bifurcated portion 23 for receiving an oblong jaw 25 that is pivotally carried upon a pin 26 secured in the bifurcated portion of the arm. In order to insure efficient gripping action between the jaws 16 and 25, a plurality of transverse grooves 27 are formed in the face of the jaw 25 which also is grooved longitudinally, as indicated at 28, to provide the desired arcuate, V-shaped, or other desired cross sectional contour. One end portion of the pivoted jaw 25 is provided with a lug 29 extending integrally at an angle therefrom. The grooved portions 17 and 28 are arranged in opposed relation and are movable toward and away from each other by pivoting the bell crank." (p.1 left column l.31-right column l.3)

(A1c) The outer end of the longer arm 21 has a bifurcated portion 30 for receiving the end of a curved link or handle 32 that is pivotally mounted upon a pin 33 carried in the bifurcated portion 30. A bracket 35 is formed integrally or rigidly upon the side of the arm 15 adjacent its outer end to provide a guide 36 for receiving and guiding the shank of the handle 32. One end of the handle 32 extending outwardly from the arm 15 is provided with an eye 37 formed therein and adapted to receive a tool, or other mechanical element, or it can be grasped directly by an operator to manipulate the grip.

By moving the handle 32 inwardly to pivot the bell crank 18 in a clockwise direction, as viewed in Fig. 1, the lug 29 contacts the surface of the handle and is stopped. In striking the handle 32 the lug functions automatically to dispose the grooved face of the jaw 25 substantially parallel to the face of the jaw 16. This arrangement facilitates the insertion of a wire 38 between the jaws. As soon as the pivoted jaw 25 moves toward the jaw 19 and against the wire by drawing the handle 32 outwardly to turn the bell crank in a counter-clockwise direction, the wire is firmly gripped and the pulling force upon the wire through the handle may be applied to any degree without danger of the wire slipping from between the jaws. This action is insured because the ratio between the bell crank arms 21 and 20 is approximately two to one.

The relationship of the short arm 20 of the bell crank, together with the jaw 25, to the clamping face 17 of the jaw 16 is such that the jaw 25 contacts the jaw 16, when

the bell crank is turned in a counter-clockwise direction, at a position in which the pin 26 is outside a line drawn from the axis of the pin 22 at right angles to the face of the jaw 16.

In designing the wire grip described, particular attention has been directed to the desirability of arranging the structural elements in such a manner that the section of the handle 32 including the eye 37 shall remain disposed substantially in alignment with the working face of the movable jaw 25, even while the grip is being adjusted and operated. The curvature of the handle 32 and the arc of movement of its pivotal connection 33, together with the shape and location of the guide 36, are so coordinated as to produce this result. The axis of the wire 38 in its clamped position is thus disposed in a direction toward the eye 37, although there is ample space to accommodate the wire without distorting it, as a result of the offsetting, as indicated at 39, of the arm 15 between the bracket 35 and the jaw 16. Therefore, the wire will not be bent or kinked when a pulling load is applied to the eye 37 for stretching the wire, and the pulling action will always be substantially axially of the wire." (p.1 right column l.4-p.2 left column l.10)

(A1d) FIG. 1 and FIG. 3 describe a configuration of the handle 32 having a step-like bent part formed between the pin 33 and the bracket 35.

The description in Evidence A No. 1 is examined.

A Regarding a function and effect of the wire grip 10

The above (A1a) describes that "Another object of the invention is to provide a wire grip... (snip) ... preventing binding or kinking of the wire at or about the location of its gripping surface and without injury to, or mutilation of, wires of the insulated type". The above (A1c) describes that "In designing the wire grip described, particular attention has been directed to ... (snip) ... The curvature of the handle 32 and the arc of movement of its pivotal connection 33, together with the shape and location of the guide 36, are so coordinated ... (snip) ... Therefore, the wire will not be bent or kinked when a pulling load is applied to the eye 37 for stretching the wire, and the pulling action will always be substantially axially of the wire".

Therefore, it can be recognized that Evidence A No. 1 describes, as a function and effect of the wire grip 10, "a wire grip configured so that the curvature of the handle 32 and the arc of movement of its pivotal connection 33, together with the shape and location of the guide 36, are so coordinated when a pulling load is applied to the eye 37, to allow the pulling action to always be substantially axially of the wire, while preventing binding or kinking of the wire at or about the location of its gripping surface and without injury to, or mutilation of, wires of the insulated type".

B Regarding the configuration of the wire grip 10

The above (A1b) describes that "One form of wire grip 10 embodying the invention comprises a housing or frame 11 having a body portion 12 and an arm 15 forming with the body a substantially U-shaped configuration", "Adjacent the junction of the body 12 and arm 15 a laterally extending oblong jaw 16 is integrally formed", and "A bell crank 18 formed with a shorter arm 20 and a longer arm 21 is pivoted upon a fulcrum pin 22 that is rigidly carried adjacent the outer extremity of the body 12 opposite the face of the jaw 16, and the shorter arm 20 has a bifurcated portion 23 for

receiving an oblong jaw 25 that is pivotally carried upon a pin 26 secured in the bifurcated portion of the arm".

The above (A1c) describes that "The outer end of the longer arm 21 has ... (snip) ... handle 32 that is pivotally mounted upon a pin 33", "A bracket 35 is formed integrally or rigidly upon the side of the arm 15 adjacent its outer end to provide a guide 36 for receiving and guiding the shank of the handle 32", and "One end of the handle 32 extending outwardly ... (snip) ... is provided with an eye 37".

The above (A1d) describes that FIG. 1 and FIG. 3 describe a configuration of the handle 32 having a step-like bent part formed between the pin 33 and the bracket 35.

Therefore, Evidence A No. 1 describes, as a configuration of the wire grip 10, that "the wire grip 10 includes a frame 11 having a body 12 and an arm 15, a jaw 16 is formed adjacent the junction of the body 12 and the arm 15, a bell crank 18 formed with a shorter arm 20 and a longer arm 21 is pivoted upon a fulcrum pin 22 on the body 12, the shorter arm 20 receives a jaw 25 that is pivotally carried upon a pin 26, the longer arm 21 has a handle 32 that is pivotally mounted upon a pin 33, a bracket 35 with a guide 36 for receiving and guiding the shank of the handle 32 is formed upon the side of the arm 15 adjacent its outer end, the handle 32 having a step-like bent part formed between the pin 33 and the bracket 35, and one end of the handle 32 extending outwardly is provided with an eye 37".

C Regarding gripping a wire with the wire grip 10

The above (A1c) describes that "as soon as the pivoted jaw 25 moves toward the jaw 16 and against the wire 38 by drawing the handle 32 outwardly to turn the bell crank in a counter-clockwise direction, the wire is firmly gripped".

According to A to C, Evidence A No. 1 describes the following invention (hereinafter referred to as "Evidence A No. 1 invention").

"The wire grip includes: a frame 11 having a body 12 and an arm 15; a jaw 16 formed adjacent the junction of the body 12 and the arm 15; a bell crank 18 formed with a shorter arm 20 and a longer arm 21, and pivoted upon a fulcrum pin 22 on the body 12; the shorter arm 20 receiving a jaw 25 that is pivotally carried upon a pin 26; the longer arm 21 having a handle 32 that is pivotally mounted upon a pin 33; a bracket 35 with a guide 36 for receiving and guiding the shank of the handle 32, formed upon the side of the arm 15 adjacent its outer end; the handle 32 having a step-like bent part formed between the pin 33 and the bracket 35; and one end of the handle 32 extending outwardly and provided with an eye 37;

as soon as the pivoted jaw 25 moves toward the jaw 16 and against the wire 38 by drawing the handle 32 outwardly to turn the bell crank in a counter-clockwise direction, the wire 38 is firmly gripped;

the step-like curvature of the handle 32 and the arc of movement of its pivotal connection, together with the shape and location of the guide 36, are so coordinated when a pulling load is applied to the eye 37, to allow the pulling action to always be substantially axially of the wire 38, while preventing binding or kinking of the wire 38 at or about the location of its gripping surface and without injury to, or mutilation of, wires 38 of the insulated type."

(3) Matters described in Evidences A No.2-No. 14

A Matters described in Evidence A No.2

Evidence A No. 2 describes the following matters.

(A2a) "[0012] A base end of a twisted strap 29 is pivotally connected to a tip of a cross arm 28 with a pin 30. One high tension insulator 23 of two high tension insulators 23, 23 pivotally fixed to each other in series with a pin 31 is pivotally connected to a tip of the twisted strap 29 with a pin 32. A cable support guide 22 is pivotally connected to a tip of the other high tension insulator 23 with a pin 33."

(A2b) FIG. 1 illustrates the "twisted strap 29" configured by twisting a plate-like member.

According to the above (A2a) and (A2c), Evidence A No. 2 describes that the twisted strap 29 for connecting the high tension insulator 23 to the cross arm 28 is formed by twisting a plate-like member.

B Matters described in Evidence A No. 3

Evidence A No. 3 describes the following matters.

(A3a) "[0004]

FIG. 8 is a perspective view showing one example of an existing high-tension insulator support structure as described above. A twisted strap 31 is fixed to a cross arm CA fixedly attached to an electric pole EP. The twisted strap 31 includes two planar arms 32 with one end fixed to the cross arm CA. Free ends FE of the arms 32, which are not fixed to the cross arm CA, are twisted to connect to each other. The high-tension insulator 21 includes a cap fixture 22 arranged at its tip. The cap fixture 22 is formed in a conical shape, and has a split tip with a slit 23. The high-tension insulator 21 is configured so that the free end FE of the twisted strap 31 for connecting the two arms 32 enters the slit 23 of the cap fixture 22, and a connection pin 24 penetrates through them, to be connected to the twisted strap 31 in a freely rotatable manner. The high-tension insulator 21 includes a pin 26 with a hole 25 formed at the rear end. An anchor clamp for holding an above-mentioned tense high-tension cable or another high-tension insulator 21 is attached to the pin 26."

(A3b) FIG. 8 illustrates the "twisted strap 31" configured by twisting planar arms
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According to the above (A3a) and (A3b), Evidence A No. 3 describes that the twisted strap 31 for connecting the high tension insulator 21 to the cross arm CA is formed by twisting the planar arms 32.

C Matters described in Evidence A No. 4

Evidence A No. 4 describes the following matters.

(A4a) "[0016] FIG. 4 illustrates an anti-stretch insulator 24 and an anchor clamp 25 for

distributing and anchoring a cable. The anti-stretch insulator 24 is formed by connecting a pair of insulators, aligning a cap fixture 24a of the insulator to a hole 10 of a strap connected with a pin 36, and connecting a hole of the anchor clamp to a hole 24d at the other end of the insulator with a pin 37. The anchor clamp 25 includes the hole formed at one end to connect to the insulator 24, a bare wire holding section 26 formed at the other end to hold a bare part of the cable, a wedge 27 of the holding section 26, a bolt 28 for fastening the wedge, and a hole 25b for connecting a cable connector 50. The anti-stretch insulator 24 and the anchor clamp 25 are connected to each other in advance on the ground, and are covered with a detachable insulator-protecting net cover made of synthetic resin (not shown) around them.
[0017] In FIG. 5, 30 is a cable connector for connecting the anchor clamp and the cable, configured to expand or contract a telescopic bar 31 in an axial direction by turning an adjustment bolt or an adjustment screw of adjustment means. A hook 32 is arranged at one end of the cable connector, to be hooked on the hole formed at the end of the clamp. A wire grip 33 is arranged at the tip of the telescopic bar 31 to hold the cable fitted therein. The cable connector tenses the cable, the anti-stretch insulator, and the anchor clamp by hitching the hook 32 formed at one end in the hole of the anchor clamp, and holding the cable with a holding fixture 34 of the wire grip 33 formed at the other end, to turn the adjustment means of the cable connector 30 to expand or contract the telescopic bar."

(A4b) "[0025] FIG. 9 and FIG. 10 illustrate a step of forming a bare part in a passing wire, and a step of holding and joining the bare part to the anchor clamp. The cable connector 30 is fixed to a tip of an insulation operation bar. The hook 32 formed at one end is hitched in the hole 25b formed at the tip of the anchor clamp, to hook the cable connector on the cable through the wire grip 33 formed at the tip of the telescopic bar 31. The passing wire is peeled by a peeler by a predetermined length at a predetermined position, to form the bare part F (See FIG. 4 and FIG. 5)."

(A4c) FIG. 4 illustrates the anchor clamp 25 configured by bending a planar body. FIG. 9 illustrates the anchor clamp 25 which connects the cable connector 30 to the anti-stretch insulator 24.

(A4d) FIG. 5 illustrates a configuration showing that a lever-like part of the wire grip 33 is connected to the tip of the telescopic bar 31 of the cable connector 30.

According to (A4a) to (A4d), Evidence A No. 4 describes that the anchor clamp 25 for connecting the cable connector 30 to the anti-stretch insulator 24 is configured by bending a planer body and that the non-twisted lever-like part of the wire grip 33 is connected to the tip of the telescopic bar 31 of the cable connector 30.

D Matters described in Evidence A No. 5

Evidence A No. 5 describes the following matters.

(A5a) "Now referring more particularly to the drawings, a wire grip generally designated as 1 is shown as comprising a body portion 10 from one end of which extends an arm 12 formed with a guide opening 14. Formed as an integral part of the

body 10 at the upper portion thereof is a laterally projecting, stationary, longitudinally extending jaw member 16. As best seen in FIG. 2, jaw 16 is provided with a longitudinally grooved face 18, which may be V-shaped or arcuate.

A bellcrank lever 20 is pivotally mounted on a fulcrum pin 22 and has a pair of angularly disposed, integral arms 24 and 26. Fulcrum pin 22 is in turn nonrotatably fixed to a lower depending portion of body portion 10. Arm 24 has a bifurcated portion 28, which receives an apertured flange 30 forming a downward extension of a second jaw member 32. The flange 30 is pivotally connected to bifurcated the portion 28 by means of a pin 34.

Again referring to FIG. 2, jaw member 32 is shown as being provided with a longitudinally grooved face 36, which is a mirror image of the face of jaw 16. As desired, the faces of jaws 16, 32 may be provided with transversely extending grooves or the like, not shown, in order to obtain a positive grip on a wire 38 to be clampingly engaged by the jaws.

The arm 26 is pivotally connected at its lower or free end with a link or handle 40 by means of laterally projecting, headed pin 42. As will be apparent from viewing FIGS. 1 and 3, a link 40 is slidably received within guide opening 14 for movement between jaw-opening and jaw-closing positions, respectively. Suitable means, such as a coil spring 44 carried on the pin 42 is preferably employed to the bias arm 26 and the link 40 into their jaw-opening positions; the arm 26 and the link 40 being normally retained in their jaw-opening position by engagement of a link step abutment 45 with the arm 12. The outer end of link 40 has an eye 46, which is adapted to be engaged by a tool, not shown, or directly by the operator for the purpose of moving the link longitudinally to move the jaw 32 towards or away from the stationary jaw 16. When the wire 38 is a high-tension cable, a tool in the form of a long insulated rod having a hooked end and commonly referred to as a "Hot Stick" is employed. More particularly, by moving the link 40 inwardly, such as to pivot the bellcrank lever 20 in a clockwise direction, as viewed in FIG. 1, the jaw 32 is moved away from the jaw 16, and by moving the link 40 outwardly the jaw 32 is moved toward the jaw 16, as viewed in FIG. 3.

It will be understood that, due to the arrangement of the body portion and jaws, there is defined a side opening, indicated in FIG. 2 at 48, through which the wire 38 may be admitted. This arrangement facilitates the insertion of a wire between the jaws, which is accomplished when the jaws are open, as viewed in FIGS. 1 and 2. After insertion of the wire and closing the jaws under control of the spring 44 to clamp the wire therebetween, a pulling force exerted on the link 40 will both increase the clamping pressure exerted by the jaws and cause the wire to be stretched." (p.1 left column l.47-right column l.28)

(A5b) FIG. 2 illustrates that the link 40 is a non-twisted planar body, and is not bent in an axis direction of the pin 42, and that the wire 38 and the jaws 16 and 32 are not located in a plane perpendicular to the axis of the pin 42 and where the link 40 moves. FIG. 3 illustrates that the eye 46 formed at the outer end of the link 40 is located close to the wire when the jaws 32 and 16 are located across the wire.

According to (A5a) and (A5b), Evidence A No. 5 describes a configuration in the wire grip where the link 40 is a non-twisted planar body, and is not bent in an axis

direction of the pin 42, that the wire 38 and the jaws 16 and 32 are not located in a plane perpendicular to the axis of the pin 42 and where the link 40 moves, and that the eye 46 formed at the outer end of the link 40 is located close to the wire 38 when the jaws 32 and 16 are located across the wire.

E Matters described in Evidence A No. 6

Evidence A No. 6 describes the following matters.

(A6a) "[0021] Pulling means connected to a joint section 19 of a joint member 7 operates so as to reduce a body of a cable connector, for example, to pull the joint member 7 in an arrow d direction. An operating member 3 turns in e-direction in FIG. 1 around a support axis 17 as the joint member 7 is pulled, to assume a state of FIG. 2. A movable gripping wire part 4 is pushed up slightly obliquely upward as shown in FIG. 2, to hold a linear element W fitted in a fitting groove 38 from top and bottom together with a fixed gripping wire part 2. When the pulling means pulls further a linear element gripper in the d-direction, the linear element W held by the wire gripping parts 2 and 4 is also pulled in the d-direction."

(A6b) FIG. 1 and FIG. 2 illustrate that the joint section 19 is moved to a position where the joint section 19 overlaps the linear element by pulling the joint section 19 of the joint member 7 of the linear element gripper.

According to the above (A6a) and (A6b), Evidence A No. 6 describes the linear element gripper where the joint member 7 is pulled to move the joint section 19 to a position so as to overlap the linear element by pulling the joint section 19 of the joint member 7, and where the operating member 3 turns and pushes up the movable wire gripping part 4 to hold the linear element W from top and bottom together with the fixed wire gripping part 2.

F Matters described in Evidence A No. 7

Evidence A No. 7 describes the following matters about "WIRE STRAINER" (title of the invention).

(A7) "These gripping means are cam-like members having convex gripping surfaces which are flat in the plane normal to the major plane of the cam, and their gripping action is to squeeze the wire against a concave surface on an adjacent anvil.
... (snip) ...
Secondly, the fact that the cam presses the wire into a concave recess has bent the wire into conformity with the concavity so that, particularly where the softer grades of wire are being used, the strain on the wire over a period tends to straighten out the sinuosities so formed and the wire then may require restraining." (p.1 right column l.2-l.19)

According to (A7), Evidence A No. 7 describes that the wire strainer including an anvil with a concave gripping surface and cam-like members having convex gripping surfaces squeezes a wire due to their gripping action, to bend the wire into conformity with the concavity.

G Matters described in Evidence A No. 8

Evidence A No. 8 describes the following matters about "WIRE GRIP" (title of the invention).

(A8a) "This kind of wire grip is as shown in FIG. 3, but it tends to bend during the work, and cannot be straightened after that. An inner metal wire is badly damaged at a bent position. As shown in FIG. 3, when a cord (b) wound on a pulley (a) is pulled to pull an end (e) of an operation lever (d) in direction P, a counterclockwise rotation moment (Q) is generated due to the balance of force, to align a P-direction line with the center line (1) of a pulling section (load section) (A) of a stretched wire (f). As a result, the end (e) of the operation lever (d) pushes up a free end (non-load section) (c) of the stretched wire (f), and inclines a holding section (B) of the stretched wire (f), to incline the center line (m) thereof with respect to the center line (1) at an angle of θ." (p.2 l.4-l.17)

(A8b) "This invention is configured so that the end (4) is formed in a vertical cross-sectional U shape, to pass through the free end (C) of the stretched wire (f) freely vertically, thereby allowing the end (4) to smoothly move upward. Turning motion continues until the center (operation point of the pulling force) (E) of the end (4) is aligned with the center line (1)." (p.6 l.2-l.7)

(A8c) FIG.1 and FIG. 2 describe that the operation lever (3) is formed in a bar shape having no twisted part and is not bent in an axial direction of the pin (12), and that the end (4) of the operation lever (3) is formed in a vertical cross-sectional U shape.

According to the above (A8a) to (A8c), Evidence A No. 8 describes that, in the wire grip, when the end of the operation lever is pulled for gripping the stretched wire, the end of the operation lever pushes up the free end (non-load section) of the stretched wire to incline the holding section of the stretched wire, resulting in bending tendency of the stretched wire and severe damage, and that the end of the operation lever having no twisted or bent part is formed in vertical cross-sectional U shape, thereby allowing the end to smoothly move upward.

H Matters described in Evidence A No. 9

Evidence A No. 9 describes the following matters.

(A9a) "[0004]

However, an anti-slip irregular section formed in a groove surface of each of gripping grooves of a pair of wire gripping sections of the wire grip is formed by arranging many locking linear sections in a direction perpendicular to the groove direction of the gripping groove, to form a saw-tooth cross-sectional shape along the groove direction. When elevator cables fitted in the gripping grooves are gripped vertically by the pair of gripping sections, the locking linear sections face each other in a relative position perpendicular to cable element wires extending spirally. When a large pulling force is applied to the elevator cables stretched via the wire grip, the force of the pair of gripping sections gripping the elevator cables is increased in accordance with the pulling force, and the locking linear sections cut into the cable element wires,

resulting in damage to the cable element wires. The elevator cables are used for moving up and down a suspended elevator, so that the above damage is to be avoided as much as possible.
[0005]
In order to prevent the elevator cables from being damaged when the gripping force is increased due to large pulling force, the wire grip is configured to include a pair of gripping sections with a length increased along the elevator cables. This configuration may reliably grip the cables, while preventing local gripping force from being applied to the gripped elevator cables. However, the size of the wire grip may be significantly increased, resulting in reduction in operability and cabling workability."

(A9b) FIG. 1 to FIG. 5 describe that the connection member (11) is formed in a flat shape having no twisted part and not bent in an axial direction of a support axis (12).

According to the above (A9a) and (A9b), Evidence A No. 9 describes that, in the wire grip, the groove surface of each of the gripping grooves of the pair of wire gripping sections includes many locking linear sections, as anti-slip irregular sections, which cut into the cable element wires to damage them when the elevator cables are gripped vertically by the pair of wire grips, and that the connection member (11) of the wire grip is formed in a flat shape having no twisted part and is not bent in an axial direction of the support axis (12).

I Matters described in Evidence A No. 10
Evidence A No. 10 describes the following matters.

(A10) "[0003] Therefore, lever parts interfere in a narrow place having a small fastening angle(less than 60 degrees), and fastening may fail to be performed.
[0004] Even when a ridge part arranged at one end is formed of 6 round shapes and a bolt fastening center axis is displaced to prevent interference of the lever, strength and fastening force cannot be increased.
[0005]
[Problem to be solved by the invention] The invention is a hexagonal wrench configured by bending a ridge part of a hexagonal bar at 90 degrees as a minimum bending radius, and twisting one surface part at an angle of $\alpha$, which is 1 to 59 degrees, and 30 degrees as a standard."

According to the above (A10), Evidence A No. 10 describes the hexagonal wrench which is formed by bending the ridge part of the hexagonal bar at 90 degrees as a minimum bending radius, in order to prevent interference of the lever, and twisting one surface part at an angle of $\alpha$.

J Matters described in Evidence A No. 11
Evidence A No. 11 describes the following matters.

(A11a) "[0025] FIG. 5 (a) and (b) show a third working drawing of a repairing tool for an automobile body according to this invention. In (a), when a dent 36 is formed in an automobile body 35, an extended part 12 of a repairing tool 10 is twisted at a twisting

angle β (See (b)), to form a twisted part 37, and is bent into a predetermined shape to form bent parts 38, 38. A pressing part 13 is inserted in the dent 36 without interfering with a reinforcing member 41 or a bracket 42, to repair the dent 36 of the automobile body 35 by using the reinforcing member 41 or the bracket 42 as a fulcrum of rotation (an arrow Fc direction)."

(A11b) "[0028]
[Effect of the invention] The invention having the above configuration exerts the following effect. In claim 1, the repairing tool of an automobile body having an extended part formed continuously from a grip part, and a pressing part formed at a tip of the extended part, is configured so that the extended part has higher rigidity in a direction orthogonal to one direction, and is formed of a long member which is freely bendable by hand in the one direction. The extended part has softness and desired strength. As a result, the pressing part at the tip can be brought into contact with the dent in the door by bending the extended part into a desired shape, while avoiding an interference object, such as a reinforcing member arranged in the door, and the dent can be repaired by applying pushing-out force.
[0029] In claim 2, a cross section of the extended part is made flat and formed of soft iron, and is bent in a long-side direction of the cross section, to form a bent extended part with a pressing part formed at its tip. The extended part has softness and desired strength. As a result, the extended part can be twisted at a desired twisting angle and bent into a desired shape, thereby bringing the pressing part at the tip into contact with the dent of the body, while avoiding an interference object, such as a reinforcing member arranged in the body, for example, and allowing the dent to be repaired by applying pushing-out force."

According to the above (A11a) and (A11b), Evidence A No. 11 describes that the repairing tool of an automobile body is configured so that the extended part can be twisted at a desired twisting angle and bent into a desired shape, thereby bringing the pressing part at the tip into contact with the dent of the body, while avoiding an interference object.

K Matters described in Evidence A No. 12

Evidence A No. 12 describes the following matters.

(A12) "[0007]
A dynamo-electric machine with dynamo-electric machine winding elements is configured so that winding element ends are twisted at 180 degrees in its longitudinal direction so as to prevent interference of winding element ends of adjacent dynamo-electric machine winding elements, thereby preventing significant deformation of a rectangular conductor as compared with a case where the rectangular conductor is bent at 180 degrees in its width direction, thereby preventing damage to a covered insulator or crack of the rectangular conductor."

According to the above (A12), Evidence A No. 12 describes the dynamo-electric machine winding which is configured to prevent interference of winding element ends of adjacent dynamo-electric machine winding elements by twisting the winding element

ends at 180 degrees in its longitudinal direction.

L Matters described in Evidence A No. 13

Evidence A No. 13 describes the following matters.

(A13a) "[0039]

In the multi-channel tube 31 shown in FIG. 13, the inside is divided into two channel holes 3, 3 by partition walls 2. The multi-channel tube 31 includes bending parts 32, 33 formed by a bending part manufacturing apparatus according to this embodiment. The multi-channel tube 31 is twisted between both ends at 90 degrees in its circumferential direction, around a center axis of the multi-channel tube 31. For example, in an engine compartment of a vehicle, a connecting tube, such as the multi-channel tube, is bent in a three-dimensional manner on the layout. The twisted multi-channel tube 31 shown in FIG. 13 is used when especially the space is limited and layout restrictions are severe due to its positional relation.

[0040]

The bending part manufacturing apparatus shown in FIGs. 9-13 has a mandrel body 11 different in configuration from the first embodiment described above, and the others have the same configuration basically as the first embodiment described above.

[0041]

The mandrel body 11 includes a mandrel base part 19 having a substantially the same cross-sectional shape (substantially semi-cylindrical cross-sectional shape) as those of the channel holes 3, 3. The mandrel base part 19 includes a curved part 20, which contacts the inner surface of the channel holes 3, 3, and a flat part 21, which contacts the partition walls 2. At the tip of the curved part 20, a relief bevel 20a is formed for preventing interference with the inner surface of the bent channel holes 3, 3. At the tip of the flat part 21, a buckling prevention surface 21a is formed, which comes into contact with the partition walls 2 when the multi-channel tube 31 is bent, to prevent deformation of the partition walls 2. At the rear end of the flat part 21, rear flank faces 21b, 21b are formed for preventing interference with the twisted partition walls 2 by cutting off the both ends. An angle and length of the rear flank faces 21b, 21b are set according to the amount of twist of the multi-channel tube 31. The rear flank faces 21b, 21b are formed with a predetermined angle with respect to the flat part 21.

[0042]

Also in the second embodiment, when the multi-channel tube 31 is bent and twisted at a predetermined angle, the curved part 20 of the mandrel body 19 comes into contact with an inner surface of the channel holes 3, 3, thereby preventing local deformation of the inner wall 9 of the channel holes 3, 3. At the same time, the flat part 21 comes into contact with the partition walls 2, and the buckling prevention surface 21a formed at the tip of the flat part 21 comes into contact with the inner surface of the bending part of the partition walls 2, to prevent deformation of the partition walls 2. The rear flank faces 21b, 21b are formed by cutting off both ends of the flat part 21, thereby preventing the flat part 21 of the mandrel body 19 from interfering with the twisted partition walls 2."

(A13b) "[0048]

Therefore, the mandrel body 11 includes the mandrel base part 19 having a

substantially the same cross-sectional shape (substantially semi-cylindrical cross-sectional shape) as those of the channel holes 3, 3. The mandrel base part 19 includes the curved part 20, which contacts the inner surface of the channel holes 3, 3, and the flat part 21, which contacts the partition walls 2. At the tip of the curved part 20, the relief bevel 20a is formed for preventing interference with the inner surface of the bent channel holes 3, 3. At the tip of the flat part 21, the buckling prevention surface 21a is formed, which comes into contact with the partition walls 2 when the multi-channel tube 31 shown in FIG. 13 is bent, to prevent deformation of the partition walls 2. At the rear end of the flat part 21, rear flank faces 21c, 21c are formed for preventing interference with the twisted partition walls 2 by cutting off both ends. An angle and length of the rear flank faces 21c, 21c are set according to the amount of twist of the multi-channel tube 31. The angle of the rear flank faces 21c, 21c is formed with a predetermined relatively large angle in the rear end with respect to the flat part 21, while being reduced gradually toward the front end.
[0049]

Also in the third embodiment, when the multi-channel tube 31 is bent and twisted at a predetermined angle, the curved part 20 of the mandrel body 19 comes into contact with an inner surface of the channel holes 3, 3, thereby preventing local deformation of the inner wall 9 of the channel holes 3, 3. At the same time, the flat part 21 comes into contact with the partition walls 2, and the buckling prevention surface 21a formed at the tip of the flat part 21 comes into contact with the inner surface of the bending part of the partition walls 2, to prevent deformation of the partition walls 2. The rear flank faces 21c, 21c are formed by cutting off both ends of the flat part 21, thereby preventing the flat part 21 of the mandrel body 19 from interfering with the twisted partition walls 2."

According to the above (A13) and (A13b), Evidence A No. 13 describes that the interference between the flat part of the mandrel body and the twisted partition walls can be prevented by bending and twisting the multi-channel tube at a predetermined angle.

M Matters described in Evidence A No. 14

Evidence A No. 14 describes the following matters about "DEVICE FOR BENDING TUBE" (title of the invention) with a figure.

(A14a) "[0018] When the processing proceeds to step S15, the tube 1 is twisted by a twisting motor 3 that operates in response to a command from a controller 10, until the tube 1 can be delivered. When the processing proceeds to step S16, the tube 1 is delivered axially to the next bending position by the delivery device 5 that operates in response to a command from the controller 10, and is turned to the next bending direction position, without interference with the bending die 6, by the twisting motor 3 that operates in response to a command from the controller 10 at the bending position. The bending die 6, the clamp 8, and the pressure die 7 are set in a machining preparation position by the bending die driver 13 that operates in response to a command from the controller 10, the clamp driver 14, and the pressure die driver 15. The processing returns to step S1, to start bending again."

(A14b) "[0026]
[Effect of the invention] According to the invention, as described above, in moving the bent tube to the next bending position, the controller controls the delivery means to deliver the tube and the turning means to turn the bending die so as to prevent interference between the tube and the bending die, on the basis of bending angle data input to the controller. The device for bending tube can be provided, which bends a tube efficiently without requiring an operator to input displacement data, deforming the tube, or damaging a surface machining face, in accordance with the characteristics of the tube, bending conditions, and a shape of the bending die, consequently."

According to the above (A14a) and (A14b), Evidence A No. 14 describes the device for bending tube, which is configured so that the tube is twisted when moving the bent tube to the next bending position, to prevent interference between the tube and the bending die.

(4) Comparison between the Patent invention and Evidence A No. 1 invention
A Regarding correspondence between components

The paragraph [0001] in the specification of the invention includes the description, "This invention relates to a cable grip for gripping a cable (electric wire), to be used in stretching an electric power line and a distribution line". The Evidence A No. 1 invention is "a wire grip configured to prevent injury to, or mutilation of, wires 38 of the insulated type". The "wire 38 of the insulated type" is recognized as one to be used as an electric wire. The "wire" in Evidence A No. 1 corresponds to the "cable" in the Patent invention. The "wire grip" in Evidence A No. 1 invention can be called a "cable grip".

In the Patent invention, "the ring part of a long lever" is the part where "tensile force is loaded". The "handle 32" of the "wire grip" in Evidence A No. 1 invention "has one end extending outwardly and provided with an eye 37". Evidence A No. 1 describes in (A1c), "the wire will not be bent or kinked when a pulling load is applied to the eye 37 for stretching the wire, and the pulling action will always be substantially axially of the wire." Therefore, the "handle 32" and the "eye 37" in the Evidence A No. 1 invention correspond to the "long lever" and the "ring part" in the Patent invention, respectively.

B Regarding the effect of a force for gripping the wire in Evidence A No. 1 invention

The "wire grip" in Evidence A No. 1 invention is configured so that the "wire" is "reliably gripped" when "the pivoted jaw 25 moves toward the jaw 16 and against the wire 38". For "moving" "the jaw 25" "toward the jaw 16", "the bell crank is turned in a counter-clockwise direction".

The "bell crank" "is formed with a shorter arm 20 and a longer arm 21". Evidence A No. 1 describes in (A1c), "the pulling force upon the wire through the handle may be applied to any degree without danger of the wire slipping from between the jaws. This action is insured because of the fact that the ratio between the bell crank arms 21 and 20 is approximately two to one". The "bell crank" is recognized as one functioning as a lever which receives a force from the handle 32, using the axis of the pin 22 as a fulcrum, the position of the pin 33 of the longer arm 21 as the point of effort, and the position of the pin 26 of the shorter arm 20 as the point of load, to move the jaw

25.

According to the above correspondence, the Patent invention and the Evidence A No. 1 invention correspond to each other, and are different from each other, in the following points.

(Corresponding features)
"The cable grip configured to grip a cable by means of a lever by loading tensile force to a ring part of a long lever, the ring part being arranged at a rear end of the long lever."

(The different feature)
The Patent invention is formed by "twisting a ring part provided at a rear end of a long lever at an angle of 15 to 45 degrees with respect to a plane including the long lever and the cable". In Evidence A No. 1 invention, "the handle 32 has a step-like bent part formed between the pin 33 and the bracket 35", but does not have a "twisted" part.

(5) Decision on the different feature
Evidence A No. 1 invention is configured to "allow the pulling action to always be substantially axially of the wire 38 when a pulling load is applied to the eye 37, while preventing binding or kinking of the wire 38 at or about the location of its gripping surface and without injury to, or mutilation of, wires 38 of the insulated type". Therefore, the configuration of the "wire 38 not to be bent" based on the Evidence A No. 1 invention is examined first.
And then, after verifying the "twisted" configuration described in each of Evidence A No. 2 to Evidence A No. 14, the configuration of the wire grip described in Evidences A, and the configuration for preventing bending tendency and a cause of damage to the cable described in Evidences A, whether the Patent invention could have easily been conceived or not is examined by applying the matters described in Evidences A No. 2 to No. 14 to the Evidence A No. 1 invention.

A Regarding the configuration of the "wire 38 not to be bent" in Evidence A No. 1 invention
In Evidence A No. 1 invention, when pulling load is applied to the eye 37, "the pulling action is required to always be substantially axially of the wire 38" to prevent the wire 38 from being bent. For the configuration, the step-like curvature of the handle 32 and the arc of movement of its pivotal connection, together with the shape and location of the guide 36, are so coordinated".
In FIG. 1 and FIG. 3 in Evidence A No. 1, the wire 38 is located in a plane perpendicular to the pin 33, while the wire 38 is not located in a plane where a part of the handle 32 closer to the eye 37 than the step-like bent part moves through the guide 36 of the bracket 35. If no step-like bent part is formed in the handle 32, the pulled handle 32 comes into contact with the wire 38, and the position of the eye 37 cannot be close to the wire 38. Thus, the description, "the pulling action is to always be substantially axially of the wire 38" cannot be achieved. Therefore, the step-like bent part is formed in the handle 32, to allow the pulled handle 32 to move without contact with the wire 38. The position of the eye 37 can be close to the wire 38, thereby

allowing "the pulling action to always be substantially axially of the wire 38".

Therefore, Evidence A No. 1 invention is configured so that "the handle 32 has a step-like bent part formed between the pin 33 and the bracket 35", and that "the step-like bending of the handle 32 and the arc of movement of its pivotal connection, together with the shape and location of the guide 36, are so coordinated". The handle 32 moves without contact with the wire 38, and the position of the eye 37 can be close to the wire 38, to allow "the pulling action to always be substantially axially of the wire 38", thereby preventing "the wire 38 from being bent".

B Regarding the "twisted" configuration described in Evidences A

In Evidences A No. 2 to No. 14, Evidences A No. 2, No. 3, and No. 10-No. 14 describe the "twisted" configuration.

In reference to each of the "twisted" descriptions, according to the matters described in A, B, I to M in the above No. 5, 1, (3), Evidence A No.2 describes the "twisted strap 29", Evidence A No. 3 describes the "twisted strap 31", Evidence A No. 10 describes the "hexagonal wrench", Evidence A No. 11 describes the "repairing tool for an automobile body", Evidence A No. 12 describes the "dynamo-electric machine winding element", Evidence A No. 13 describes the "multi-channel tube", and Evidence A No. 14 describes the "tube 1".

However, the materials described in Evidences A No. 10 to No. 14 are not a tool to be directly used for a wire, such as an electric wire. Thus, there is no relevance to the technical field of the Evidence A No. 1 invention.

The "strap" described in Evidences A No. 2 and No. 3 is a tool to be used for laying an electric wire, while being not configure a part of a wire grip. The statement alleged by the demandant in the written demand for trial, "it is obvious that the Patent invention and Evidences A No. 1 to No. 4 inventions belong to the same technical field." (p.8 l.7- l.8) is not true. The "strap" does not function as a "handle" or a "lever" (such as the "handle 32" in Evidence A No. 1) that moves a part, such as the connected bell crank 18 by an external force, and the "twisted" configuration is provided not for preventing interference with the other parts when the strap is moved.

In addition, Evidence A No. 4 describes that the anchor clamp 25 for connecting the cable connector 30 to the anti-stretch insulator 24 includes not a "twisted" plate body but a "bent" plate body.

Accordingly, the "twisted" configuration described in Evidences A No. 2, No. 3, and No. 10-No. 14 has no relevance in technical field to the Evidence A No. 1 invention, nor does it have the same function as the "handle 32" in the Evidence A No. 1 invention even if there is relevance in technical field. The "twisted" configuration does not aim to prevent interference with other parts due to displacement.

C Regarding the configuration of the wire grip described in each of Evidences A

In Evidences A No. 2 to No. 14, Evidences A No. 4 to No. 6, No. 8, and No. 9 describe the wire grips.

Regarding the each wire grip described, in reference to whether or not a part corresponding to the "handle 32" in the Evidence A No. 1 invention has the "twisted" part, according to the matters described in C-E, G, and H in the above No. 5, 1, (3), the "link 40" of the "wire grip" in Evidence A No. 5, the "operation lever 3" of the "wire grip" in Evidence A No. 8, and the "connection member 11" of the "wire grip" in

Evidence A No. 9, corresponding to the "handle 32" in Evidence A No. 1, are not twisted. Evidences A No. 4 and No. 6 do not describe that the "lever-like part" of the "wire grip 33" or the "connection member 7" of the "linear element gripper" is twisted.

Therefore, Evidences A No. 4 to No. 6, No. 8, and No. 9 do not describe or indicate that a part of the wire grip corresponding to the "handle 32" in Evidence A No. 1 invention has a "twisted" part.

D Regarding the bending tendency and damage to the wire or the like, described in Evidences A

The Evidence A No. 1 invention is configured to prevent "the wire 38 from being bent" by "allowing the pulling action to always be substantially axially of the wire 38". In Evidence A No. 1, the wire grip prevents the wire 38, which used to bend when not pulled substantially axially of the wire 38, from being bent by pulling the wire 38 substantially axially of the wire 38.

In Evidences A No. 2 to No. 14, Evidences A No. 7 to No. 9 describe the configuration of preventing the bending tendency and damage to the wire or the like.

In reference to the "cause" of "bending tendency and damage to the wire or the like", and the "configuration for prevention" described, according to the matters described in F to H in the above No. 5, 1, (3), Evidence A No. 7 describes that the wire is damaged by "squeezing the wire" with the concave gripping surface of the wire strainer, and the shape of the gripping surface is deformed for preventing the damage, Evidence A No. 8 describes that the stretched wire (f) is damaged when the stretched wire (f) is pushed up by the end (e) of the operation lever (d) of the wire grip, and the end (e) of the operation lever (d) is formed in vertical cross-sectional U shape for preventing the damage, and Evidence A No. 9 describes that the cable element wire is damaged when the anti-slip irregular section formed in the gripping groove of the wire grip "cuts into the cable element wire", and a strand linear part is formed in the gripping groove for preventing the damage.

Therefore, the cause of "bending tendency and damage to the wire or the like" and the configuration for prevention described in Evidences A No. 7 and No. 9 are different from the Evidence A No. 1 invention. The cause of "bending tendency and damage to the wire or the like" described in Evidence A No. 8 relates to the Evidence A No. 1 invention, but the configuration for prevention is different from the Evidence A No. 1 invention.

E Regarding application of matters described in Evidences A No. 2 to No. 14

(A) Regarding necessity of twisting the "handle 32" in Evidence A No. 1 invention

As examined in the above A, the Evidence A No. 1 invention is configured so that "the handle 32 has a step-like bent part formed between the pin 33 and the bracket 35", and "the step-like curvature of the handle 32 and the arc of movement of its pivotal connection, together with the shape and location of the guide 36, are so coordinated". The handle 32 moves without contact with the wire 38, and the position of the eye 37 is close to the wire 38, thereby allowing "the pulling action to always be substantially axially of the wire 38". Thus, the purpose of "preventing the wire 38 from being bent" is achieved.

Therefore, there is no necessity of "twisting" the "eye 37" of the "handle 32" in Evidence A No. 1 invention, for preventing "the wire 38 from being bent". Furthermore,

in the Evidence A No. 1 invention, since the eye 37 is coordinated to be located close to the wire 38, the eye 37 may come into contact with the wire 38 if it is "twisted". Meanwhile, changes in shape and arrangement of the guide 36, and additional adjustment of the step-like curvature of the handle 32 and arc of movement of its pivotal connection will be required for "twisting" the handle 32 without contact between the eye 37 and the wire 38. Thus, disincentives are recognized in "twisting" the "handle 32" in the Evidence A No. 1 invention.

Accoringly, it can be said that a person skilled in the art could not have easily conceived of configuring different features by applying the matters described in Evidences A No. 2 to No. 14, to "twist" the "handle 32" in the Evidence A No. 1 invention.

(B) Regarding easily-conceived property based on Evidences A No. 2 to No. 14

We will examine whether a person skilled in the art coming into contact with Evidences A No. 2 to No. 14 easily configures the "twisted" "handle 32" in Evidence A No. 1, even if there is no disincentive in "twisting" the "handle 32" or no necessity of changing the configuration of the "handle 32" in the Evidence A No. 1 invention.

The demandant alleges, in the oral proceedings statement brief, that "there is motivation to employ the well-known arts of 'twisting' described in Evidences A No. 2 and No. 3, in order to eliminate bending tendency or damage to be caused on the surface of the cable due to bending of the cable in the Evidence A No.1 invention". (p.10 l.10-l.13)

(a) First, we will examine the easily-conceived property based on the "twisted" configuration described in Evidences A.

Evidences A No. 2, No. 3, and No. 10-No. 14 describe the part having the "twisted" configuration. As examined in the above B, the "strap", which has a "twisted" configuration in Evidences A No. 2 and No. 3, does not have the same function as the "handle 32" in Evidence A No. 1, and the "twisted" configuration does not aim to prevent interference with other parts due to displacement. The "hexagonal wrench" or the like described in Evidences A No. 10 to No. 14 has a configuration of preventing interference, while having no relation in technical field with the "strap" described in Evidences A No. 2 and No. 3, as well as the Evidence A No. 1 invention.

Thus, even when the "twisted" configurations described in Evidences A No. 2, No. 3, and No. 10-No. 14 are well-known arts, a person skilled in the art could not easily conceive of the "twisted" "handle 32" in the Evidence A No. 1 invention, as a wire grip.

(b) Then, we will examine the easily-conceived property based on the each wire grip described in Evidences A.

Evidences A No. 4 to No. 6, No. 8, and No. 9 describe the wire grip of the same technical field as the Evidence A No. 1 invention. As examined in the above C, Evidences A do not describe or indicate that the part corresponding to the "handle 32" in the Evidence A No. 1 invention has a "twisted" part.

Therefore, a person skilled in the art coming into contact with Evidences A No. 4 to No. 6, No. 8, and No. 9 that describe the wire grip cannot easily configure the "handle 32" in the Evidence A No. 1 invention to have a "twisted" part.

In addition, even if the "twisted" configuration of the "strap" described in Evidences A No. 2 and No. 3 having a relation in technical field with the Evidence A No. 1 invention is considered to be well-known arts, as described in the above (B), the "strap" does not have the same function as the "handle 32" in the Evidence A No. 1 invention, and the "twisted" configuration does not aim to prevent interference with other parts due to displacement. Thus, the "twisted" "handle 32" in the Evidence A No. 1 invention could not have been easily conceived by a person skilled in the art.

(c) And then, we will examine the easily-conceived property based on the configuration of preventing bending tendency and damage to the wire or the like, described in Evidences A.

Evidences A No. 7 to No. 9 describe the configuration of preventing bending tendency and damage to the wire or the like. As examined in the above D, the cause of "bending tendency and damage to the wire" and the configuration for prevention described in Evidences A No. 7 and No. 9 are different from the Evidence A No. 1 invention. The cause of "bending tendency and damage to the wire" described in Evidence A No. 8 relates to the Evidence A No. 1 invention, but the configuration for prevention is different from the Evidence A No. 1 invention.

Therefore, while a person skilled in the art coming into contact with Evidences A No. 7 to No. 9 that describe the configuration of preventing bending tendency and damage to the wire could have easily conceived of forming an end of the "handle 32" in the Evidence A No. 1 invention in vertical cross-sectional U shape, he/she could not easily configure the handle to have the "twisted" part.

(6) Summary

As described above, the Patent invention could not have been easily invented by a person skilled in the art, on the basis of the inventions described in Evidences A. Thus, the Patent invention cannot be invalidated due to Reasons for invalidation 1.

2 Regarding Reasons for invalidation 2

(1) Matters described in the specification or the like

The specification and drawings of the case describe the following matters.

A "[Background]

[0002]

A conventional cable grip using a lever is configured so that a long lever and a ring part arranged at its end are formed on the same plane. (See FIG. 2)

[Outline of the invention]

[Problem to be solved by the invention]

[0003]

However, the cable grip having the long lever and the ring part formed on the same plane has the disadvantage that an upper section of the ring part interferes with the cable, and that the center of the ring part cannot be drawn closer to the center of the cable. (See FIG. 2b) Thus, the center of the cable is significantly displaced from the center of the ring part. The displacement bends the cable when the cable is strained. (See FIG. 3)

The invention solves the problem of bending tendency and damage (See FIG. 4) to be caused on the surface of the cable due to bending."

B "[Means of solving the problem]
[0004]

This invention solves the problem by twisting the ring part of the long lever of the cable grip at 15-45 degrees, to allow the center of the ring part to be drawn closer to the center of the cable so as to prevent the upper section of the ring part from interfering with the cable (See FIG. 1) and (See FIG. 1b). This invention is inadequate for practical use, outside the above angle range.

[Effect of the invention]
[0005]

The cable grip according to this invention can be easily manufactured only by twisting the ring part of the long lever, without increasing the number of parts. This is advantageous in preventing damage to the surface of the cable (See FIG. 4), and improving reliability of a cable to be used for a long time.

[Brief description of drawings]
[0006]
[FIG. 1] FIG. 1a is a front view of the cable grip with the twisted ring part arranged at an end of the long lever. FIG. 1b is a cross-sectional view of a line A-A' in FIG. 1a.
[FIG. 2] FIG. 2a is a front view of a conventional cable grip configured so that the long lever and the ring part arranged at an end are formed on the same plane. FIG. 2b is a cross-sectional view of a line A-A' in FIG. 2a."

C In FIG. 1(a), the twisted part in the long lever is described as "4". FIG. 2(a) illustrates the long lever which moves, while turning around a support axis located at an end opposite the ring part.

(2) Regarding the "plane including the long lever and the cable" in the Patent invention

The above A describes that "the cable grip having the long lever and the ring part formed on the same plane has the disadvantage that an upper section of the ring part interferes with the cable, and that the center of the ring part cannot be drawn closer to the center of the cable".

FIG. 2(a) illustrates the long lever which moves, while turning around the support axis located at an end opposite the ring part. The long lever is recognized to move, while turning around a support axis, in a plane perpendicular to the support axis.

If a cable does not exist in the plane perpendicular to the support axis, even when "the long lever and the ring part are formed on the same plane", the upper section of the ring part does not interfere with the cable. The conventional "cable grip" in the specification is configured so that "the upper part of the ring part interferes with the cable, and the center of the ring part cannot be drawn closer to the center of the cable". The cable and "the long lever and the ring part" are considered to be located in a plane perpendicular to the support axis around which the long lever turns.

The Patent invention is formed by "twisting" "the ring part", and describes, in the above B, that "only by twisting the ring part of the long lever, without increasing the number of parts". A non-twisted part of the "long lever" still remains on "the same plane". The "long lever" and the "cable" in the Patent invention are considered to still exist in "the same plane perpendicular to the support axis around which the long lever turns", accordingly.

Therefore, "the plane including the long lever and the cable" in the Patent invention can be recognized as "the plane perpendicular to the support axis around which the long lever turns".

(3) Regarding "twisted at an angle of 15 to 45 degrees with respect to a plane including the long lever and the cable" in Patent invention

As examined in the above (2), "the plane including the long lever and the cable" is recognized as "the plane perpendicular to the support axis around which the long lever turns". Therefore, it is recognized that the expression, "twisted at an angle of 15 to 45 degrees with respect to a plane including the long lever and the cable" means "twisted at an angle of 15 to 45 degrees with respect to" "the plane perpendicular to the support axis around which the long lever turns".

(4) Enablement requirement

According to the above C, FIG. 1(a) illustrates a twisting position 4 of the long lever. As examined in the above (2) and (3), according to the description in the specification, "the plane including the long lever and the cable" in the Patent invention can be recognized as "the plane perpendicular to the support axis around which the long lever turns".

Therefore, "the ring part arranged at a rear end of the long lever is twisted at an angle of 15 to 45 degrees with respect to the plane including the long lever and the cable" in the Patent invention can be recognized as "twisted at an angle of 15 to 45 degrees" with respect to "the plane perpendicular to the support axis around which the long lever turns", in the twisting position 4 of the long lever, in FIG. 1(a) of the drawing of the case. A person skilled in the art could have implemented "twisting the ring part arranged at a rear end of the long lever, at an angle of 15 to 45 degrees with respect to the plane including the long lever and the cable".

It cannot be said that the specification does not describe the matter required for a person, who is ordinarily skilled in a technical field of the invention of the problem to be solved by the invention and the means of solving the problem, to understand the technical significance.

(5) Summary

As described above, the Patent for the Patent invention is not filed for the application of the patent which does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act. Thus, the Patent invention cannot be invalidated by Reasons for invalidation 2.

No. 6 Closing

As described above, the patent for the Patent invention cannot be invalidated by the demandant's allegation and the evidences.

No other reasons for invalidating the patent for the Patent invention are found.

The costs in connection with the trial shall be borne by the demandant under the provisions of Article 61 of the Code of Civil Procedure which is applied mutatis mutandis in the provisions of Article 169(2) of the Patent Act.

Therefore, the trial decision shall be made as described in the conclusion.

March 28, 2016

Chief administrative judge: KAWAGUCHI, Masahide
Administrative judge: IIDA, Seiji
Administrative judge: SUZUKI, Tadaaki