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問 1

A traditional squid-fishing apparatus is structured as described below with reference to FIG. 7 and FIG. 8. Namely, a hoisting drum B is fixedly installed on a vessel A in parallel to a side of the vessel A. From the position where the hoisting drum B is installed, a flip-up type squid landing bay C is installed towards outside the side of the vessel A. To a distal end of the squid landing bay C, a guide roller D called a tip roller is attached. A fishing line F with a weight E attached to its tip is drawn from the hoisting drum B to the guide roller D and suspended into the sea from the guide roller D. When the hoisting drum B is driven by a drive motor to wind up the fishing line F, a squid caught on a fishhook attached to the fishing line F falls on to the squid landing bay C while the squid is transferred between the guide roller D and the hoisting drum B. In such a squid-fishing apparatus, the squid caught spontaneously falls on to the squid landing bay C due to the weight of the squid itself, while the fishhook travels between the guide roller D and the hoisting drum B. Therefore, the apparatus is advantageous in that, for example, fishing itself does not require human resources and the human resources can be dedicated for monitoring machine operations and post-processing caught squids, thus enabling efficient work with fewer people.

[0003]

Problems to be Solved by the Invention

In the above-described apparatus for fishing squids, however, a hoisting drum is arranged side by side along the side of the vessel. Therefore, the number of hoisting drums that can be installed is limited by the length of the side of the vessel, and the number of squid-fishing apparatuses that can be installed have been limited by the size of the vessel. To add this, in the traditional squid-fishing apparatus, the number of hoisting drums that can be installed is one, or two at the most, for one squid landing bay. Further, in the conventional squid-fishing apparatus, the hoisting drum is installed on the deck. This causes a risk of a severe accident during operation. To date, there have been reported cases of an operator being caught by the rotating drum during operation or hit and killed by the weight on the fishing line, having jumped in while the fishing line is wound up.

問 2

[0014] Reference numeral 41 denotes a drive force/axial force/motor torque calculation unit which obtains an axial force, a drive force, and a motor torque from a load, a shaft

diameter, a frictional coefficient, and a pressure angle stored in a load/shaft-diameter/frictional-coefficient storage unit 21, and a gear position and a gear size stored in a gear-position/gear-size storage unit 22. The principle of calculation will be described with reference to FIG. 2.

[0015] In FIG. 2, Gn is a gear currently concerned, Gn – 1 is a gear on a drive side of Gn, and Gn + 1 is a gear on a load side of Gn. Gn receives a drive force Tn – 1 from Gn – 1 in a direction of a pressure angle α with respect to the tangent line, and receives –Tn + 1 from Gn + 1 as a reaction force for applying the drive force Tn + 1 in the direction of a pressure angle α with respect to the tangent line.

[0016] Then, a resultant force of these two forces is applied from Gn to the shaft Sn as an axial force An. When An rotates Gn, Gn generates friction with Sn, and Gn receives a frictional force Rn which is a product of An and a frictional coefficient. Therefore, to drive Gn, a torque loss due to the frictional force, that is, a value including the product of the shaft radius and the frictional force is required, in addition to the torque for driving the load. In view of this, a drive force is obtained for each of the gears, sequentially from the gear on which a load is applied to the motor gear, the drive force being obtained by adding the load and the friction loss. This way, a motor torque required at the end is obtained.

問 3

[Claim 1]

A method for producing a floor of a trailer (1), comprising:

an inner floor unit formation step of forming an inner floor unit (70) by connecting and weld-joining, in a vehicle-width direction, a plurality of floor constituting members (30) extended in a vehicle-length direction;

a temporarily assembled floor unit formation step of forming a temporarily assembled floor unit (71) by temporarily assembling end-part floor constituting members (37) on both width-directionally outward ends of the inner floor unit (70), respectively;

a width-dimension adjustment step of arranging the temporarily-assembled floor unit (71) between a pair of guide walls (75) arranged and spaced from each other, and fixing the end-part floor constituting members (37) to the guide walls (75) while adjusting a width dimension; and

a welding step of joining the inner floor unit (70) and the end-part floor constituting members (37) by welding,

wherein the inner floor unit (70) has, on both of its width-directional ends, a

width adjustment plate (50) having an extra portion for adjustment of the floor in the width-direction and the end-part floor constituting members (37) each has a joint plate (55) to be weld-joined to the width adjustment plate (50), and

wherein, in the temporarily assembled floor unit formation step, the inner floor unit (70) and the end-part floor constituting members (37) are temporarily assembled, while the width adjustment plate (50) and the joint plate (55) are overlapped.