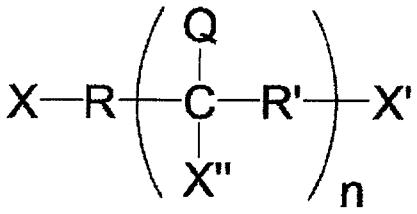
WHAT IS CLAIMED IS:

1. A wire rope for an elevator device, which is formed by twisting a plurality of strands, each of which is made by twisting a plurality of steel wires, around a rope core of fibers, the wire rope comprising:

a mixed oil containing both a base oil containing at least one compound represented by General Formula (1) and a viscosity modifying agent having an average molecular weight of 1,000 to 100,000:

General Formula (1)



(Wherein, n represents an integer of 0 to 4. Each of X, X', and X'' independently represents a monocyclic hydrocarbon or a cyclic hydrocarbon having a bridged structure; each of R and R' independently represents a direct bond or a $C_1$-$C_3$ alkylene group; and Q represents a hydrogen atom, a $C_1$-$C_3$ alkylene group, or a cyclic hydrocarbon. Each of X, X', X'', R, R' and Q may independently have a $C_1$-$C_3$ alkyl group or a cyclic hydrocarbon in its side chain.)

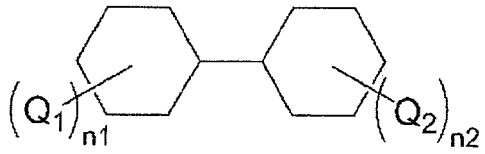
2. The wire rope for an elevator device according to claim 1 comprising a grease having a worked penetration of 200

to 475, in which a thickening agent is mixed in the mixed oil.

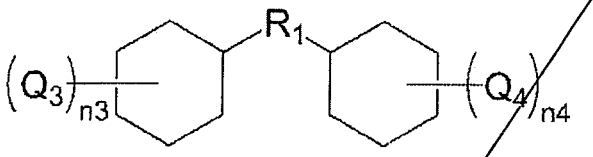
3. The wire rope for an elevator device according to claim 1 or claim 2, wherein

the base oil is at least one compound represented by General Formulae (2) to (7):

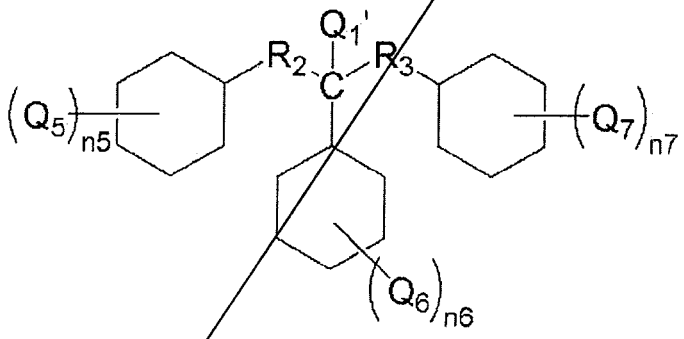
General Formula (2)



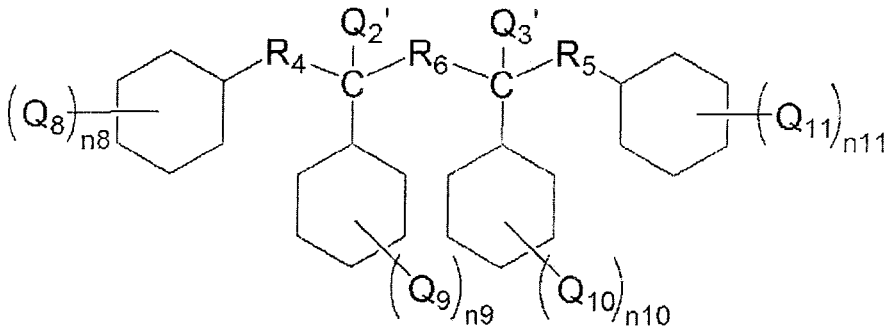
General Formula (3)



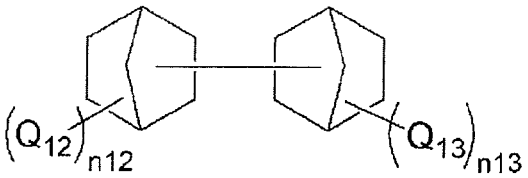
General Formula (4)



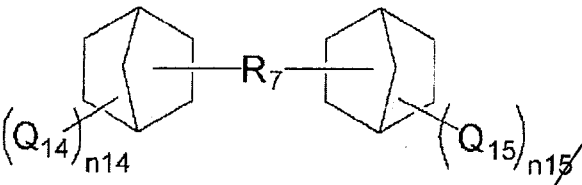
General Formula (5)



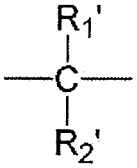
General Formula (6)



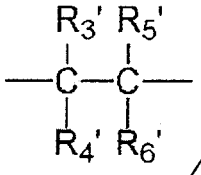
General Formula (7)



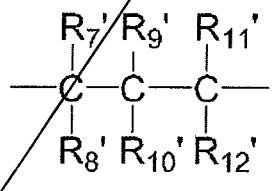
General Formula (8)



General Formula (9)



General Formula (10)



(Wherein, each of $R_1$ to $R_7$ is made of a hydrocarbon group represented by each of General Formulae (8) to (10), and wherein each of $R_1'$ to $R_{12}'$ is independently selected from hydrogen, a $C_1$-$C_3$ alkyl group, a monocyclic cyclohexyl group, or a cyclohexyl group having a bridged structure. Each of $n_1$-$n_{15}$ represents an integer of 0 to 9 or 0 to 11 in accordance with the structure of a cyclic hydrocarbon, and each of $Q_1$ to $Q_{15}$ is independently selected from a $C_1$-$C_3$ alkyl group, a monocyclic cyclohexyl group, or a cyclohexyl group having a bridged structure, and when each of $n_1$ to $n_{15}$ is an integer of 2 or more, it is independently selected for a plurality of $Q_1$ to $Q_{15}$. Each of $Q_1'$ to $Q_3'$ is independently selected from a hydrogen atom, a $C_1$-$C_3$ alkyl group, a monocyclic cyclohexyl group, or a cyclohexyl group having a bridged structure.)

4. The wire rope for an elevator device according to claim 1 or claim 2, wherein

the rope core includes the mixed oil and the strand includes the grease.

5. The wire rope for an elevator device according to claim 1 or claim 2, wherein

the viscosity modifying agent is made of n-paraffin, isoparaffin, polycyclic naphthene, or aromatic hydrocarbon,

and the viscosity modifying agent is contained in an amount of 1 to 40 mass% of the base oil.

6. The wire rope for an elevator device according to claim 2, wherein

the thickening agent is made of a mineral oil-based hydrocarbon wax or a synthetic hydrocarbon wax, and the thickening agent is contained in an amount of 1 to 20 mass% of the mixed oil, and a dropping point of the grease is 30°C to 110°C.

7. A traction type elevator device comprising:

the wire rope of claim 1 or claim 2;

a hoisting machine that hoists the wire rope;

a counter weight connected to the wire rope; and

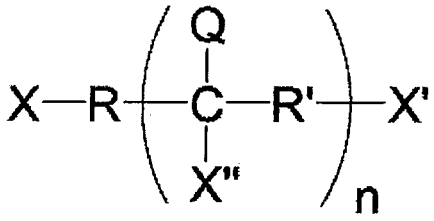
a car that is driven when the wire rope is hoisted.

WHAT IS CLAIMED IS:

1. A wire rope for an elevator device, which is formed by twisting a plurality of strands, each of which is made by twisting a plurality of steel wires, around a rope core of fibers, the wire rope comprising:

a mixed oil containing both a base oil containing at least one compound represented by General Formula (1) and a viscosity modifying agent having an average molecular weight of 1,000 to 100,000 :

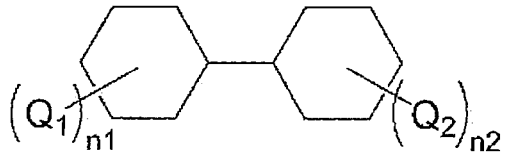
General Formula (1)



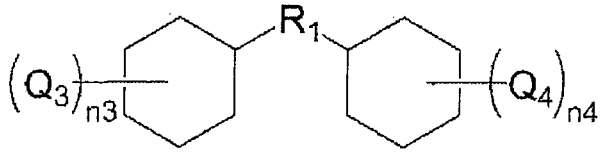
(Wherein, n represents an integer of 0 to 4. Each of X, X', and X'' independently represents a monocyclic hydrocarbon or a cyclic hydrocarbon having a bridged structure; each of R and R' independently represents a direct bond or a $C_1$-$C_3$ alkylene group; and Q represents a hydrogen atom, a $C_1$-$C_3$ alkylene group, or a cyclic hydrocarbon. Each of X, X', X'', R, R' and Q may independently have a $C_1$-$C_3$ alkyl group or a cyclic hydrocarbon in its side chain.) and , wherein

the base oil is at least one compound represented by General Formulae (2) to (7):

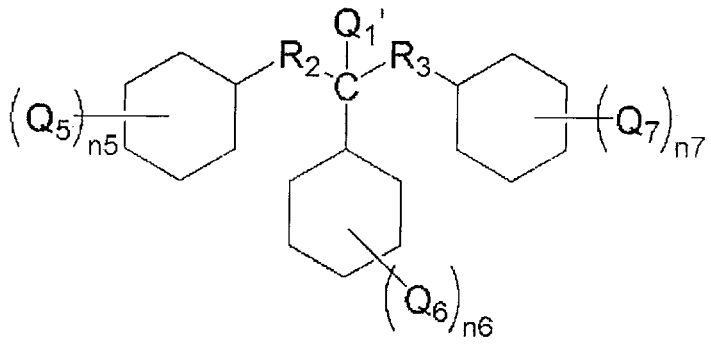
General Formula (2)



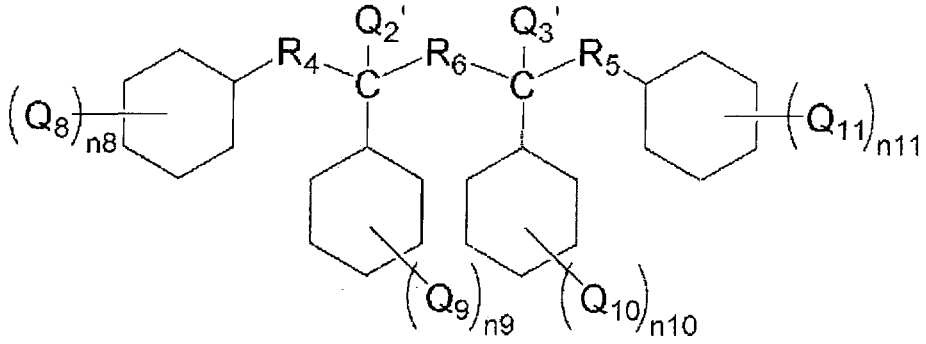
General Formula (3)



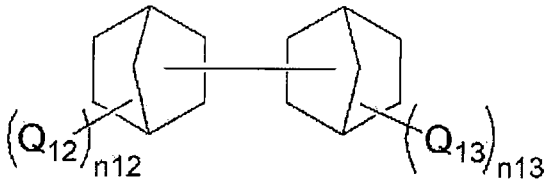
General Formula (4)



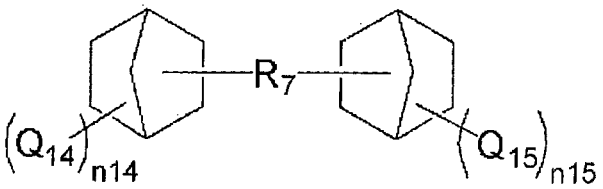
General Formula (5)



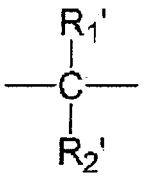
General Formula (6)



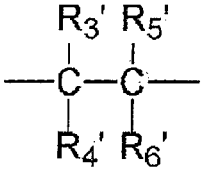
General Formula (7)



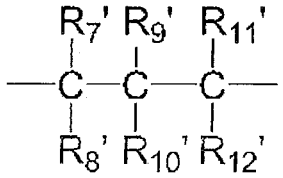
General Formula (8)



General Formula (9)



General Formula (10)



(Wherein, each of $R_1$ to $R_7$ is made of a hydrocarbon group represented by each of General Formulae (8) to (10), and wherein each of $R_1$' to $R_{12}$' is independently selected from hydrogen, a $C_1$-$C_3$ alkyl group, a monocyclic cyclohexyl group, or a cyclohexyl group having a bridged structure. Each of $n_1$-$n_{15}$ represents an integer of 0 to 9 or 0 to 11 in accordance with the structure of a cyclic hydrocarbon, and each of $Q_1$ to $Q_{15}$ is independently selected from a $C_1$-$C_3$ alkyl group, a monocyclic cyclohexyl group, or a cyclohexyl group having a bridged structure, and when each of $n_1$ to $n_{15}$ is an integer of 2 or more, it is independently selected for a plurality of $Q_1$ to $Q_{15}$. Each of $Q_1$' to $Q_3$' is independently selected from a hydrogen atom, a $C_1$-$C_3$ alkyl group, a monocyclic cyclohexyl group, or a cyclohexyl group having a bridged structure.)

2. The wire rope for an elevator device according to claim 1 comprising a grease having a worked penetration of 200 to 475, in which a thickening agent is mixed in the mixed oil.

3. The wire rope for an elevator device according to claim 1 or claim 2, wherein

the rope core includes the mixed oil and the strand includes the grease.

4. The wire rope for an elevator device according to claim 1 or claim 2, wherein

the viscosity modifying agent is made of n-paraffin, isoparaffin, polycyclic naphthene, or aromatic hydrocarbon, and the viscosity modifying agent is contained in an amount of

1 to 40 mass% of the base oil.

5. The wire rope for an elevator device according to claim 2, wherein

the thickening agent is made of a mineral oil-based hydrocarbon wax or a synthetic hydrocarbon wax, and the thickening agent is contained in an amount of 1 to 20 mass% of the mixed oil, and a dropping point of the grease is 30°C to 110°C.

6. A traction type elevator device comprising:

the wire rope of claim 1 or claim 2;

a hoisting machine that hoists the wire rope;

a counter weight connected to the wire rope; and

a car that is driven when the wire rope is hoisted.