What is claimed is:

1. A method for controlling a multi-hoisting multi-luffing tower crane, comprising:

acquiring a control working condition of hoisting mechanisms and luffing mechanisms, the control working condition being configured by an operator based on a working state of the tower crane;

acquiring an actual working condition of the tower crane, and determining whether the actual working condition is consistent with the control working condition;

determining whether the actual working condition is consistent with the control working condition comprises: determining whether the actual working condition, which comprises positions of trolleys to be hoisted and connecting relationships of the trolleys to be hoisted, is consistent with the control working condition depending on whether the hoisting mechanisms and luffing mechanisms corresponding to the control working condition correspond to the positions of the trolleys to be hoisted and the connecting relationships of the trolleys to be hoisted;

if so, operating the tower crane according to the control working condition; and

if not, sending out alarm information and repeating the above steps.

2. The method for controlling the multi-hoisting multi-luffing tower crane according to claim 1, wherein the working state of the tower crane comprises:

at least one fault occurring to a plurality of hoisting mechanisms and a plurality of luffing mechanisms; a change in hoisting weight of the tower crane; and control and commissioning of the tower crane.

3. The method for controlling the multi-hoisting multi-luffing tower crane according to claim 1, wherein the configured control working condition of the hoisting mechanisms and the luffing mechanisms comprises configured combinations of the hoisting mechanisms and the luffing mechanisms, and cooperative work according to the combinations.

4. The method for controlling the multi-hoisting multi-luffing tower crane according to claim 3, wherein the tower crane comprises a left boom and a right boom; the left boom is provided with a first hoisting mechanism, a third hoisting mechanism, and a first luffing mechanism; the right boom is provided with a second hoisting mechanism, a fourth mechanism, and a second luffing mechanism; and the configured combinations of the hoisting mechanisms and the luffing mechanisms comprise:

single-hoisting single-luffing combinations, comprising:

a combination of the first hoisting mechanism and the first luffing mechanism, a combination of the third hoisting mechanism and the first luffing mechanism, a combination of the second hoisting mechanism and the second luffing mechanism, and a combination of the fourth hoisting mechanism and the second luffing mechanism, the tower crane with each of the single-hoisting single-luffing combinations having a maximum hoisting weight being 1/4 a rated loading capacity of the tower crane;

double-hoisting single-luffing combinations, comprising:

a combination of the first hoisting mechanism, the third hoisting mechanism, and the first luffing mechanism, a combination of the second hoisting mechanism, the fourth hoisting mechanism, and the second luffing mechanism, a combination of the first hoisting mechanism, the second hoisting mechanism, and the first luffing mechanism, a combination of the first hoisting mechanism, the second hoisting mechanism, and the second luffing mechanism, a combination of the third hoisting mechanism, the fourth hoisting mechanism, and the first luffing mechanism, and a combination of the third hoisting mechanism, the fourth hoisting mechanism, and the second luffing mechanism, the tower crane with each of the double-hoisting single-luffing combinations having a maximum hoisting weight being 1/2 the rated loading capacity of the tower crane; and

a four-hoisting double-luffing combination, comprising:

the first hoisting mechanism, the second hoisting mechanism, the third hoisting mechanism, the fourth hoisting mechanism, the first luffing mechanism, and the second luffing mechanism, the tower crane with the four-hoisting double-luffing combination having a maximum hoisting weight being the rated loading capacity of the tower crane.

5. The method for controlling the multi-hoisting multi-luffing tower crane according to claim 1, wherein the hoisting mechanisms are each individually controlled.

6. The method for controlling the multi-hoisting multi-luffing tower crane according to claim 1, wherein the luffing mechanisms are each individually controlled.

7. The method for controlling the multi-hoisting multi-luffing tower crane according to claim 1, wherein operating the tower crane according to the actual working condition further comprises: detecting, in real time, moments applied to the booms of the tower crane so as to prevent hoisting moments from exceeding a limit; and detecting, in real time, hoisting weights of the tower crane so as to prevent the hoisting weights from exceeding a limit.

8. The method for controlling the multi-hoisting multi-luffing tower crane according to claim 1, wherein motors of the hoisting mechanisms are under variable-frequency drive control, and the variable-frequency drive control comprises:

receiving, in real time, feedback information on motor speed of the hoisting mechanisms so as to ensure accurate control of the motor speed by means of a closed speed loop; and

receiving, in real time, feedback information on reel positions of the hoisting mechanisms so as to ensure accurate control of the reel positions by means of a closed position loop.

9. A system for controlling a multi-hoisting multi-luffing tower crane, comprising:

a control working condition acquisition module configured to acquire a control working condition of hoisting mechanisms and luffing mechanisms, the control working condition being configured by an operator based on a working state of a tower crane; and

a working condition determination module configured to acquire an actual working

condition of the tower crane, determine whether the actual working condition is consistent with the control working condition, if so, operate the tower crane according to the control working condition, and if not, send out alarm information and repeat the above steps;

wherein determining whether the actual working condition is consistent with the control working condition comprises: determining whether the actual working condition, which comprises positions of trolleys to be hoisted and connecting relationships of the trolleys to be hoisted, is consistent with the control working condition depending on whether the hoisting mechanisms and luffing mechanisms corresponding to the control working condition correspond to the positions of the trolleys to be hoisted and the connecting relationships of the trolleys to be hoisted**.**

10. The system for controlling the multi-hoisting multi-luffing tower crane according to claim 9, wherein the working state of the tower crane comprises:

at least one fault occurring to a plurality of hoisting mechanisms and a plurality of luffing mechanisms; a change in hoisting weight of the tower crane; and control and commissioning of the tower crane.

11. The system for controlling the multi-hoisting multi-luffing tower crane according to claim 9, wherein the configured control working condition of the hoisting mechanisms and the luffing mechanisms comprises configured combinations of the hoisting mechanisms and the luffing mechanisms, and cooperative work according to the combinations.

12. A device for controlling a multi-hoisting multi-luffing tower crane, comprising a processor and a storage medium, wherein

the storage medium is configured to store an instruction; and

the processor is configured to operate according to the instruction so as to execute the steps of the method according to any one of claims 1 to 8.

13. A computer-readable storage medium having a computer program stored thereon, wherein the program, when executed by a processor, implements the steps of the method

according to any one of claims 1 to 8.