C L A I M S

1. Wellbore drilling system comprising:

- a drilling tower (4),
- a drill floor (25) having a well center (27) through which a drill string passes along a firing line,
- a drilling tubulars storage rack (10, 11) adapted to store multiple drilling tubulars in vertical orientation, preferably multi-jointed tubulars (15),
- a tubular racking device (40, 40') having at least a lower first tubular racker assembly (41, 41'; 141, 141') and at least a second tubular racker assembly (42, 42'; 142, 142') operable at a greater height than the first tubular racker assembly, each tubular racker assembly comprises a base (41b'; 141'b), a motion arm (41b; 142'b) connected to said base, and a tubular gripper member (41t; 141t) connected or connectable to the motion arm and adapted to grip a tubular,

wherein the tubular racking device is adapted to grip and retain a drilling tubular by the tubular racker assemblies, and wherein the tubular racking device is adapted to place a tubular in and remove a tubular from the drilling tubulars storage rack (10, 11),

and wherein the tubular racking device has a reach at least allowing to transfer a tubular gripped by said first and second tubular racker assemblies between the drilling tubulars storage rack (10, 11) and a position of the tubular aligned with the firing line (5) above the well center so as to allow for building and disassembly of a tubulars string, e.g. a drill string or a casing string,

wherein the system further comprises one or more well center tools (150), each adapted for operation above the well center of the drill floor, e.g. an iron roughneck tool for making up and breaking out of threaded tubular joints,

characterized in that

the base (42b) of the first tubular racker assembly (41, 41'; 141, 141') is vertically mobile between a lower operative position - wherein the corresponding gripper member can place a tubular in and remove a tubular from the drilling tubulars storage rack - and a raised position,

and in that the tubular racking device comprises a third tubular racker assembly (43, 43'; 143, 143') comprising a base, a motion arm connected to said base, and a tubular gripper member connected or connectable to the motion arm and adapted to grip a tubular,

wherein the base of the third tubular racker assembly (43, 43'; 143, 143') is vertically mobile at least between a well center servicing position, that is below the lower operative position of the base of the first tubular racker assembly (41, 41'; 141, 141'), and said lower operative position of the base of the first tubular racker assembly if said first tubular racker assembly (41, 41'; 141, 141') is moved to a raised position,

wherein – with the base of the third tubular racker assembly (43, 43'; 143, 143') in said lower operative position of the base of the first tubular racker assembly and with a tubular gripper member connected to the motion arm – the third tubular racker assembly(43, 43'; 143, 143') is operable for tubular transfer between the firing line and the drilling tubulars storage rack in combination with the second tubular racker assembly, e.g. in case of failure of the first tubular racker assembly,

and in that at least one well center tool (150) is adapted to be connected to the motion arm of the third tubular racker assembly (43, 43'; 143, 143'),

and in that – with the base of the third tubular racker assembly(43, 43'; 143, 143') in the well center servicing position and a well center tool connected to the motion arm thereof – the well center tool is operable above the drill floor, whilst the first and second tubular racker assemblies are operable in combination for tubular transfer between the firing line and the drilling tubulars storage rack (10, 11).

2. Wellbore drilling system according to claim 1, wherein the system further comprises a well center tools storage structure (55) that is adapted to store therein the one or more well center tools that are connectable to the motion arm of the third tubular racker assembly (43, 43'; 143, 143'), wherein preferably the well center tools storage structure is adapted to store well center tools therein at least at multiple levels above one another.

3. Wellbore drilling system according to claim 2, wherein said well center tools storage structure is arranged such that said one or more well center tools stored therein are within reach of the third tubular racker assembly (43, 43'; 143, 143') so as to allow connection of a well center tool to the motion arm while the well center tool is stored in the well center tools storage structure.

4. Wellbore drilling system according to claim 1, wherein the system comprises multiple well center tools having identical mechanical connectors that are connectable to the motion arm of the third tubular racker assembly (43, 43'; 143, 143').

5. Wellbore drilling system according to claim 1, wherein the system comprises at least one of the following well center tools:

- an iron roughneck (150) for making up and breaking out of threaded tubular joint,
- a raised back-up system clamp adapted to clamp a drill string top end at an elevated position above the drill floor,
- a guide sheave for one or more lines and/or umbilicals and/ or hoses to be introduced into the well bore,
- a thread doper adapted to clean a threaded tubular end and to dope the threaded tubular end,
- a mud bucket adapted to catch mud upon tripping in order to retrieve mud allowing for re-use of the mud.

6. Wellbore drilling system according to claim 1, wherein a first and a second drilling tubulars storage rack (10, 11) is provided on opposite sides of the drilling tower (4), and wherein a first tubular racking device (40; 140) is arranged to transfer tubulars between the first drilling tubulars storage rack (10) and the firing line, and wherein a second tubular racking device (41; 141) is arranged to transfer tubulars between the second drilling tubulars storage rack (11) and the firing line.

7. Wellbore drilling system at least according to claims 3 and 6, comprising a first well center tool storage structure (55) arranged such that said one or more well center tools stored therein are within reach of the first tubular racking device, and comprising a second well center tool storage structure (55') arranged such that said one or more well center tools stored therein are within reach of the second tubular racking device.

8. Wellbore drilling system at least according to claim 7, wherein the system comprises a first and a second iron roughneck device (150), each adapted for different diameter tubular strings, and wherein the first iron roughneck device is stored in the first well center tool storage structure and wherein the second iron roughneck device is stored in the second well center tool storage structure.

9. Wellbore drilling system according to claim 1, wherein one or more, preferably all, of the tubular racker assemblies of a tubular racking device are provided with a base that is guided along a common vertical rails (145).

10. Wellbore drilling system according to claim 1, wherein the drilling tubulars storage rack is a drilling tubulars rotary storage rack (10, 11) that is rotatable about a vertical axis and has storage slots for storage of multiple tubulars in vertical orientation, the drilling tubulars rotary storage rack including a drive to rotate the drilling tubulars storage rack about its vertical axis.

11. Wellbore drilling system according to claim 10, wherein the drilling tubulars rotary storage rack comprises a central vertical post (10a, 11a) and multiple discs at different heights on the post, at least one disc being a fingerboard disc (15a) having tubulars storage slots, each slot having an opening at an outer circumference of the fingerboard disc allowing to introduce and remove a tubular from the storage slot, wherein at least one fingerboard disc is composed of multiple fingerboard disc members that are releasably connected to the central post, e.g. by bolts, and wherein, preferably, a finger board disc member is provided with a latching device (117) adapted to latch each individual tubular held in a slot of the fingerboard disc member.

12. Wellbore drilling system according to claim 11, wherein at least one tubular racker assembly is vertically mobile and is embodied to retain a finger board disc member (115a-i) during mounting and/or dismounting of the fingerboard disc member from the vertical post, e.g. the motion arm being provided with a gripper member adapted to grip the fingerboard disc member, and wherein the tubular racker assembly is used for vertical transportation of the gripped fingerboard disc member.

13. Offshore drilling vessel comprising:
- a hull; e.g. a mono-hull,
- a drilling system according to one or more of the preceding claims,

wherein preferably a moonpool is present in the hull, and wherein the drilling structure is a mast at or near the moonpool with the firing line along and on the outside of the mast.

14. Method for drilling wherein use is made of a wellbore drilling system according to one or more of the preceding claims 1-12.

15. Method for drilling according to claim 14, comprising the following steps:

- gripping a tubular in the drilling tubulars storage rack by the first and second tubular racker assemblies,
- retaining and removing a tubular from the drilling tubulars storage rack, and transferring the tubular to a position wherein the tubular is aligned with the firing line above the well center so as to allow for building of a tubulars string,
- retaining a well center tool, e.g. an iron roughneck device, by means of a third racker assembly above the well center, with the base of the third tubular racker assembly in the well center servicing position,
- operating the well center tool above the drill floor, e.g. making up a connection between a string held in the well center and the tubular retrieved by the first and second tubular racker assemblies, e.g. said tubular having been handed over to the elevator of a topdrive.