

CLAIMS

What is claimed is:

1. A sliding sleeve valve locking assembly for use with a sliding sleeve valve having
a) an outer housing defining a flowbore and a lateral fluid flow port disposed through the
housing; and b) a sliding sleeve member disposed within the flowbore and axially
moveable within between a first, open position wherein the lateral fluid flow port is not
blocked by the sliding sleeve member and a second, closed position wherein the lateral
fluid flow port is blocked by the sliding sleeve member, the locking assembly
comprising:

an outer housing defining a locking bore portion having a first locking groove
formed therein;

a sliding sleeve collet member that is moveably disposed within the outer
housing, affixed to the sliding sleeve member and having a collet finger with a tab
shaped and sized to reside within the first locking groove to correspond to one of the
first or second positions for the sliding sleeve valve; and

a collet locking member that is moveably disposed within the sliding sleeve collet
member to selectively lock the sliding sleeve collet member within the locking bore
portion.

2. The sliding sleeve valve locking assembly of claim 1 further comprising a second
locking groove formed within the outer housing that is shaped and sized to permit the

3 tab of the collet finger to reside within and corresponding to the other of the first or
4 second positions for the sliding sleeve valve.

1 3. The sliding sleeve valve locking assembly of claim 1 further comprising a dog
2 member that resides within a dog opening in the sliding sleeve collet member and is
3 selectively moveable radially outwardly into a third locking groove in the outer housing
4 to secure the sliding sleeve collet member within the outer housing.

1 4. The sliding sleeve valve locking assembly of claim 3 wherein the dog member is
2 moved radially outwardly into the third locking groove by movement of the collet locking
3 member within the sliding sleeve collet member.

1 5. The sliding sleeve valve locking assembly of claim 1 wherein the collet locking
2 member presents an engagement shoulder which is engaged by a shifting tool to move
3 the collet locking member with respect to the sliding sleeve collet member.

1 6. The sliding sleeve valve locking assembly of claim 1 wherein the collet locking
2 member comprises an annular ring which locks the sliding sleeve collet member within
3 the locking bore portion by retaining the collet finger tab within the first locking groove.

1 7. The sliding sleeve valve locking assembly of claim 1 further comprising:
2 a first channel formed radially within the sliding sleeve collet member; and
3 wherein

4 the collet locking member comprises:

5 a generally cylindrical base ring; and

6 a collet finger axially extending from the base ring and presenting a
7 radially projecting tab that is shaped and sized to reside within a locking channel
8 in the sliding sleeve collet member in a locked configuration wherein the sliding
9 sleeve collet member is locked against movement with respect to the
10 surrounding housing.

1 8. The sliding sleeve valve locking assembly of claim 7 further comprising a second
2 channel formed within the sliding sleeve collet member and shaped and sized to receive
3 the tab of the collet locking member in an unlocked configuration wherein the sliding
4 sleeve collet member is free to move with respect to the surrounding housing.

1 9. A sliding sleeve valve that is lockable in at least one of an open or a closed
2 position, the sleeve valve comprising:

3 an outer housing defining a flowbore and a lateral fluid flow port disposed
4 through the housing;

5 a sliding sleeve member disposed within the flowbore and axially moveable
6 within between a first, open position wherein the lateral fluid flow port is not blocked by
7 the sliding sleeve member and a second, closed position wherein the lateral fluid flow
8 port is blocked by the sliding sleeve member;

9 a locking assembly comprising:

10 a) a locking bore portion within the outer housing flowbore having a
11 first locking groove formed therein;

12 b) a sliding sleeve collet member that is moveably disposed within the
13 outer housing, affixed to the sliding sleeve member and having a collet finger
14 with a tab shaped and sized to reside within the first locking groove to
15 correspond to an open position for the sliding sleeve valve; and

16 c) a collet locking member that is moveably disposed within the sliding
17 sleeve collet member to selectively lock that collet finger tab in the first locking
18 groove.

1 10. The sliding sleeve valve of claim 9 further comprising a second locking groove
2 formed within the outer housing that is shaped and sized to permit the tab of the collet
3 finger to reside within and corresponding to a closed position for the sliding sleeve
4 valve.

1 11. The sliding sleeve valve of claim 10 further comprising a dog member that
2 resides within a dog opening in the sliding sleeve collet member and is selectively
3 moveable radially outwardly into a third locking groove in the outer housing to secure
4 the sliding sleeve collet member within the outer housing.

1 12. The sliding sleeve valve of claim 11 wherein the dog member is moved radially
2 outwardly into the third locking groove by movement of the collet locking member within
3 the sliding sleeve collet member.

1 13. The sliding sleeve valve of claim 9 wherein the collet locking member presents
2 an engagement shoulder which is engaged by a shifting tool to move the collet locking
3 member with respect to the sliding sleeve collet member.

1 14. The sliding sleeve valve of claim 13 wherein the collet locking member comprises
2 a generally cylindrical ring.

1 15. The sliding sleeve valve of claim 14 wherein the collet locking member further
2 comprises a collet finger axially extending from the ring and presenting a radially
3 projecting tab that is shaped and sized to reside within a locking channel in the sliding
4 sleeve collet member in a locked configuration so that the sliding sleeve collet member
5 is locked against movement with respect to the surrounding housing.

1 16. The sliding sleeve valve of claim 15 further comprising a second channel formed
2 within the sliding sleeve collet member and shaped and sized to receive the tab of the
3 collet locking member in an unlocked configuration wherein the sliding sleeve collet
4 member is free to move with respect to the surrounding housing.

1 17. A method of selectively locking a sliding sleeve valve into an open/closed
2 configuration, the method comprising the steps of:
3 providing a sliding sleeve valve having:

4 a) an outer housing defining a flowbore and a lateral fluid flow port disposed
5 through the housing;

6 b) a sliding sleeve member disposed within the flowbore and axially
7 moveable within between a first, open position wherein the lateral fluid flow port
8 is not blocked by the sliding sleeve member and a second, closed position
9 wherein the lateral fluid flow port is blocked by the sliding sleeve member;
10 securing the sliding sleeve member to a sliding sleeve collet member;
11 locating the sliding sleeve member at a desired location within the outer housing;

12 and

13 locking the sliding sleeve member at the desired location.

1 18. The method of claim 17 wherein the step of locating the sliding sleeve member at
2 a desired location within the outer housing comprises latching a tab associated with the
3 sliding sleeve member within a locking groove in the outer housing.

1 19. The method of claim 17 wherein the step of locking the sliding sleeve member at
2 the desired location comprises urging a dog member radially outwardly from a sliding
3 sleeve collet member associated with the sliding sleeve member and into a locking
4 groove in the housing.

1 20. The method of claim 19 wherein the step of urging a dog member radially
2 outwardly further comprises moving a collet locking member axially with respect to the
3 sliding sleeve collet member.

1 21. The method of claim 19 wherein the collet locking member is moved by a shifting
2 tool having a shifting profile shaped and sized to engage the collet locking member for
3 shifting it.

1 22. The method of claim 17 wherein the sliding sleeve member is locked at the
2 desired location by urging a dog member radially outwardly and into a locking groove
3 within the outer housing.

CLAIMS

What is claimed is:

1. A sliding sleeve valve locking assembly for use with a sliding sleeve valve having a) an outer housing defining a flowbore and a lateral flow port disposed through the housing; and b) a sliding sleeve member disposed within the flowbore and axially moveable within by a shifting tool disposed within a wellbore from a surface location between a first, open position wherein the lateral fluid flow port is not blocked by the sliding sleeve member and a second, closed position wherein the lateral fluid flow port is blocked by the sliding sleeve member, the locking assembly comprising:

the outer housing defining a locking bore portion having a first locking groove formed therein;

a sliding sleeve collet member that is moveably disposed within the outer housing, affixed to the sliding sleeve member and having a collet finger with a tab shaped and sized to reside within the first locking groove to correspond to one of the first or second positions for the sliding sleeve valve;

a collet locking member that is moveably disposed by the shifting tool within the sliding sleeve collet member to selectively lock the sliding sleeve collet member within the locking bore portion; and

a second locking groove formed within the outer housing that is shaped and sized to permit the tab of the collet finger to reside within an corresponding to the other of the first or second positions for the sliding sleeve.

2. The sliding sleeve valve locking assembly of claim 1 further comprising a dog member that resides within a dog opening in the sliding sleeve collet member and is selectively moveable radially outwardly into a third locking groove in the outer housing to secure the sliding sleeve collet member within the outer housing.

3. The sliding sleeve valve locking assembly of claim 2 wherein the dog member is moved radially outwardly into the third locking groove by movement of the collet locking member within the sliding sleeve collet member.

4. The sliding sleeve valve locking assembly of claim 1 wherein the collet locking member presents an engagement shoulder which is engaged by the shifting tool to move the collet locking member with respect to the sliding sleeve collet member.

5. The sliding sleeve valve locking assembly of claim 1 wherein the collet locking member comprises an annular ring which locks the sliding sleeve collet member within the locking bore portion by retaining the collet finger tab within the first locking groove.
6. The sliding sleeve valve locking assembly of claim 1 further comprising:
a first channel formed radially within the sliding sleeve collet member; and
wherein the collet locking member comprises:
a generally cylindrical base ring; and
a collet finger axially extending from the base ring and presenting a radially projecting tab that is shaped and sized to reside within a locking channel in the sliding sleeve collet member in a locked configuration wherein the sliding sleeve collet member is locked against movement with respect to the surrounding housing.
7. The sliding sleeve valve locking assembly of claim 6 further comprising a second channel formed within the sliding sleeve collet member and shaped and sized to receive the tab of the collet locking member in an unlocked configuration wherein the sliding sleeve collet member is free to move with respect to the surrounding housing.
8. A sliding sleeve valve that is lockable in at least one of an open or a closed position, the sleeve valve comprising:
an outer housing defining a flowbore and a lateral fluid flow port disposed through the housing;
a sliding sleeve member disposed within the flowbore and axially moveable within by a shifting tool disposed within a wellbore from a surface location between a first, open position wherein the lateral fluid flow port is not blocked by the sliding sleeve member and a second, closed position wherein the lateral fluid flow port is blocked by the sliding sleeve member;
a locking assembly comprising:
a) a locking bore portion within the outer housing flowbore having a first locking groove formed therein;
b) a sliding sleeve collet member that is moveably disposed within the outer housing, affixed to the sliding sleeve member and having a collet finger with a tab shaped and sized to reside within the first locking groove to correspond to an open position for the sliding sleeve valve;
c) a collet locking member that is moveably disposed within the sliding sleeve collet member to selectively lock that collet finger tab in the first locking groove; and

d) a second locking groove formed within the outer housing that is shaped and sized to permit the tab of the collet finger to reside within and corresponding to a closed position for the sliding sleeve valve.

9. The sliding sleeve valve of claim 8 further comprising a dog member that resides within a dog opening in the sliding sleeve collet member and is selectively moveable radially outwardly into a third locking groove in the outer housing to secure the sliding sleeve collet member within the outer housing.

10. The sliding sleeve valve of claim 9 wherein the dog member is moved radially outwardly into the third locking groove by movement of the collet locking member within the sliding sleeve collet member.

11. The sliding sleeve valve of claim 8 wherein the collet locking member presents an engagement shoulder which is engaged by the shifting tool to move the collet locking member with respect to the sliding sleeve collet member.

12. The sliding sleeve valve of claim 11 wherein the collet locking member comprises a generally cylindrical ring.

13. The sliding sleeve valve of claim 12 wherein the collet locking member further comprises a collet finger axially extending from the ring and presenting a radially projecting tab that is shaped and sized to reside within a locking channel in the sliding sleeve collet member in a locked configuration so that the sliding sleeve collet member is locked against movement with respect to the surrounding housing.

14. The sliding sleeve valve of claim 13 further comprising a second channel formed within the sliding sleeve collet member and shaped and sized to receive the tab of the collet locking member in an unlocked configuration wherein the sliding sleeve collet member is free to move with respect to the surrounding housing.

15. A method of selectively locking a sliding sleeve valve into an open/closed configuration, the method comprising the steps of:

providing the sliding sleeve valve having:

a) an outer housing defining a flowbore and a lateral fluid flow port disposed through the housing;

b) a sliding sleeve member disposed within the flowbore and axially moveable within between a first, open position wherein the lateral fluid flow port is not blocked by the sliding sleeve member and a second, closed position wherein the lateral fluid flow port is blocked by the sliding sleeve member;

securing the sliding sleeve member to a sliding sleeve collet member;

locating the sliding sleeve member at a desired location within the outer housing by latching a tab of the sliding sleeve collet member within either of a first locking groove or a second locking groove within the flowbore, each of the locking grooves corresponding to one of either the first, open position or the second, closed position; and

locking the sliding sleeve member at the desired location by urging a dog member radially outwardly and into a locking groove in the housing.

16. The method of claim 15 wherein the dog member is urged radially outwardly from the sliding sleeve collet member associated with the sliding sleeve member.

17. The method of claim 15 wherein the step of urging a dog member radially outwardly further comprises moving a collet locking member axially with respect to the sliding sleeve collet member.

18. The method of claim 17 wherein the collet locking member is moved by a shifting tool having a shifting profile shaped and sized to engage the collet locking member for shifting it.