CLAIMS:

1. A rotor comprising a rotor having external blades for use in causing rotation of the rotor, the rotor further having internal blades for use in propelling a fluid through the rotor during rotation of the rotor.

2. A rotor according to claim 1, including a stator in said rotor, so that said fluid can be propelled between said rotor and said stator.

3. A rotor according to claim 2, wherein said stator has a plurality of external blades interleaved with said internal blades of the rotor so that rotation of the rotor causes said fluid to be propelled between said blades.

4. A rotor according to claim 3, wherein the volume between adjacent internal and external blades decreases in the direction in which said fluid is propelled between said rotor and said stator.

5. Apparatus for providing a source of power including a rotor according to any preceding claim, wherein:

a fluid circuit is coupled with said rotor, rotation of the rotor propelling fluid in the circuit through the circuit; and

the apparatus includes means for using the fluid propelled through the circuit as a power source.

6. Apparatus according to claim 5, wherein the rotor is in a flow path for a second fluid, the rotor being rotatable by the flow of the second fluid through said path.

7. Apparatus according to claim 6, wherein the rotor is in a flow path for hydrocarbon fluid in a hydrocarbon well facility, said using means using the fluid propelled through the circuit as a power source for the facility.

8. Apparatus according to any of claims 5 to 7, wherein said using means comprises means for hydraulically operating at least one device.

9. Apparatus according to any of claims 5 to 8, wherein said using means comprises means for generating electrical power from fluid propelled through said circuit.

10. A method of propelling a fluid, comprising providing a rotor having external blades and internal blades and causing rotation of the rotor via the external blades to propel the fluid through the rotor during rotation of the rotor.

11. A method according to claim 10, wherein there is a stator in said rotor so that said fluid is propelled between said rotor and said stator.

12. A method according to claim 11, wherein said stator has a plurality of external blades interleaved with said internal blades of the rotor so that rotation of the rotor causes said fluid to be propelled between said blades.

13. A method according to claim 12, wherein the volume between adjacent internal and external blades decreases in the direction in which said fluid is propelled between said rotor and said stator.

14. A method according to any of claims 10 to 13, wherein a fluid circuit is coupled with said rotor, rotation of the rotor propelling fluid in the circuit through the circuit and the fluid propelled through the circuit being used a power source.

15. A method according to claim 14, wherein the rotor is in a flow path for a second fluid, the rotor being rotated by the flow of the second fluid through said path.

16. A method according to claim 15, wherein the rotor is in a flow path for hydrocarbon fluid in a hydrocarbon well facility, the fluid propelled through the circuit being used as a power source for the facility.

17. A method according to any of claims 14 to 16, wherein said propelled fluid is used for hydraulically operating at least one device.

18. A method according to any of claims 14 to 17, wherein said propelled fluid is used for generating electrical power.

CLAIMS

1. An apparatus for providing a source of power, the apparatus comprising:

a rotor having external blades for use in causing rotation of the rotor, and internal blades for use in propelling a fluid through the rotor during rotation of the rotor;

a fluid circuit coupled with the rotor, wherein rotation of the rotor propels fluid in the fluid circuit through the fluid circuit;

a power device configured to use the fluid propelled through the fluid circuit as a power source;

wherein the rotor is in a flow path for a second fluid, the rotor being rotatable by the flow of the second fluid through the path;

a stator in the rotor, such that the first fluid can be propelled between the rotor and the stator;

wherein the stator has a plurality of external blades interleaved with the internal blades of the rotor so that rotation of the rotor causes the fluid to be propelled between the internal and external blades;

wherein the volume between adjacent internal blades of the rotor and external blades of the stator decreases in the direction in which the fluid is propelled between the rotor and the stator; and

wherein the rotor is in a flow path for hydrocarbon fluid in a subsea hydrocarbon well facility, the power device using the fluid propelled through the circuit as a power source for the well facility.

2. The apparatus according to claim 1, wherein the power device is configured to use the fluid propelled through the circuit as a power source to hydraulically operates at least one hydraulic device.

3. The apparatus according to claim 1, wherein the power device configured to use the fluid propelled through the circuit as a power source generates electrical power from fluid propelled through the fluid circuit.

4. The apparatus of claim 1, wherein a length of the internal blades of the rotor and the external blades of the stator decrease in the direction in which fluid is propelled between the rotor and the stator.

5. A method of propelling a first fluid, the method comprising:

providing a rotor having external blades and internal blades; and

coupling a fluid circuit with the rotor;

causing rotation of the rotor via the external blades to propel the first fluid through the rotor during rotation of the rotor;

causing further rotation of the rotor by a second fluid, wherein the rotor is in a flow path with the second fluid;

propelling the first fluid between the internal blades of the rotor and external blades of a stator, wherein the external blades of the stator comprise a plurality of external blades interleaved with the internal blades of the rotor;

wherein the volume between adjacent internal blades of the rotor and external blades of the stator decreases in the direction of the first fluid being propelled between the internal blades and external blades;

wherein the flow path is a flow path for hydrocarbon fluid in a subsea hydrocarbon well facility, the first fluid propelled through the circuit being used as a power source for the subsea hydrocarbon well facility.

6. The method according to claim 5, wherein the propelled fluid is used for hydraulically operating at least one hydraulic device.

7. The method according to claim 5, wherein the propelled fluid is used for generating electrical power.

8. The method claim 5, wherein a length of the internal blade of the rotor and the external blades of the stator decrease in the direction in which fluid is propelled between the rotor and the stator.