effects of currents can drag the wireline cable into a more curved or caternary shape, with the result that the angle of entry into the well becomes closer to horizontal.

In this orientation there is a greater frictional resistance between the cable and the subsea apparatus. Furthermore, the drag of the current can apply an upward pull on the wireline, countering the effects of the downward pull force applied to the wireline by gravity and/or the action of the tractor. In extreme cases the drag-induced upward pull and/or the frictional resistance loading applied to the wireline is so great that it overcomes the downward pull force preventing the wireline tools from descending into the well.

Summary of the Invention

According to a first aspect of the present invention there is provided a subsea winch comprising:

a housing adapted to be attached to a well intervention system, the housing having an inlet and an outlet; and

~~at least one~~a plurality of powered sheaves arranged between the inlet and the outlet, ~~the or~~ each powered sheave having a surface adapted to form a frictional engagement with a cable passing between the inlet and the outlet via the plurality of ~~at least~~ one sheaves,

wherein the plurality of sheaves comprises a first sheave and a second sheave, the first sheave being located adjacent a well axis, the first sheave being arranged between the second sheave and the well axis;

wherein, in use, a pull force pulling the cable in a downhole direction applied to the cable by a tool string being lowered into the well intervention system is increased by the winch such that the downhole pull force on the cable at the housing inlet is greater than the downhole pull force at the housing outlet.

The or each sheave may be powered by a motor.

The motor(s)- may be hydraulic.

Alternatively the motor(s) may be electric powered or air powered.

The motor(s) may be powered from surface, from a subsea power unit, a remotely operated vehicle, battery pack or any suitable power source.

In an embodiment where there are a plurality of sheaves, the motor(s) may operate independently. It is believed having each sheave driven independently by a discrete motor enhances the performance of the subsea winch and minimises the opportunities to damage the cable.

In an alternative embodiment the motors are synchronised.

The motor(s) may comprise a braking system.

The or each sheave may be dish shaped. A dish- or bowl- shaped sheave weighs less than a disc of material.

Alternatively the sheaves may be flat.

According to a second aspect of the present invention there is provided a stuffing box for use with a subsea wellhead, the stuffing box comprising:

a housing adapted to be connected to a well intervention system, the housing having a body, an inlet and an outlet, the inlet being movable with respect to the housing body.

According to a third aspect of the present invention there is provided a method of intervening in a well, the method comprising the step of:

lowering a tool into a well, the tool being attached to a cable, the cable passing into the well via at least one subsea winch ~~powered sheave and forming a frictional engagement with the at least one powered winch surface~~ comprising a housing adapted to be attached to a well intervention system, the housing having an inlet and an outlet; and a plurality of powered sheaves arranged between the inlet and the outlet, each powered sheave having a surface adapted to form a frictional engagement with the cable passing between the inlet and the outlet via the plurality of sheaves, wherein the plurality of sheaves comprises a first sheave and a second sheave, the first sheave being located adjacent a well axis, the first sheave being arranged between the second sheave and the well axis; wherein, in use, a pull force pulling the cable in a downhole direction applied to the cable by a tool string being lowered into the well intervention system is increased by the winch such that the downhole pull force on the cable at the housing inlet is greater than the downhole pull force at the housing outlet.