★★★ ２００９年度第９回知的財産翻訳検定<第４回英文和訳> ★★★

≪１級 -機械工学-≫

【解答にあたっての注意】
１．＊＊＊START＊＊＊から＊＊＊END＊＊＊ までを和訳してください。
２．問題は３題あります。それぞれの問題の指示に従い３題すべて解答してください。
３．課題文に段落番号がある場合、これを訳文に記載してください。
４．課題に図面が添付されている場合、該当する図面を参照してください。
※図面添付のない場合もございます。
★「課題図表の表示／非表示」リンクで表示

[問１]
次のクレーム（claims）を日本語に翻訳して下さい。なお、翻訳にあたってはクレームの後ろの明細書の記載（抜粋）および図面を参考にしてください。

＊＊＊START＊＊＊
Claims
1. An impeller comprising:
a central disk portion having a center axis;
at least two extensions extending at an angle from the central disk portion; and
at least two leading edges defined by an outer periphery of the central disk portion, each leading edge spanning from one extension to an adjacent extension, and each leading edge having at least a portion at which a radius of the leading edge from the center axis increases to form a continuous increasing radius curve.
2. The impeller according to claim 1, further comprising a hub mounted to the central disk portion to facilitate mounting of the impeller onto a shaft.
3. The impeller according to claim 1, wherein each entire leading edge has a radius that increases from the beginning of the leading edge to the end of the leading edge to form a continuously increasing radius curve along the entire leading edge.
＊＊＊END＊＊＊

【参考】明細書の記載（抜粋）
FIELD OF THE INVENTION
The invention relates to mixing impellers which are submerged in or at least partially in liquid material and rotated by a motor-driven shaft.
BACKGROUND OF THE INVENTION
Examples of industrial mixing impellers include designs which have a central hub and two or more radially extending blade type structures. These blades may be flat, angled, and in some cases have a wing or propeller shape. Typically, the impellers extend radially outwardly from a motor driven shaft and are submerged inside a material to be mixed.

DETAILED DESCRIPTION

FIG. 1 illustrates an impeller 10 which can be mounted to a shaft 12 via a mounting hub 14. The shaft 12 is illustrated as cut off, but typically would extend all the way through the hub 14 or the hub 14 can be mounted at the end of the shaft 12. Thus, several impellers 10 can be mounted along the length of a shaft. Typically, the shaft 12 extends inside a vessel (not shown) containing the material to be mixed, and is driven by a motor outside the vessel.

Turning now in more detail to FIGS. 1-3, the illustrated impeller 10 includes a central disk portion 24 which is substantially in the shape of a flat plate. One or more (in this case three) downwardly bent extensions 26 are provided and angle away from the disk portion 24 as shown. In the illustrated example, the extensions 26 project away from the plane of the central disk portion 24 by a band angle X.

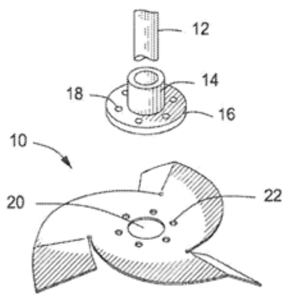

FIG. 1

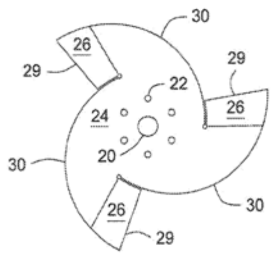

FIG. 2

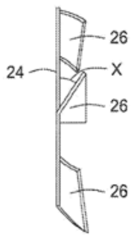

FIG. 3

[問２]
次の背景技術の記載を日本語に翻訳してください。段落 0003ー0004 を参考に、＊＊＊START＊＊＊から＊＊＊END＊＊＊までを翻訳してください。

[0003]When a flexible pipe, whatever its nature, is subjected to an external pressure higher than the internal pressure, an axial compression, known as the inverse end effect, is produced. The inverse end effect has a tendency to produce a longitudinal compressive force in the armors and to shorten the length of the flexible pipe. In addition, the flexible pipe is also subjected to dynamic stresses, especially during installation or in service in the case of risers. All of these stresses may result in damage of one or more armor plies and thus eventually degradation of the flexible pipe. An armor ply is considered to be damaged when certain wires are broken and/or have undergone substantial permanent (plastic) deformation and/or are overlapped.
[0004]A first cause of damage of the armors is an excessive stress state resulting from excessively large forces and/or deformations resulting in the rupture and/or plastic deformation of the wires. This mode of degradation may occur in the event of an inverse end effect, but also in other situations.

＊＊＊START＊＊＊
[0005]A second cause of damage is buckling, which is an instability phenomenon that may result in marked displacement (and deformation) of the armors. This mode of degradation exists only if there is a longitudinal compressive force in the armor wires. The instability occurs as soon as the axial compression exceeds a level called the critical load. This level depends on the physical properties of the armor wire and on the state of the armors (imposed deformation such as transverse deflections, rubbing on the other layers, coefficient of friction of the layers, etc.). In general, when the critical load is reached, the armor will in fact be considered to be sound in view of other criteria such as, for example, stress below the yield of the material, even though catastrophic failure may be imminent.
[0006]While buckling instability is one potential cause of damage, in certain cases there may be buckling without damage to the armors. This occurs (even though the wire is intrinsically unstable) when the amplitude of its deformations is sufficiently limited so that a state of degradation is reached (for example by the yield being exceeded) with no damage. Such a limitation in the deformations may be envisaged for example by bearing on the neighboring wires (limited lateral instability thanks to very small lateral clearances) or else by bearing on another layer (as in the case of radial instability). Otherwise, lateral buckling may lead to overlapping and/or plastic deformation of the armor wires, but this is in fact only a consequence of the buckling instability.
＊＊＊END＊＊＊

[問３]
次の実施例の記載を、図面を参考に日本語に翻訳してください。

[0011]FIGS. 3 and 4 show an embodiment of a wall-running radio-controlled toy car.
[0012]As shown in FIGS. 3 and 4, two exhaust fans 38 are provided, spaced laterally from another on the transverse centerline of a chassis 40, and each fan being driven by a motor 39 with the fan mounted directly on the motor shaft thereof. Six drive wheels 42 are provided, three on either side of the chassis 40, with the three wheels 42 on either side of the chassis being geared to one another so as to be driven in common by two separately radio-controlled motors.
[0013]Thus, steering is accomplished by differentially driving the wheels on either side of the chassis 40. Skirts 44 are provided, so as to ensure that the airflow is primarily from the ends of the chassis to a fan exhaust duct 46, in turn to ensure that an adequate area of high-velocity, low-pressure air flow is provided to generate adequate downforce D for running across a vertical wall surface. Note that the center pair of wheels are slightly lower in the chassis than the end pairs, so as to provide "teeter" and ensure that the center pair of drive wheels are always in good contact with the wall.

FIG. 3

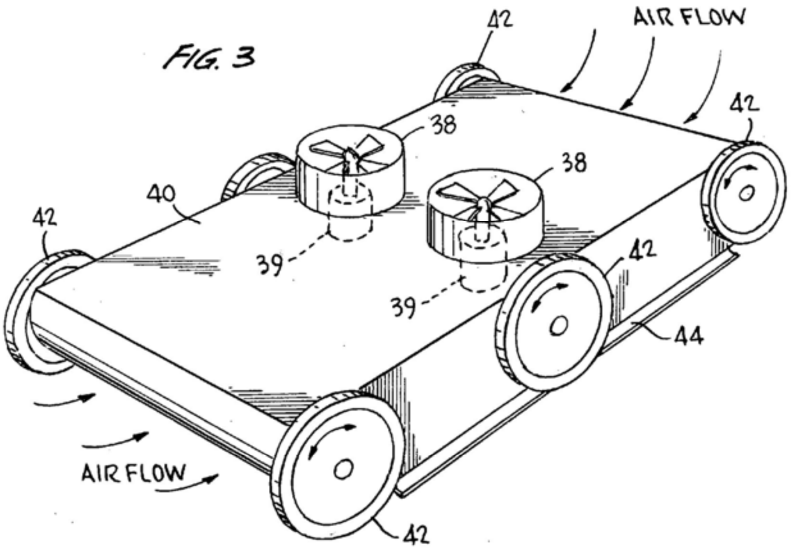

FIG. 4