★★★ ＜第31回知的財産翻訳検定試験【第15回英文和訳】＞ ★★★
≪１級課題 -機械工学-≫

【解答にあたっての注意】

１．問題の指示により和訳してください。

２．解答語数に特に制限はありません。適切な箇所で改行してください。

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．課題は３題あります。それぞれの課題の指示に従い、３題すべて解答してください。

問１．下記の従来技術に関する文を和訳してください。英文の冗長なスタイルや細かい表現にとらわれず、技術的なポイントが明確になる翻訳を心がけてください。

Despite being the most widely-used mode of transportation in the world, second only to foot, passenger trains have one glaring omission in comparison with most all other transportation means: collision safety for passengers. It would be misleading to say that passenger trains have no safety features at all, since modern railway systems have sophisticated collision prevention measures in place. However, passenger safety considerations in a case of an actual collision are practically nonexistent, for a reason that might as well be bureaucratic monologue: train crashes should never happen in the first place, so there is no need to prepare for one. Accordingly, no seatbelts, no crashproof anchoring of seats to frames. Yet nothing could be farther from the truth, with fatalities mounting yearly. USP 7,536,958 describes an attempt to address this issue, however simply seating passengers backwards would but expose them to flying objects (and passengers) in a frontal crash, and be meaningless in telescoping, where one car is displaced inside another, not to mention motion sickness for some riders in normal operations. And crumple zones are quite limited in effectiveness in high-speed passenger trains, some of which will be traveling at close to half the speed of sound once Japan's new maglev superexpress is completed and operational. A fundamental solution that would be neither cost-prohibitive nor excessively restrictive on passenger freedom has yet to be proposed.

問２．段落 0090～0091 及び図面を参考に、銃身の構造に関する下記の実施形態の記載を翻訳してください。パリルートを念頭に、必要ならばアレンジも加えて翻訳してください。

[0090] One or more elongate recesses 120 are formed in the body 112 of the barrel 110. Each elongate recess 120 comprises an elongate hole formed so as to extend from the muzzle end 116 (or a shoulder 116' formed proximate the muzzle end 116). Each elongate recess 120 is defined by one or more side walls 122 and a bottom wall 121 and extends from the bottom wall 121, along the one or more side walls 122, to an open end 123.

[0091] While the elongate recesses 120 are illustrated and described as being substantially tubular or cylindrical, with a substantially circular cross-sectional profile, in various exemplary, nonlimiting embodiments, each of the elongate recesses 120 may have a substantially circular, rectangular, square, triangular, or other desired profile.

START

[0100] In certain exemplary, nonlimiting embodiments, the elongate recesses 120 may create surfaces that will oppose each other as the elongate recesses 120 are stressed flexurally, tensionally, sinusoidally, and while in compression, thereby equalizing resultant forces from a fired projectile. In certain exemplary, nonlimiting embodiments, the elongate recesses 120 create a second stiffening structure, as the area between the elongate recesses 120 creates an "I-beam" type structure. "I-beam" type structures are known for their inherent stiffness due to their shape.

[0101] In certain exemplary, nonlimiting embodiments, the elongate recesses 120 may enhance the cooling capabilities of the barrel 100 due to an increased surface area of the barrel 100.

[0102] In certain exemplary, nonlimiting embodiments, cooling capabilities of the barrel 100 may be further enhanced by facilitating the ventilation of outside cool or ambient air in concert with evacuating the heated air within the elongate recesses 120 of the barrel 100. In certain exemplary embodiments, one or more apertures 130 are formed through the body 112 of

the barrel 100 so as to provide fluid communication between the exterior of the barrel 100 and the cavity of the elongate recess 120.

[0103] In various exemplary embodiments, as illustrated most clearly in FIGS. 3-12, the apertures 130 may be provided in a substantially spiral arrangement along a portion of the barrel 100. Alternatively, as illustrated most clearly in FIG. 14, the apertures 130 may be provided in various spaced apart locations along a portion of the barrel 100. It should be appreciated that the inclusion, size, number, and position of the apertures 130 is optional and a design choice based upon the desired appearance and/or functionality of the barrel 100.

[0104] As illustrated in FIG. 13, the apertures 130 may not be included, as they are optional.

END

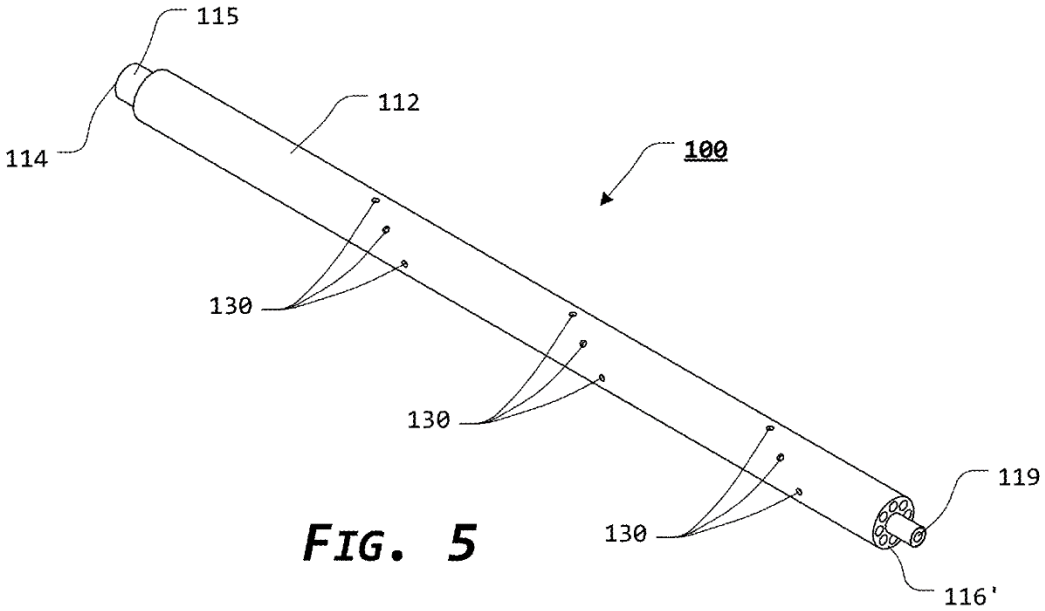
115
112
114
100
130
130
130
119
116'

FIG. 5

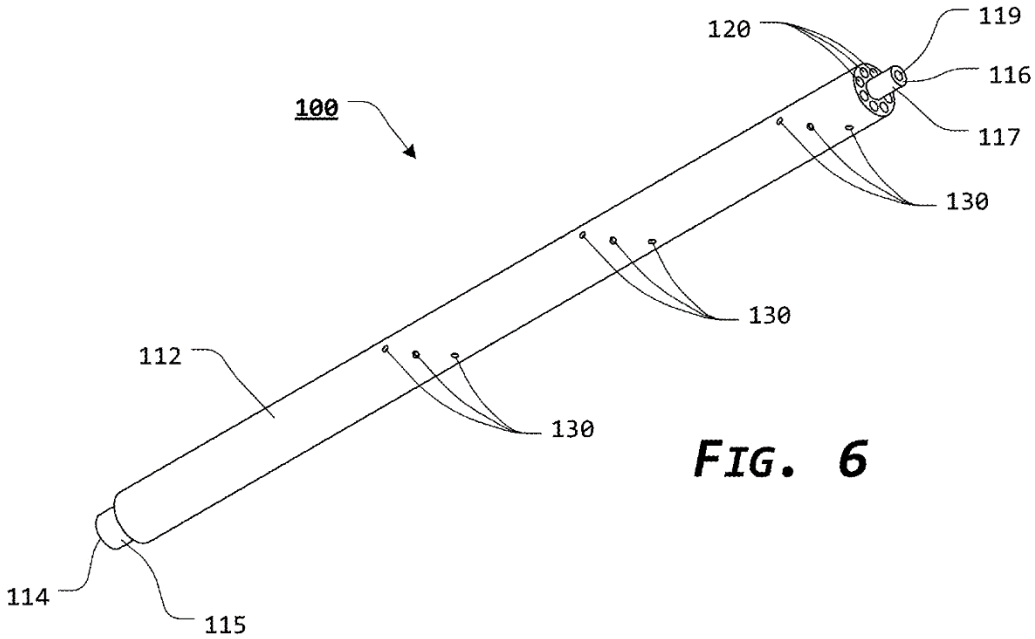
120
119
116
117
100
130
130
112
130
114
115

FIG. 6

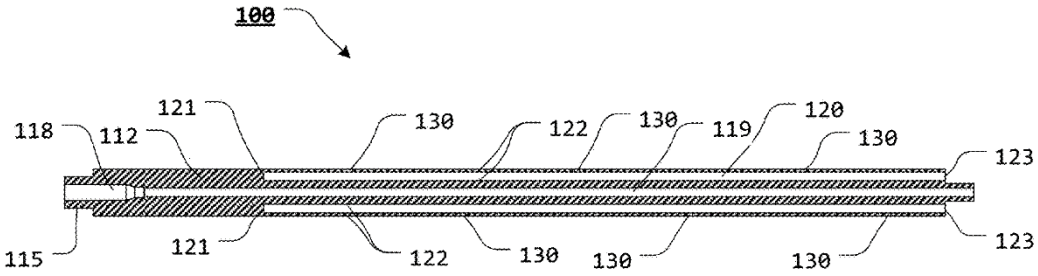

FIG. 10

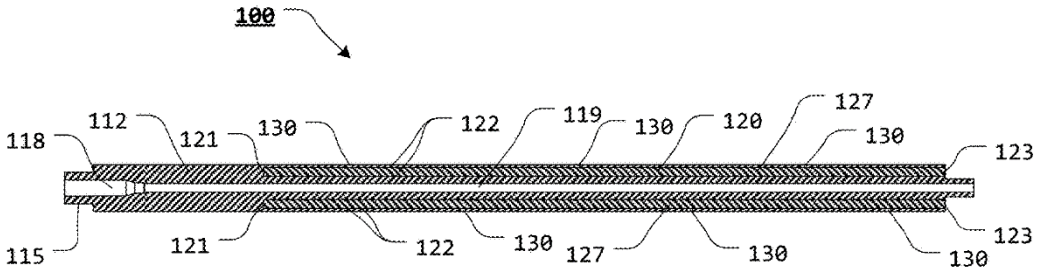

FIG. 11

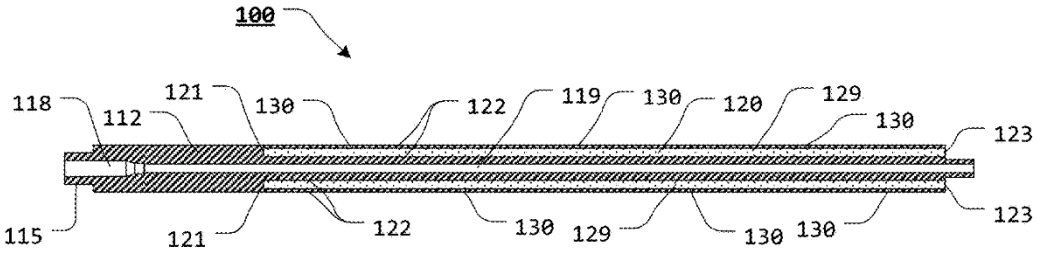

FIG. 12

問３．次の装置クレームを添付の図面を参考にして日本語に訳して下さい。

1. An apparatus for converting ocean wave motion into useful energy comprising,

a pressure chamber forming a pneumatic chamber (11) above the ocean water whereby a standing wave is maintained within the pressure chamber and transformed to a surging wave by normal wave motion thereby causing cyclic compression and suction of the air within the pressure chamber above the standing wave,

a counter-rotating turbine (17) transforming pneumatic suction and compression pressure of the air resulting from the wave surge into mechanical energy, said turbine (17) comprising an output shaft (25) mounted for rotation about a vertical axis within said pressure chamber, first and second rows of stationarily mounted guide vanes, a pair of counter-rotating runners (20, 21) connected with said output shaft and positioned between said first and second rows of stationarily mounted guide vanes, each runner having a plurality of arcuate turbine blades (22, 23) arranged so as to be rotated by moving air within said pressure chamber, and

an aperture in said pressure chamber above said counter-rotating turbine (17) for permitting air flow to and from said counter-rotating turbine (17).

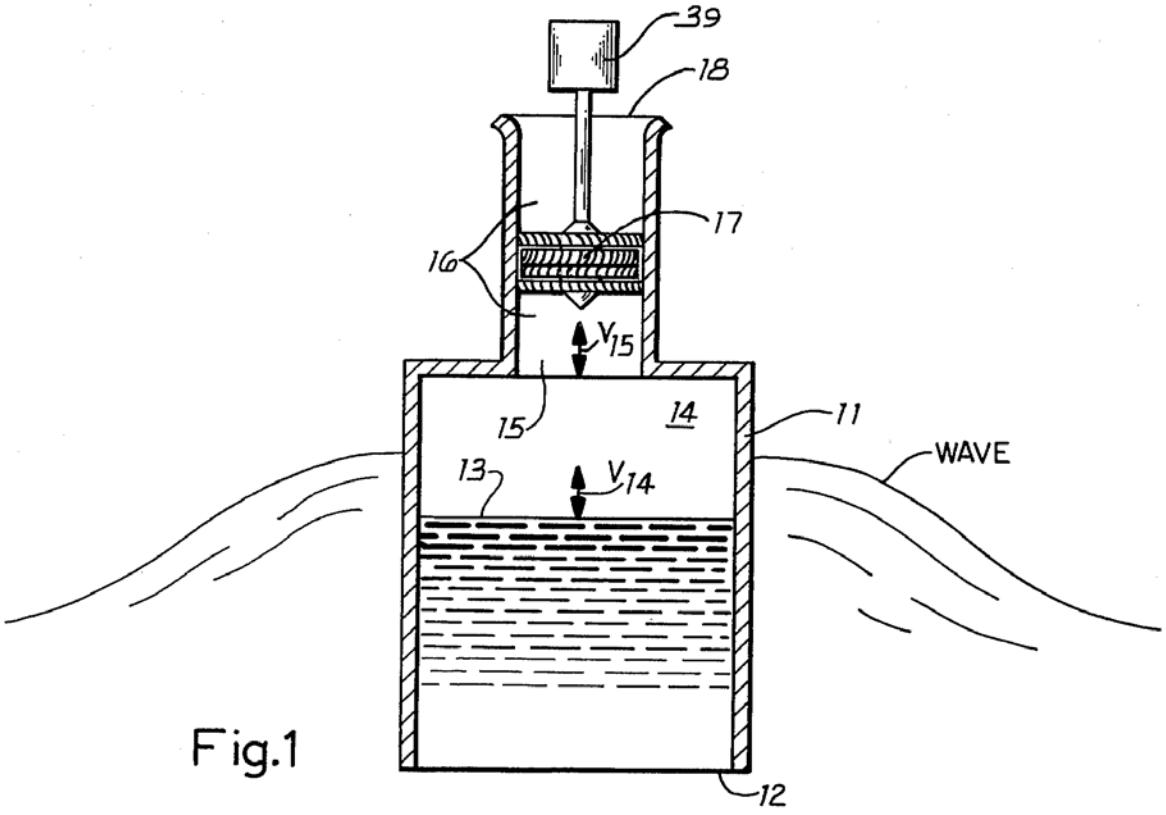
39
18
17
16
V_{15}
15
14
11
WAVE
13
V_{14}
12

Fig.1

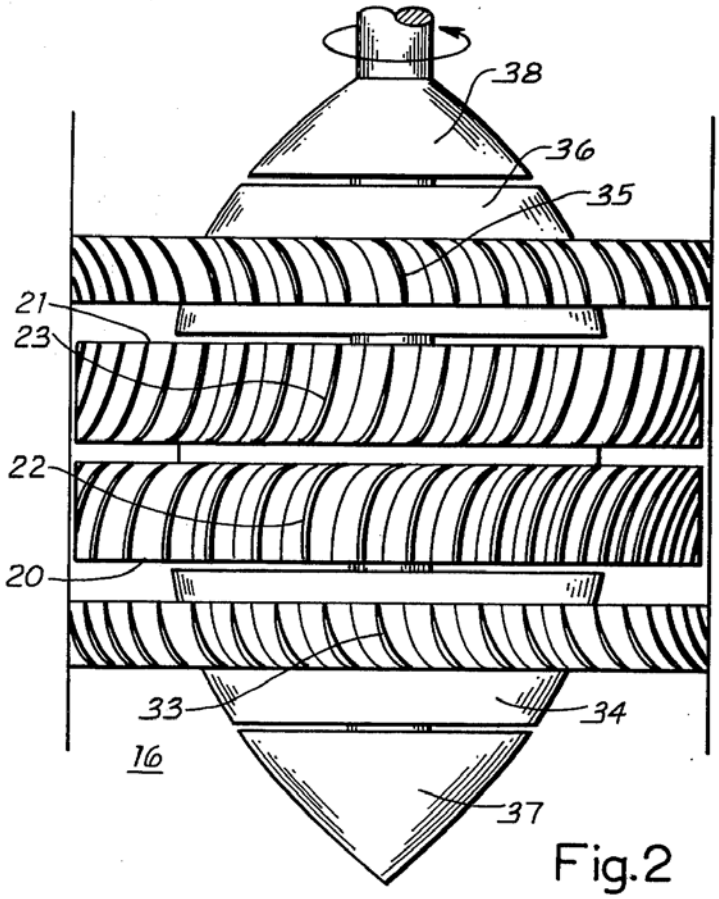
38
36
35
21
23
22
20
33
34
16
37

Fig.2

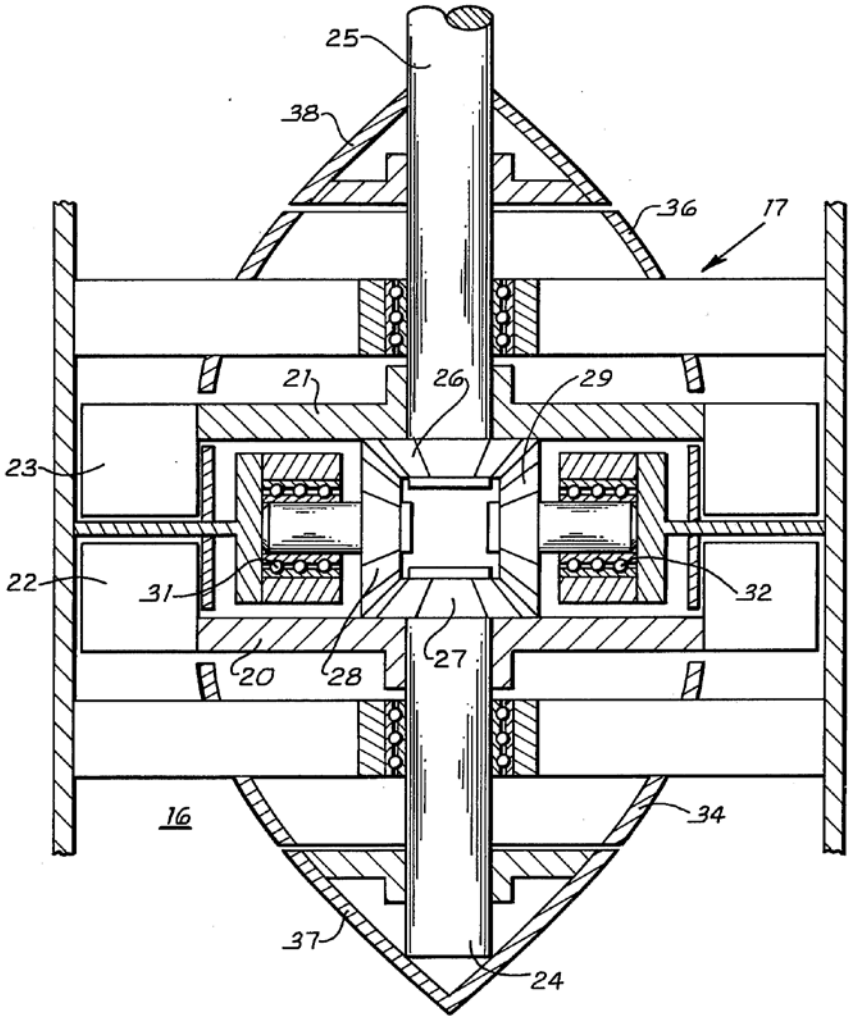

Fig.3