受験番号：28IPM033

1)
[0003]
Problem to be Solved by the Invention
However, even objects with a smooth surface have air resistance, and the fuel economy, acceleration, maximum speed, stability, and the like of transportation such as described above are affected by air resistance. In particular, fuel economy is pertinent to environmental issues such as the energy resource problem, pollution, acid rain, and global warming, with increases in the energy used for transportation further highlighting these problems. Also, objects that fly at ultra-high speeds experience problematic heating via friction with the air (aerodynamic heating). For example, a space shuttle can reach speeds of 7.6 km/s when re-entering the atmosphere, the frictional heating from this causing the surface temperature at some sections to reach temperatures of 1400°C or higher. Accordingly, the development of heat-resistant materials and heat insulation structures has faced difficult problems. There is also a demand for a breakthrough in durability, with development speeding along.
[0004]
In light of the foregoing, an object of the present disclosure is to provide an innovative object surface structure with reduced fluid resistance. The object surface structure with reduced fluid resistance, based on breakthroughs in hydrodynamic theory, is capable of reducing fluid resistance of a surface of an object more than that of a flat surface; enhancing the fuel economy, acceleration, maximum speed, and stability of any transportation; contributing to global efforts to realize energy saving and alleviate environmental issues; and enhancing the durability of heat-resistant materials and heat insulation structures and lowering costs by reducing frictional heating, problematic drag, and the like of objects flying at ultra-high speeds to levels significantly above that of technology in the related art.

2)
Next, as illustrated in FIG. 2, the core 1 with a bell-like shape is disposed at a predetermined position in a cavity in a mold for a final hollow molded product.
The mold includes three molds: a mold A denoted as 20 in FIG. 2, a mold B denoted as 30, and a mold C denoted as 40. The mold A includes protrusion portions 22 and 23, the mold B includes protrusion portions 32 and 33, and the mold C includes protrusion portion 41.
In particular, the protrusion portion 22 of the mold A and the protrusion portion 32 of the mold B are in contact with one another at an upper protrusion portion 11 of the core 1, the protrusion portion 23 of the mold A and the protrusion portion 33 of the mold B are in contact with one another at a through-hole 12 of the core 1 and are disposed separated from an inner wall of the core 1. Furthermore, a recess portion 13 of the core 1 is fit on the protrusion portion 41 of the mold C, and the core 1 is disposed at a predetermined position in the cavity of the mold.
As illustrated in FIG. 2, an outer shell resin (B) 5 is injected from an injection opening 21 at the injection molding temperature described above (320°C) around the core 1 disposed in the mold. Next, injection molding is performed, then cooling, and a integral core molded body is obtained.

Good: The outer shell resin displayed no cracking (no core deformation and an integral core molded body was obtained).
Fair: The outer shell resin displayed cracking (slight core deformation upon injection

molding using resin (B))
Poor: The outer shell resin displayed significant cracking (significant core deformation upon injection molding using resin (B)).

Corrections: 記号「○、△ ×」 を英語に変えました。

3)
A zoom len structure with a simple structure, comprising:
a lens barrel comprising

a fixed lens group located at either end of an optical axis L, and
two movable lens groups located between the fixed lens groups,

a first of the two movable lens groups being a movable lens group for zooming and being capable of changing an image magnification of an object, a second of the two movable lens groups being a movable lens group for focusing for focus adjustment, and the two movable len groups being movable along the optical axis L; wherein

a main movable shaft 5 and a moved shaft 6 are disposed parallel with the optical axis L in an area centered around the optical axis L;
a lens frame of the movable lens group for focusing 4 and a main movable body 8 integral therewith are slidably coupled to the main movable shaft 5;
a lens frame of the movable lens group for zooming 3 and a moved body 9 integral therewith are slidably coupled to the moved shaft 6; and
the movable lens group for zooming 3 and the movable lens group for focusing 4 are capable of moving along the optical axis L by driving the main movable body 8 associated with the main movable shaft 5 to move the moved body 9 associated with the moved shaft 6.