[0003]

[Solution to Problem]

However, even when an object has a smooth surface, the object cannot be free from air resistance, which affects the fuel efficiency, acceleration, maximum speed, stability, and other performance of the above examples of transportation objects. In particular, the fuel efficiency, which is a matter directly related to environmental problems including energy resources, pollution, acid rain, and global warming, is becoming more important as the energy for transportation has been increasing. In addition, an object flying at a very high speed involves a concern about frictional heat generated with air (aerodynamic heating). For example, a space shuttle travels as fast as at a speed of 7.6 km per second during atmospheric re-entry, and thus part of its surface may have a temperature equal to or greater than 1400°C caused by frictional heat. Therefore, heat-resisting materials and heat-insulated structures have been regarded as difficult to develop and remain great challenges, and future new ideas for solving problems including durability are desired and urgently needed.

[0004]

An objective of the present invention is to solve the above-described problems by providing a structure with reduced fluid resistance having a breakthrough object surface providing dramatically improved innovation technologies compared with conventional levels. Based on a new hydrodynamic theory, such structure of the present invention establishes that, for example, an object surface has a lower fluid resistance than smooth surfaces; the fuel efficiency, acceleration, maximum speed, stability, and other performance of, for example, every transportation object can be improved; in particular, efforts to address energy saving and environmental problems can be made on a global basis; and durability, cost, and other factors for heat-resisting materials and heat-insulated structures can be improved by reducing frictional head and various types of parasite drag on an object flying at a very high speed.

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Next, as illustrated in Fig. 2, each of the bell-shaped cores 1 was put in place in a die cavity for the final hollow molded product.

The die includes a die A, a die B, and a die C, which are indicated by reference numbers 20, 30, and 40, respectively in FIG. 2, and which include projections 22 and 23, projections 32 and 33, and projections 41, respectively.

Specifically, the projection 22 of the die A and the projection 32 of the die B are placed so as to abut on an upper projection 11 of the core 1, and the projection 23 of the die A and the projection 33 of the die B are placed so as to abut on a through-hole 12 of the core 1 and to be spaced apart from an inner wall of the core 1. In addition, the projection 41 of the die C is inserted into a recess 13 of the core 1, whereby the core 1 is placed in a predetermined position in the die cavity.

Each outer resin (B) 5 was poured, at the injection molding temperature (320°C), from an inlet 21 to fill around the each of the cores 1 placed in the die, injection molded, and cooled, thereby providing a core-integrated molded product.

(omitted)

Good: No crack or chap was visually observed on the outer resin (the core included in the obtained core-integrated molded product was not deformed).

Fair: Cracks and chaps were observed on the outer resin (the core was slightly deformed during injection molding of the resin (B)).

Bad: Cracks and chaps were significantly observed on the outer resin (the core was significantly deformed during injection molding of the resin (B)).

コメント

○、△、×を Good、Fair、Bad としました。

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[Claim 1]

A simplified zoom lens mechanism comprising:

a lens barrel comprising fixed lens groups disposed at both ends of the lens barrel and two moving lens groups disposed along an optical axis L between the fixed lens groups, one of the moving lens groups being for zooming and capable of varying a magnification of an imaged subject, and the other one of the moving lens group being for focusing intended to adjust a focus, wherein the two moving lens groups in the lens barrel are movable along an optical axis L in a zoom lens mechanism; and

an active axis 5 and an passive axis 6 each being parallel to the optical axis L and disposed around the optical axis L;

an active body 8 slidably fit into the active axis 5, the active body 8 being integral with a frame of the focusing moving lens group 4; and

a passive body 9 slidably fit into the passive axis 6, the passive body 9 being integral with a frame of the zooming moving lens group 4, wherein the passive body 9 on the passive axis 6 is capable of coupled-driving driven by the active body 8 on the active axis 5, whereby the zooming moving lens group 3 and the focusing moving lens group 4 are movable along the optical axis L.