

受験番号：20IPM005

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問 1

Description of the Related Art

[0006] ( 日文 【0006】 および 【0007】 )

In order to avoid deterioration in the quality of refractories due to erosion, Unexamined Japanese Application Publication No.2099-99999 (Patent Document 1) teaches entire coating of refractory molded bodies (fusion cells), such as refractory bricks, with platinum alloys by thermal spraying.

[0007] ( 日文 【0008】 )

As shown in Fig. 1 in an enlarged manner, a lower end 103 of a refractory body 100, such as refractory brick, is slightly rounded. This is because a sharp lower end 103 of a refractory body 100 can easily be tipped in the manufacturing process of the refractory body 100 or in the molding of a plate glass g, which may cause a serious problem of, for example, making a crack in the refractory body 100.

[0008] ( 日文 【0009】 )

On the other hand, having a round lower end 103 of the refractory body 100 may cause a problem in which a molten glass gm separates from both of lateral faces 102 of the refractory body 100 just before the both ends of the molten glass gm merging into each other at the lower end 103. This separation can make a gap X between the lower end 103 of the refractory body 100 and molten glass g as depicted.

[0009] ( 日文 【0010】 )

Due to the gap X, the air inside of the gap X may enter the merging part during the merging of the molten glass gm, and makes air bubbles inside of the plate glass g, which can cause deterioration of the quality of the glass plate g.

[0010] (日文【0011】)

This kind of problem also exists in the technique disclosed in Patent Document 1 in which the surface of the refractory body 100 is coated with a film of, for example, platinum. The film covering the surface of the refractory body 100 is formed along the lower end 103 of the refractory, and inevitably becomes round. Therefore, the refractory body 100 with coating of platinum or platinum alloy by thermal spraying may still have the gap X shown in Fig. 1, and may not solve the defective problem of, for example, air bubbles.

[0011] (日文【0012】)

In order to solve the above-described problem, the purpose of the present invention is to inhibit defects, such as air bubbles from entering plate glasses during formation.

問2

[Embodiment 2]

A glove according to the present invention was knitted with five composite yarns made in Embodiment 1 and a 7-gauge glove knitting machine manufactured by Shima Seiki. The knitted glove according to the present invention had cut-resistance to endure 16,256 cuts. A Comparative Example was knitted with five 20/2 spun yarns (100% Twaron) and a 7-gauge glove knitting machine manufactured by Shima Seiki. The Comparative Example had cut-resistance to endure 16 cuts. The glove according to the present invention had a hard texture, which made the glove less comfortable compared to the Comparative Example, however, did not have any problem for usage. Moreover, the manufacturing cost of the glove according to the present invention was less than the cost of the Comparative Example.

### 問3

1. A tensioner (10) for a belt transmitting system comprising:

a cylinder (11) having a first hole (13) formed in an interior thereof, and a fluid path (18) communicating with the first hole (13),

a piston (12) having a second hole (17) formed in an interior thereof, and inserted into the first hole (13),

a coil spring (16) slidably stored in the interior of the second hole, and having one end contacting a bottom portion of the second hole (17) and other end contacting a bottom portion of the first hole (13),

a check valve (19) that allows a flow of hydraulic fluid from the fluid path (18) to the first hole (13), and inhibits a reverse current of the flow,

wherein the piston (12) has a circumference including a piston-side rack (20) formed in one portion of the piston (12), and

wherein the cylinder (11) includes a opening (22) communicating with the first hole (13), a cylinder-side rack (21) engaged with the piston-side rack (20) through the opening (22), and an urging portion (25) that urges the cylinder-rack (21) toward the piston-side rack (20).