

受験番号: 38IPM023

【問1】

[0011]

In addition, in recent years, lignite and subbituminous coals, low-rank coals among coals, are increasingly commonly used as fuels in thermal power stations; however, such low-rank coals have a high moisture content, the bulk material 7 in powder would become muddy and easily attach to the bucket 19. This often causes problems at the time of unloading of the low-rank coals, which particularly include the weight of the edge of the boom 4 and the volume decrease of the bucket 19, resulting in frequent cleaning tasks.

[0012]

To solve the issues of the conventional bucket 19, the applicant has already filed an application directed to a bucket 28 (see FIG. 6) which the bulk material 7 is less likely to attach to the inner surface thereof, and the foregoing bucket 28 is described in Patent Literature 1.

[0014]

However, while the bucket 28 as disclosed in Patent Literature 1 is superior in terms of its capability to fluidize the bulk material 7 inside thereof, it is made of non-corrosion resistant steel plate, i.e. abrasion-resistant steel plate, and used after a coating is provided, and the inventors' research has revealed that, when the coating falls off after a long time period of use and rust occurs, the bulk material 7 such as coals will attach to the rusted areas.

[0015]

In addition, said bucket 28 needs to be provided with a corrosion allowance in preparation for occurrence of rust, which inevitably leads to an increase in weight for such corrosion allowance, and leaving potential for improvement.

【問2】

[0023]

As illustrated in FIG. 1, the present example is configured to pass the hot water through the pump device 12 such that the water drawn off through the outlet 19 of the bathtub 1 passes to the circulation pipe 11 up to a predetermined amount; pass the drawn hot water to the inlet 6 of the five-way valve system flow divider 5; draw the hot water passed to this inlet 6 off through the outlet 7; pass the hot water to the filter device 2; filter the foul hot water via a filter material provided inside the filter device 2; deliver the clean hot water to the heater device 3; heat the hot water to a predetermined temperature in the heater device 3; pass the hot water drawn off from the heater device 3 to the outlet 8 of the five-way valve system flow divider 5; draw the hot water passed to this outlet 8 off through outlet 9, and then circulate the hot water from the outlet 20 of

the bathtub 1 into the bathtub 1.

[0024]

The above configuration is designed for the circulation path when the circulation path of the hot water is in the standard operation. When the filter material in the filter device 2 gets clogged and the filter material needs to be washed, the five-way valve system flow divider 5 is adjusted such that the circulation path of the hot water is operated inversely as compared to the standard operation, thereby passing the hot water drawn off through the outlet 19 of the bathtub 1 to the inlet 6 of the flow divider 5, drawing the hot water passed to this inlet 6 through the outlet 8, passing the hot water to the heater device 3, passing the hot water drawn off through the heater device 3 to the filter device 2, washing the filter material provided within the filter device 2 with the hot water passed into filter device 2, passing the foul water resulting from washing of the filter material to the outlet 7 of the flow divider 5, and draining the foul water passed through the outlet 7 from the drain 10 of the flow divider 5 to the outside of the heated circulating bath device.

【問3】

1. Additive manufacturing apparatus (100) comprising:

a powder material supply device (110) for supplying a powder material (P) to a base material (B) at a supply position;

a light beam (BM) radiation device (120) for irradiating a light beam (BM) to melt the powder material (P) supplied at the supply position;

transfer devices (M1, M2) for transferring between the supply position and an irradiation position of the light beam (BM) relative to the base material (B); and

a control device (130) for controlling respective operation of the powder material supply device (110), the light beam (BM) radiation device (120), and the transfer devices (M1, M2), wherein

the powder material (P) is melted in a predetermined area of the base material (B) so as to form a puddle (MP), and as the puddle (MP) solidifies, adjacent beads are formed in a width direction, and

the additive manufacturing apparatus further comprises a detector (140) for detecting a size of the formed puddle,

the control device (130) modifies manufacturing conditions for forming the subsequent beads based on the size of the puddle (MP) obtained from the detector (140) at the time of forming the beads previously such that a lapping margin (L) of the subsequently formed beads in the width direction is consistent.

※溶融池(MP)は、「molten pool」ではなく、「puddle」と訳しています。