

第 10 回知的財産翻訳検定試験<第 6 回和文英訳>【1 級・機械工学】標準解答

[問 1]

[0002]

In recent years, products in which superelastic members formed of superelastic alloys (e.g., Ni-Ti alloys) are joined with metal or alloy members have been provided in the form of, for example, frames for eyeglasses, orthodontic wires, dental implants, medical catheters and stents, women's undergarments, and so forth.

[0003]

It is known that when superelastic alloys are subjected to deformation by an external force in an environment at or above the shape recovery temperature, the original shape is restored as soon as the force is removed. This is because, upon being subjected to an external force in the austenite phase region at a temperature higher than the shape recovery temperature, superelastic alloys exhibit transformation to a stress-induced martensite phase, but promptly revert as soon as the external force is removed.

[0004]

Note that in the Present Specification, the term "metal" will collectively refer to metals and alloys to which superelastic members are to be joined, "superelastic material" to the superelastic materials in a wire state, for example, before being made into a product, and "superelastic member" to the same having been worked into a product of some sort.

[0005]

Conventionally, superelastic materials and metal joined by brazing of one kind or another (brazing with aluminum alloy, copper-phosphorus, silver, gold, or the like), or by simple crimping, often come apart easily when a strong external force is applied.

[0006]

Accordingly, a manufacturing technique is employed to join superelastic materials and metal wherein the portions of both that are to be joined are placed in a metal sleeve, which is then swaged.

[問 2]

[0023]

Opening the array plate fixing valve 7 supplies vacuum to the array plate adsorption ports 9, whereby both ends of the array plate 2 are fixed to the manifold 5, and at the same time, the middle portion of the array plate 2 where the array holes 4 have been formed is pressed against

the adsorption plate 1. The array plate 2 is formed of a material with elasticity such as metal, with an offset 14 formed thereon, whereby elastic force is generated and the array plate 2 is pressed against the adsorption plate 1 even more firmly.

[0024]

A micro-ball adsorption area formed in the adsorption plate 1 has a structure wherein a great number of adsorption pores 3 are formed at a pitch of around several micrometers. The array holes 4 have a diameter on the order of several hundred micrometers, which is sufficiently great as compared with the adsorption pore pitch, so that sufficient suction is yielded at the array holes 4 even though no positioning is performed between the adsorption pores 3 and array holes 4.

[0025]

Upon moving micro-balls 11 close to the array holes 4 and then opening the micro-ball adsorption valve 8, vacuum is supplied to the micro-ball adsorption port 10, whereby vacuum is formed at the array holes 4 by way of the micro-ball adsorption space 10a and the adsorption pores 3, so that one micro-ball 11 is contained in each array hole 4.

[問 3]

1. A screw feeder comprising:

a screw receiver;

a conveying unit conveying the screws in the receiver;

an arranging unit arranging the screws conveyed by the conveying unit;

a discharging unit downstream of the arranging unit, the discharging unit discharging the arranged screws; and

a hopper having an insertion tube at a lower part thereof, the insertion tube being provided with a feed port at a lower end thereof,

wherein the insertion tube is removably disposed in the receiver leaving a predetermined gap therebetween such that the hopper and the insertion tube are not affected by vibrations of the screw feeder itself, and the screws are serially fed through the feed port into the receiver in a passive manner.

2. The screw feeder according to claim 1, wherein the hopper includes a support member at a lower part thereof, and the support member has an adjuster for height adjustment.