★★★　＜第10回知的財産翻訳検定【第6回和文英訳試験】＞答案用紙　★★★

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〔問１〕

[0002]
Recent years have seen various products, such as frames of eyeglasses, wires for braces, implants, catheters and stents for medical use, and women's underwear, in which super-elastic components made of super-elastic alloys (such as a Ni-Ti alloy) have been joined to components made of metals or alloys.
[0003]
Such super-elastic alloys are known to deform when subjected to an external force at temperatures equal to or above their shape-recovering temperatures but return to their original shape when the force is removed. The reason to this is as follows. The super-elastic alloy is in an austenite phase at temperatures higher than its shape-recovering temperature. When the alloy receives an external force in this state, it transforms to a stress-induced martensite phase; however, when the external force is removed, the alloy immediately returns to the austenite phase.
[0004]
Note that the term "metal" as used herein refers collectively to metals and alloys to which a "super-elastic component" is joined. The term "super-elastic material" refers to a material, such as a wire, before being made into a component/product and made of a super-elastic alloy material. The term "super-elastic component" refers to some kind of component/product made by suitably processing the super-elastic material.
[0005]
A super-elastic component and a metal component have heretofore been joined together by brazing (using such brazing fillers as aluminum alloy, phosphor bronze, silver, and gold) or simply by crimping. Joining achieve thereby, however, often results in the components easily falling apart when subjected to a strong external force.
[0006]
In view of the above, another methodology that is employed to join the super-elastic component and the metal component is to place the sections-to-be-joined of the two components inside a metal sleeve and caulk the sleeve.

〔問２〕

[0023]
Opening of an arrangement-plate fixing valve 7 employed for fixing of the arrangement plate generates a vacuum inside an arrangement-plate suction port 9 for sucking the arrangement plate. This results in the opposite ends of the arrangement plate 2 being fixed to a manifold 5 as well as a central region of the arrangement plate 2 where arrangement holes 4 are formed being brought into tight contact with a suction plate 1. The arrangement plate 2 is made of an elastic material, such as metal, and has a stepped portion 14. Such a structure provides elasticity to the arrangement plate 2, which contributes to making the contact between the arrangement plate 2 and the suction plate 1 even tighter.
[0024]
The suction plate 1 has a multitude of suction holes 3 formed with a pitch of several ?m in an area where ultrasmall balls are to be sucked. The diameter of the arrangement holes 4 is sufficiently larger than the pitch of the suction holes and is in the order of several hundred ?m. Therefore, a sufficiently large suction force can be achieved in the arrangement holes 4, even without particularly positioning the suction holes 3 with respect to the arrangement holes 4.
[0025]
Ultrasmall balls 11 are then placed in proximity to the arrangement holes 4. Opening an ultrasmall-ball suction valve 8 in this state generates a vacuum in an ultrasmall-ball suction port 10 for suction of the ultrasmall balls, which in turn generates a vacuum in a space 10a employed for suction of the ultrasmall balls as well as in the suction holes 3, and finally in the arrangement holes 4. This results in the ultrasmall balls 11 being received in the respective arrangement holes 4.

〔問３〕

1. A hopper-equipped screw supplying device comprising:
a main body including
a container adapted to contain screws,
a carrying section adapted to carry the screws contained in the container,
an aligning section adapted to align the screws carried by the carrying section, and
a discharging section located downstream of the aligning section and adapted to discharge the screws having been aligned; and

a hopper including a cylindrical portion hanging down from a bottom portion of the hopper, the cylindrical portion being removably placed inside the container, the hopper and the cylindrical portion being spaced by a predetermined distance from the main body of the supplying device so as to prevent vibration of the main body from being transmitted to the hopper and the cylindrical portion, the cylindrical portion having a supply opening in a lower end thereof, the hopper being capable of consecutively supplying the screws to the container through the supply opening without any motive force.

2. The hopper-equipped screw supplying device according to claim 1, wherein:
the hopper is supported by a support member;
the support member has an adjuster in a lower portion thereof; and
the height of the hopper is adjustable using the adjuster.