

[54] SYSTEM FOR ADJUSTING THE POSITION
OF A COIL
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13/DIG. 1

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[57] ABSTRACT
System for adjusting the position of a coil fed by a current generator working at very high frequency. The coil is mounted on a cross bearer. The system comprises a translation device to which is secured the cross bearer for permitting displacement of the cross bearer following directions belonging to a common plane. Four bar-shaped terminals are perpendicular to the plane, two of the terminals being mounted on the bearer and two terminals are integral with the current generator. Two flexible and curved hoops are provided. Each of the hoops connects one bar integral with the generator with one bar mounted on the cross bearer.

2 Claims, 2 Drawing Figures

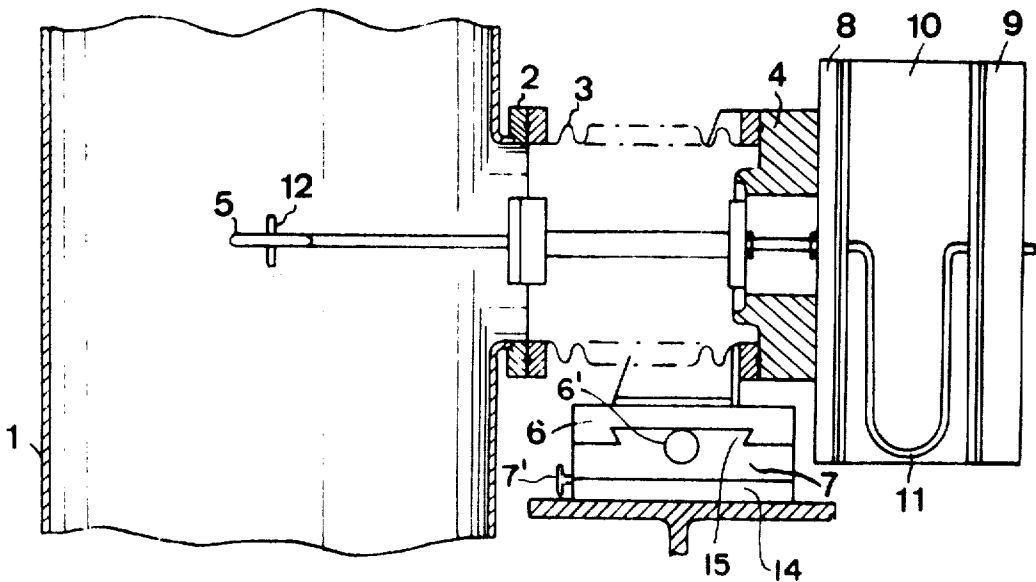


FIG. 1

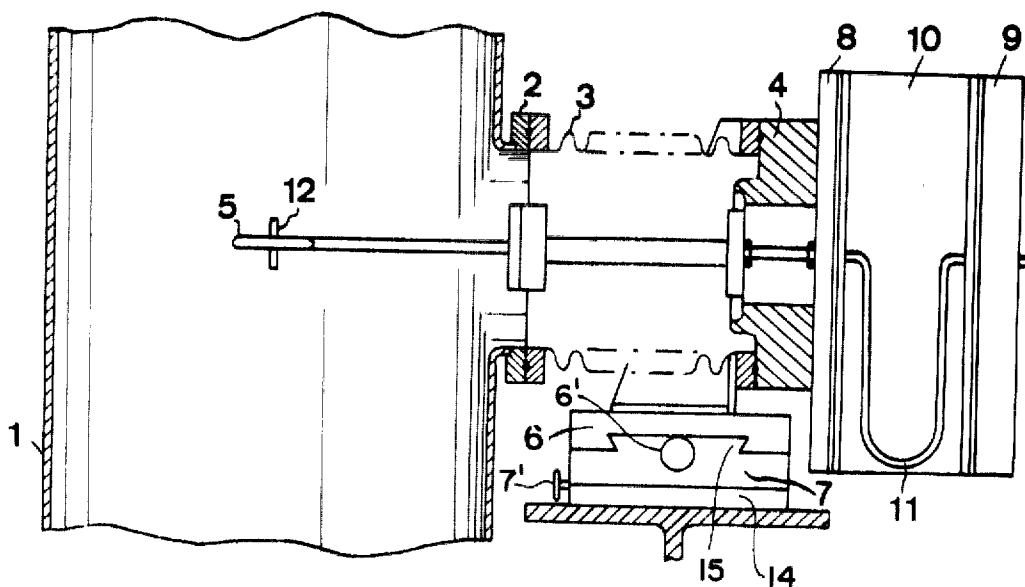
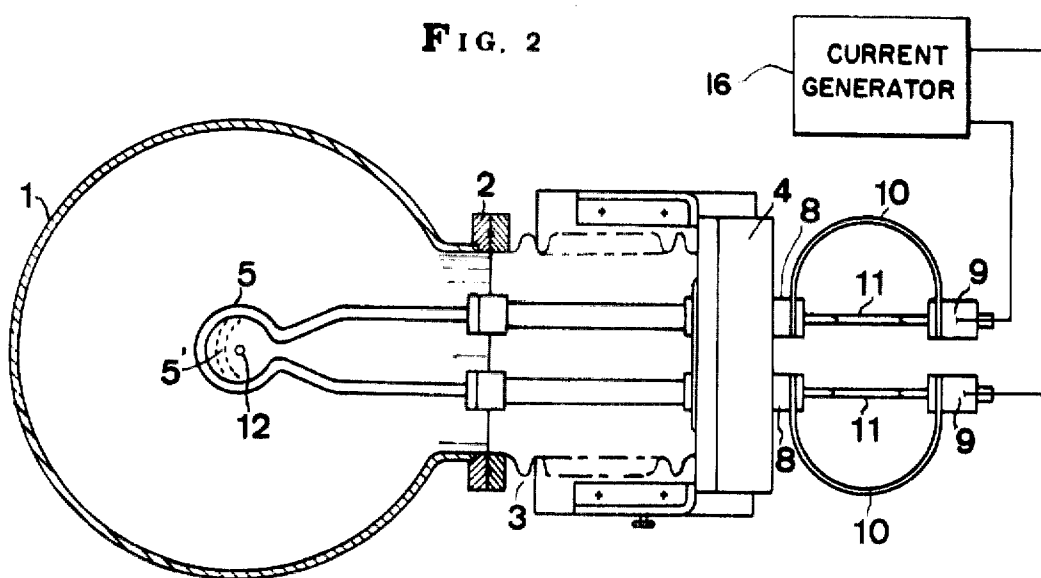


FIG. 2



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SYSTEM FOR ADJUSTING THE POSITION OF A COIL

The present invention concerns a system for adjusting the position of a coil fed by a current generator working at very high frequency and fixed to a cross bearer.

The object of the present invention is to provide a system which is air-tight or at a pressure which permits an accurate adjustment of the displacements of a coil within a given plane, while the coil is fed by a high frequency current. The system comprises a translation device to which is held the cross bearer by means of four bar-like terminals perpendicular to the given plane, the translation device permitting the displacement of the cross bearer along the same plane. Two of these bars are mounted on said cross bearer and the other two being integral parts of the current generator, and by two flexible and curved hoops having a good surface electric conductivity, each of the hoops connecting one bar of the generator to a corresponding bar on the cross bearer.

The present invention will be best understood through the following description of a preferred embodiment given with reference to the accompanying drawings, wherein

FIG. 1 is a plan view of a system for adjusting the position of a coil in accordance with the present invention;

FIG. 2, is an elevation view of the system illustrated in FIG. 1.

Referring to FIG. 1, there is shown an enclosure 1 provided with an attachment collar 2 on which is held a bellows 3 which is air-tight and flexible. The bellows 3 is integral to a cross bearer 4 provided for a coil 5. The cross bearer 4 is mounted on a translation device comprising dovetail slides 6 and 7. Slide 7 is guided by a dovetailed rib (not shown) on fixed base member 14 for movement parallel to the plane of FIG. 1 under control of hand wheel 7'. Slide 6 is guided by a dovetail rib 15 on slide 7 for movement in a direction perpendicular to the plane of FIG. 1 under the control of hand wheel 6'. Thus, the position of the inductor may be adjusted in any direction in a horizontal plane since, as is apparent, slides 6 and 7 are movable in directions at right angles to each other. The inductor 5 is connected to two terminals 8 borne by the cross bearer 4. The terminals 8 are bar-shaped and perpendicular to the inductor plane or the plane determined by the slides 6 and 7. They are located in front of two other terminals 9 which are bar-shaped and connected to the radio frequency generator 16, these terminals 9 being also per-

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pendicular to the plane determined by the slides 6 and 7.

Each of the bars 8 is connected to one of the bars 9 through a flexible and curved hoop 10 having a good surface electrical conductivity and made, for example, of electrolytic copper.

The inductor 5 is cooled by means of a refrigerating liquid such as water. The liquid flows from terminals 9 to terminals 8 on the cross bearer 4 by means of two thin pipes 11, the latter being substantially loop-shaped so as to present a flexibility which is comparable to that of hoops 10.

The above-described adjusting device may be particularly used in indirect heating, such as in the case where during a melting process by zone we start with a thin germ by a initial cone in a small cylindrical bar. In this case, the heating of germ 12 is effectuated by means of the inductor 5 in the position 5', as illustrated by the dotted lines. In such use, any change in the position of the cylindrical bar is extremely critical. The present invention avoids such changes to occur.

In FIG. 2, the hoops 10 are shown outwardly curved so that the space between the two hoops has the form of a cylindrical biconvex lens. It is often more advantageous to curve one of the two hoops inwardly so that the space between the two hoops 10 is shaped like a concave-convex cylindrical lens.

The bellows 3 is preferably made of an amagnetic material and of a stiffness sufficient to sustain the internal vacuum, for example of amagnetic stainless steel or of bronze.

We claim:

1. Means for adjusting the position of a coil fed by a current generator working at very high frequency, said coil being mounted on a movable support, comprising an assembly of two dovetail slides movable, respectively, in two different directions in one plane, both perpendicular to the axis of the coil, said support being secured to said assembly, four bar-shaped terminals parallel to the axis of the coil two of said terminals being mounted on said support for movement therewith and two terminals being stationary adjacent thereto, and two flexible and curved hoops being electrically conductive, each of said hoops connecting one stationary terminal to one movable terminal.

2. Means as defined in claim 1 wherein curved tubular conduits are arranged to conduct a cooling fluid to and from said coil, one end of each conduit being stationary and the other end being fixed to said movable support.

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