

PATENT SPECIFICATION



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COMPLETE SPECIFICATION

Improvements in Resilient Supports for Mounting Electronic Valves or Tubes in Electric Apparatus

We, FABBRICA ITALIANA MAGNETI MARELLI, of 22, Corso Venezia, Milan, Italy, an Italian Body Corporate, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention has for its subject a resilient support for mounting electronic valves and tubes, and by means of which the transmission to the said valves and tubes of vibrations and shocks which the frame of the apparatus carrying them may undergo is avoided, this arrangement being thus intended to obviate the so-called "microphonic effects" in the operation of the valves or tubes.

According to the invention, the mounting of the valve or of the tube on the frame is carried out by the intermediation of a lining of rubber which comprises surfaces for supporting it and a seat to take the edge of the holder of the valve or of the tube, the transverse section of the lining having a form such that the transmission of the vibrations through the mass of the lining is reduced to a minimum and the relative movements possible between the valve or tube and the frame are of restricted amplitude.

The invention further comprises the formation of the connections of the valve or tube with the external circuits in such manner as to prevent the transmission of the vibrations which the conductors might undergo, said conductors terminating at other elements of the apparatus.

In the annexed drawing which shows by way of example one embodiment of the invention,

Figure 1 is a partial axial section of a support according to the invention, and

Figure 2 is a plan view of the resilient lining used.

As will be seen in Figure 1, a rigid collar 3 of insulating material is fixed for example by means of rivets 2, on the plate 1 of the frame of the apparatus; the said collar 3 surrounds an opening 4 intended to take the base 5 of a valve 6.

The space limited by the collar 3 is

occupied by a resilient lining 7 of rubber; this fitting comprises flat faces intended to bear respectively on the top inner face of the collar 3 and on the lower face of the plate 1, and also an annular seat to take the edge of a rigid insulating plate 8 which carries the conducting sockets 9 for the insertion of the pins 11 of the base 5 of the valve.

The lining 7 has preferably a profile such that the portions thereof which bear on the one hand on the plate 1 and on the other hand on the collar 3, and the portion which comprises the seat for the engagement of the plate 8, are separated by gaps and connected together by portions the transverse section of which has an area reduced as much as possible; such a condition permits of limiting to the greatest possible extent the transmission of the vibrations of the whole system 1, 3, to the plate 8 and to the valve 5, 6 and of permitting oscillations of small amplitude of the plate 8 with respect to the entire system 1, 3, whilst preventing movements of excessive amplitude which might affect the firmness of the mounting of the valve in the frame.

In the embodiment shown, the lining 7 comprises two exterior cheek plates 7¹ and between these a channelled seat 7¹¹ having a G-profile, and connected with the cheek plates 7¹ by annular connecting pieces 7⁰. The external diameter of the channelled seat 7¹¹ is smaller than the diameter of the cheek plates 7¹ and consequently smaller than the diameter of the collar 3 in which the lining is mounted.

The cheek plates 7¹ are thus separated from the seat 7¹¹ and this seat 7¹¹ is separated from the cylindrical surface of the collar 3 by gaps 12 which permit relative displacements of small amplitude between the seat 7¹¹ and the support 1, 3, whilst in the case of displacement beyond a certain amplitude the seat 7¹¹ engages the cheek plates 7¹; the amplitude of the possible relative movements between the valve and the frame is thus restricted.

To connect the valve to the external circuits, the sockets 9 are provided with

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rods 13 arranged opposite conducting rods 14 fixed on the collar 3; the rods 13 and 14 which correspond to one another are connected by conductors 15, very light and spiralled, which are soldered to the said rods; the conductors 16 terminate at the other elements of the apparatus and are soldered to the rods 14.

The mechanical actions which the conductors 16 may transmit to the rods 14 are thus absorbed by these rods 14 and possibly by the deformations of the conductors 15, and they cannot reach the sockets 9 and consequently the valve.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A resilient support for the mounting of electronic valves or tubes in electric apparatus by the intermediation of a resilient lining between the frame of the apparatus and the holder for the valve or tube, characterised by the lining being bounded at the extremities by faces intended to bear against opposite flat surfaces of the frame, whilst for the engagement of the edge of the holder of the valve or tube the said lining comprises an inner channel made in a part which is separated by a space from at least one of the end parts thereof.

2. A support according to claim 1, characterised by the portion of the lining in which the internal channel is made being connected with at least one of the end parts by a bridge piece the transverse section of which is of small area.

3. A support according to claims 1 and 2, characterised by the lining having a generally annular shape, comprising in its transverse section wing pieces

intended to abut on the frame and also a seat intended to take the holder carrying the pin-base of the valve or tube, the said seat being separated from the wing pieces by spaces, whilst the wing pieces and the seat are connected together by portions the transverse section of which is of small area.

4. A support according to claim 1, characterised by the electric connection between the external circuit and each socket of the holder for the reception of the pin-base of the valve or tube being made by means of a thin and flexible conductor attached to the socket and to a part attached to the frame, the conductor which terminates at the other elements of the apparatus being connected to the said part.

5. A support according to claims 1—3, characterised by the lining being held between the frame and a collar fitted on the frame and serving for the rigid mounting of the attachment parts for the connecting conductors extending to the sockets of the holder for the pin-base of the valve or tube and also for the conductors terminating at the other elements of the apparatus.

6. A support according to claim 5, characterised by the collar being of insulating material.

7. The resilient support for the mounting of electronic valves or tubes substantially as shown in the accompanying drawing.

Dated this 1st day of June, 1939.

FABRICA ITALIANA MAGNETI
MARELLI,

Per Boulton, Wade & Tennant,
111/112, Hatton Garden, London, E.C.1,
Chartered Patent Agents.

Fig. 1

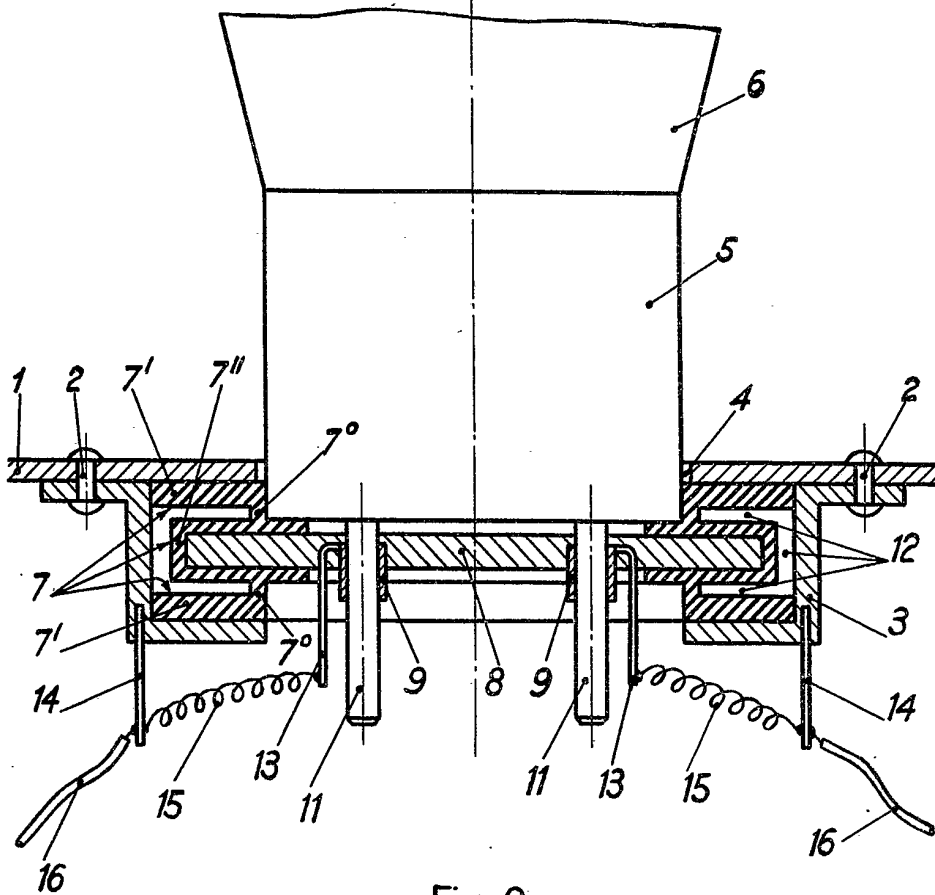
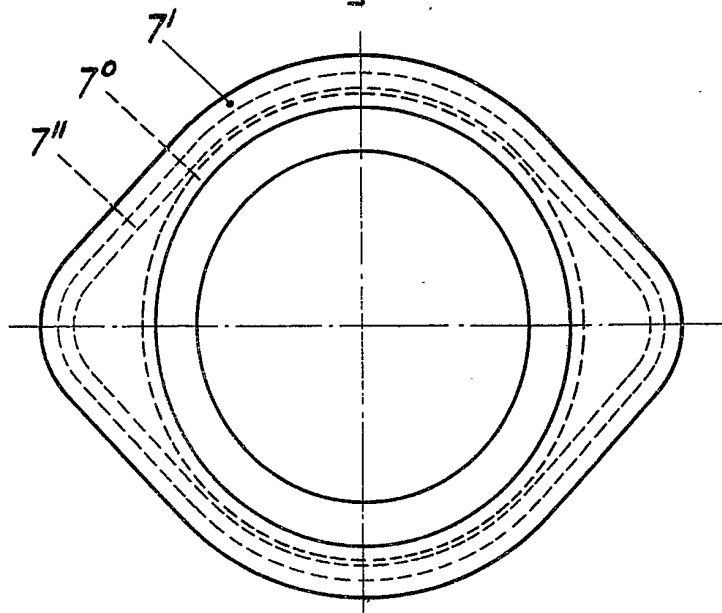


Fig. 2



[This Drawing is a reproduction of the Original on a reduced scale.]