Dec. 2, 1947. D. JACKSON 2,431,804

MAGNET MOUNTING ARRANGEMENT FOR MAGNETRONS

Filed April 4, 1945 2 Sheets-Sheet 1

FIG. 1.

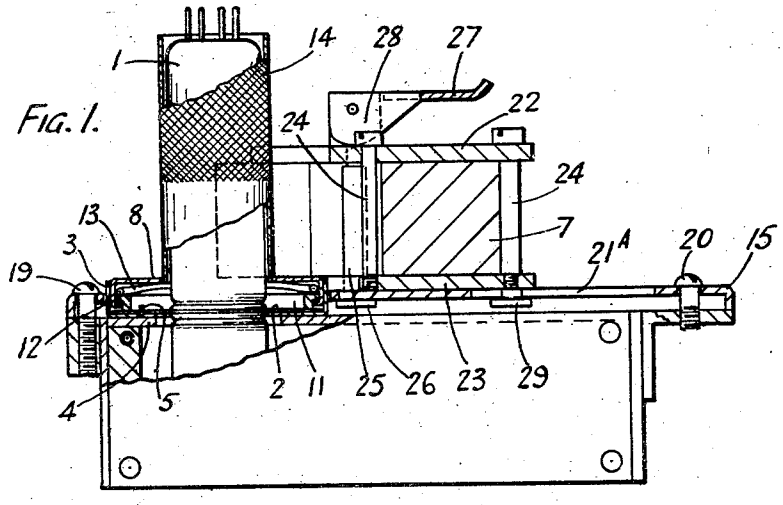
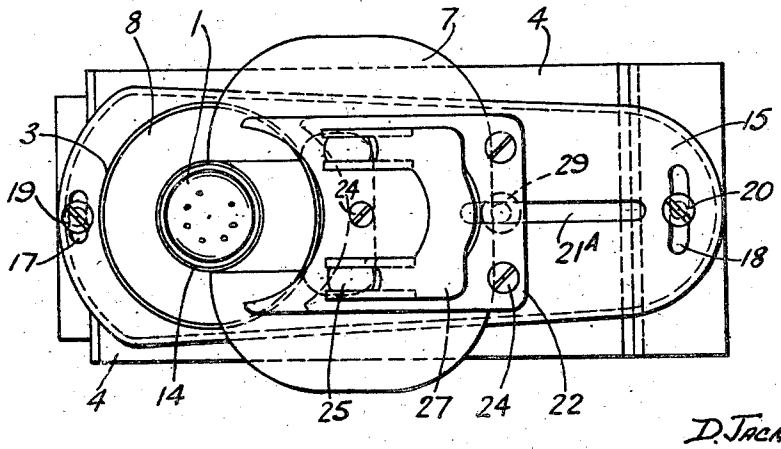


FIG. 2.



Inventor
D. JACKSON.
By
Attorneys

Dec. 2, 1947. D. JACKSON 2,431,804

MAGNET MOUNTING ARRANGEMENT FOR MAGNETRONS

Filed April 4, 1945 2 Sheets-Sheet 2

FIG. 3.

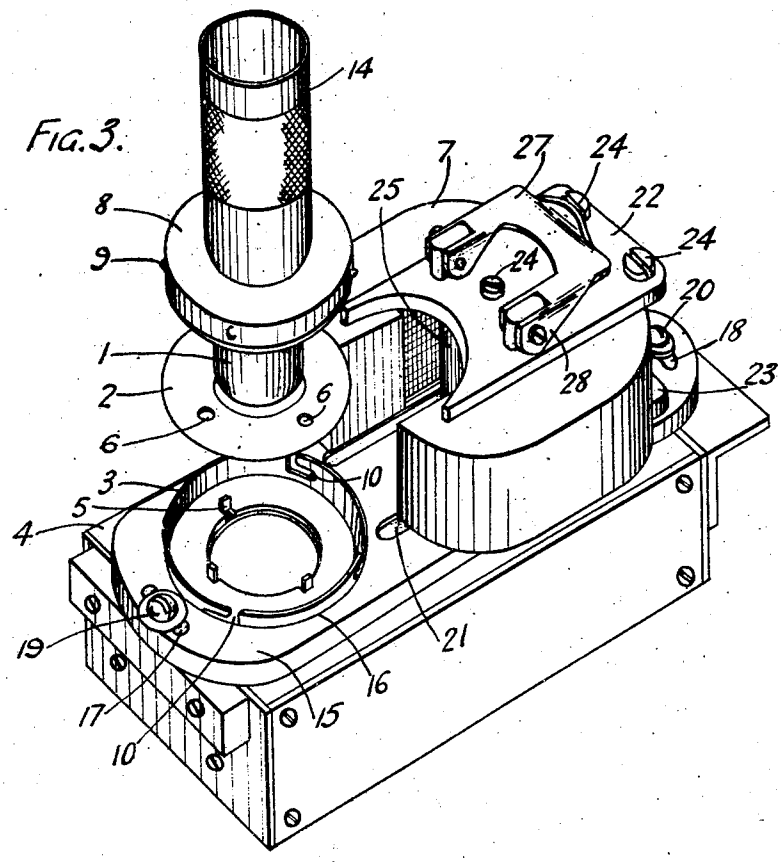
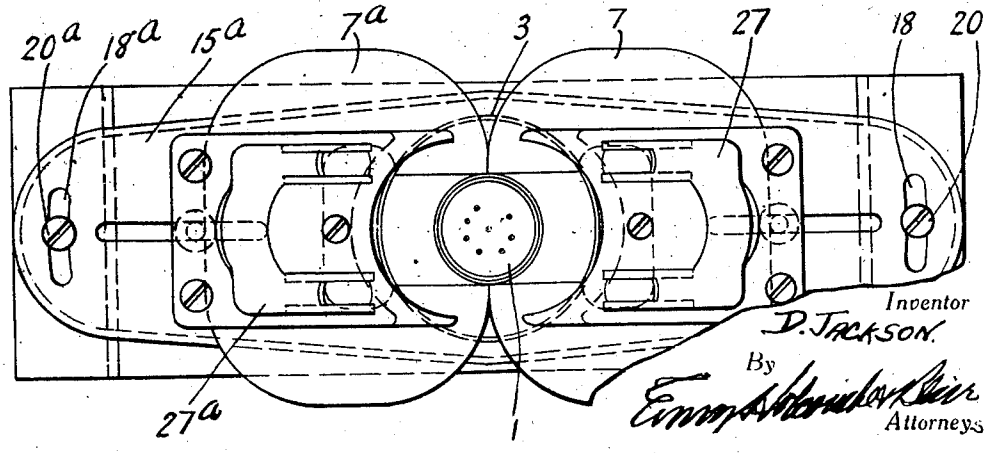


FIG. 4.



Inventor
D. JACKSON.
By
Attorneys

Patented Dec. 2, 1947 2,431,804

UNITED STATES PATENT OFFICE

2,431,804

MAGNET MOUNTING ARRANGEMENT FOR MAGNETRONS

Donald Jackson, Cambridge, England, assignor to Pye Limited, Cambridge, England, a British company

Application April 4, 1945, Serial No. 586,609
In Great Britain March 20, 1944

5 Claims. (Cl. 250—27.5)

1

The present invention relates to an arrangement for mounting magnets used in conjunction with electron discharge devices, such as thermionic valves of the magnetron type, whereby the position of the magnet relative to the discharge device may be easily adjusted and whereby the magnet may be moved away from its normal position to enable the valve to be readily removed or interchanged.

According to the present invention the magnet is mounted on a member which is rotatable about the axis of the electron discharge device when it is mounted in position, or about the axis of the holder for the electron discharge device, whereby the radial position of the magnet relative to the electron discharge device may be readily adjusted, the magnet being bodily movable on the said member so that it can be moved away from the discharge device when it is desired to remove the latter. Preferably, means are provided for locking the magnet in the position it should occupy when the electron discharge device is in operation.

In the preferred form of the invention, the magnet is mounted so as to be longitudinally slidable in grooves formed in a member which is mounted to rotate about the axis of the holder for the electron discharge device. The rotatable movement of the member may be limited to a few degrees since only slight re-adjustment is necessary if a new discharge device is inserted in the holder to bring the magnet into correct radial position with respect to the electrodes therein. Means may be provided for locking the member in the adjusted position, for example by means of one or more screws passing through an arcuate slot in the member and screwing into the base plate or chassis which carries the valve holder. The magnet may be locked in any desired position in the slots and this may be conveniently effected by a cam operated member.

In order that the invention may be more clearly understood, reference will now be made, by way of example, to the accompanying drawings, in which:

Fig. 1 shows a side elevation, partly in section, of one form of the invention, with the magnet moved only part way towards its operating position.

Fig. 2 shows a plan view of Fig. 1.

Fig. 3 shows a perspective view with the magnet retracted and the valve partly removed.

Fig. 4 shows a plan view of a modification embodying two magnets.

Referring to the embodiment illustrated in

2

Figs. 1, 2 and 3 which show an arrangement for use in connection with a valve 1 having an anode disc 2 extending outside the valve envelope, the disc 2 is adapted to fit in a circular cup-shaped holder 3 carried by a base member shown in the form of a box-like casing 4. The holder 3 is provided with one or more upturned lugs 5 which are adapted to engage in apertures 6 in the disc 2 on the valve so as to locate it in the approximately correct position relative to the magnet 7.

The valve 1 is held in position by inserting an inverted cup-shaped cover 8 into the top of the cup-shaped holder 3 and securing it therein, for example by a bayonet fitting comprising the projection 9 on the side of the cover 8 and slots 10 in the flange of the holder 3. A ring 11 is fitted within the cover 8 and retained by a small flange 12 thereon, a spring 13 being provided for urging the ring 11 into firm contact with the anode disc 2 to hold the valve firmly in position in the holder 3 when the cover is inserted therein. The cover may be provided with a tubular extension 14 which encloses the remainder of the valve envelope. The cover and the extension are made of non-magnetic material.

The magnet 7, which may conveniently be of horseshoe shape, is carried by a supporting plate 15 which may be made of a metal stamping and has an aperture 16 which fits over and bears against the outer surface of the valve holder 3, whereby the member 15 may be rotated about the axis of the valve holder. The supporting plate 15 is provided with arcuate slots 17, 18 at each end through which pass screws 19, 20 threaded into the base 4, whereby the plate member may be locked in any adjusted position.

The magnet 7 is carried by the supporting plate 15 so as to be slidable in grooves or slots 21 formed in the supporting plate and extending radially away from the valve holder 3. The magnet is secured between two plates 22, 23 by means of three screws 24. Two headed spindles 25 with their heads 26 arranged beneath the two slots 21 in the plate 15 extend through apertures in the two plates 22 and 23 and are pivotally connected at their upper ends to a locking handle 27 shaped as shown in Fig. 3, the downwardly extending portions 28 of the handle being cam shaped so that when the handle is in the vertical position the rods are free and allow the magnet to be moved radially towards or away from the valve holder whilst when the handle is lowered to the position shown in the drawings the rods are tensioned such that their heads engage firmly beneath the slots 21 to lock the mag-

net assembly in the adjusted position. A further slot 21*a* is also provided in the plate 15 with which a projection, for example the screw 29, engages in order to prevent the magnet assembly from turning relative to the plate.

By means of the arrangement described the magnet may be slid up towards the valve to embrace the extension 14 between the centres of the magnet pole pieces (Figs. 1 and 2 show the magnet only partially advanced towards this position) and locked in position by depressing the handle 27, and the whole assembly may be adjusted radially by loosening the screws 19 and 20 and rotating the plate relative to the valve holder. When the desired adjustment is attained the screws 19 and 20 are again tightened. By releasing the handle 27 the magnet may readily be slid away from the valve to permit the cover and valve to be removed.

Fig. 4 shows a modification in which two magnets 7, 7*a* are employed. These are mounted on a double ended plate 15*a*, the centre of which is apertured to rotate around the valve holder 3 and opposite ends of which are provided with arcuate slots 18 and 18*a* with corresponding locking screws 20, 20*a* for locking the plate in the adjusted position. Each magnet 7, 7*a* is mounted on the plate 15*a* as described above and each may be moved radially towards and away from the valve holder by releasing the corresponding cam locking handle 27 or 27*a*.

Although particular embodiments of the invention have been described by way of example, it will be understood that various modifications may be made without departing from the scope of the invention as defined by the appended claims.

I claim:

1. Arrangement for mounting magnets used in conjunction with electron discharge devices, comprising a holder for an electron discharge device, a supporting plate mounted for rotation about said holder, means for locking the supporting plate in an adjusted position relative to said holder, a magnet carried by the supporting plate and moveable in guides thereon in a direction towards and away from the holder, and means for locking the magnet in an adjusted position relative to the supporting plate.

2. Arrangement for mounting magnets used in conjunction with electron discharge devices, comprising a holder for an electron discharge device secured to a base plate and projecting therefrom, a supporting plate having an aperture rotatably engaging with the external surface of said holder, means for locking the supporting plate against movement relative to the base plate, a magnet carried by the supporting plate and moveable in guides thereon in direction towards and away from the holder, and means for locking the magnet against movement relative to the supporting plate.

3. Arrangement for mounting magnets used in conjunction with electron discharge devices, comprising a holder for the electron discharge device secured to a base plate and projecting therefrom, a supporting plate having an aperture rotatably engaging with the external surface of the holder, at least one arcuate slot in said supporting plate, screw means cooperating with the base plate and passing through said arcuate slot for locking the supporting plate in its adjusted position, a magnet carried by the supporting plate and moveable in guide slots formed therein which extend in a direction towards and away from the holder, and cam operated means for locking the magnet relative to the supporting plate.

4. Arrangement for mounting magnets used in conjunction with electron discharge devices, comprising a holder for the electron discharge device, a supporting plate mounted for rotation about said holder, means for locking the supporting plate in an adjusted position relative to said holder, a magnet carried by the supporting plate and moveable in guide slots formed therein which extend in a direction towards and away from the holder, and means for locking the magnet relative to the supporting plate.

5. Arrangement for mounting magnets used in conjunction with electron discharge devices, comprising a holder for the electron discharge device secured to a base plate and projecting therefrom, a supporting plate having an aperture rotatably engaging with the external surface of the holder, at least one arcuate slot in said supporting plate screw means cooperating with the base plate passing through said arcuate slot for locking the supporting plate in its adjusted position, a magnet carried by the supporting plate and moveable along guides thereon which extend in a direction towards and away from the holder, and means for locking the magnet relative to the supporting plate.

DONALD JACKSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,192,450	Parsons et al.	July 25, 1916
1,720,824	Donle	July 16, 1929
1,742,662	Miller	Jan. 7, 1930
1,985,093	Hehlgans	Dec. 18, 1934
2,064,012	Kilgore	Dec. 15, 1936
2,100,162	Fritz	Nov. 23, 1937
2,114,035	Skellett	Apr. 12, 1938
2,142,345	Braden	Jan. 3, 1939
2,225,689	Demuth	Dec. 24, 1940

FOREIGN PATENTS

Number	Country	Date
364,794	France	June 9, 1906