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C. G. FILZER

2,590,601

APPARATUS FOR VIOLET RAY TREATMENT

Filed May 18, 1949

3 Sheets-Sheet 1

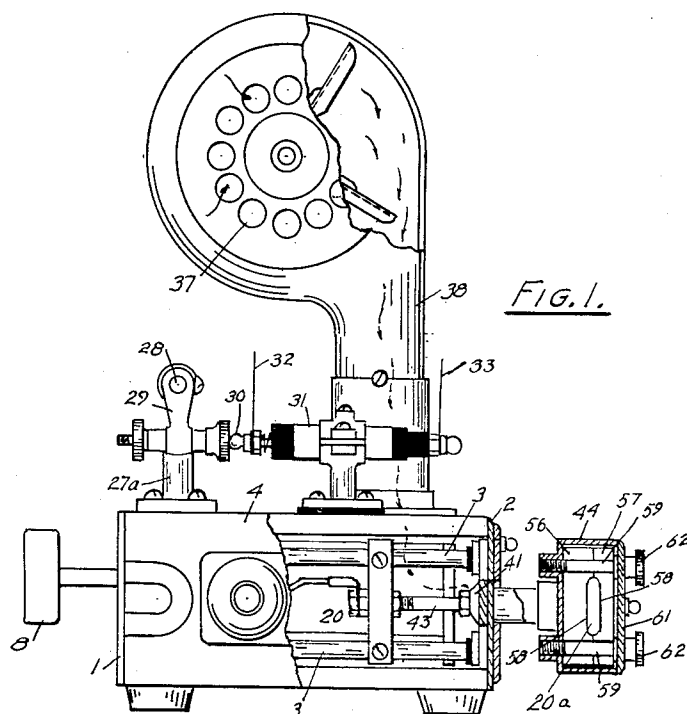


FIG. 1.

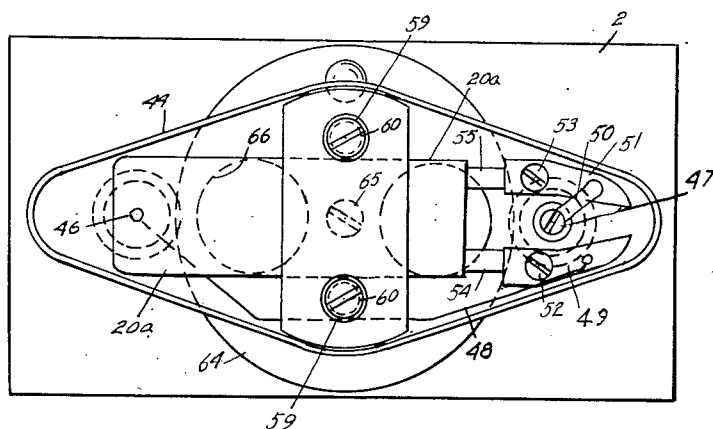


FIG. 2.

Inventor

Christian G. Filzer
Ralph Hammer Attorney

March 25, 1952

C. G. FILZER

2,590,601

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3 Sheets-Sheet 2

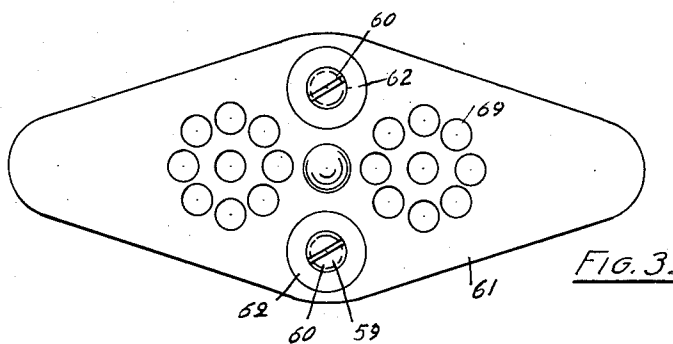


FIG. 3.

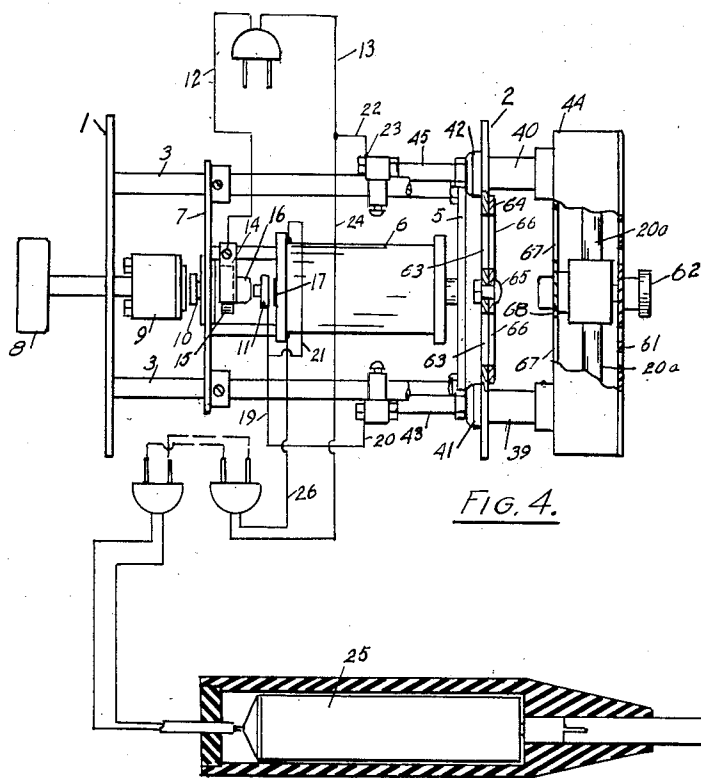


FIG. 4.

Inventor

Christian G. Filzer

By

Ralph Hammer

Attorney

March 25, 1952

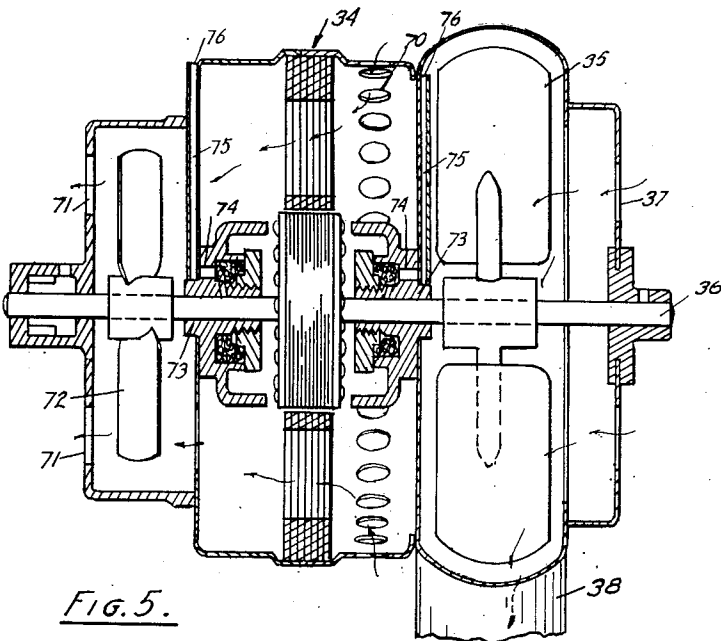
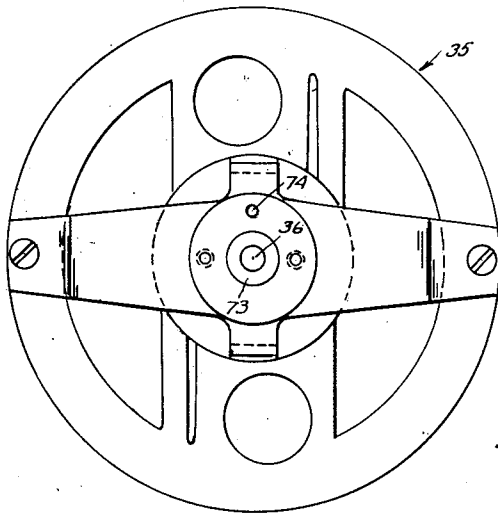
C. G. FILZER

2,590,601

APPARATUS FOR VIOLET RAY TREATMENT

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3 Sheets-Sheet 3



Inventor

Christian G. Filzer

By

Ralph Hammer

Attorney

UNITED STATES PATENT OFFICE

2,590,601

APPARATUS FOR VIOLET RAY TREATMENT

Christian G. Filzer, Erie, Pa.

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1 Claim. (Cl. 315-248)

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This invention is intended to improve the operation of generators for violet ray apparatus which ordinarily include a magnetic coil and a condenser, producing a current which is fed through a resonance coil to a violet ray tube.

In a preferred form, the condenser is enclosed in a casing overhung from the coil enclosing casing. A blast of cooling air is discharged to the coil casing and escapes through openings directed into the condenser casing. The condenser casing has a removable cover through which the condenser can be changed. Further objects and advantages appear in the specification and claims.

In the drawings, Fig. 1 is a side elevation of the current generator; Fig. 2 is an end elevation with the cover for the condenser case removed; Fig. 3 is an end view of the cover for the condenser case; Fig. 4 is a top plan view, partly broken away; Fig. 5 is a section through the motor and cooling fans; and Fig. 6 is an end view of the motor.

In the drawings, 1 and 2 indicate front and back plates connected by four rods 3 forming a frame which telescopes into a case 4. Adjacent the black plate 2 is a support 5 for the rear end of a magnetic coil 6. A similar support 7 carries the front end of the coil. The supports 5 and 7 are carried by the rods 3. Journaled in the front wall 1 is a knob 8 connected through a block 9 of insulating material to an adjusting screw 10 for a vibrator 11. The coil is energized by a power line 12, 13, line 12 being connected to a brush 14 making contact with a collector 15 carried by the adjusting screw 10. When the adjusting screw 10 is properly adjusted a contact 16 at the inner end of the adjusting screw locates the vibrator 11 with respect to the pole piece 17 of the magnetic coil so that the vibrator makes and breaks the circuit through its contact 18 and the contact 16. When the contacts 16 and 18 are in engagement, the circuit from the power line extends from line 12 through brush 14, collector 15, contacts 16 and 18, to the vibrator 11 and from the vibrator 11 through line 19 to a terminal 20 connected to a condenser 20a and to a lead 21 connected to the magnetic coil. From the other side of the line 13 the circuit extends through a lead 22 connected to a terminal 23 connected to the other side of the condenser and through a lead 24 to a resonance coil 25 connected through a lead 26 to the other side of the coil 6. The resonance coil 25 feeds a violet ray tube 27. When the circuit to the contacts 16 and 18 is broken, the power line 12, 13 is disconnected and the reso-

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nance coil 25 is connected across the magnetic coil 6 and the condenser 20a in parallel.

On the top wall of the case is mounted a standard 27a carrying a rock shaft 28 having an arm 29 fixed thereto which engages a plunger 30 operating a switch 31 in circuit with leads 32 and 33. There is a mechanical connection between the block 9 of insulating material and the rock shaft so that as the knob 8 is adjusted to cause operation of the vibrator 11, the switch 31 is closed completing a circuit between the leads 32 and 33. The switch 31 and the leads 32 and 33 are in the power circuit to an electric motor 34 having a paddle wheel fan 35 on its shaft 36 which draws air into intake opening 37 and discharges air under pressure through a nozzle 38 mounted on and discharging through the top wall of the case 4. The nozzle 38 serves both to direct air into the case 4 and to support the motor. The construction of the switch 31, the mechanical connection between the block 9 and the rock shaft 28, and the power circuit to the motor 34 are more completely illustrated in my Patent No. 2,323,529.

Projecting from the rear wall 2 are spaced tubular metallic studs 39 and 40 respectively lined with sleeves 41 and 42 of insulating material. A metallic rod 43 associated with the terminal 20 extends through the sleeve 41 into a metal case 44 carried on the projecting ends of the studs 39 and 40. A metal rod 45 associated with the terminal 22 extends through the sleeve 42 into the case 44. The rods 43 and 45 respectively terminate within the case 44 in binding posts 46 and 47. The binding post 46 is connected by a lead 48 to a clamp 49. Binding post 47 is connected by a lead 50 to a clamp 51. The clamp 49 and 51 have screws 52 and 53 which press the clamps against terminals 54 and 55 of the condenser 20a. In case the condenser has round leads instead of the flat leads 54 and 55 illustrated, the screws 52 and 53 may serve as terminal screws around which the respective round condenser leads may be wrapped. The condenser is supported in the case 44 between blocks 56 and 57 of insulating material having mating recesses 58 receiving the condenser. The block 56 fits against the back wall of the case and the block 57 is clamped against the block 56 by shoulder screws 59. The shoulder screws have threaded ends 60 which project through a cover plate 61. The cover is held in place by nuts 62 threaded on the projecting end 60 of the shoulder screws 59. The cooling air discharged into the case 4 during the operation of the vibrator flows out

through openings 63 in the rear wall 2. The amount of air discharged through these openings is controlled by a circular plate 64 pivoted on a bolt 65 which both serves as a pivot and to hold the plate 64 against the outer face of the rear wall 2. The plate 64 has openings 66 which can be moved from the position illustrated in which they register with the openings 63 to a position in which the openings 63 are completely blocked by the plate 64. This permits complete control over the quantity of cooling air discharged from the case 4. The air discharged through the openings 63 flows across the intervening space provided by the studs 39 and 40 and enters openings 67 in the rear wall 68 of the condenser case. This cooling air flows over the condenser and out through perforations 69 in the cover plate 61 for the condenser case. During the operation of the generator considerable heat is created which must be dissipated to prevent overheating. By having the magnetic coil and the condenser in separate cases with an arrangement for controlling the flow of cooling air localized overheating of the apparatus is prevented.

Mounting the condenser in a separate case with an easily accessible cover permitting access to the interior of the case permits easy changing or renewal of the condenser. The construction is such that the operator is protected against shock since the lead to the condenser and the condenser itself are entirely enclosed.

The cooling is further improved by having the air discharged by the fan 35 separate from the air required to cool the motor. The motor cooling air enters through openings 70, flows over the motor, and is discharged through openings 71

by a fan 72 on the motor shaft 36. The fan 35 cooling the current generator is at one end of the motor and the fan 72 cooling the motor is at the other end.

5 The motor bearings 73 have lateral oil passages 74 extending into upright oil ducts 75 having upper ends 76 accessible from the top of the motor.

What I claim as new is:

10 In an induction coil type of current generator designed for supplying violet ray apparatus and the like, the current generator including a magnetic coil and a condenser, a case enclosing the magnetic coil, hollow studs projecting from a wall of the case, a condenser enclosing case carried by the projecting ends of the studs, leads for the condenser extending through the studs, a motor driven fan energized during the operation of the current generator carried by and for blowing cooling air into the coil enclosing case, an air outlet in said wall, and an air inlet to the condenser enclosing case aligned with and facing into the air stream discharged from said outlet, the inlet to the condenser coil being spaced from the outlet from the coil case whereby the cooling air discharged from the coil case flows across the intervening space.

CHRISTIAN G. FILZER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
2,323,529	Filzer	July 6, 1943