July 1, 1947. I. M. MATSON 2,423,197

BYPASS FOR LUMINOUS TUBE SIGNS

Filed Aug. 17, 1944

Fig. 1.

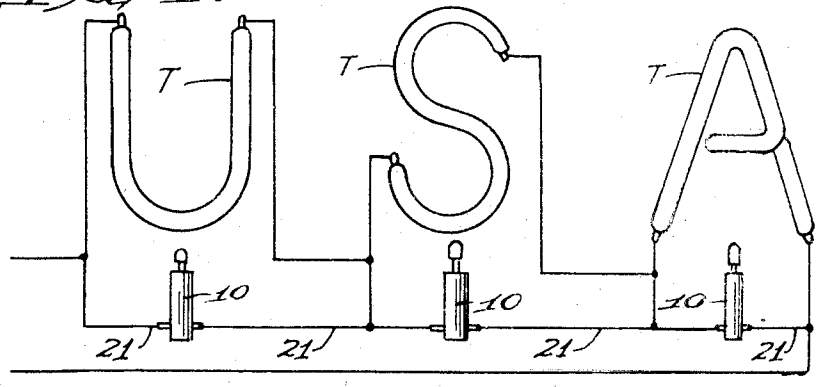


Fig. 2

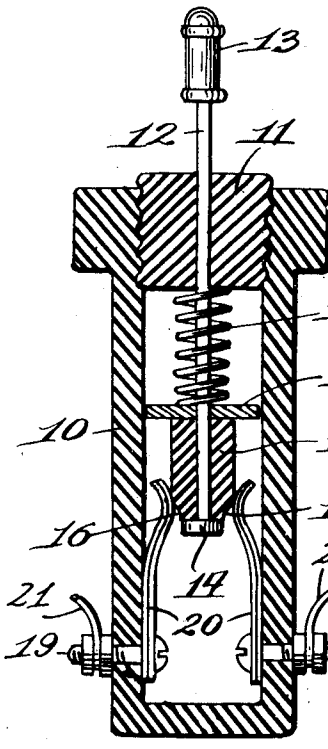
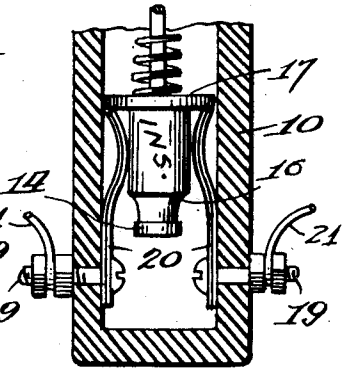


Fig. 3



INVENTOR.
IVAN M. MATSON.
BY
Martin O. Smith
ATTY.

Patented July 1, 1947 2,423,197

UNITED STATES PATENT OFFICE

2,423,197

BYPASS FOR LUMINOUS TUBE SIGNS

Ivan M. Matson, Los Angeles, Calif.

Application August 17, 1944, Serial No. 549,912

2 Claims. (Cl. 200—118)

1

My invention relates to an automatic by-pass for luminous tubes of the neon type, which are largely used in illuminated advertising signs, interior lighting systems and the like, and the principal object of my invention is, to provide a simple, practical and inexpensive device, which, in the event of the burning out or breakage of one or more of the tubes forming a sign or the like, will act automatically to restore and maintain normal operation of the other tubes and eliminate entirely the trouble, damage and fire hazards which ordinarily attend the breakage or burning out of luminous gas tubes.

A further object of my invention is to provide a device of the character referred to which will be effective in eliminating the sparking and sputtering which attends the short circuiting and arcing of the high tension current, when a gas filled tube breaks, burns out or fails to function and which undesirable results produce undue noise and interference in nearby radio receiving sets.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully described and claimed and illustrated in the accompanying drawings in which:

Fig. 1 is a diagrammatic view of a neon tube sign and showing my improved by-pass devices associated therewith.

Fig. 2 is a vertical section taken through the center of the automatic by-pass, and showing same in open position.

Fig. 3 is a sectional view of the lower portion of the by-pass and showing same in circuit closing position.

Referring by numerals to the accompanying drawings which illustrate a preferred embodiment of my invention, 10 designates a receptacle composed of porcelain or suitable insulation substantially cylindrical in shape, permanently closed at its lower end and with a removable plug 11 closing its upper end.

Arranged to slide axially through plug 11 is a metal rod 12 having a knob 13 of insulation on its outer end and carried by the lower portion of said rod above a metal disc 14, is a short cylindrical block of insulation 15 provided on its lower end with an annular shoulder 16.

Mounted on rod 12 above block 15, is a contact disc 17 of metal and disposed between said disc and plug 11, is an expansive coil spring 18.

Located within the lower portion of housing 10 and secured thereto by screws 19 are thermostatic springs 20, preferably of the bi-metal type and

2

the outwardly curved upper ends of these springs are adapted to engage beneath shoulder 16 and thereby maintain rod 12 and parts carried thereby in elevated positions, with contact disc 17, a substantial distance above the ends of said springs.

One side of the circuit to the luminous tubes T is connected to screws 19 by conductors 21.

Under normal conditions, rod 12 is elevated and held in such position against the pressure of spring 18 by the engagement of the upper ends of bi-metal members 20 against shoulder 16. Under such conditions, the upper portions of the bi-metallic members are maintained slight distances apart from contact disc 14, thus providing an arc-gap.

In the event of breakage of or burning out of the tube with which the by-pass is associated, current from the supply line will pass through branch conductors 21, contacts 19 and bi-metallic members 20, thereby producing a short between disc 14 and said members, which short is attended by arcs between said discs and bimetallic members.

Such arcing develops heat in members 20 so that same tend to straighten out, thereby withdrawing the upper ends of said members from shoulder 16, whereupon spring 18 will act to force rod 12 downward and thereby move contact disc 17 into engagement with the upper ends of members 20, thus by-passing the current flow to the next adjacent tube and instantly restoring the sign to service, minus the burned out or damaged tube (see Fig. 3).

After a broken or burned out tube has been replaced, the by-pass is set for operation by drawing rod 12 upwardly until the upper ends of members 20 engage beneath shoulder 16, which movement compresses and stores power in spring 18.

Thus it will be seen that I have provided an automatic by-pass for luminous tube signs, which is simple in structure, inexpensive of manufacture and installation, and very effective in performing its intended functions.

It will be understood that minor changes in the size, form and construction may be made and substituted for those herein shown and described without departing from the spirit of the invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. In a by-pass for luminous tube signs, a receptacle of insulation, a plug normally closing the upper end of said receptacle, a spring pressed member arranged for sliding movement in said receptacle and passing through said plug, a body of insulation carried by the lower portion of said

spring pressed member and provided on its lower end with a shoulder, a contact on the lower end of said spring pressed member below said shoulder, a pair of bi-metallic springs secured in the lower portion of said receptacle, the upper portions of which springs normally engage said shoulder to maintain said spring pressed member in elevated position with an arc-gap between said contact and said springs and a conductor carried by said spring pressed member above the body of insulation carried thereby, for contacting said bi-metallic springs when said spring pressed member and body of insulation thereon move downwardly between said springs.

2. A by-pass for luminous tube signs as set forth in claim 1, and in which the plug, spring

pressed member and parts carried thereby, are bodily removable from said receptacle.

IVAN M. MATSON.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,884,789	McCombes	Oct. 25, 1932
1,977,191	Levenstein	Oct. 16, 1934
1,433,277	Hogel	Oct. 24, 1922
1,645,290	Mottlau	Oct. 11, 1927
2,069,250	Hyde	Feb. 2, 1937