

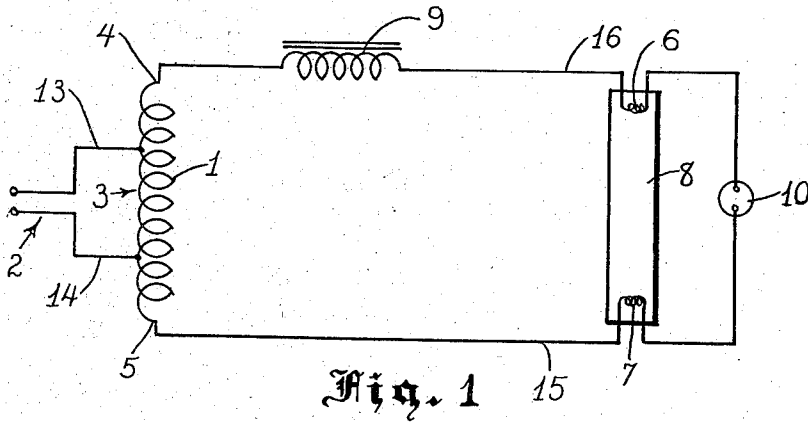
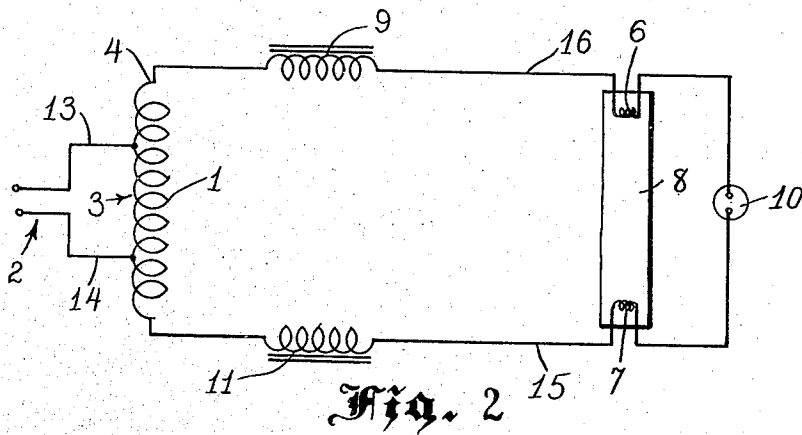
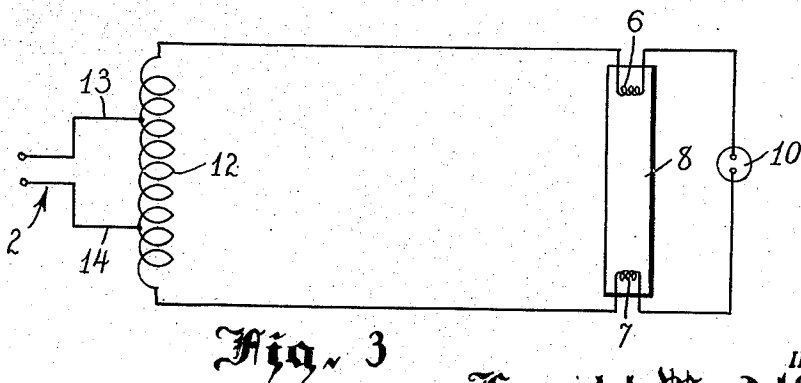
July 27, 1948.

H. W. ALFORD

2,446,152

ELECTRICAL APPARATUS FOR GASEOUS DISCHARGE DEVICES

Filed May 29, 1946



INVENTOR.
Harold W. Alford

BY

Lawrence Burns,
ATTORNEY

UNITED STATES PATENT OFFICE

2,446,152

ELECTRICAL APPARATUS FOR GASEOUS DISCHARGE DEVICES

Harold W. Alford, Danvers, Mass., assignor to
Sylvania Electric Products Inc., Salem, Mass., a
corporation of Massachusetts

Application May 29, 1946, Serial No. 672,987

1 Claim. (Cl. 315-276)

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This invention relates to electric gaseous discharge devices and more particularly to the electrical apparatus normally employed in conjunction therewith.

The electrical apparatus normally employed in a hot-cathode fluorescent lamp installation usually includes some means whereby a voltage higher than the line voltage of about 110-120 volts may be initially impressed across the lamp electrodes to bring them to electron-emitting temperatures.

Because of this requirement for higher potentials, consideration has to be given, in designing the electrical apparatus, to meeting certain safety rules and regulations, especially where domestic installations are concerned.

In the case of certain fluorescent lamps which are portable it has been found that higher potentials are usually required than code regulations governing portable lamps used in the home permit. In certain cases the lamp potential of 150 volts permitted by the code has been found to be too low to give satisfactory lamp performance.

The object of this invention is to provide a circuit arrangement which will permit an increase in the lamp potential high enough above 150 volts to accomplish satisfactory lamp operation and at the same time maintain the potential with respect to ground at or below 150 volts, the maximum permitted by safety regulations.

My invention embodies the idea of tapping an auto-transformer at two points intermediate its ends and connecting the line across the center section defined by the two tapings. A current-limiting reactance may be placed in one lamp lead or half may be placed in each so that the current to ground will be limited in case of an accident. Alternatively a current-limiting reactance need not be used if a high reactance auto-transformer is used.

The principles herein set forth whereby the lamp potential may be increased substantially without changing the potential with respect to ground may well be applied to other specific embodiments without departing from the spirit of my invention.

Some of the embodiments of the principles of my invention are illustrated in the accompanying drawing in which:

Figure 1 is a circuit diagram illustrating the

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principles of my invention in which a current limiting reactance is disposed in one lamp lead.

Figure 2 is a circuit diagram in which a split choke is employed, and

Figure 3 is a circuit diagram in which a high reactance transformer is used.

In Figure 1 a 182 volt auto-transformer 1 is wound and tapped 32 volts from each end and the line 2 is connected across the center 118 volt section 3. End 4 of the transformer 1 is connected to one end of a current limiting reactance, such as a choke coil 9. The other end of the coil 9 is connected to an end of a filamentary electrode 6 in a fluorescent lamp 8. The end 5 of the transformer 1 is connected to an end of a filamentary electrode 7 in the lamp 8. The other ends of the filamentary electrodes are connected to each other through a conventional lamp starter switch 10. One side of the line is grounded, i. e., either lead 13 or 14, depending on how the connection is made. Thus the highest potential to ground is limited to 150 volts despite the 182 volts available to start the lamp.

The circuit illustrated in Figure 2 is similar to the one illustrated in Figure 1 except that a current limiting reactance, such as a choke coil is disposed in each lamp lead. Thus, in addition to the choke coil 9 which is disposed between end 4 of the transformer 1 and an end of the filamentary electrode 6, an additional choke coil 11 is disposed between end 5 of the transformer 1 and an end of the filamentary electrode 7.

Then if, for example line 13 were grounded, and the circuit became accidentally grounded at 15, the fault current flowing would be limited by the choke coil 11. Choke coil 9 would act similarly if 14 were the intentionally grounded line and 16 the accidentally grounded point.

In the circuit illustrated in Figure 3 a high reactance transformer 12 is employed. This permits the elimination of choke coils 9 and 11.

My invention is not necessarily limited to use with hot cathode fluorescent lamps. It may be used with other electric gaseous discharge devices without departing from the spirit of the invention.

What I claim is:

A circuit for an electric gaseous discharge device having an electrode disposed at each end thereof, said circuit comprising an auto-transformer, a current limiting reactance having one

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end thereof connected to an end of one of said electrodes and the other end connected to an end of said auto-transformer, the other end of said transformer being connected directly to an end of the other of said electrodes, said auto-transformer being tapped at two places intermediate its ends and equi-distant therefrom, a source of electrical energy connected to said auto-transformer at the two tapped positions, one side of said source of electrical energy being grounded, and a starter switch connected across the other ends of said electrodes.

HAROLD W. ALFORD.

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