March 24, 1942. H. L. TRANSTROM 2,277,187

CORONA DISCHARGE PROTECTIVE DEVICE

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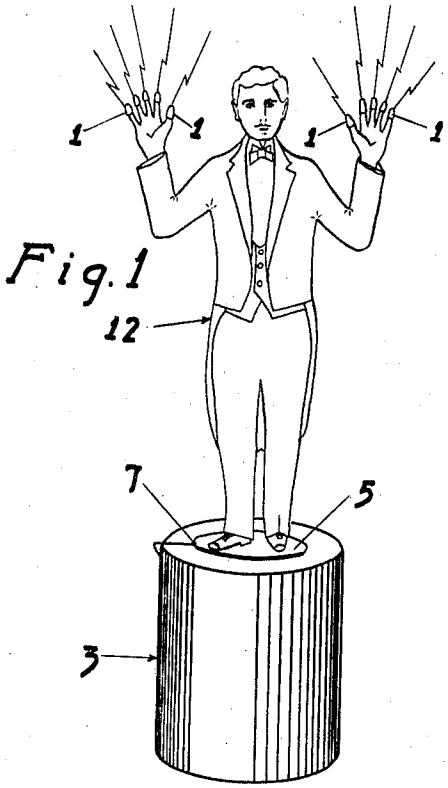


Fig. 1

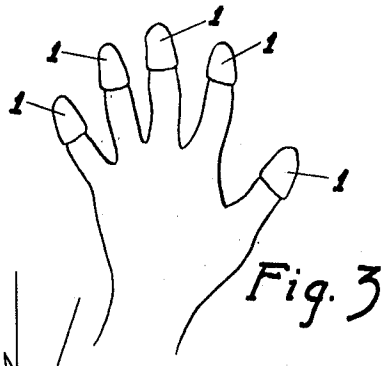


Fig. 3

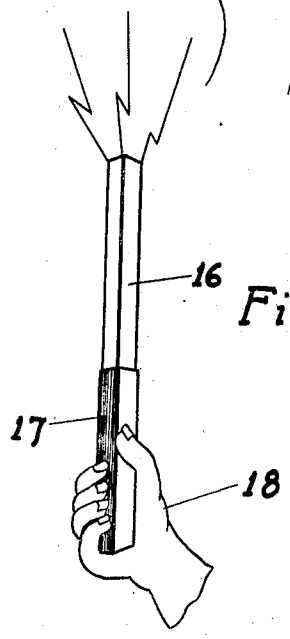


Fig. 7

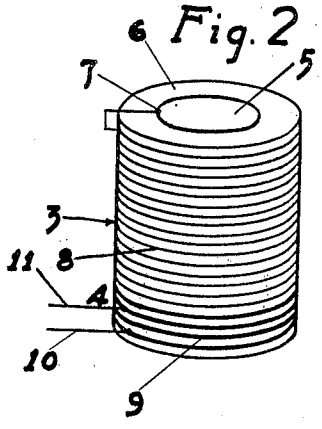


Fig. 2

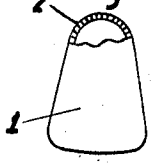


Fig. 4

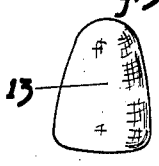


Fig. 5

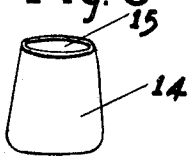


Fig. 6

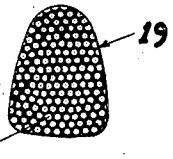


Fig. 8

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CORONA DISCHARGE PROTECTIVE DEVICE

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Application October 5, 1938, Serial No. 233,376

3 Claims. (Cl. 174—5)

This invention relates to a corona discharge protective device, particularly useful in electrical demonstrations with the human body for research, classroom lectures and entertainment.

Demonstrations of corona discharges from the tips of one's fingers or thumbs causes considerable pain therein, also burns the same.

The general object of the invention is to provide a device of the character stated which may be worn on one's fingers or thumbs to protect the same against pain and from being burnt, when a corona discharge is discharged therefrom during electrical demonstrations as aforesaid.

Other objects and advantages will appear hereinafter.

The invention is illustrated in the annexed drawing which forms a part of this specification and in which,

Fig. 1 is a perspective view of a man giving a demonstration of an electrical corona discharge from the tips of his fingers, on which are placed my protective device to prevent burning of the fingers.

Fig. 2 is a perspective of the high frequency oscillatory transformer with a plate on the top thereof and connected thereto, on which plate a man stands for giving a corona discharge exhibition.

Fig. 3 is a perspective of a human hand on the finger tips of which are placed the protective caps of my invention.

Fig. 4 is a perspective of one of the protective finger tip caps of my invention.

Fig. 5 is a perspective of a modification of my finger tip cap.

Fig. 6 is a perspective of another modification of my finger tip cap.

Fig. 7 is a perspective of a modification of my invention showing a stick of wood with its lower portion wrapped with a metal foil conductor and held by a human hand.

Fig. 8 is a side view of another modification of my protective finger cap.

Referring more particularly to the drawing in which corresponding parts are designated by the same reference characters in all of the figures, 1 designates a cap, of metal or other suitable conducting material, which is closed at its outer end by an end wall 2. On one or more of the digits of the hands of the person giving a corona discharge demonstration are placed one or more of the caps 1 as illustrated in Figs. 1 and 3 of the drawing.

Apparatus is provided for sending an oscillatory electrical current through the body of a person giving a demonstration of an electrical corona discharge from the tips of his fingers and thumbs through my protective cap 1, which apparatus comprises a drum 3 of high-insulation material, a high frequency oscillation transformer 4 wound on said drum and a plate 5, of metal on other suitable insulating material, supported on one end wall 6 of said drum, said plate being connected at 7 to the remote end of the secondary coil 8 of the transformer 4, and the ends of the primary coil 9 being connected to leads 10 and 11 respectively which lead from any suitable high frequency generator (not shown). The drum 3 is placed with its end, opposite its end wall 6, resting upon the floor and said end wall and plate 5 uppermost, as shown in Figs. 1 and 2, so that a person indicated 12 may stand on said plate with his feet bare or with metal-soled shoes on his bare feet, as shown in Fig. 1, to make good electrical contact between said person and said plate.

The operation, uses and advantages of my invention are as follows:

The person 12 giving the corona discharge demonstration, with my protective device on his fingers and thumbs, stands, with his bare feet or with metal-soled shoes on his bare feet, on the plate 5, while a high-frequency oscillatory electric current is conducted from a high frequency generator through leads 10 and 11, through the primary coil 9 of transformer 4, through secondary coil 8 of said transformer and plate 5, and then through said person's body, from which said electric current is given off in a corona discharge from my protective device on said person's finger tips, as illustrated in Fig. 1, which device prevents burning of the finger tips of said person.

Normally the corona discharge from the cap 1 is practically a white flame, but flames of different colors may be discharged from the cap 1 by applying different chemicals to the surface of said cap. For example strontium chloride applied to said caps will cause the corona discharge to produce a dark red flame, lithium chloride will produce a bright red flame, barium chloride a green flame, and copper chloride a blue flame.

The modification of my protective cap 13 shown in Fig. 5 is made of fabric and when it is used it is wet in a conducting liquid to conduct the electric current from the tips of the fingers and give off said current in a corona discharge.

The modification of my protective cap 14 shown in Fig. 6 is open at its outer end as indicated at 15.

In the modification of my invention shown in Fig. 7 a stick 16 of wood or other inflammable material is wrapped or enclosed for a portion of its length from one end with a metal foil or other conducting material 17. The person demonstrating my invention, while standing upon the plate 5, grasps with one hand 18 the portion of the stick 16 which is wrapped by the conductor 17, and the current passing from said hand through said conductor is discharged from the end of said conductor into the stick 16 which ignites said stick and causes it to burn rapidly with a bright flame, the current finally discharging in a corona at the remote end of the stick.

The modification of my protective cap 19 is made of metal bead cloth 20.

In this specification and the annexed drawing I disclose my invention in the form which I consider the best, but I do not limit my invention to such form, because it may be embodied in other forms, and it is to be understood that in and by the claims of this specification I intend to protect my invention in whatever form it may be embodied.

I claim:

1. Apparatus as disclosed including means for introducing a charge of electricity into a human body, and a fabric conductor cap placed on the tip of a digit of the hands of said body to protect said digit against the objectionable effects of corona discharge of said electricity through said digit.

2. Apparatus as disclosed including means for introducing a charge of electricity into a human body, and a conductor cap placed on the end of a digit of the hands of said body to protect said digit against the objectionable effects of corona discharge of said electricity through said digit.

3. Apparatus as disclosed including means for introducing a charge of electricity into a human body, and a fabric cap wet in a conducting liquid and placed on the end of a digit of the hands of said body to protect said digit against objectionable effects of corona discharge of said electricity through said digit.

HENRY L. TRANSTROM.