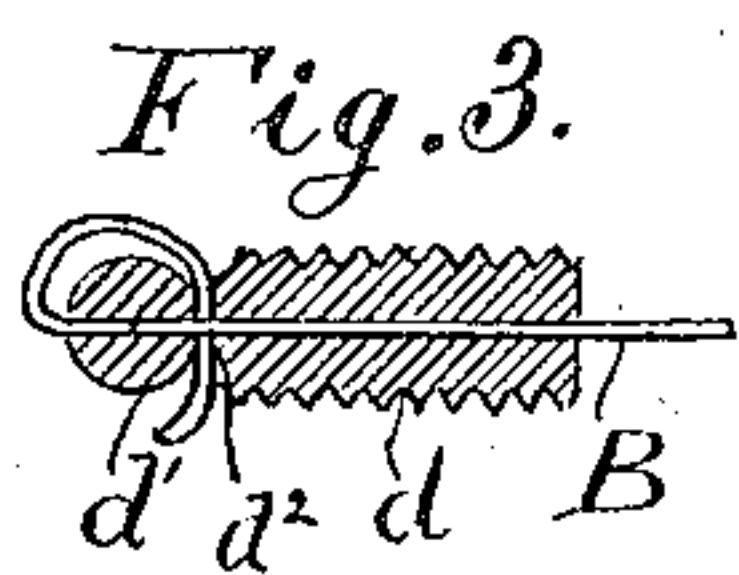
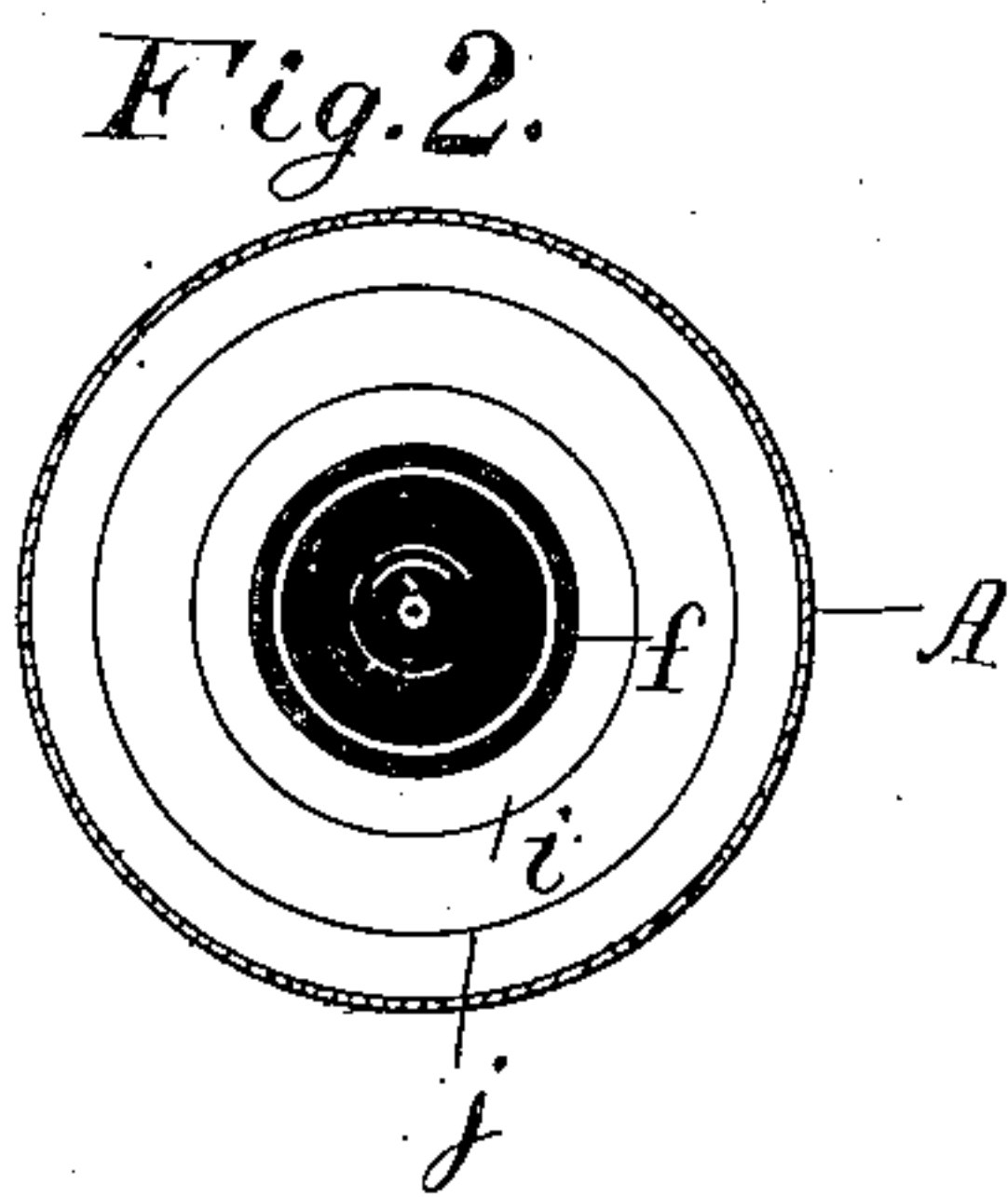
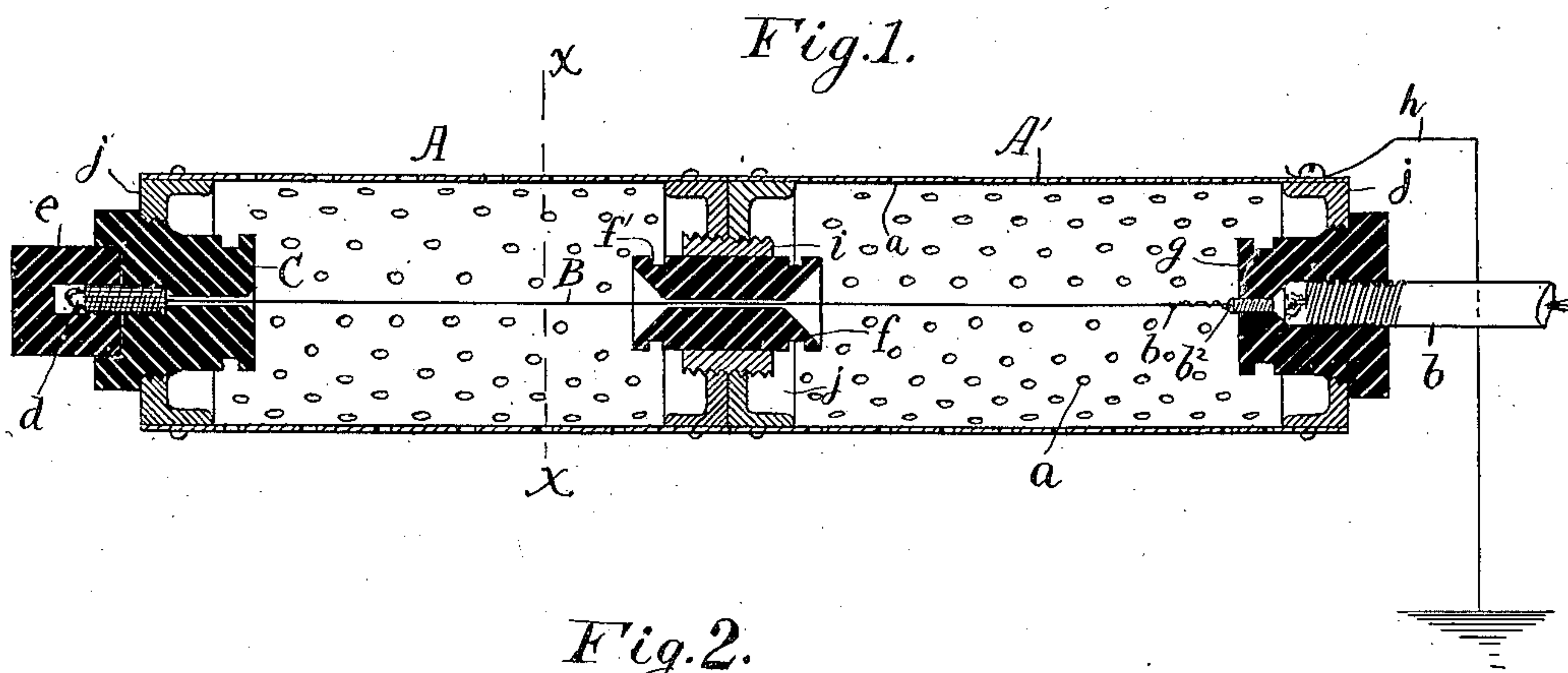


W. H. CHAPMAN.
 APPARATUS FOR NEUTRALIZING STATIC ELECTRICITY.
 APPLICATION FILED JAN. 23, 1908.

900,830.

Patented Oct. 13, 1908.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM H. CHAPMAN, OF PORTLAND, MAINE.

APPARATUS FOR NEUTRALIZING STATIC ELECTRICITY.

No. 900,830.

Specification of Letters Patent.

Patented Oct. 13, 1908.

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To all whom it may concern:

Be it known that I, WILLIAM H. CHAPMAN, a citizen of the United States of America, and a resident of Portland, Maine, have invented certain new and useful Improvements in Apparatus for Neutralizing Static Electricity, of which the following is a specification.

My invention relates to apparatus for neutralizing static electricity and it relates particularly to means for applying the process set forth in my Patent No. 777,598 dated Dec. 13, 1904. Since said process has been put into practical use I have used several forms of conductor for discharging or radiating the high tension static charge onto the paper or other material to be treated. These means have included a simple wire held parallel and adjacent to a wooden bar, a bar of nonconducting material having the wire embedded therein with branches terminating at the surface of the bar in fine points which radiated the static charge and other forms. In all of these forms of "inductor" as I term this member, the wire was connected with the source of high tension electricity and was itself insulated so that anybody coming in contact with the wire would receive a spark. In textile mills and other places where the inductor was liable to be touched by the help, this sparking was annoying and there was also danger of setting fire to the lint or other inflammable material.

The object of my invention is to provide an inductor which may be handled with impunity without giving off any shock or spark and which would be at least as effective as any other form of inductor and with that end in view the invention consists of a hollow perforated conductor connected to earth and having therein an insulated conductor as a wire containing small surfaces or points for radiating the charge and which is connected with a source of electrical energy by which it is charged with a high tension charge. An inductor of this character is found to effectively radiate the high tension charge through the perforations in the hollow conductor and at the same time may be safely handled without receiving a spark or shock of any kind.

I illustrate my invention by means of the accompanying drawing in which:—

Figure 1 is a central longitudinal section through my improved inductor, Fig. 2 is an enlarged cross section on the line $x x$ of Fig. 1 and Fig. 3 is a detail section of the wire holding plug.

The hollow conductor is here shown in the form of a perforated cylinder which is made up of a plurality of standard sections, in this case, two in number, A and A' as many units or sections being used as is necessary to cover the width of the paper or other moving material to be treated.

a represents the perforations which may be of any desired size or shape although I prefer to use ordinary perforated tin or brass containing numerous holes.

Each section has fitting in its end a head j which is centrally perforated by a screw threaded opening. The heads are riveted, soldered or otherwise secured in place. The central opening in the heads are uniform so that the various fittings will fit each head.

An interior insulated conductor from which the high tension charge is radiated is provided and this conductor has small surfaces of such small area that high tension charges will pass freely from it into the air. I prefer for this purpose to make use of a wire B which is stretched longitudinally through the center of the cylinders A A' being secured at the ends and insulated from the cylinder.

For the purpose of holding the wire and insulating it I make use of an insulated plug g at one end of the tube and a plug C at the other. The plug g has a small central screw threaded perforation extending a portion of the way through from the inner end and in this perforation is a screw b^2 to which is secured one end of the wire. As here shown, a short section of spiral spring b' connects the end of the screw b^2 and to the end of the wire B to take up any slack in the wire. In the outer end of the plug g is a screw threaded recess into which is screwed the end of the cable b connected with the source of electric energy, the inner end of the cable making a metallic connection with the inner end of the screw b^2 . The plugs C and g project into

the body of the cylinder and to increase the insulating surface separating the wire from the head, annular grooves are formed.

The insulating plug C is similar in construction to the plug *g* fitting in the head *j* with a central perforation on its inner end through which passes the wire B. The end of the wire B is secured by a wire holding plug *d* which is screwed into a screw threaded recess in the outer end of the plug C.

The plug *d* has a central longitudinal perforation through which the wire is threaded and the end of the wire is twisted around a knob *d'* on the outer end of the plug and passes through a lateral hole *d''* in the knob. In this way the wire is easily inserted and firmly held in place.

An insulated cap *e* fits in a recess in the outer end of the plug C and covers the end of the wire and the plug *d*.

Adjacent sections of the cylinder are fastened together by a standard nipple *i* which passes through the adjacent heads and extending through the nipple is the insulating guide *f* having a central opening through which passes the wire B. The ends of the guide are formed with annular grooves *f'* to increase the insulating surfaces as already described in the end plugs.

A suitable binding screw in the metal cylinder A' connects by means of a live wire *h* to the ground.

The perforation may be as stated of any desired size or shape as for instance, a longitudinal slot may be run the whole length of the cylinder but the essential thing is to allow the radiations from the wire conductor to pass through the walls of the cylinder unobstructed.

An inductor constructed in this manner has greater efficiency than those hitherto used since it radiates electricity in all directions and hence is adapted for work where the material occupies considerable space like winding machines and other machines in textile mills where this inductor may be placed among the strands and will act above and below at the same time.

The inductor may be safely handled without danger of getting a shock, it may be applied to a great variety of work and it is absolutely safe as far as fire is concerned. It may also be used with whatever kind of charge is used for neutralizing the material whether alternating or direct.

I claim:—

1. The herein described apparatus for neutralizing static electricity consisting of a hollow conductor connected to earth and having one or more openings through its walls and an electrically charged insulated conductor with small radiating surfaces secured within said hollow conductor.

2. The herein described apparatus for neutralizing static electricity consisting of a hollow perforated cylindrical conductor connected to earth and an electrically charged insulated conductor with small radiating surfaces secured longitudinally within said cylinder.

3. The herein described apparatus for neutralizing static electricity consisting of a hollow perforated cylindrical conductor connected to earth and an electrically charged insulated wire secured longitudinally within said cylinder.

4. The herein described apparatus for neutralizing static electricity consisting of a hollow perforated cylindrical conductor connected to earth and an electrically charged insulated wire secured in the axis of said conductor.

5. The herein described apparatus for neutralizing static electricity consisting of a hollow perforated cylindrical conductor connected to earth, a plug of insulating material in each end, a wire connecting said plugs and an electric cable terminating in one of said plugs in electrical contact with said wire.

6. The herein described apparatus for neutralizing static electricity consisting of a hollow perforated metal cylinder connected to earth, each end of said cylinder having a head with a central screw threaded opening therein, a plug of insulating material adapted to screw into each of said openings, longitudinal openings in said plugs, a wire conductor extending between said plugs and having its ends secured in said openings and an electric cable terminating in one of said plugs and making electrical contact with one end of said wire conductor.

7. The herein described apparatus for neutralizing static electricity consisting of a hollow perforated metal cylinder connected to earth, each end of said cylinder having a head with a central screw threaded opening therein, a plug of insulating material adapted to screw into each of said openings, one of said plugs having a central perforation on its inner end connecting with an enlarged perforation at its outer end, a centrally perforated wire holding plug fitting said enlarged perforation, a wire, one end of which extends through said central perforation and is secured to the wire holding plug, the other insulating plug having a screw threaded perforation on its inner end connected with an enlarged screw threaded opening extending to the outer end, a screw fitting the inner perforation and having secured to its inner end the other end of said wire and an electric cable screwed into the outer opening and making contact with the outer end of said screw.

8. The herein described apparatus for

neutralizing static electricity consisting of a hollow perforated metal cylinder connected to earth, made up of sections or units of equal length, each unit having in each end a head
5 with a central screw threaded opening therein, one end of each unit having a nipple passing through said opening, a centrally perforated guide block extending through said nipple, insulating plugs in the outer ends of the end
10 units, a wire secured to said end plugs and

passing through the said perforated guide and an electric cable connected with one plug in electrical contact with said wire.

In witness whereof I have hereunto set my hand this 2d day of January, 1908.

WILLIAM H. CHAPMAN.

Witnesses:

S. W. BATES,
ELEANOR W. DENNIS.