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2,602,910

ELECTRODE ASSEMBLY

Original Filed June 16, 1948

FIG. 1

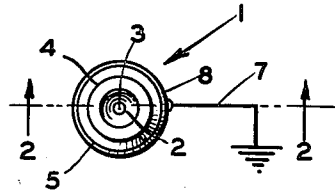
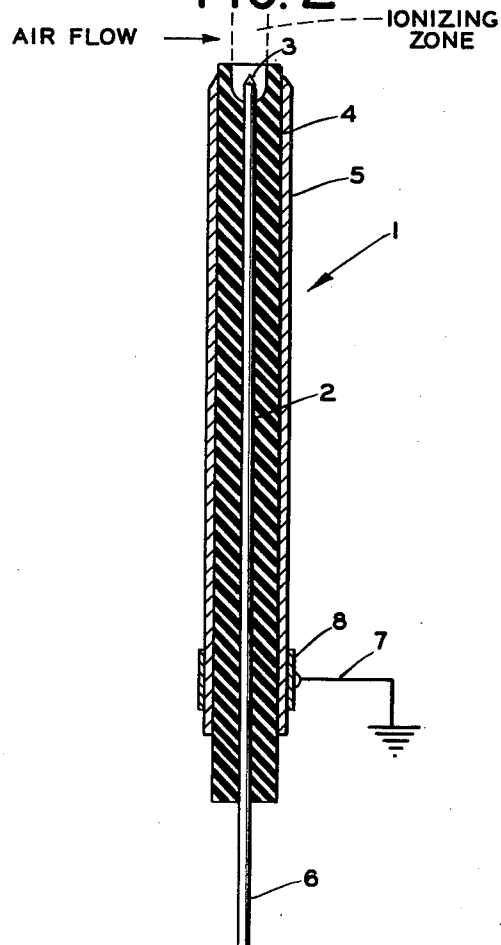


FIG. 2



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ELECTRODE ASSEMBLY

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Original application June 16, 1948, Serial No. 33,390. Divided and this application December 9, 1949, Serial No. 132,125

5 Claims. (Cl. 315—56)

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The invention relates to electrode assemblies for ionizing fluids and is a division of co-pending application Serial No. 33,390, filed June 16, 1948, directed to airspeed indicators.

The main object of the present invention is to provide a novel electrode assembly for producing ions in a fluid in a localized zone.

The invention contemplates an ionizing electrode assembly including a pointed electrode adapted to be connected to a high voltage source and encircled by an insulating sleeve and with the pointed end of the electrode recessed within the insulating sleeve. A conducting sheath, adapted to be grounded, encircles the insulating sleeve.

The foregoing and other objects and advantages of the invention will appear more fully hereinafter from a consideration of the detailed description which follows, taken together with the accompanying drawing wherein one embodiment of the invention is illustrated. It is to be expressly understood, however, that the drawing is for the purposes of illustration and description only, and is not to be construed as defining the limits of the invention.

In the drawing:

Figure 1 is an end view of a novel ionizing electrode assembly constructed according to the invention, and

Figure 2 is a longitudinal section taken approximately on the line 2—2 of Figure 1.

Referring now to the drawing for a more detailed description of the novel ionizing electrode assembly of the present invention, the assembly includes an electrode 2 having a needlepointed end 3 and encased in a sleeve or sheath 4 of insulating material. A grounded metallic shroud or sheath 5 of conducting material encircles sleeve 4. The sleeve extends beyond point 3 of the electrode and beyond both ends of shroud 5. Shroud 5 is tapered at the end adjacent the point of electrode 2 and the tapered end of the shroud is approximately even with the point of the electrode. The electrode may be connected by a lead 6 to a high potential A. C. source (not shown) and shroud 5 may be connected to ground by a lead 7 secured to a ring 8 on shroud 5.

The pointed end of the electrode is placed in the fluid medium, such as the atmosphere, to be ionized. Free electrons are present in the atmosphere due to the effect of sunshine, cosmic rays and radioactive material. The potential at the point 3 of the electrode should be sufficiently high to accelerate the free electrons to an ionizing velocity, preferably without corona discharge.

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When the point 3 is positively charged, electrons are attracted to it and there is a deficiency of electrons in the ionizing zone. When the point 3 is negatively charged, electrons are repelled from the electrode and there is a surplus of electrons in the ionizing zone. The ionizing zone is occupied successively by positive and negative charges as determined by the polarity of the electrode. When the electrode is placed in the slipstream of an aircraft or other moving vehicle the successive positive and negative charges are swept in the direction of airflow from the ionizing zone and the speed of the craft or vehicle may be determined by collecting the charges on a second electrode as described in the parent application.

The novel electrode assembly described herein produces ions in a localized zone and is especially adapted for the airspeed indicator of the parent application.

Although but one embodiment of the invention has been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto nor is it limited to use in the airspeed indicator of the parent application. Various changes may be made in the design and arrangement of the parts without departing from the spirit and scope of the invention as the same will now be understood by those skilled in the art.

What is claimed is:

1. In an ionizing electrode assembly, an electrode having a pointed end, an insulating sleeve encircling said electrode and having a recess to receive the pointed end of said electrode, and a conducting sheath encircling said insulating sleeve.

2. In an ionizing electrode assembly, an electrode having a pointed end, an insulating sleeve encircling said electrode and having a recess to receive the pointed end of the electrode, and a conducting sheath encircling said insulating sleeve and having one end aligned with the pointed end of said electrode.

3. In an ionizing electrode assembly, an electrode having a pointed end, an insulating sleeve encircling said electrode and having a recess to receive the pointed end of the electrode, and a conducting sheath encircling said insulating sleeve and having one end tapered and aligned with the pointed end of said electrode, and the associated end of said insulating sleeve extending beyond said electrode and said sheath.

4. An ionizing electrode assembly comprising a sharp pointed conducting member adapted to be connected to a high voltage source, an in-

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insulating sheath for said member, and a conducting sheath adapted to be grounded encompassing said first sheath, the pointed end of said member being recessed within said insulating sheath.

5. An ionizing electrode assembly comprising a sharp pointed conducting member adapted to be connected to a high voltage source, an insulating sheath for said member, and a conducting sheath encompassing said insulating sheath and adapted to be grounded, said last sheath being tapered at one end and termi-

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nating at a point short of the end of said insulating sheath, the pointed end of said member being recessed within the insulating sheath.
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REFERENCES CITED

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

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Number	Name	Date
1,962,669	Parkin, Jr.	June 12, 1934