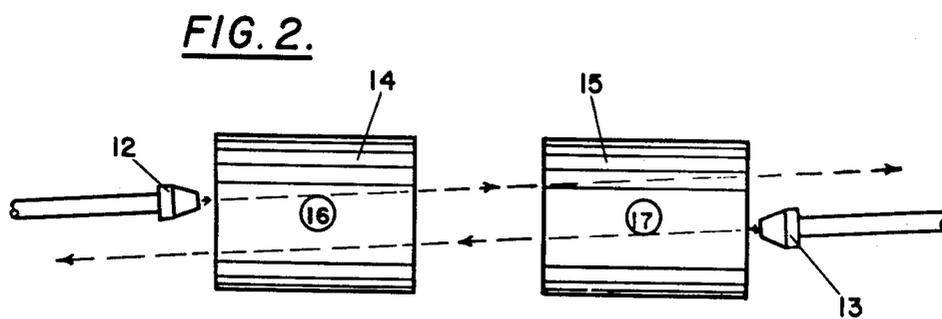
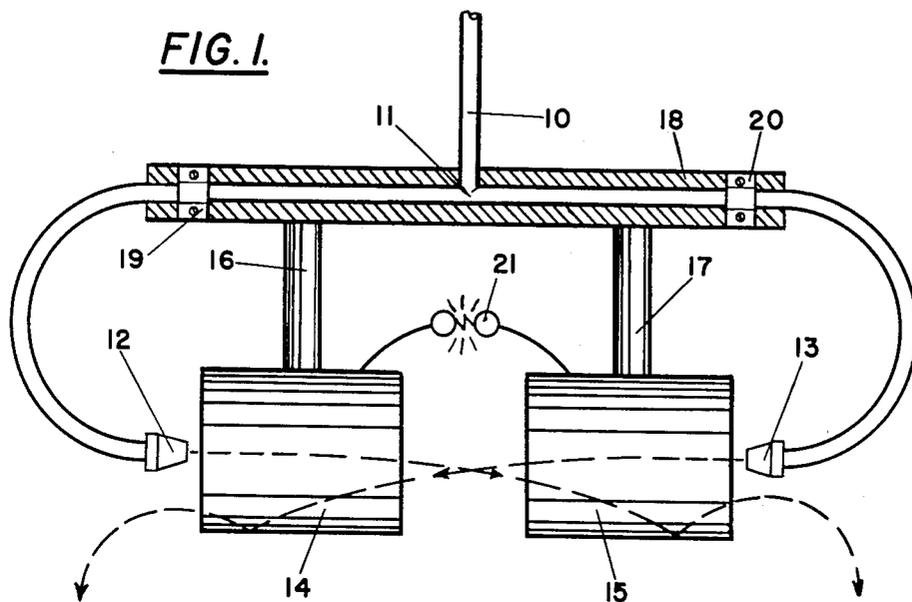


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STATIC ELECTRIC GENERATOR

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## STATIC ELECTRIC GENERATOR

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3 Claims. (Cl. 310—5)

This invention relates to a static electric generator, wherein jets of a fluid which is a conducting medium such as water, or mercury, is used to induce great voltage differences between two metal cylinders. The objects of the invention are to provide a simple source of high voltage potential to be used for such things as educational purposes, toys, flashing gaseous lamps, dust precipitators and other applications where high voltages at small currents are required.

Figure 1 is a side elevational view of apparatus embodying one form of my static electric generator; and Figure 2 is a plan view thereof with the insulators sectioned off and the upper portion of the apparatus removed. Similar numerals denote similar parts in both views.

The voltage differential is generated by the following method: In Figure 1, an electrical conductive fluid is fed in at 10, under pressure where it is distributed in a coupling 11, to the nozzles 12 and 13. The jets of fluid issue from the said nozzles which are far enough back from the entrances of the cylinders 14 and 15 so that the streams will be broken up into drops before they leave said first cylinders. Said drops are thereby isolated from each other by air spacing before they leave the cylinders traveling in opposite directions, so as to avoid any chance of them pre-discharging the voltages, induced upon them by the nearest cylinders back to these jet orifices through the solid column of fluid that exists near the nozzle tips.

A small electrical charge or voltage unbalance supplied to one of the metal cylinders induces a charge of the opposite polarity in the drops of the jet of fluid passing through it. This initial charge may already be present or may be induced by the act of merely touching one of the cylinders with the finger, or by rubbing a glass rod with a piece of fur and touching the rod to one of the cylinders.

The cylinders 14 and 15 are insulated from each other and the fluid line by electrical insulators 16 and 17, which in turn are mounted on a base 18 which may be of metal or wood. The fluid line 10 may be mounted on the same base 18 with clamps 19 and 20.

As an example, if cylinder 14 is charged slightly positive, then the fluid drops from jet 12 which in no way touches cylinder 14, will be charged negative by their passage through said cylinder. The jet nozzle 12 is adjusted so as to cause these negatively charged drops to contact cylinder 15 wherein they give up most of their charge to said cylinder and then drip away from the end of same as waste. The same thing happens to the fluid coming from jet 13, but it receives a positive potential charge by passing through cylinder 15 and gives it up to cylinder 14, charging same positive.

As the cylinders become more highly charged they in turn induce a higher opposite polarity static charge on the fluid passing through them thereby quickly building the cylinders up to very high voltages of the opposite polarities which will discharge as a spark across the gap 21 or may be fed off to other units designed to utilize static

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electricity in their operation which are not shown herein, being common knowledge to those familiar with the art.

Figure 2 shows only cylinders 14 and 15 without mounting insulators, and jets 12 and 13 looking down vertically upon them to show the relative positions that the streams of fluid should take in order to avoid any contact with each other as they pass in opposite directions through the cylinders. I wish to be limited only by the following claims.

I claim:

1. Two metallic cylinders approximately axially aligned but physically separated and electrically insulated each from the other, two pressure jet fluid orifices arranged so that their nozzle openings face each other through the interiors of the cylinders, said cylinders reposing between the jet orifices but not in physical contact with them or their feed pressure lines, so that when one cylinder is given a potential voltage unbalanced in relation to the other by electrically connecting it momentarily to a small static voltage source, and fluid being forced through the jet orifice nearest this cylinder, said fluid passes through the interior of the cylinder without touching it, receiving an induced voltage potential of the opposite polarity of said cylinder, whereupon said fluid drops are directed at an angle that causes them to contact the wall of the cylinder farthest from their issuing jet orifice, transferring most of their induced voltage potential to said cylinder and then trickle away as waste, whereupon the cylinder receiving this transferred voltage acts on the fluid issuing from the other jet orifice nearest to it in a similar manner and induces the opposite voltage potential on its fluid which passes in the opposite direction through but not contacting this nearest cylinder, or the other onrushing jet stream, but contacting the farthest cylinder thereby charging it to a higher voltage than it was originally, said action continuing on both cylinders until they have built up static voltage pressures of the opposite polarity to the limit of their insulation whereupon said static potential may be utilized therefrom.

2. Two electrical insulators upon which is mounted two metallic cylinders aligned along a common axis and spaced from each other, means comprising jet orifices at the non-adjacent ends of said cylinders so that one cylinder becomes positively and the other negatively charged when drops of an electrically conductive fluid which is sprayed in a stream of small divergence through the interiors of the cylinders from opposite directions by said jet orifices facing each other and bracketing said cylinders so that the fluid enters and passes through the cylinders nearest to the issuing jet orifices without touching these nearest cylinders and without the two jets of fluid colliding with each other in their travel in opposite directions, but each respective jet of fluid impinging upon the wall of the cylinder farthest from its issuing orifice, whereupon if either cylinder is slightly higher or lower in static voltage potential with respect to the other, then the drops of fluid issuing from either jet orifice will upon passing through the interior of the nearest cylinder without contacting same, have a voltage impressed upon them by the said nearest cylinder, giving up this charge to the second cylinder farthest from said jet orifice by physical contact thereon, whereby both cylinders quickly store up large voltage potential charges of the opposite polarity.

3. A static electric generator composed of a base, two electrical insulators extending from said base, metallic cylinders supported on each of the insulators and disposed so as to be axially aligned and spaced apart, a spark gap formed between said cylinders by electrical conductors extended toward each other from adjacent end portions of said cylinders, tubing, conducting an electrically conductive fluid, attached to said base provided with a coupling joined to branch tubes extending in opposite

directions from said coupling and bent back toward each other and provided with nozzles at their ends directing streams of said conductive fluid through said cylinders from their opposite ends in spaced relation; and in opposite directions; the stream from each respective nozzle flowing through the central portion of the cylinder adjacent to it without contact therewith and flowing through and contacting the further cylinder. 5

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