D. W. HARTSAW.

LIGHTNING CONDUCTOR.

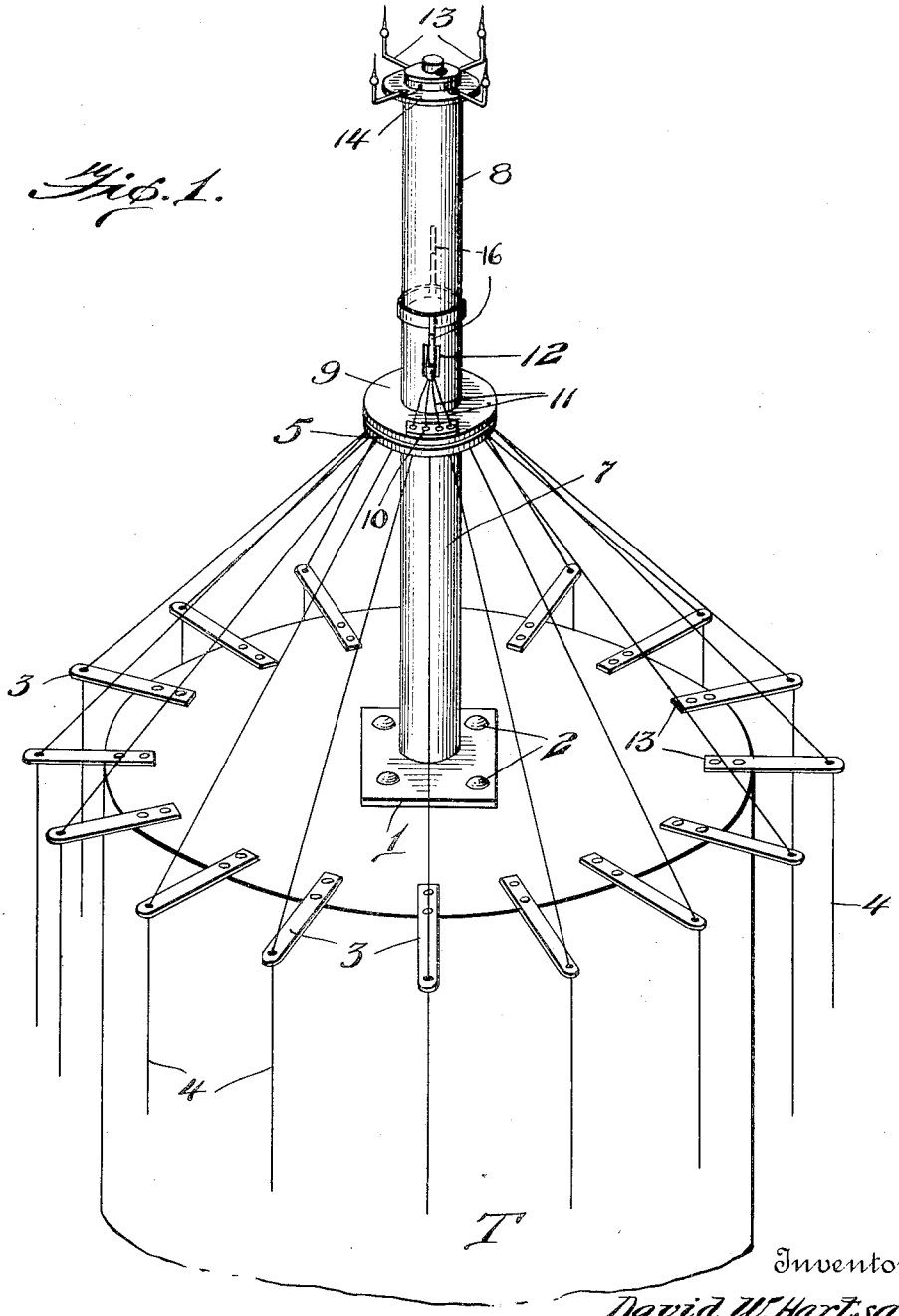
APPLICATION FILED AUG. 19, 1915.

1,189,565.

Patented July 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

Inventor

David W. Hartsaw,

By H. B. Williamson & Co

Attorneys

D. W. HARTSAW.

LIGHTNING CONDUCTOR.

APPLICATION FILED AUG. 19, 1915.

1,189,565.

Patented July 4, 1916.

2 SHEETS—SHEET 2.

Fig. 2

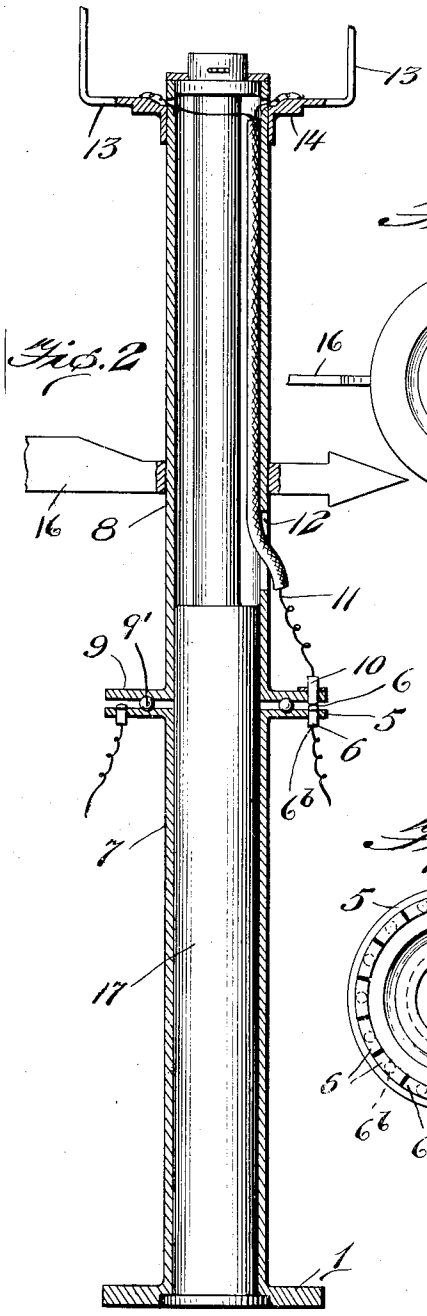


Fig. 3.

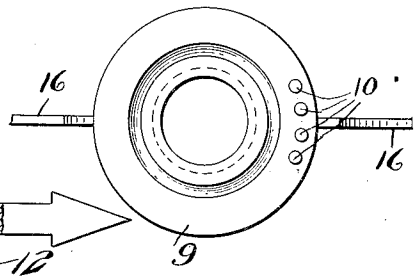


Fig. 4.

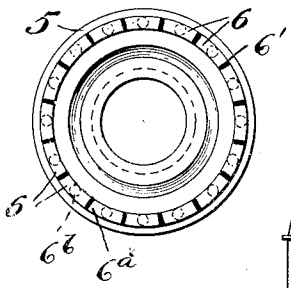
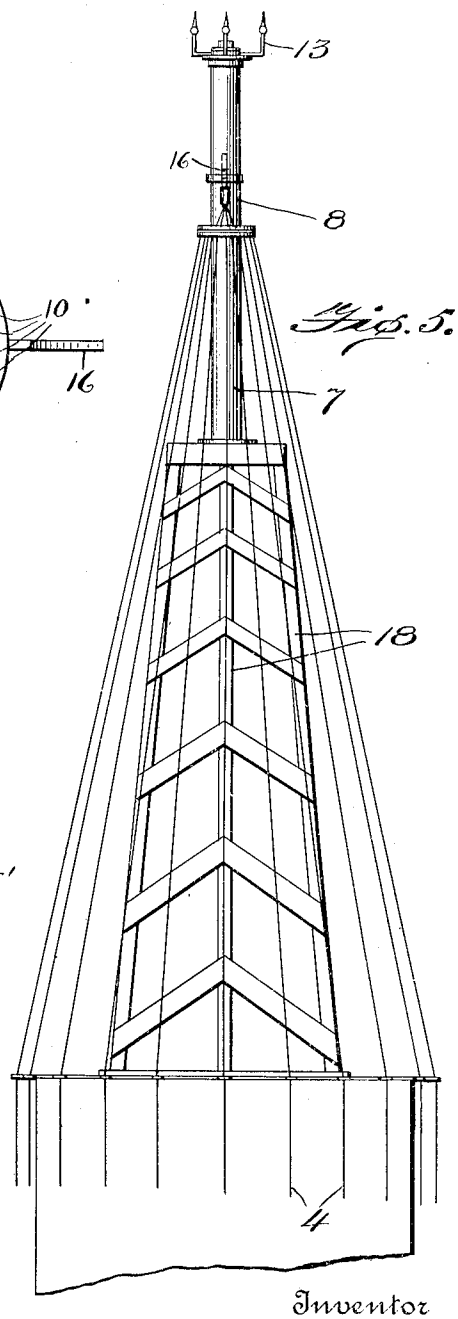


Fig. 5.



Witnesses

E. M. Offutt

Inventor

David W. Hartsaw,

By H. B. Williamson & Co

Attorneys

UNITED STATES PATENT OFFICE.

DAVID W. HARTSAW, OF BRISTOW, OKLAHOMA.

LIGHTNING-CONDUCTOR.

1,189,565. Specification of Letters Patent. Patented July 4, 1916.

Application filed August 19, 1915. Serial No. 46,365.

To all whom it may concern:

Be it known that I, DAVID W. HARTSAW, a citizen of the United States, residing at Bristow, in the county of Creek and State of Oklahoma, have invented certain new and useful Improvements in Lightning-Conductors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to lightning conductors for protecting oil, gas and other tanks and the like. The object of the invention is to provide simple and efficient means for protecting oil and gas tanks and the like against being struck by lightning and which may be readily applied to any tank or similar object.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 represents a perspective view of a tank equipped with this improved conductor; Fig. 2 is a vertical section of the conductor; Fig. 3 is an end view looking upward, of the top member or tube 8; Fig. 4 is a plan view of the lower member or tube 7; Fig. 5 is a side elevation showing a slightly different form of the invention.

In the embodiment illustrated, this improved conductor is shown applied to an oil or other tank T and comprises a base plate 1 which may be of any suitable or desired configuration, being here shown square and provided with a plurality of bolt holes 2 for attaching it to the top of a tank by suitable fastening elements. Brackets 3 project laterally from the head or top of the tank T and are designed for supporting insulated ground wires 4 which are held by said brackets spaced from said tank, the upper ends of said wires terminating in suitably insulated contact plugs 6 which are mounted in an annular flange 5 formed on the upper end of a tube 7 carried by the base plate 1. These plugs 6, sixteen of which are shown, are constructed in the form of T-shaped members with the heads 6^a thereof arranged around the plate 5 forming a continuous circle, the ends of said heads being in close proximity with thin strips of insulation 6′ arranged between them, while the shanks 6^b extend through openings in said flange 5 (see Figs. 2 and 4).

A tube 8 is mounted on the tube 7 and has an annular flange 9 at its lower end which is supported by the flange 5 of the tube 7, said flanges having a ball bearing connection between them, as shown at 9′ to facilitate turning of the tube 8 relative to tube 7. As shown, the flange 9 is provided with four electric contacts in the form of suitable insulated plugs 10 which are arranged in close proximity at one side of the flange and with which are connected four conductors 11 which pass through an opening 12 in one side wall of the tube 8 and extend upwardly through said tube and out through the walls thereof, projecting laterally therefrom and being composed of any suitable conducting material terminating in arms 13 operating in the manner of the usual points formed on lightning rods for attracting the lightning and conducting it to the ground.

From the above description, it will be obvious that four conductors are carried by the tube 8 which is revolubly mounted on the tube 7, and these conductors terminate at their lower ends in the four contact plugs 10 carried by the flange 9 on said tube, so that when said tube and this flange is revolved on the tube 7, four of the ground wires will be constantly in contact with the conductors carried by the tubes 8 which is owing to the fact that the wires, sixteen of which are shown, have their contact plugs 6 arranged in a substantially unbroken circle carried by the flange 5 of the tube 7.

A vane or wind wheel 16 is fixed to the tube 8 in the manner in which said devices are applied to wind mills so that the wind blowing against said vane will cause the tube 8 to rotate and thereby position the conductors carried by said tube on the side opposite to the direction in which the wind is blowing to prevent all possibility of the lightning from igniting the gas in the tank. These tubes 7 and 8 preferably have an axle or shaft 17 extending therethrough to afford supports for the tubes and prevent them from being displaced laterally.

From the above description, the operation of the conductor will be obvious, it being understood that should lightning strike one of the points 13, it will be conducted through said point and through the conductor leading downwardly therefrom and out through the opening 12 in the tube 8 to the contact or

plug 10 carried by the flange 9 of said tube and passing through the plug 10 will enter one of the plugs 6 carried by the flange 5 of tube 7 and thus pass out therethrough to one of the ground wires 4 and through said ground wire to the earth, thus preventing all possibility of the tank or other object on which this device is mounted from being injured by lightning and the gas or oil from being ignited by the lightning.

In Fig. 5, a slightly different form of the invention is shown in which the plate 1 instead of being mounted directly on the tank to be protected, may be carried by a derrick or skeleton frame 18 which is secured to the tank in any suitable manner, said derrick being used so as to position the conductor at a higher point above the tank and which it is desired to protect.

I claim:—

1. A lightning conductor comprising a supporting base having a tube rising therefrom and provided at its upper end with a laterally extending flange, a plurality of contact plugs carried by said flange, ground wires connected with said plugs, another tube rotatably mounted on said first mentioned tube and having an annular flange at its lower end resting on the plug carrying flange of said first mentioned tube and provided with contact plugs, conductors electrically connected with said last mentioned plugs and extending through said tube opening and upwardly through said tube, and lightning attracting points on said conductors.

2. A lightning conductor comprising a supporting base having a standard rising therefrom and provided at its upper end with a laterally extending flange, a plurality of contact plugs carried by said flange, ground wires connected with said plugs, another standard rotatably mounted on said first mentioned standard and having an annular flange at its lower end resting on the plug carrying flange of said first mentioned standard and provided with contact plugs, conductors electrically connected with said last mentioned plugs, and lightning attracting points carried by said conductors and extending laterally therefrom.

3. A lightning conductor comprising a supporting base having a standard rising therefrom and provided at its upper end with a laterally extending flange, a plurality of contact plugs carried by said flange, ground wires connected with said plugs, another standard rotatably mounted on said first mentioned standard and having an annular flange at its lower end resting on the plug carrying flange of said first mentioned standard and provided with contact plugs, conductors electrically connected with said last mentioned plugs, lightning attracting points carried by said conductors and a wind vane carried by said upper standard for rotating it.

4. In a lightning conductor, the combination of two sections, one of which is revoluble in relation to the other, contacts carried by said sections and positioned for continuous engagement, conductors leading from said contacts, the conductors on the fixed section being grounded and those on the revoluble section being provided with lightning attracting points, and means on said movable section for positioning the conductors carried thereby at the side opposite the direction in which the wind is blowing.

5. In a lightning conductor, the combination of two sections, one of which is revoluble in relation to the other, contacts carried by said sections and positioned for continuous engagement, conductors leading from said contacts, the conductors on the fixed section being grounded and those on the revoluble section being provided with lightning attracting points, and a wind vane mounted on said revoluble section at the side opposite that on which the conductors carried by said section are disposed so that said conductors will be retained at all times at the side opposite the direction in which the wind is blowing.

6. A lightning conductor comprising a supporting structure provided with an annular series of contact plugs arranged in close proximity, ground wires connected with said plugs, a member mounted to revolve above said annular series of contacts adjacent thereto and provided with a contact at one side thereof positioned for engagement at all times with some of the contacts of said annular series, a conductor leading from the contact of said revoluble member and positioned at one side thereof, a lightning attracting point connected with said conductor and a wind vane carried by said revoluble member and positioned to turn said member so as to hold the conductor carried thereby at all times on the side opposite that in the direction of which the wind is blowing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DAVID W. HARTSAW.

Witnesses:
C. C. BENTON,
H. C. SELLERS.