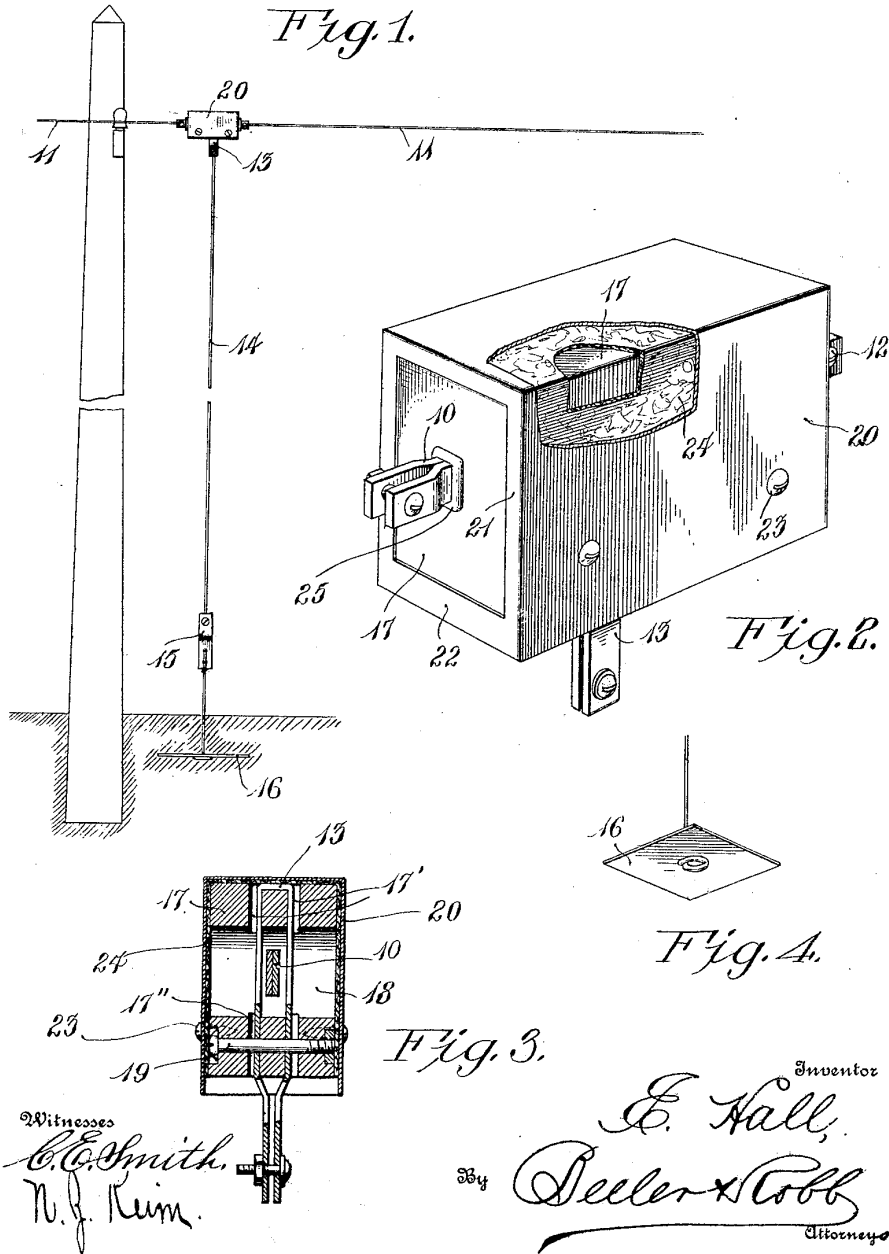


E. HALL.
 LIGHTNING CONDUCTOR AND ANTIHUMMER.
 APPLICATION FILED MAY 29, 1908.

916,306.

Patented Mar. 23, 1909.



THE H. H. HALL CO., WASHINGTON, D. C.

LIGHTNING-CONDUCTOR AND ANTIHUMMER.

No. 916,306.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed May 29, 1908. Serial No. 435,732.

To all whom it may concern:

Be it known that I, Ed HALL, a citizen of the United States, residing in Waterloo township, in the county of Lyon and State of Kansas, have invented certain new and useful Improvements in Lightning-Conductors and Antihummers, of which the following is a specification.

This invention relates to safety appliances to be attached to telephone, telegraph, or other electric conducting wires for the purpose primarily of preventing damage to operators or instruments due to over charges of electricity from lightning, and when applied to telephone wires to prevent the objectionable buzzing or humming, commonly incidental to line wires which are unprotected.

I am aware that it has heretofore been proposed to attach so-called safety devices to electric wires for the same general purposes as above stated, but the subject-matter of this invention is of peculiar merit due to the specific differences in construction and application of the same.

For a full understanding of the invention, including its mode of application and characteristic advantages, reference is to be had to the following detail description and the accompanying drawings, in which—

Figure 1 is a diagrammatic view indicating the invention applied; Fig. 2 is a perspective of the principal part of the invention, partially broken away; Fig. 3 is a central transverse section of the part illustrated in Fig. 2, and Fig. 4 is a detail perspective of the ground connection.

Throughout the following description and on the several figures of the drawings corresponding parts are referred to by like reference characters.

In carrying out this present invention there is provided a device to be rigidly secured to the main line wire or conductor, and the same is to be provided with a suitable ground connection, whereby an overcharge of static electricity, due to proximity of a storm cloud, may be conveyed from the main line to and into the ground. The invention thus contemplated is capable of a wide range of specific construction, both as to the materials used and the specific form of the several parts making up the apparatus.

As a convenient illustration of the invention there is provided a core 10, made of one or more bars or rods of heavy metal

such as copper, to the ends of which the main line conductor 11 may be suitably attached by twisting or by binding screws 12. It will be understood that the main line will be cut at the point where the instrument is to be attached, and such point preferably is at some point distant from the building and exposed to the elements. The core is materially heavier than the line 11. A yoke 13 of heavy metallic construction is associated with the core in such a way as to lie at a short distance therefrom, there being a slight space between the core and the structure of the yoke. This yoke may be arranged with respect to the core in any suitable manner within the contemplation of the foregoing statement. For instance, it may extend above, below, or even in some instances through said core. As herein set forth said yoke consists of a plate of contacting metal bent in the form of a loop and embracing said core so as to lie close thereto on each side. Suitably connected to an end of the yoke is a ground line 14, which may be of any suitable weight or length and which is connected at its lower end at a detachable connection 15 with a plate 16 to be buried sufficiently far beneath the surface of the earth to be in contact with moisture.

As a suitable means for maintaining the core and yoke in proper spaced relation, I provide a block 17, of any suitable material, such as wood, through which the core extends from end to end. Substantially midway of the ends of the block 17 there is provided a transverse opening forming a combustion chamber 18. The loop forming the yoke 13 extends transversely through the block at right angles to the combustion chamber and core, and by virtue of its position in the block, being seated in holes 17' and 17'' in the block, the yoke is maintained at a certain definite position. To strengthen the connection between the yoke and the block there is provided a transverse bolt 19 passing transversely through the block and the yoke, the head and nut of the bolt, however, lying within the surface of the block.

Surrounding the top and sides of the block is a covering 20, of any suitable material such as copper or brass which will withstand long exposure to the elements. Said covering extends well over the ends of the block, terminating in flanges 21 which

provide a substantial connection between the block and covering but which flanges are spaced sufficiently far from the ends of the core to prevent any possibility of an overcharge of electricity leaping across the spaces and thereby be carried from one end of the core to the other through the covering. The lower ends of the flanges 21 are preferably connected by straps 22, which materially strengthen this portion of the covering. When the block is made of wood it is desirable to coat the ends thereof where unprotected by the covering 20 by a heavy coating of paint. The sides of the covering are fastened to the sides of the block by a plurality of screws 23 which pass through the insulation 24, holding the latter in place also.

The covering 20 preferably extends well below the lower edge of the block 17 for the purpose of preventing rain from entering the block. As an additional protection to the block and especially to materially increase the effect of the instrument in its purpose of preventing objectionable humming, or the like, I introduce between the block and the covering 20 a substantial layer of insulation. This insulation may be of any desired character, that preferred being sheet asbestos. This asbestos breaks any electric contact which might otherwise be formed between the covering 20 and the upper end of the yoke, or between the covering 20 and the bolt 19. It serves furthermore as a means to provide that the combustion chamber 18 shall be substantially air tight in order to decrease the likelihood of the instrument being burned out. For this purpose and to exclude dust, dirt, and insects from the interior of the device all openings must be securely sealed.

At 25 there are shown collars, one for each end, which closely embrace the core 10. The collars fit snugly not only around the core but also against the ends of the block 17. They may be readily secured in place by any suitable means, such for instance as by sweating to the core. These collars serve the purpose of preventing any possibility of relative endwise movement between the block and core, and also constitute an effective seal excluding dust, dirt, or moisture from entering into the block adjacent to the core.

Having thus described the invention, what is claimed as new, is:

1. In an appliance of the character set forth, the combination of a heavy metallic core having end attaching means, main line wires attached to said means, whereby the

usual current passes from one wire through the core to the other wire, a yoke consisting of a heavy metal bar looped around the core, means to hold the yoke in definite fixed relation to the core and slightly spaced therefrom, said means including a block through which the yoke extends through spaced holes, and a connection attached to said yoke whereby an overcharge of electricity may pass into moist earth, substantially as set forth.

2. The hereindescribed lightning conductor and anti-hummer comprising, in combination, a block having a longitudinal central bore, a large horizontal transverse opening forming a chamber, and a plurality of spaced vertical holes, a heavy metallic core secured in said bore, a looped metallic yoke secured in place in said vertical holes and passing said core within said chamber, a moist earth connection attached to the lower end of said yoke, and a closure and protector covering for said block.

3. The hereindescribed device comprising, in combination, a rigid block having a large transverse central opening forming a combustion chamber, and having a plurality of vertical holes lying on opposite sides of the vertical longitudinal central plane of the block, a core extending longitudinally through the block, a yoke extending through the block and secured in said vertical holes and lying nearest to the core within said chamber, a transverse bolt holding the yoke rigidly in place within the block, a ground connection for the yokes, and a covering for the block comprising a sheet metal casing inclosing the same and extending below the lower edge thereof, and a layer of asbestos insulation between the casing and the block, for the purposes set forth.

4. In a device of the character set forth, the combination of a block having a transverse cavity bored therethrough, a metallic bar passed longitudinally through the block intersecting said cavity, a pair of collars rigidly secured to said bar adjacent to the ends of the block, whereby the bar is secured in place and the ends of the block sealed, a yoke extending through the block and cavity at an angle to the aforesaid bar and in close proximity to the bar, main line wires secured to the ends of said bar, and a ground connection for said yoke.

In testimony whereof I affix my signature in presence of two witnesses.

ED HALL.

Witnesses:

A. M. MINER,
T. H. ELLIS.