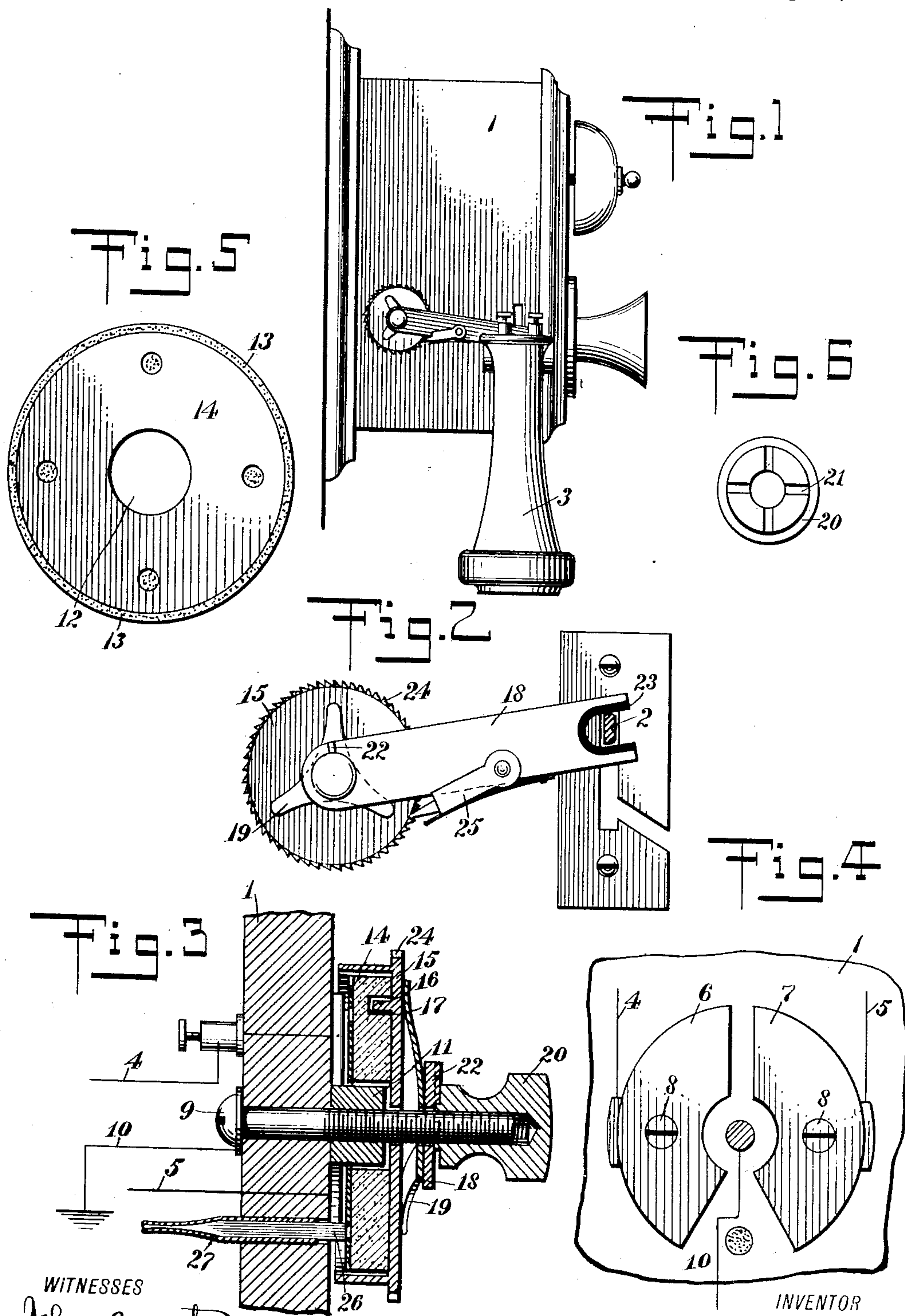


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 AUTOMATIC ATTACHMENT FOR CLEANING ROUND CARBON OR METAL LIGHTNING ARRESTERS.  
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# UNITED STATES PATENT OFFICE.

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AUTOMATIC ATTACHMENT FOR CLEANING ROUND CARBON OR METAL LIGHTNING-ARRESTERS.

968,938.

Specification of Letters Patent. Patented Aug. 30, 1910.

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*To all whom it may concern:*

Be it known that I, WILLIAM SYLVESTER HALE, a citizen of the United States, and a resident of Buckley, in the county of Iroquois and State of Illinois, have invented a new and Improved Automatic Attachment for Cleaning Round Carbon or Metal Lightning-Arresters, of which the following is a full, clear, and exact description.

10 This invention relates to an automatic cleaner for lightning-arresters, and is adapted to automatically remove any particles of carbon-dust or the like which may accumulate between the contacts.

15 The object of the invention is to provide a simple and efficient device, which will be effective and automatic in its operation and will not readily get out of order.

20 The invention consists, generally speaking, of a pair of contacts from the line wire spaced from a terminal-disk, connected to the ground, by a suitable perforated insulating material, such as mica or the like; and means to automatically revolve the terminal-disk over a suitable cleaner each time the receiver-hook is operated.

25 The invention further consists in the construction and combination of parts, to be more fully described hereinafter and particularly set forth in the claims.

30 Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

35 Figure 1 is a side view of a telephone instrument, showing my device attached thereto; Fig. 2 is an enlarged view showing details of the operating mechanism; Fig. 3 is a vertical section through the center of the lightning arrester, showing in detail the various parts; Fig. 4 is a vertical view, with the carbon-disks removed, showing the line wire disks; Fig. 5 is an enlarged view of the carbon-disk; and Fig. 6 is an end view of the thumb-screw, showing the locking means thereon.

40 Referring more particularly to the separate parts of the device, 1 indicates the casing of a usual telephone instrument, extending through an opening in the side of which

is a usual receiver hook 2, which may be automatic or otherwise, and which is adapted to receive a telephone receiver 3 and hold it in position.

4 and 5 indicate the line wires, which enter through the inside of the casing 1 and are connected in any suitable manner to a pair of contact plates 6 and 7, which are secured in any suitable manner to the outside of the casing 1, as by means of screws 8. The contact members 6 and 7 are preferably spaced apart and segmental in contour, and surround a suitable binding-post 9, to which is attached in any well-known manner a ground-wire 10. The binding-post 9 is preferably provided with a screw-threaded end, on which is adapted to be adjustably secured a spacing-piece 11, which extends into an opening 12 in the center of a terminal-disk 13, supported by said spacing-piece 11. The disk 13 may be of a suitable metal or of carbon. The terminal-disk 13 is spaced from the contacts 6 and 7 by a suitable insulating material, which preferably consists in a perforated mica plate 14, suitably secured in any well-known manner to the face of the terminal-disk.

In order to inclose the parts and protect them, and for further reasons to be more fully described hereinafter, there is provided a cap 15, which is adapted to inclose the terminal-disk 13, and is rotatably supported on the binding-post 9, and also is joined to the terminal-disk 13 by means of a stud 16, which projects from its inner surface into an opening 17 in the outer side of the terminal-disk 13.

Pivotaly secured to the binding-post 9 there is provided a lever 18. Between the lever 18 and the cap 15, there is provided a spring washer 19, which is adapted to yieldingly force the terminal-disk 13 toward the contacts 6 and 7, the spring being backed up by a suitable thumb-screw 20. The thumb-screw 20 is internally threaded and adapted to screw onto the binding post 9, and has on its inner face a series of indentations 21, which are for the purpose of engaging the raised locking edge 22 on the lever 18, for the purpose of locking the thumb-screw 20 in any adjusted position.



The lever 18 is provided at its outer end with an open slot 23, which is lined with a suitable insulating material, and which is adapted to engage the receiver-hook 2 and be operated thereby.

The cap 15 is formed on its outer periphery with a serrated edge 24, which is adapted to be engaged by a suitable spring-pressed pawl 25 pivotally secured to the lever 18. The cap 15, and the terminal-disk 13 with it, is thus rotated by every down-stroke of the lever 18, which is operated when the receiver is placed on the hook, or when the hook is pushed down for any other reason, as in ringing up "central." The rotation of the terminal-disk of itself would, to a certain extent, clear any carbon-dust or other particles which might accumulate between the terminal-disks and the contacts 6 and 7, but, in order to insure the perfect cleansing of the terminal-disk, there is provided a suitable cleaner 26, which is preferably in the form of a brush, secured by means of a fastening device 27 in an opening in the casing 1, and is adapted to preferably come opposite the perforations in the mica disk 13, so as to sweep out any foreign particles which may be projected therein by a disruptive overcharge of the system, by lightning or the like.

The operation of the device is readily understood from the above description. The receiver-hook 2, every time it is forced down, operates the lever 18, and thus, by means of the pawl 25, advances the cap 15 and the disk 13 a part of a revolution, wiping the face of the mica sheet and the terminal-disk over the brush 26, which cleans off any particles which may have accumulated thereon, thus preventing a permanent short-circuit between the line-wire and the ground-wire being formed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a telephone, the combination with a lightning arrester of a terminal disk for said lightning arrester, a receiver hook, a cap for said terminal disk covering the curved surface thereof, and a lever operated by said receiver hook adapted to rotate said cap to clean said disk.

2. In a telephone, the combination with a lightning-arrester, of a stationary cleaner for said lightning-arrester, and means for moving a part of said lightning-arrester relative to said cleaner.

3. In a telephone, the combination with a lightning-arrester, of a cleaning brush for said lightning-arrester, and means for causing a motion of parts of said lightning-arrester relative to said cleaning brush.

4. In a telephone, the combination with a lightning-arrester of a terminal-disk for said lightning-arrester, a receiver-hook, means connecting said receiver-hook with said disk adapted to rotate said disk, and a cleaner juxtaposed to said disk during its rotation.

5. In a telephone, the combination with a terminal-disk, of a receiver-hook, means operated by said hook adapted to rotate said disk, and a cleaner juxtaposed to said disk during the rotation thereof.

6. In a telephone, the combination with a lightning-arrester, of a terminal-disk for said lightning-arrester, a receiver-hook, a cap for said terminal-disk, a lever operated by said receiving-hook adapted to rotate said disk, and a cleaner juxtaposed to said disk during its rotation thereof.

7. In a telephone, the combination with a lightning arrester, of a terminal-disk for said lightning-arrester, a cap covering said disk, a receiver-hook, a lever adapted to be operated by said receiver-hook, and means on said lever adapted to rotate said cap.

8. In a telephone, the combination with a casing, of a line-wire contact secured thereto, a ground-wire binding-post secured thereto, a terminal-disk adapted to intermittently connect said ground-wire contact with said line-wire contact, means for rotating said disk, and a cleaner juxtaposed to said disk.

9. In a telephone, the combination with a casing, of a pair of contacts secured thereto, a line-wire for said contacts, a binding-post secured to said casing, a ground-wire connected to said binding-post, a rotatable terminal disk juxtaposed relative to said contacts, a perforated spacing-sheet of mica between said contacts and said terminal-disk, a cap secured to said terminal-disk and adapted to rotate the same, serrated teeth on said cap, a pawl adapted to engage said teeth to rotate said cap, a lever pivoted to said binding-post adapted to operate said pawl, a receiver-hook secured to said casing adapted to operate said lever, a spring-pressed washer adapted to force said terminal-disk toward said contacts, and a thumb-screw having locking means thereon adapted to engage a locking edge on said lever and adapted to hold said spring washer to its work.

10. In a telephone, the combination with a casing, of a pair of contacts on said casing, a binding-post supported in said casing between said contacts, a terminal-disk rotatably supported on said binding-post, a perforated mica disk adapted to separate said terminal-disk from said contacts, a receiver-hook, means connecting said receiver-hook



with said terminal-disk adapted to rotate the latter, a brush secured in said casing opposite said perforations in said mica-disk, and means for securing said brush in position.  
5

11. The combination with a telephone, of a lightning arrester for said telephone, a cleaner for said lightning arrester, and means operated by said telephone for mov-

ing a part of said lightning arrester relative to said cleaner. 10

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM SYLVESTER HALE.

Witnesses:

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WILLIAM KRUNNVILDE.