

H. GERNSBACK.
DETECTORIUM.
APPLICATION FILED FEB. 5, 1910.

961,855.

Patented June 21, 1910.

Fig. 1.

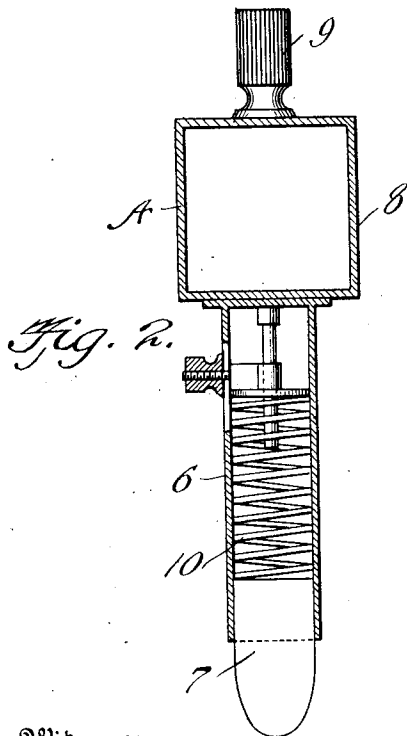
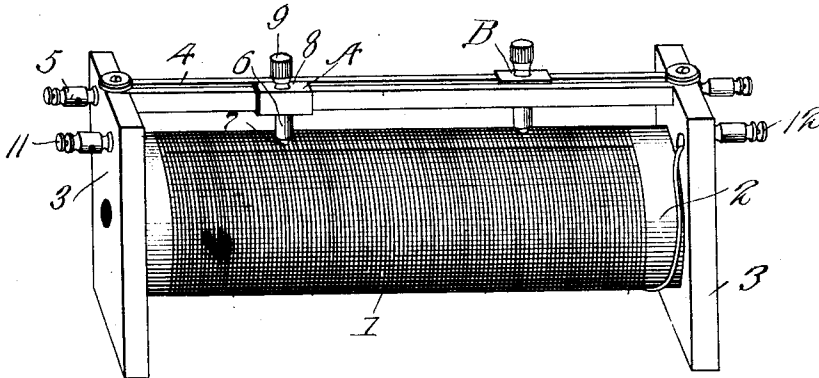
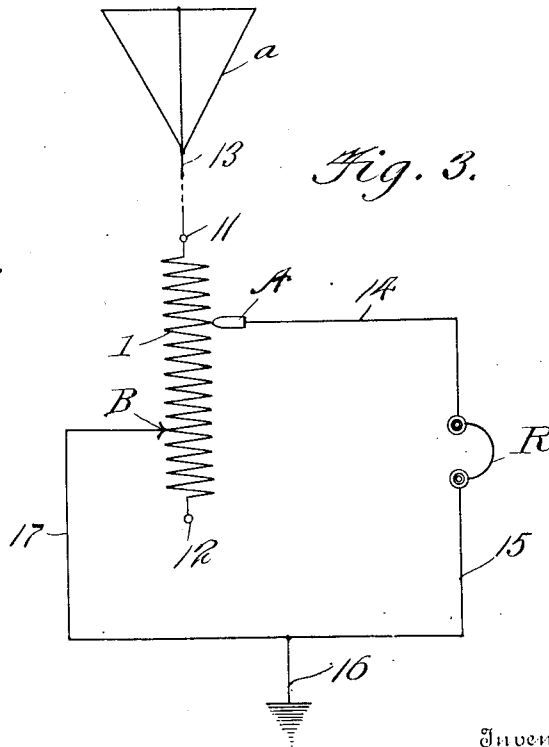


Fig. 3.



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UNITED STATES PATENT OFFICE.

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DETECTORIUM.

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To all whom it may concern:

Be it known that I, HUGO GERNSBACK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Detectoriums, of which the following is a specification.

This invention relates to the art of wireless telegraphy and telephony and has to deal more particularly with an instrument which I shall term a "detectorium", the principal object of the invention being to combine in a single instrument means for tuning the antenna and for acting as a detector for ordinary Hertzian waves.

Another object of the invention is to provide a slider of a tuning coil with a contact element which slides over the convolutions of the coil in tuning the antenna and which, by bearing on the coil, acts as a detector, the material best suitable for this being found by experiment to be silicon, although other materials of analogous nature may be used.

With these objects in view, and others as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention; Figure 1 is a perspective view of a tuning coil combined with a detector. Fig. 2 is an enlarged sectional view of the slider for the tuning coil showing the detector thereon. Fig. 3 is a diagrammatic view of the wireless receiving station with the combined tuner and detector included therein.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawing, 1 designates the coil of the tuner, the same consisting of numerous turns of insulated wire mounted on a core or suitable support 2, and on the end pieces 3 of the core is a slider bar 4 that has a binding post 5 for connecting it in circuit. On the bar is a slider A which is movable longitudinally of the coil to engage any convolution thereof at the top of the coil where the convolutions are exposed in a line, which line corresponds to the path of the slider. The slider consists of a metal tube 6 in which is arranged a bullet like de-

detector 7, the lower end, which projects out of the tube, is round and highly polished where it engages the portions of the coil from which the insulation has been removed. The tube is mounted on a box or sleeve 8 which slides on the bar 4 and this sleeve is provided with an insulating knob 9, whereby the slider A can be moved back and forth in tuning the antenna. The detector 7, which is in effect a contact member between the slider and coil, is preferably made of silicon, although other materials such as carbon and graphite may be used, but with these latter materials a light microphonic contact is necessary in order to obtain the detector action, and the detector is pressed outwardly by means of a spring 10, which may be adjusted by a screw or equivalent device to obtain the desired degree of pressure with which the detector or element 7 bears on the tuning coil. The coil is provided with the usual binding posts 11 and 12 and in order to increase the range of the tuning coil, another slider B may be employed as is well known in the art, but it is not necessary for this slide to be equipped with the silicon contact element.

In the diagram shown in Fig. 3, a represents the antenna connected by its wire 13 with the binding post 11 of the coil 1, and engaging one of the convolutions of the coil is the silicon tip slider A which is connected by a wire 14 with a receiving instrument such as a telephone receiver R or recording instruments, the same being connected by a wire 15 with ground at 16, the other slider B being in engagement with another convolution of the tuning coil and connected by wire 17 to ground. The silicon responds to Hertzian waves in such a manner as to take the place of the ordinary detector so that the circuits are greatly simplified and a single instrument takes the place of two separate instruments, namely, the tuning coil and the detector.

From the foregoing description taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention relates, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative

and that such changes may be made when desired as are within the scope of the claims.

What I claim as new and desire to secure by Letters Patent is:—

- 5 1. A wireless telegraph and telephone tuning coil including a movable contact element of such material as to form a detector.
2. A tuning coil including a slider, and a detector element movable with the slider and
- 10 engaging the coil.
3. The combination of an antenna, a coil connected therewith, and a detector element movable along the coil for tuning the antenna.
- 15 4. The combination of an antenna, a tuning coil connected therewith, a detector element movable along the coil for tuning the

antenna, and a grounded conductor connected with the detector and including a receiving instrument.

5. A slider for tuning coil tipped with a material cooperating with the coil to form a detector. 20

6. A slider for tuning coil, consisting of a tubular holder, a contact member of silicon having a polished coil engaging face, and means for pressing the element against the coil. 25

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

HUGO GERNSBACK.

Witnesses:

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