No. 707,266. Patented Aug. 19, 1902.

H. SHOEMAKER & G. W. PICKARD.

WAVE DETECTING DEVICE.

(Application filed June 2, 1902.)

(No Model.)

Fig 1.

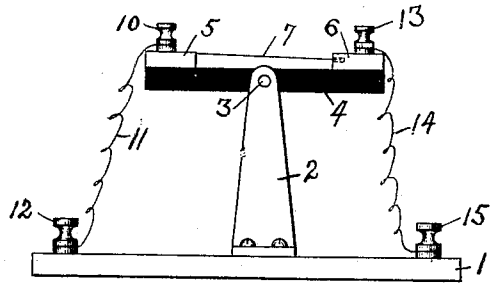


Fig 2.

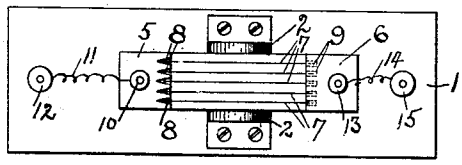


Fig 3.

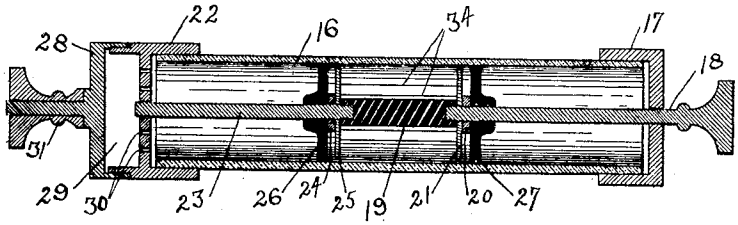


Fig 4

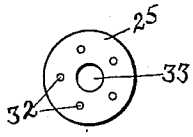
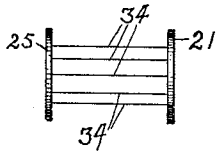


Fig 5.



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UNITED STATES PATENT OFFICE.

HARRY SHOEMAKER AND GREENLEAF W. PICKARD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO AMERICAN WIRELESS TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION OF ARIZONA TERRITORY.

WAVE-DETECTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 707,266, dated August 19, 1902.

Application filed June 2, 1902. Serial No. 109,874. (No model.)

To all whom it may concern:

Be it known that we, HARRY SHOEMAKER and GREENLEAF W. PICKARD, citizens of the United States, residing at Philadelphia, State of Pennsylvania, have invented a new and useful Wave-Detecting Device, of which the following is a specification.

Our invention relates to wave-responsive devices, especially as employed in wireless signaling systems.

It comprises a wave-responsive device whose essential elements are of carbon and steel, respectively. A wave-responsive device composed of these materials has the property of great delicacy and sensitiveness in responding to electrical radiations and has also the desirable property of regaining its normal condition after the cessation of influence of electrical waves.

More specifically, our invention comprises carbon terminal blocks, in contact with which are steel or iron needles, which serve to close the circuit from one carbon block to the other. As an alternative, however, it is to be understood that the terminal blocks may be of steel and that carbon filaments or rods may contact with them to close the circuit.

The wave-responsive device herein described is connected with any of the wireless signaling systems in the same relation as the numerous types of wave-responsive devices heretofore used.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a side elevation of the wave-responsive device. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal sectional view of the preferred form. Fig. 4 is a plan view of the carbon disks. Fig. 5 is an elevation of the two carbon disks supporting between them the needles.

1 is a base of any suitable material, preferably insulating, upon which are mounted two brackets 2, carrying between them at their top a pivot-pin 3, upon which is mounted the base 4, of insulating material.

At 5 and 6 are represented carbon blocks, between which extend the needles 7, preferably of steel. In block 5 are shown five grooves or crevices 8, in which the left-hand ends of the needles rest. The right-hand ends of the needles 7 extend into the vertical face of the carbon blocks 6 into small holes 9.

10 is a binding-post on block 5, which connects, by means of conductor 11, with binding-post 12 on the base 1.

13 is the binding-post upon the carbon block 6, which connects, by means of conductor 14, with binding-post 15 upon the base 1. Binding-posts 12 and 15 are connected in any of the wireless signaling systems in the same relation that the terminals of the wave-responsive devices heretofore used are arranged.

Upon tilting the base 4 on the pivot-pin 3 various adjustments of the pressure of the needles 7 upon carbon blocks 5 and 6 is obtained, and thereby securing different sensitiveness of the device.

In Fig. 3, 16 is a glass tube or any suitable envelop, on the right-hand end of which is a metallic cap 17, through which is tapped the screw 18, which at its left-hand end screws into the central insulating portion 19, thereby clamping between said portion 19 and a brass nut 20 the carbon disk 21.

22 is a metallic cap upon the left-hand end of the tube 16, and from which extends into the tube rod 23, secured in said cap 22, and also into insulating-block 19, thereby clamping between said block 19 and a nut 24 the carbon disk 25.

26 and 27 are disks of insulating material, which serve to center and steady the device in tube 16. It is to be noticed that the disks of carbon 21 and 25 are slightly smaller in diameter than the tube 16 for the purpose of preventing their contact with said tube during assemblage, inasmuch as such contact might serve to destroy the disks, due to the fact that they are thin and fragile. Onto the left end of the cap 22 screws a cylindrical piece 28, forming between 28 and 22 a cavity 29, designed to receive calcium chlorid or other desiccating material for keeping the air or other gas within the tube 16 perfectly dry. Communication between 29 and the in-

terior of tube 16 is obtained by numerous holes, as 30. On the piece 28 is the binding-post 31, serving as one terminal of the device, while cap 17 or screw 18 serves as the other terminal.

Fig. 4 represents a plan view of one of the carbon disks—as, for example, 25—which shows symmetrically-arranged small holes 32, while the inner large hole 33 permits the passage of the rods 18 or 23.

In Fig. 5 are shown the two carbon disks 21 and 25, supporting between them the needles 34.

The devices shown in Figs. 1 and 3 are practically identical as to their results, except that the form shown in Fig. 3 is better adapted for practical use where transportation is necessary and where long service is desired.

The tube 16 is mounted on metallic clamps supported on any suitable piece and preferably in an inclined position. It may of course be pivoted in the same manner as the base 4 in Fig. 1, if desired.

It is to be understood that we do not wish to be limited to the precise arrangement shown herein, inasmuch as it is within the scope of our invention to vary the arrangement in various ways without departing from the spirit of our invention.

What we claim is—

1. A wave-responsive device comprising carbon terminals bridged by metallic needles.

2. A wave-responsive device comprising carbon terminals bridged by steel needles.

3. A wave-responsive device comprising carbon terminal blocks, recesses in said blocks, and metallic needles bridging said blocks and resting in said recesses.

4. A wave-responsive device comprising carbon terminal blocks, recesses in said blocks, and steel needles bridging said blocks and resting in said recesses.

5. A wave-responsive device comprising carbon terminals, metallic needles bridging said terminals, and an envelop for said blocks and needles.

6. A wave-responsive device comprising carbon and metallic needles, an envelop for said carbon and needles, a chamber communicating with said envelop, and desiccating material in said chamber.

7. A wave-responsive device comprising carbon plates, perforations in said plates, and needles resting in said perforations.

8. A wave-responsive device comprising carbon plates, perforations in said plates, and steel needles resting in said perforations.

9. A wave-responsive device comprising thin carbon disks, perforations in said disks arranged symmetrically about the centers thereof, metallic needles bridging said disks and resting in said perforations.

10. A wave-responsive device comprising thin carbon disks, and metallic needles bridging said disks.

11. A wave-responsive device comprising thin carbon disks and steel needles bridging said disks.

12. A wave-responsive device comprising carbon disks, perforations in said disks, means for securing said disks in definite relation with respect to each other, and metallic needles resting in said perforations and bridging said disks.

13. A wave-responsive device comprising carbon disks, perforations in said disks, means for securing said disks in definite relation with respect to each other, metallic needles resting in said perforations and bridging said disks, and an envelop inclosing said disks and needles.

14. A wave-responsive device comprising metallic disks, perforations in said disks, means for securing said disks in definite relation with respect to each other, metallic needles resting in said perforations and bridging said disks, an envelop inclosing said disks and needles, a chamber communicating with said envelop, and desiccating material in said chamber.

15. A wave-responsive device comprising terminals of carbon, and a metallic member in loose contact with said terminals.

16. A wave-responsive device comprising terminals of carbon, and a metallic member bridging said terminals.

17. A wave-responsive device comprising terminals of carbon, and a metallic member in loose contact with and bridging said terminals.

18. A wave-responsive device comprising terminals of carbon, and a metallic rod in loose contact with said terminals.

19. A wave-responsive device comprising terminals of carbon, and a metallic rod bridging said terminals.

20. A wave-responsive device comprising terminals of carbon, and a steel rod in loose contact with said terminals.

21. A wave-responsive device comprising terminals of carbon, and a steel rod bridging said terminals.

22. A wave-responsive device comprising carbon blocks, and a metallic rod loosely bridging said blocks.

23. A wave-responsive device comprising carbon blocks, and a steel rod loosely bridging said blocks.

24. A wave-responsive device comprising carbon blocks, and a metallic needle loosely bridging said blocks.

25. A wave-responsive device comprising carbon blocks and a steel needle loosely bridging said blocks.

26. A wave-responsive device comprising carbon blocks, recesses in said blocks, and a metallic needle bridging said blocks and resting in said recesses.

27. A wave-responsive device comprising carbon blocks, recesses in said blocks, and a

steel needle bridging said blocks and resting in said recesses.

28. A wave-responsive device comprising carbon blocks, a metallic needle in loose contact with and bridging said blocks, and means for varying the sensitiveness of the contacts.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HARRY SHOEMAKER.
GREENLEAF W. PICKARD.

Witnesses:
ALICE T. BURROUGH,
J. FRANKLIN STEVENS.