No. 711,123. Patented Oct. 14, 1902.

L. T. RHOADES.

WAVE DETECTOR.

(Application filed Aug. 29, 1902.)

(No Model.)

Fig 1.

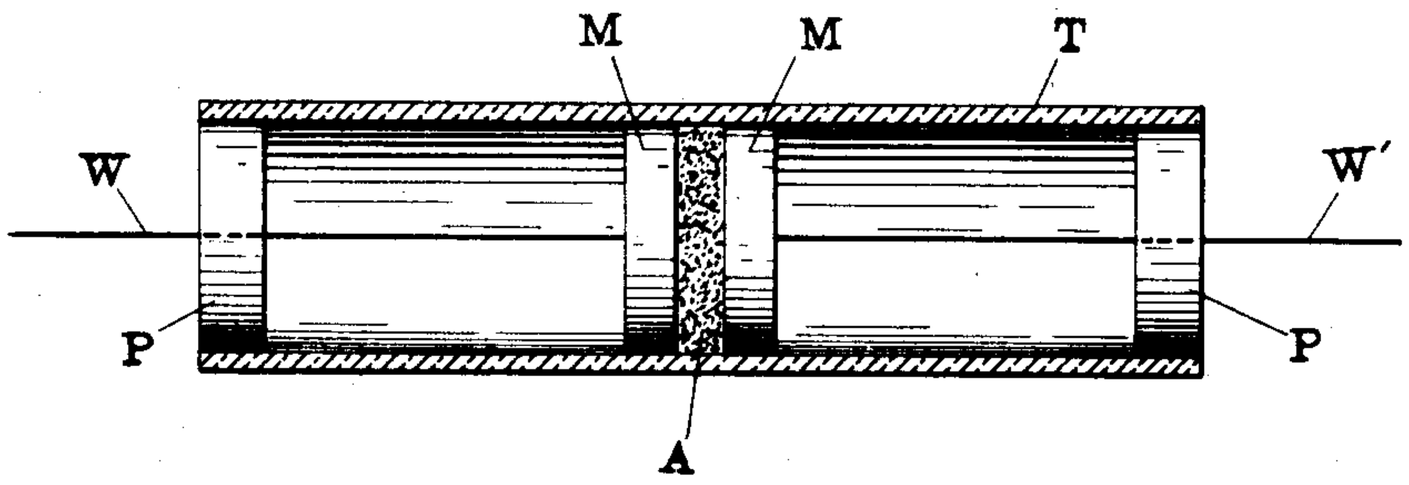
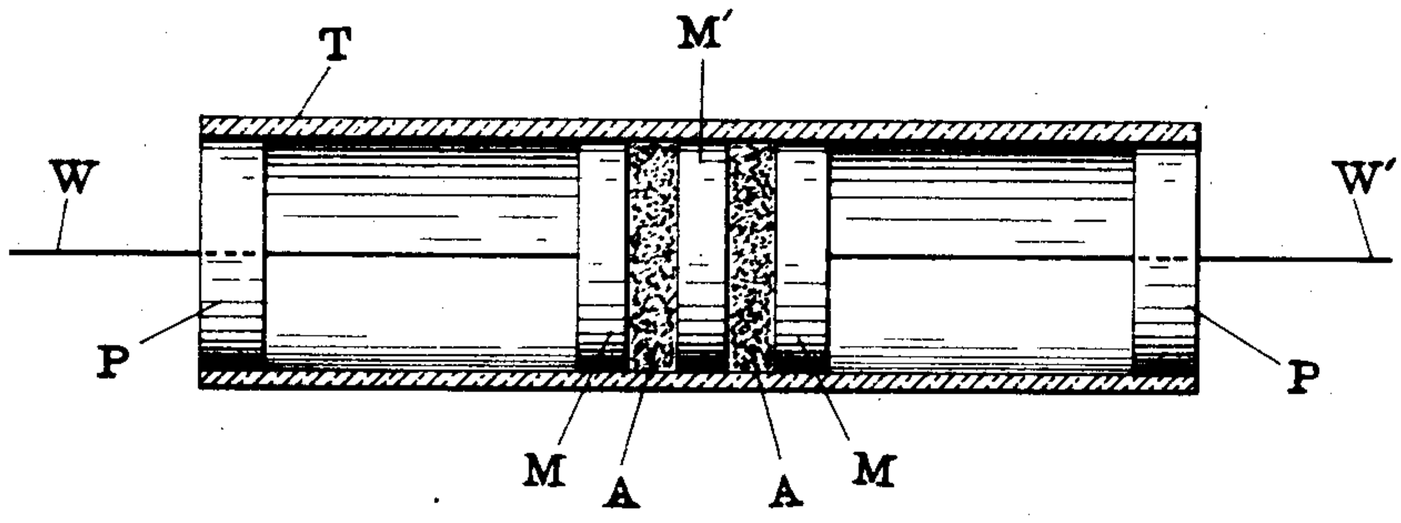


Fig 2.



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UNITED STATES PATENT OFFICE.

LEWIS T. RHOADES, OF PHŒNIXVILLE, PENNSYLVANIA, ASSIGNOR TO MARIE V. GEHRING, OF PHILADELPHIA, PENNSYLVANIA.

WAVE-DETECTOR.

SPECIFICATION forming part of Letters Patent No. 711,123, dated October 14, 1902.

Application filed August 29, 1902. Serial No. 121,439. (No model.)

To all whom it may concern:

Be it known that I, LEWIS T. RHOADES, a citizen of the United States, residing at Phœnixville, in the county of Chester and State of Pennsylvania, have invented a new and useful Wave-Detector, of which the following is a specification.

My invention relates to wireless-signaling systems in which messages are transmitted to the natural media in the form of electroradiant energy and which are recorded at the receiving-station through the agency of a detector of electroradiant energy, which then controls a local recording-circuit.

More particularly, my invention relates to a device for manifesting the presence of electroradiant energy and which is extremely sensitive, reliable, and not easily rendered useless.

My invention comprises a wave-detecting device which changes its resistance under the influence of electromagnetic radiations and immediately restores itself to its normal condition upon the cessation of the radiations.

My invention comprises a material for wave-detectors having the aforementioned properties and is in its finished state in the nature of a paste. In compounding this paste or material for the wave-detecting device I employ mild steel in the form of very fine particles and also French carbon which has been reduced to very fine granules. To equal portions of the mild steel and carbon I add twenty per cent. nickel, also in a fine state, and these ingredients are mixed with enough vaseline to make the whole mass a thick paste. This paste is then placed between metallic terminals, which are then included in the circuit of the receivers of wireless-signaling systems in the well-known relations.

Referring to the drawings, Figure 1 is a sectional view of the wave-detector. Fig. 2 is the sectional view of a modified form.

T represents a cylindrical tube or envelop of insulating material, preferably glass, within which are the metallic terminals M M, which are preferably of silver or platinum.

A represents the plastic and paste-like material above described.

P P are plugs in the ends of the tube T, and through them extend the connecting-wires W W', by means of which the wave-detector is connected in the usual manner in the receiving-circuits of wireless-signaling systems.

Fig. 2 is the same as Fig. 1, with the exception that between the metallic terminals M M and separated from them is a third metallic disk M', preferably of the same material as the terminals M M. This arrangement affords two spaces, in which are placed masses of the wave-detecting paste A A, whose composition has been described above.

In actual practice the dimensions of the wave-detector are many times smaller than those shown on the accompanying drawings.

I find that a mixture of mild steel and carbon with vaseline will operate as previously described, and that also a mixture of nickel, carbon, and vaseline will operate likewise; but my preferred composition contains the mild steel, carbon, nickel, and vaseline. In place of vaseline may be used any other hydrocarbon having the thick constituency of vaseline, or, in fact, any material which is an insulator like vaseline and which has a similar constituency. Furthermore, in place of vaseline may be used numerous other materials for the purpose of supporting the metal and carbon particles in a mass resembling paste. The carbon I use is either amorphous or graphitic.

The wave-responsive device or wave-detector herein described has the property of self-restoration—that is, upon the cessation of the electroradiant energy it returns automatically to its normal condition and does not require mechanical shock.

What I claim is—

1. A material for a wave-responsive device comprising nickel and carbon.

2. As a material for a wave-responsive device, a mixture of nickel and carbon.

3. A material for a wave-responsive device, comprising finely-divided nickel with carbon.

4. A material for a wave-responsive device comprising a mixture of nickel with finely-divided carbon.

5. A material for a wave-responsive device, comprising a mixture of carbon and nickel both finely divided.

6. A material for a wave-responsive device comprising a mixture of nickel and carbon in a material serving as a paste.

7. A material for a wave-responsive device comprising a mixture of nickel, carbon and a hydrocarbon.

8. A material for a wave-responsive device comprising a mixture of carbon and nickel, both finely divided, and a hydrocarbon serving as a supporting medium therefor.

9. A material for a wave-responsive device comprising a mixture of nickel, carbon and vaseline.

10. A material for a wave-responsive device, consisting of a mixture containing nickel and carbon, both finely divided, and vaseline serving as a supporting medium therefor.

11. A material for a wave-responsive device, comprising a mixture of iron, carbon and a hydrocarbon.

12. A material for a wave-responsive device, comprising iron, finely divided, carbon and a hydrocarbon.

13. A material for a wave-responsive device comprising iron, finely-divided carbon and a hydrocarbon.

14. A material for a wave-responsive device, comprising iron and carbon, both finely divided and a hydrocarbon.

15. A material for a wave-responsive device, comprising iron, carbon and vaseline.

16. A material for a wave-responsive device, comprising iron, finely divided, carbon and vaseline.

17. A material for a wave-responsive device, comprising iron, finely-divided carbon and vaseline.

18. A material for a wave-responsive device, comprising iron and carbon, both finely divided, and vaseline.

19. A material for a wave-responsive device, comprising iron, nickel and carbon.

20. A material for a wave-responsive device, comprising iron, nickel and carbon, all finely divided.

21. A material for a wave-responsive device, consisting of iron, nickel and carbon, and a supporting medium therefor.

22. A material for a wave-responsive device, consisting of iron, nickel and carbon, all finely divided, and a supporting medium therefor.

23. A material for a wave-responsive device, consisting of iron, nickel, carbon, and an insulating medium as a support therefor.

24. A material for a wave-responsive device, consisting of iron, nickel, carbon, all finely divided, and an insulating medium forming a plastic mass therewith.

25. A material for a wave-responsive device, consisting of iron, nickel, carbon, and a hydrocarbon supporting medium therefor.

26. A material for a wave-responsive device, consisting of iron, nickel and carbon, all finely divided, and a hydrocarbon serving as a supporting medium therefor.

27. A material for a wave-responsive device, consisting of iron, nickel and carbon, all finely divided, and an insulating medium of hydrocarbon as a support therefor.

28. A material for a wave-responsive device, consisting of iron, nickel and carbon, all finely divided, and an insulating medium of hydrocarbon forming a paste therewith.

29. A material for a wave-responsive device, consisting of iron, nickel, carbon, and vaseline.

30. A material for a wave-responsive device consisting of iron, nickel, carbon, all finely divided, and vaseline.

31. A material for a wave-responsive device, consisting of iron, nickel and carbon, and a supporting medium therefor consisting of vaseline.

32. A material for a wave-responsive device, consisting of iron, nickel and carbon, all finely divided, and a supporting medium therefor consisting of vaseline.

33. A material for a wave-responsive device, consisting of iron, nickel, carbon, and an insulating medium as a support therefor consisting of vaseline.

34. A material for a wave-responsive device, consisting of iron, nickel, carbon, all finely divided, and an insulating medium of vaseline forming a plastic mass therewith.

35. A material for a wave-responsive device, comprising a paste composed of nickel, carbon, and an insulating medium.

36. A material for a wave-responsive device, comprising a paste composed of nickel and carbon, and a medium of hydrocarbon.

37. A material for a wave-responsive device, comprising a paste composed of nickel, carbon and vaseline.

38. A material for a wave-responsive device, comprising a paste composed of iron, and carbon, and an insulating medium.

39. A material for a wave-responsive device, comprising a paste composed of iron and carbon, and an insulating medium of hydrocarbon.

40. A material for a wave-responsive device, comprising a paste composed of iron, carbon, and vaseline.

41. A material for a wave-responsive device, comprising iron, carbon, both finely divided, and vaseline.

42. A material for a wave-responsive device, comprising iron, nickel, both finely divided, in a paste of hydrocarbon.

43. A material for a wave-responsive device, comprising a paste composed of iron, nickel, both finely divided, and vaseline.

44. A material for a wave-responsive device, consisting of a paste composed of iron, nickel, carbon, and a hydrocarbon.

45. A material for a wave-responsive device, consisting of a paste composed of iron, nickel, carbon, and an insulating material.

46. A material for a wave-responsive device, consisting of a paste composed of iron, nickel, carbon, and vaseline.

47. A material for a wave-responsive de-

vice, comprising a paste composed of mild steel, carbon, and a hydrocarbon.

48. A material for a wave-responsive device, comprising a paste composed of mild steel, carbon, and vaseline.

49. A material for a wave-responsive device, comprising a paste composed of mild steel, carbon, and a binder.

50. A material for a wave-responsive device, comprising a paste composed of mild steel, carbon, and a hydrocarbon binder.

51. A material for a wave-responsive device, consisting of a paste composed of mild steel, nickel, carbon, and a binder.

52. A material for a wave-responsive device, consisting of a paste composed of mild steel, nickel, carbon, and a hydrocarbon binder.

53. A material for a wave-responsive device, consisting of a paste composed of mild steel, nickel, carbon and vaseline.

54. A material for a wave-responsive device comprising a paste composed of mild steel, and graphite with a binder.

55. A material for a wave-responsive device, consisting of a paste composed of mild steel, graphite, and a hydrocarbon binder.

56. A material for a wave-responsive device, consisting of a paste composed of mild steel, graphite and vaseline.

57. A material for a wave-responsive device, consisting of a paste composed of mild steel, nickel, graphite, and a binder.

58. A material for a wave-responsive device, consisting of a paste composed of mild steel, nickel, graphite, and a hydrocarbon binder.

59. A material for a wave-responsive device, consisting of a paste composed of mild steel, nickel, graphite, and vaseline.

60. A wave-responsive device comprising metallic terminals bridged by a mixture containing nickel and carbon.

61. A wave-responsive device comprising metallic terminals bridged by a mixture containing nickel, carbon, and a binder.

62. A wave-responsive device comprising metallic terminals bridged by a mixture containing iron, nickel, and carbon.

63. A wave-responsive device comprising metallic terminals bridged by a mixture of iron, nickel, carbon, and a hydrocarbon.

64. A wave-responsive device comprising metallic terminals bridged by a mixture of iron, nickel, carbon and vaseline.

65. A wave-responsive device comprising metallic terminals bridged by a paste composed of iron, nickel and carbon and a binder.

66. A wave-responsive device comprising metallic terminals bridged by a paste composed of iron, nickel, carbon and vaseline.

67. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, carbon and a binder.

68. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, carbon, and hydrocarbon.

69. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, carbon and vaseline.

70. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, nickel, carbon, and a hydrocarbon.

71. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, nickel, carbon, and vaseline.

72. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, nickel, graphite and vaseline.

73. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, graphite and a hydrocarbon binder.

74. A wave-responsive device comprising metallic terminals bridged by a paste composed of mild steel, graphite and vaseline.

75. A wave-responsive device comprising metallic terminals bridged by a paste composed of nickel, graphite and vaseline.

76. A wave-responsive device comprising silver terminals bridged by a paste composed of mild steel, nickel, carbon, and vaseline.

77. A wave-responsive device comprising silver terminals bridged by a paste composed of mild steel, nickel, carbon, and a hydrocarbon binder.

78. A wave-responsive device comprising metallic terminals, an envelop, and a paste composed of mild steel, nickel, carbon, and vaseline, confined between said terminals and envelop.

79. A wave-responsive device comprising a series of separated metallic masses, and a paste composed of mild steel, nickel, carbon, and vaseline in the spaces between said metallic masses.

80. A wave-responsive device comprising separated metallic masses, an envelop, and in the spaces between said metallic masses and envelop a paste composed of mild steel, nickel, carbon, and vaseline.

81. A wave-responsive device comprising a series of separated masses of silver, the end masses serving as terminals of the device, and in the spaces between said masses a paste composed of mild steel, nickel, carbon, and vaseline.

82. A self-recovering wave-responsive device comprising metal terminals and a mixture of steel, carbon and vaseline located between said terminals.

LEWIS T. RHOADES.

Witnesses:
G. P. GEHRING,
REEVES H. ISORD.