No. 889,789. PATENTED JUNE 2, 1908.

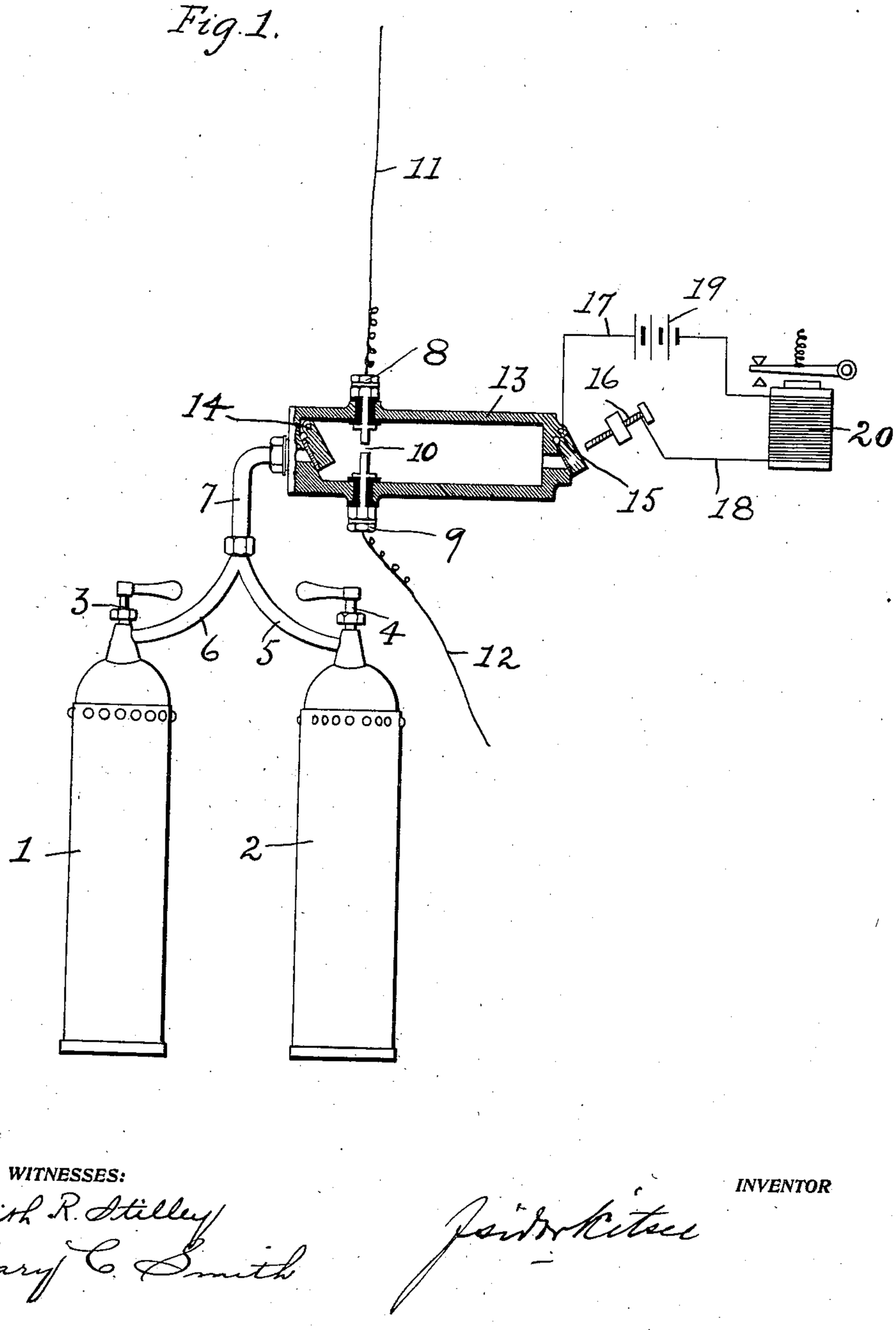
I. KITSEE.

TELEGRAPHY.

APPLICATION FILED NOV. 9, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

Edith R. Stilley

Mary C. Smith

INVENTOR

Isidor Kitsee

No. 889,789. PATENTED JUNE 2, 1908.

I. KITSEE.

TELEGRAPHY.

APPLICATION FILED NOV. 9, 1906.

2 SHEETS—SHEET 2.

Fig. 2.

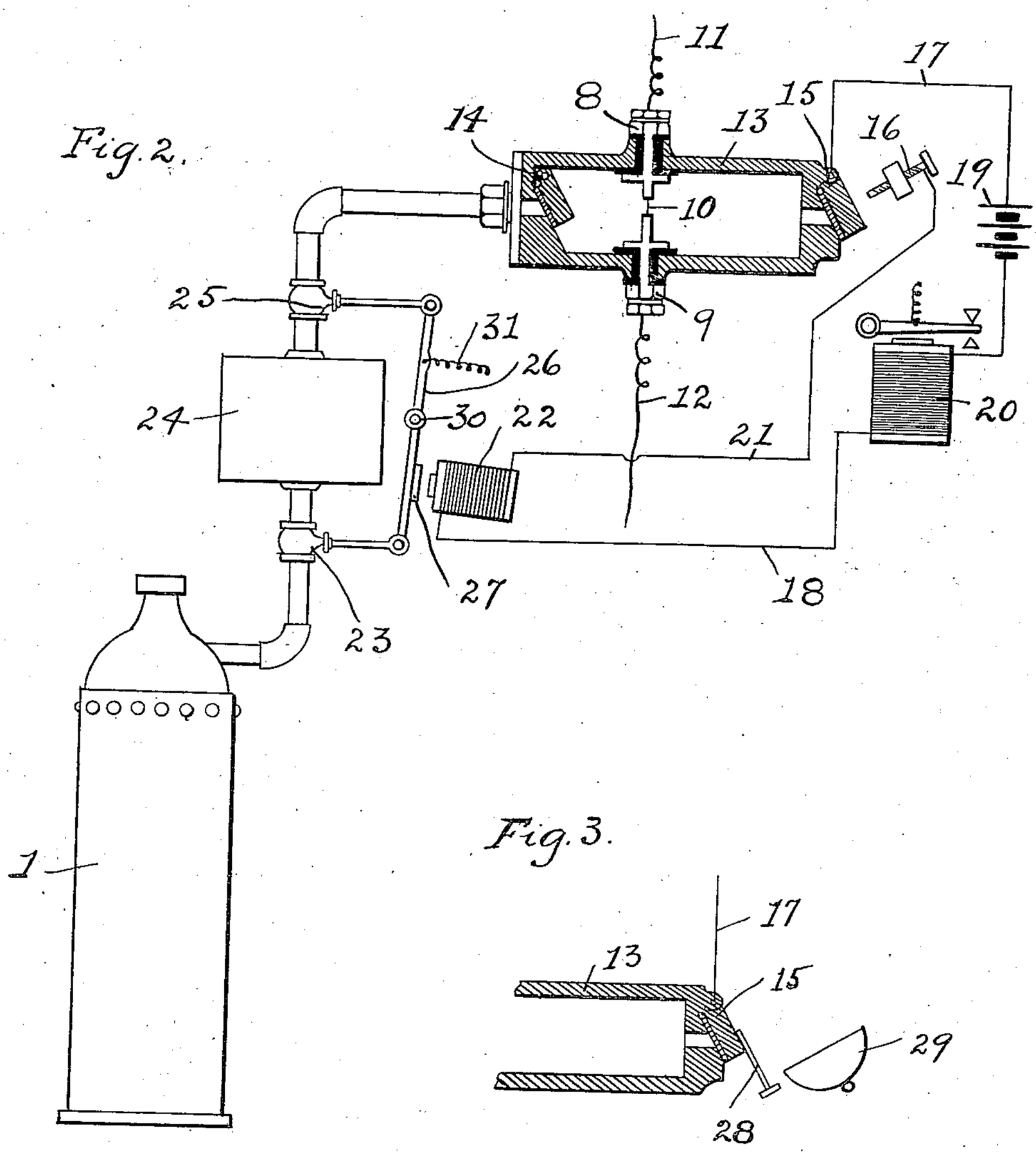


Fig. 3.

Witnesses
Edith R. Atiley
Mary C. Smith

Inventor
Isidor Kitsee

UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA.

TELEGRAPHY.

No. 889,789. Specification of Letters Patent. Patented June 2, 1908.

Application filed November 9, 1906. Serial No. 342,679.

To all whom it may concern:

Be it known that I, ISIDOR KITSEE, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Telegraphy, of which the following is a specification.

My invention relates to an improvement in telegraphy and has more special reference to the receiving device of a telegraphic system wherein the impulses are transmitted either through the natural medium or over a metallic circuit.

The advantage of the invention, as later on to be described in this specification, illustrated in the drawing and more particularly pointed out in the claims following the specification, is more apparent in a telegraphic system wherein either rapidly recurring or alternating impulses, or electric waves, such as are used in wireless, are transmitted.

The underlying principle of this, my invention, consists in producing explosions through the incoming impulses and operating a translating device through such explosions.

To produce an explosion of a material, such for instance as gas, it is necessary to raise the temperature in the region of this material, and in telegraphy, such for instance as wireless telegraphy, it is only necessary to either insert in the receiving circuit a very high resistance, such for instance as a short platinum wire of small dimension, or where the impulses are of sufficient strength, to simply produce a spark-gap between two parts of the receiving circuit.

Different materials may be used as the explosive medium, but I have illustrated in the accompanying drawing the explosive medium as to consist of a mixture of oxygen and hydrogen, for the reason that a mixture of these two gases can be exploded at a very low temperature and for the further reason that the presence of hydrogen reduces the resistance of the air-gap as to the incoming impulses.

For the purpose that persons versed in the art may practice this, my invention, I have illustrated different arrangements embodying said invention, but it is obvious that these arrangements may differ without departing from the scope of my invention.

Referring to the drawing, Figure 1 is a partially plan and partially sectional view, with the electric circuit in diagram. Fig. 2 is a modified form of Fig. 1 and Fig. 3 is a sectional view of part of the exploding chamber with the annunciating device in plan.

In Fig. 1, 11 and 12 are the two parts of the receiving circuit. In a wireless system 11 may be connected to the aerial conductor and 12 to the ground. In a system with metallic conductors, they are adapted to be connected to the conductors proper.

8 and 9 are the terminals connected to the wires 11 and 12 and between the terminals are the heating means, here shown as an air-gap and designated by the numeral 10.

1 and 2 are reservoirs of gases; one of these reservoirs is supposed to contain here oxygen and the second of these reservoirs is supposed to contain hydrogen, both under pressure.

3 and 4 are the valves for these two reservoirs so that with these valves the ratio of the gases issuing from the reservoirs may be regulated at will.

5 and 6 are the pipes connecting the reservoirs 1 and 2 with the mixing pipe 7.

13 is the explosive chamber provided with the check valves 14 and 15. It is suggested that the check valve 14 should answer to lower pressure than the check valve 15.

17 is a wire connecting here with one terminal to the check valve 15 and with the other terminal to one pole of a source of current, here shown as the battery 19, the other pole of which is connected with the electro-magnetic device 20. This electro-magnetic device may embrace any of the desired translating devices, such for instance as a sounder or other means to give the necessary annunciation or recording. The free terminal of the coil of this device is connected through wire 18 to the adjustable contact 16, the free end of which is near the check valve 15. The operation of this device is as follows: The explosive chamber 13 is provided with the mixture of the two gases. As long as no impulses are flowing from 11 to 12, the gases will remain in their passive state, but as soon as through the flow of the current from 11 to 12 a spark is generated at 10, the gas in the region of this spark is heated and an explosion will occur of the gas. Through this explosion, the check valve 14 will be closed tighter but the check valve 15 will be opened and through this movement

be brought in connection with the adjustable contact 16, thereby closing the circuit containing the battery 19 and electro-magnet 20. The electro-magnet will therefore be energized. After the explosion has spent its force, the check valve 15 will, by its own weight, fall again in its normal position, thereby breaking the circuit and the electro-magnet 20 will be deënergized. As long as the force of the explosion holds the check valve 14 down, no further gases will issue from the pipe 7, but as soon as the explosion has spent its force, the check valve 14 will be removed of this counter-pressure and the pressure of the gases from 7 will suffice to overcome the weight of the check valve 14 and will issue again in the chamber 13.

In Fig. 2, I have provided means to automatically cut off the flow of gases, after the explosive chamber is filled with the necessary quantity of same and these automatic means are separate from the check valve 14 and consist of the valves 23 and 25 connected together by the lever 26, pivoted at 30 and provided with the spring 31 and the armature 27. In this figure, I have substituted for the two reservoirs only one reservoir containing the necessary gas or mixture of same. In this figure, I have also substituted instead of a plain air-gap, a resistance wire adapted to be heated and numbered the same as 10.

In its normal position, the spring 31 will keep the valve 25 open and the valve 23 closed, but as it is necessary to provide the chamber 13 with the necessary gas, the valve 23 is once opened by the operator and at the same time the valve 25 closed. The small reservoir 24 will then be filled with gas under pressure and in closing the valve 23 and opening the valve 25, the supply from the reservoir 1 will be cut off and the supply from 24 will flow into the chamber 13. The operation of this arrangement is as follows:

When the device is brought in use, the chamber 13 has to be filled, as stated above, by the operator with the necessary explosive gas. As long as the resistance wire 10 remains at the low temperature, the gas will remain in its normal position, but as soon as the resistance 10 is heated, an explosion of the gas will take place. This explosion will open the valve 15 and bring the same in connection with the contact 16 closing the circuit including the electro-magnets 20 and 22. As the electro-magnet 20 is supposed to actuate the desired translating device, the same will annunciate or record the passage of this impulse; but the electro-magnet 22, when energized, will draw the armature 27 towards its core, will therefore open the valve 23 and close the valve 25. The reservoir 24 will now be filled with the gas under pressure When, now, after the force of the explosion is spent, the valve 15 will fall back in its normal position, the circuit embracing the electro-magnet 22 will be opened, the core of said electro-magnet will be deënergized and the spring 31 will come in play, closing the valve 23 and opening the valve 25, thereby filling again the chamber 23 with the necessary gas.

In Fig. 3, I have omitted entirely the localized circuit and provide the valve 15 with the necessary striking arrangement 28 and in the region of same an annunciating device, here shown as a bell 29.

Where the mixture of gases consists of hydrogen and oxygen in proportion of two to one, no means need to be provided for cleaning the space of the exploding chamber, as the combination of the two gases is water. But where other gases or vapors, or even if desired explosive solids, such for instance as gun cotton is used, then it is best to clean the chamber from the residue and any of the well known means may be applied for such purpose.

It is obvious, that localized means may be employed to raise the temperature of the gas to a degree higher than the normal temperature, but less than is necessary to inflame said gas. I have not shown such means, as the same may differ according to requirements and the heating of gases *per se* is well understood. So also can the resistance be raised by localized means to a temperature short of the temperature needed to inflame gases.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In telegraphy, means to receive impulses and translate the same, said means embracing means operatively related to the receiving circuit to raise the temperature of a restricted area, an explosive medium in the region of said area and a local circuit adapted to be operated through the explosions of said medium, said local circuit embracing translating device.

2. Means to receive and translate telegraphic impulses, said means comprising means to create high temperature through the incoming impulses, an explosive medium in the region of said high temperature, a conductor adapted to be actuated through the explosion of said medium and a local circuit containing translating device adapted to be made and broken through the movement of said conductor.

3. In wireless telegraphy, a receiving device comprising an explosive chamber a valve for said chamber, two terminals in said chamber, one terminal connected to one part and the second terminal connected to the other part of a receiving circuit, a localized translating device in operative relation to the valve of said explosive chamber and means to carry in said explosive chamber an inflam-

mable material adapted to be inflamed through the impulses received through the natural medium.

4. In combination with a telegraphic receiving device, a local circuit adapted to be operated through explosions due to the heating effect of the incoming impulses.

5. In combination with means adapted to raise the temperature of a restricted area through the incoming impulses, a gaseous medium in the region of said area and means to operate through the expansion of said gaseous medium a local circuit containing translating device.

6. Means to operate a localized translating device through incoming telegraphic impulses, said means comprising an inflammable medium, means to inflame said medium through the incoming impulses and a translating device adapted to be operated through the expansion of said inflammable medium.

7. In telegraphy, the method which consists in causing the incoming impulses to inflame an inflammable medium and causing a translating device to be operated through the expansion of said medium.

8. The method of operating a local circuit through incoming telegraphic impulses, which consists in operating said local circuit through explosions due to the heating effect of said incoming impulses.

9. In telegraphy, the method which consists in operating a localized translating device through the expansion of a gaseous medium due to the heating effect of the incoming impulses.

10. In telegraphy, the improvement, which consists in producing through the incoming impulses explosions and operating thereby a local electric circuit comprising necessary devices.

11. The improved telegraphic receiving device comprising terminals of a receiving circuit and an inflammable medium confined in an inclosed space and comprising means to actuate a local circuit, said local circuit in operative relation to said device.

12. The improved telegraphic receiving device comprising the terminals of a receiving circuit, an inflammable medium confined in an inclosed space, a movable means for said space and a local circuit in operative relation to said movable means.

13. In telegraphy, the method of operating a localized circuit, which consists in producing explosions through the incoming impulses and operating through said explosions a local circuit.

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

ISIDOR KITSEE.

Witnesses:
MARY C. SMITH,
ALVAH RITTENHOUSE.