M. A. PARISANO.

WIRELESS TELEGRAPHIC APPARATUS.

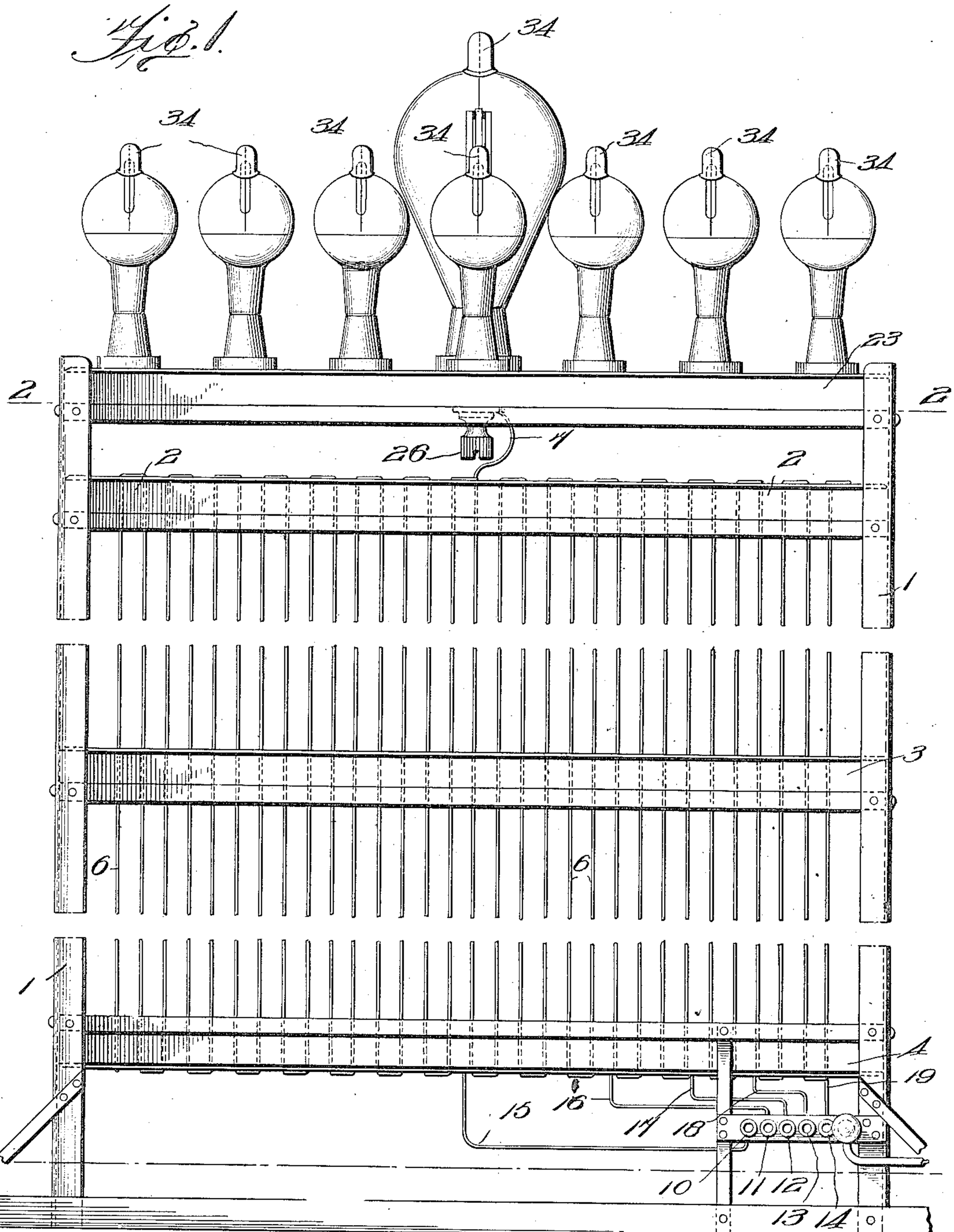
APPLICATION FILED MAY 27, 1910.

992,042.

Patented May 9, 1911.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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3 SHEETS—SHEET 2.

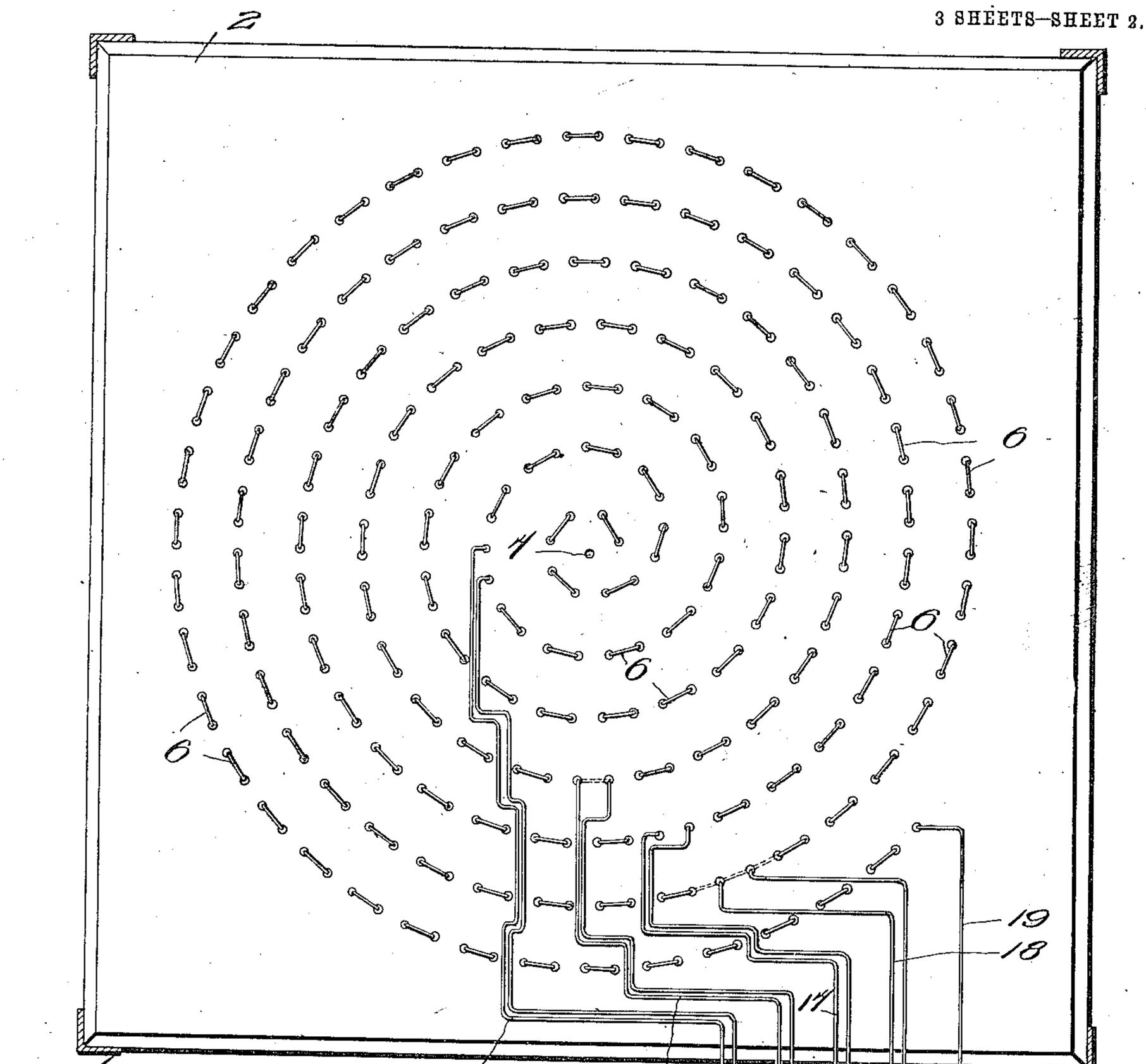

Fig. 2.

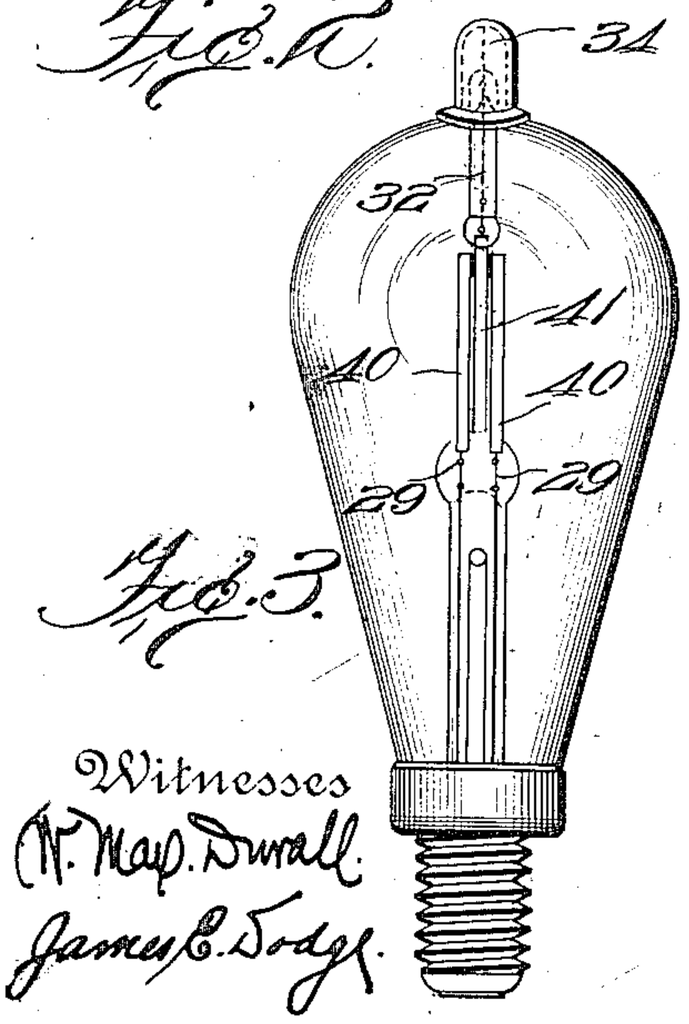

Fig. 3.

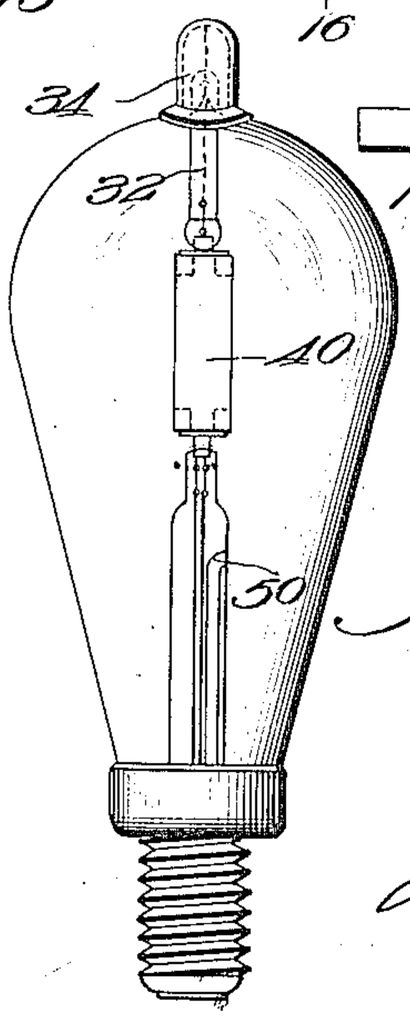

Fig. 4.

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3 SHEETS—SHEET 3.

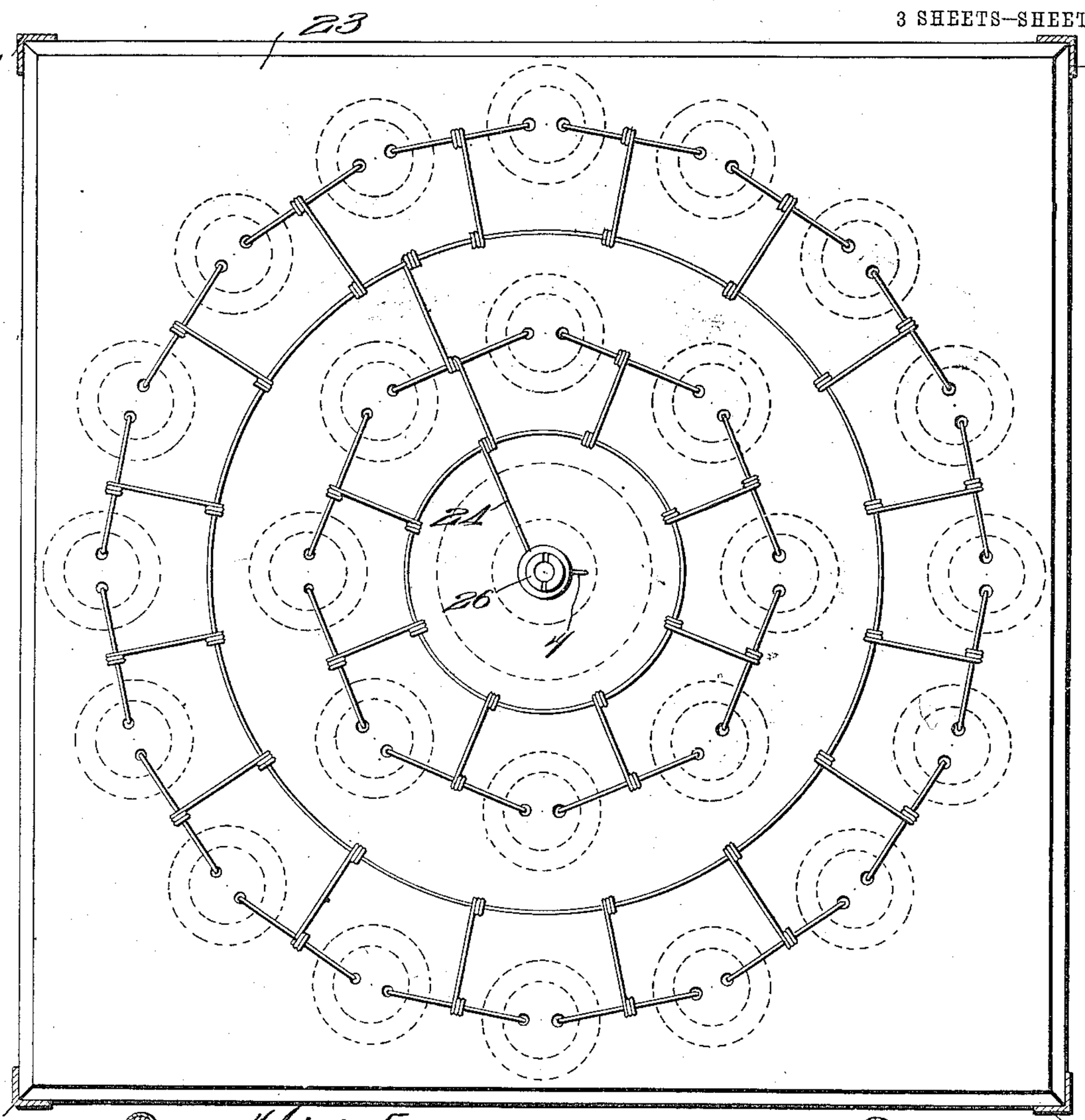

Fig. 5.

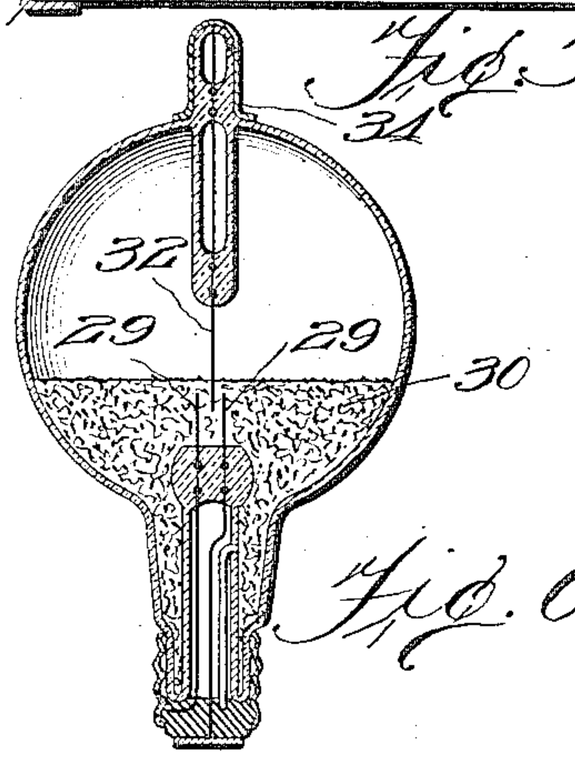

Fig. 6.

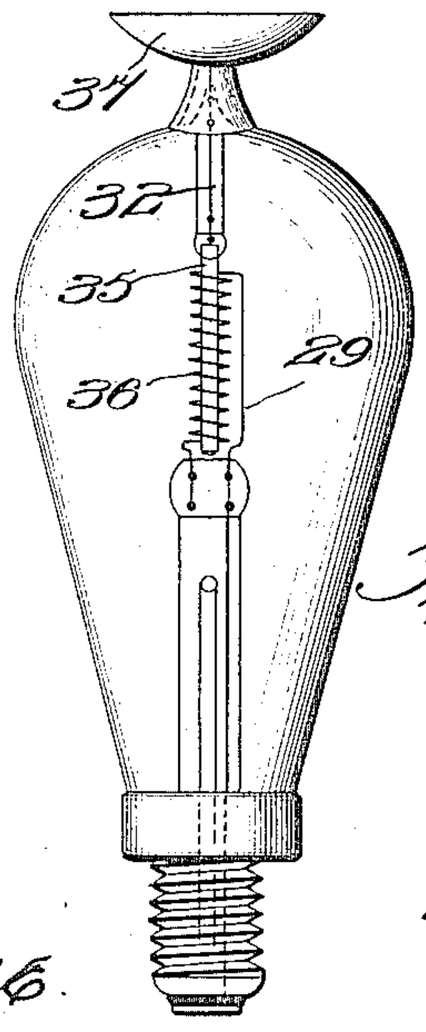

Fig. 7.

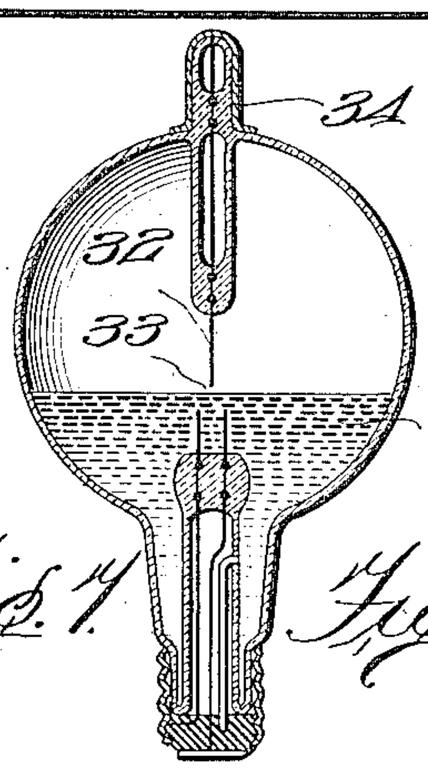

Fig. 8.

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UNITED STATES PATENT OFFICE.

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WIRELESS TELEGRAPHIC APPARATUS.

992,042. Specification of Letters Patent. Patented May 9, 1911.

Application filed May 27, 1910. Serial No. 563,802.

To all whom it may concern:

Be it known that I, MICHAEL A. PARISANO, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Wireless Telegraphic Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to wireless telegraphy and has for its object to produce a device of this nature which will be compact in construction, comparatively inexpensive to manufacture, and one which may be used indoors as well as outside.

To these ends, the invention consists in the novel details of construction and combinations of parts, more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification, in which like numerals refer to like parts in all the views:—Figure 1, is a view in elevation of a device made in accordance with my invention; Fig. 2, is a plan view of the same taken on the line 2—2 of Fig. 1, with the slate top slab removed; Figs. 3 and 4, are detail views of some of the lamps employed in connection with my invention; Fig. 5, is a bottom plan view of the topmost slate slab shown in Fig. 1, and illustrating the connections with the bulbs carried by said slab; and, Figs. 6, 7 and 8, are detail views of various forms of bulbs employed in connection with my invention.

1 indicates any suitable framework, preferably of a rectangular construction and 2, 3 and 4, indicate slabs of slate or other non-conducting material carried by said framework and provided with numerous perforations through which the strands 6 of the continuous antenna wire are passed. These strands 6 constitute the principal means for radiating the Hertzian waves and may be interlaced up and down through the perforations in the slate slabs in any suitable manner, but I prefer to pass them back upon themselves as shown, so as to lessen the effects of self-induction and to bring out the end 7 of the wire at or near the center of the slab 2, as illustrated in Fig. 1. I also prefer to pass these strands through the perforations in the slate slabs in such a manner that the individual loops will lie in a continuous spiral, as indicated in Fig. 2. At or near the bottom of the framework 1 I preferably provide a series of sockets 10, 11, 12, 13 and 14, which are connected respectively with various portions of the spiral by wires 15, 16, 17, 18, and 19, as best shown in Fig. 2. In addition to the above sockets, I also provide a socket 20 in which the plug 21, carrying the connections 22 with the sending instruments, may normally rest when the antenna is not used for sending.

Above the slab 2 is a topmost slab 23, the bottom of which is provided with connections 24 leading to the bulbs, as will be further explained. This connection 24 leads from the center binding post 26 to which the end 7 of the antenna also leads, as will be clear from the drawings.

On the top surface of the slab 23 and in electrical connection with the connections 24 are the bulbs shown each provided with the usual screw plug fitting the ordinary sockets and the usual leading in wires 29, see especially Figs. 6 and 8. These leading in wires 29, preferably terminate in a metallic connection which may be iron filings 30, mercury 31, or any other suitable material. I prefer, however, to employ twelve pairs of globes and to use one of the following substances in each pair—mercury, lead filings, powdered carbon, powdered copper, brass filings, steel filings, soft iron filings, cast iron filings, aluminum filings, zinc filings, silver filings, and nickel filings, all in a fine or granular form. The interior of the globes are exhausted of air, as usual, and approaching very close to the mercury 31 is a wire 32, as shown in Fig. 8, leaving a micrometer spark gap 33. This wire 32 is connected, in the form shown in Fig. 8, with the metallic cap 34, which is adapted to receive Hertzian waves.

In the form shown in Fig. 6, the wire 32 extends below the surface of the metal filings and preferably terminates between the two wires 29.

In the form shown in Fig. 7, I preferably wind one of the wires 29 into a spiral 36 around a metallic bar 35 which is connected with the wire 32, which, in turn, is connected with the metallic cap 37, as shown.

The spiral 36, may, if desired, be covered with enamel and the bar 35 is preferably of

copper. The cap 37 is preferably in the form of a silver mirror.

In the form shown in Fig. 3, the wires 29 are joined to silver plates 40, between which rests the metallic plate 41, insulated from the plates 40, as shown. The plate 41 is connected by the wire 32 to the metallic cap 34, as above described.

The form shown in Fig. 4, is substantially the same as the form shown in Fig. 3, except the channel 50 enters the interior of the globe and permits a regulation of the vacuum.

All of the bulbs may be disconnected from the loops 6 by a switch not shown when sending, and of course, said bulbs may be also unscrewed, if desired, from their sockets, when the Hertzian waves will be emitted from the antenna loops 6 alone.

The operation of my device is as follows:—In sending signals, the plug 21 is connected by means of the wires 22 with an induction coil or any other suitable well known source of Hertzian waves, when it is placed in one of the sockets 10, 11, 12, 13 or 14. Thereupon a greater or less number of loops 6 of the antenna will be connected with the induction coil or other source of current, and, therefore, a greater or less radiating surface for said waves will be provided. In order that the outer loops 6 may not act as a screen for the inner loops when the sending plug 21 is placed in an inner socket such as 10, 11 or 12, I provide dummy connecting plugs, not shown, for all the sockets lying outside of, or as seen in Fig. 2, to the right of the socket used. This has the effect of making all the outer loops continuous, and therefore causes them to act as radiating surfaces. These waves when sent are received at the distant station in the ordinary manner. When receiving with my instrument, however, a receiving plug, in all respects like the plug 21 and provided with a receiving connection in all respects like the connection 22, is inserted in one of the sockets 10, 11, 12, 13 or 14, while the sockets not used are plugged with dummies as above described, and the Hertzian waves impinging upon the caps 34 of the bulbs will travel along the wires 29, or other conducting material of the bulbs, along their sockets, and end 7 of the antenna until they finally reach the receiving plug and actuate the receiving instrument, which may be of any well known and suitable construction. In actual use I have employed a coherer of my own construction containing metal filings, and very similar to the well known Marconi coherer. By shifting the receiving plug into different sockets 10, 11, 12, 13 and 14, different degrees of sensitiveness for the antenna used may be secured.

What I claim is:—

1. In a wireless telegraphic apparatus, the combination of an antenna consisting of a continuous wire and comprising a plurality of loops; perforated supports through which said loops are threaded; a plurality of sockets; a plurality of connections between said loops and sockets, said connections joined to said wire at varying distances from its end; and a connecting plug adapted to fit said sockets, substantially as described.

2. In a wireless telegraphic apparatus, the combination of an antenna wire provided with a plurality of loops arranged in a spiral; a socket to which one end of said wire is connected; a binding post to which the other end of said wire is joined; a plurality of lamp bulbs connected to said binding post; and means carried by said bulbs adapted to receive and to transmit Hertzian waves, substantially as described.

3. In a wireless telegraphic apparatus, the combination of an antenna wire provided with a plurality of loops arranged in a spiral; a socket to which one end of said wire is connected; a plurality of additional sockets; connections with said antenna wire and said last mentioned sockets at varying distances from said ends; a binding post to which the other end of said wire is joined; a plurality of lamp bulbs connected to said binding post; and means carried by said bulbs comprising micrometer spark gaps, adapted to receive and to transmit Hertzian waves, substantially as described.

4. In a wireless telegraphic apparatus, the combination of a framework; a plurality of perforated slabs supported by said framework; a continuous wire interlaced in spirally arranged loops through said slabs; a socket joined to one end of said wire, a binding post joined to the other end of said wire; a plurality of other sockets joined to said wire at varying distances from said first mentioned end; a topmost slab provided with a plurality of lamp sockets; connections between said binding post and said sockets; and a plurality of bulbs provided with exterior metal caps and interior micrometer spark gaps fitting said sockets, substantially as described.

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

MICHAEL A. PARISANO.

Witnesses:

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JOSEPH L. HUNT.