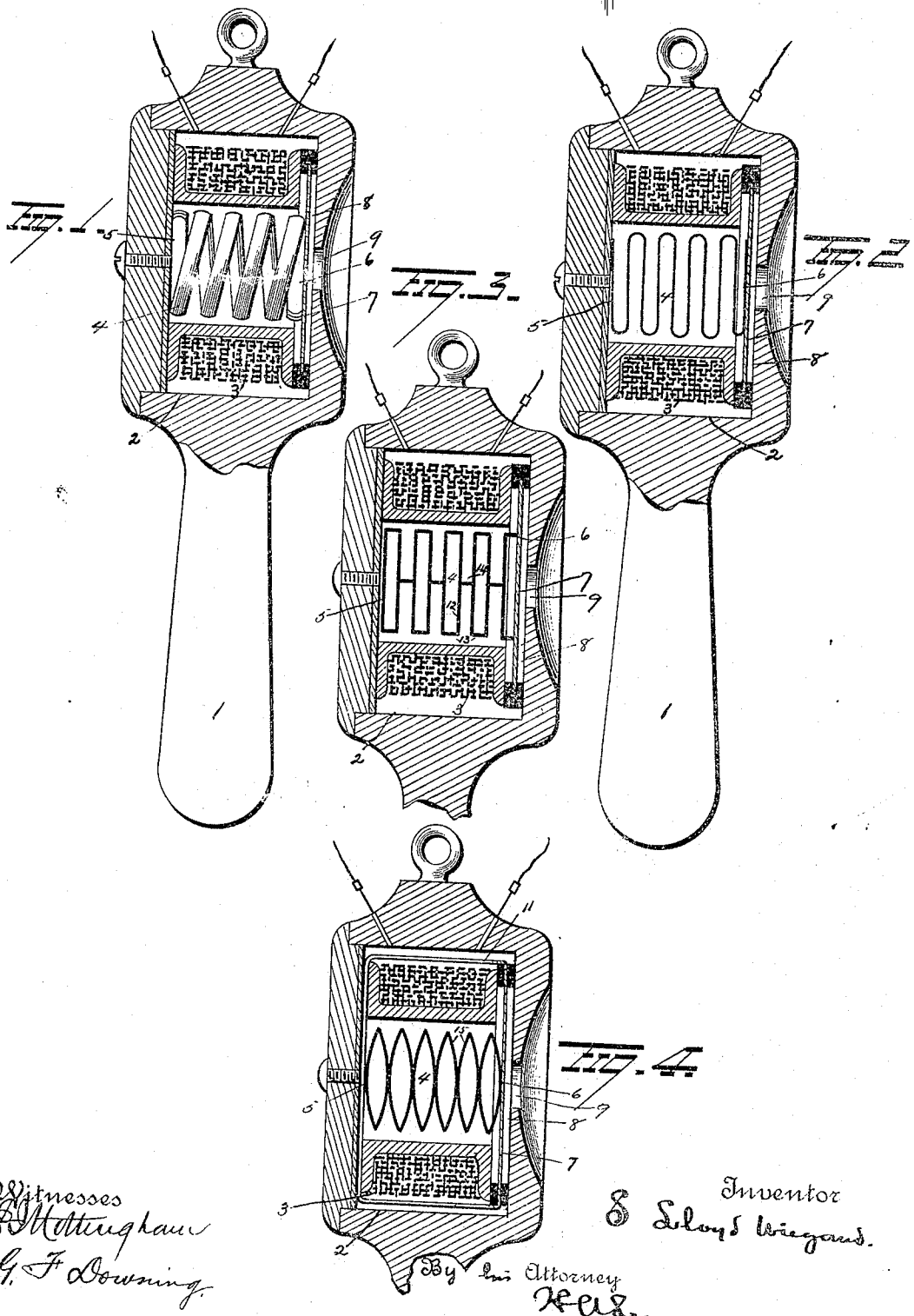
(No Model.)

S. L. WIEGAND.

TELEPHONE.

No. 436,512. Patented Sept. 16, 1890.



Witnesses
P. Mottinghaus
G. F. Downing.

Inventor
S. Lloyd Wiegand.

By his Attorney
H. A. Sampson.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

S. LLOYD WIEGAND, OF PHILADELPHIA, PENNSYLVANIA.

TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 436,512, dated September 16, 1890.

Application filed May 28, 1889. Serial No. 312,453. (No model.)

To all whom it may concern:

Be it known that I, S. LLOYD WIEGAND, a 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 Telephone-Receivers; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention.

My invention relates to an improvement in telephones, and has for its object to produce an improved telephone which shall depend for its operation upon the expansion and contraction or changes of form which take place in magnetizable bodies as they are magnetized or demagnetized by the passage or variation of an electric current.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 shows in section a telephone-receiver with a helical expansible and contractible magnet and an attached piston or diaphragm. Fig. 2 shows a section of a telephone-receiver having a laminated or folded magnetizable core operating a connected piston or tympan. Fig. 3 shows a section of a receiver having an expansible and contractible series of magnetizable plates and a connected piston or tympan, and Fig. 4 a section of a receiver in which the piston or tympan is magnetized or demagnetized and forms a component part of a magnetic ring.

1 is the handle, and 2 the chamber, of the box or the case, In the box 2 is a helix 3 of insulated copper wire, and which (the wire) is preferably of small diameter or of considerable electric resistance. In the center of the helix 3 is a core 4 of magnetizable material. In Fig. 1 it is in the form of a helical spring; in Fig. 2, of a strip of metal folded back and forth upon itself; in Fig. 3, a series of plates 12, arranged in pairs, the plates of each pair being connected together at their ends by short sections 13, and the several pairs of plates connected together at their centers by short sections 14; and in Fig. 4 the core is composed of a series of semi-elliptical plates 15, arranged in pairs, the ends of each pair being secured together and the several pairs being secured together at their centers. The end 5 of the core 4 is secured to the case and the other end 6 to a piston or diaphragm 7. Secured at its ends to the diaphragm 7 at diametrically-opposite points is a band 11 of magnetizable material, which band is adapted to surround the helix 3, whereby a closed magnetic circuit will be produced through said band, the diaphragm 7, and expansible core 4. In front of the diaphragm 7 is a chamber 8 with a central aperture 9, opening into a bell-mouth 10, which is applicable to the ear of the hearer. The ends of the electric helices 3 are connected to an electric line-wire through which electric impulses are passed from the transmitting apparatus and battery or a connected relay, and the diaphragm 7 vibrates in unison with the variations of the electric circuit, so as to reproduce the sounds or other vibrations controlling the variations of the circuit through the transmitting apparatus.

Having described this invention, what I claim is—

1. In an apparatus for transmitting sounds and signals, the combination, with a diaphragm and a helix located in proximity thereto, of an expansible core attached at one end to the diaphragm, said core being composed of a series of plates arranged in pairs, the ends of each pair of plates being secured together and the several pairs of plates being connected together at their centers, substantially as set forth.

2. In an apparatus for transmitting sounds and signals, the combination, with a diaphragm, of a helix located in proximity thereto, an expansible core in said helix connected at one end to the diaphragm, and a band of magnetizable material connected at its ends to the diaphragm at diametrically-opposite points, substantially as set forth.

S. LLOYD WIEGAND.

Witnesses:
J. DANIEL EBY,
ALEX H. SIEGEL.