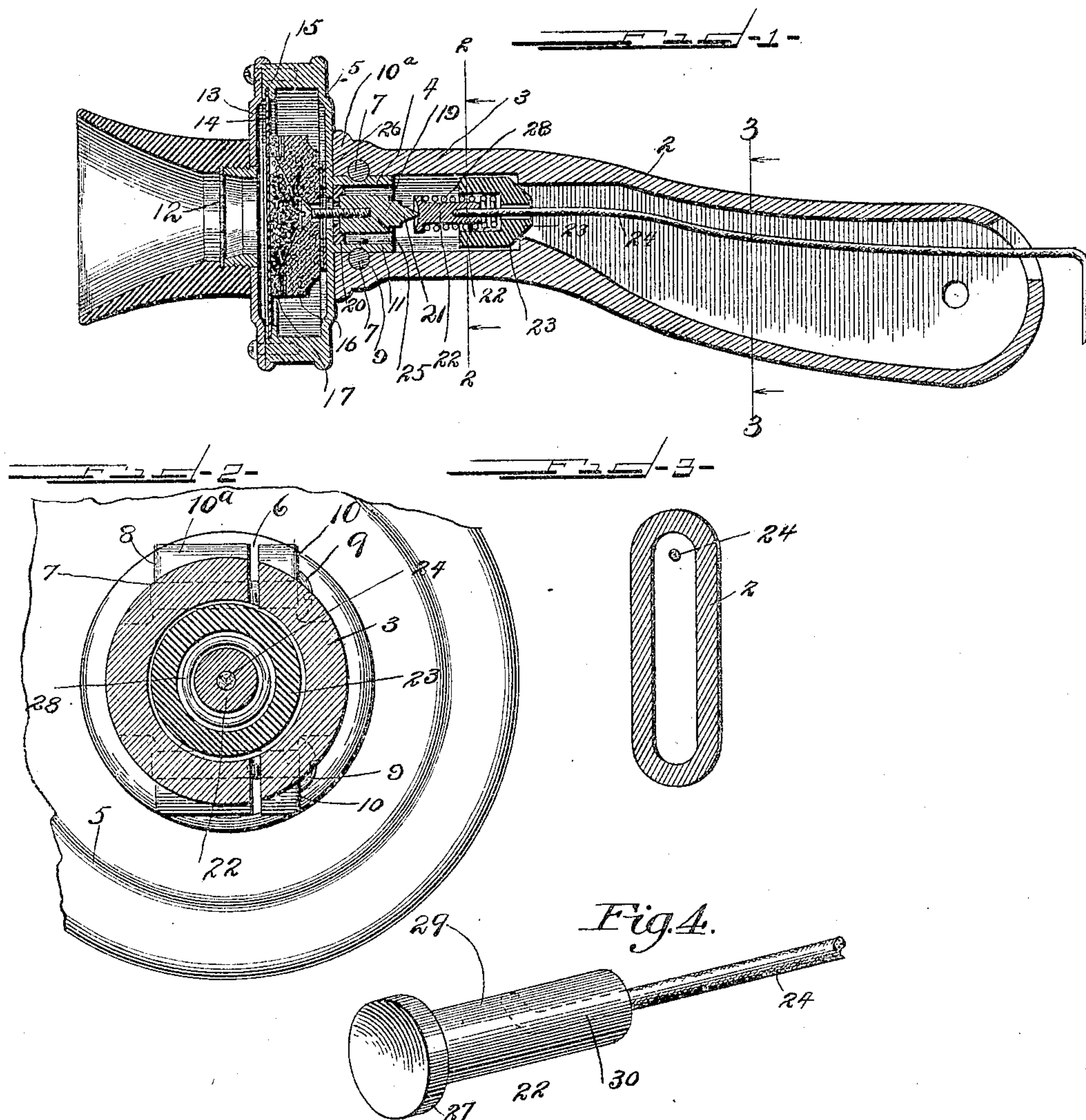


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PATENTED DEC. 19, 1905.

E. E. YAXLEY.
TRANSMITTER AND TRANSMITTER ARM CONNECTION.
APPLICATION FILED MAR. 18, 1901.



WITNESSES
J. B. Keir
Robert Lewis Ames

INVENTOR
Ernest E. Yaxley
By Chas. C. Buckley

UNITED STATES PATENT OFFICE.

ERNEST E. YAXLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO AMERICAN ELECTRIC TELEPHONE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

TRANSMITTER AND TRANSMITTER-ARM CONNECTION.

No. 807,528.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed March 18, 1901. Serial No. 51,809.

To all whom it may concern:

Be it known that I, ERNEST E. YAXLEY, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Transmitter and Transmitter-Arm Connections, of which the following is a specification.

My invention relates to telephone transmitter and transmitter-arm connections. In former devices difficulty has been experienced in securing and maintaining a good electrical connection between the transmitter cases or heads and their supporting-arms where such parts themselves form a part of the transmitter-circuit and also in providing a simple, convenient, durable, and efficient connection between the other terminal of the transmitter and the circuit-wire or conductor.

My invention has for its objects the provision of means for overcoming these difficulties and the construction of a transmitter head or case having devices for maintaining a good electrical connection with the arm in a simple and convenient manner and also for making an effective and convenient connection with the other side of the transmitter-circuit.

Other objects are the provision in such an instrumentality of means whereby the transmitter may be rotated to prevent its carbon packing and in which such electrical connections are maintained in whatever position the transmitter may be turned.

A further object is to provide an improved arrangement involving a split collar mounted on the end of a hollow swinging supporting-arm and a transmitter having a boss or hub portion adapted to be clamped to said split collar, whereby the transmitter is firmly secured in place and a good electrical connection established.

It is also an object to provide certain details and features of improvement tending to increase the general efficiency and serviceability of a transmitter and transmitter-arm construction of this particular character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view showing the several parts of the apparatus. Fig. 2 is a cross-section of the arm and contained parts

on the line 2 2 of Fig. 1 looking toward the transmitter. Fig. 3 is a cross-section on the line 3 3 of Fig. 1, and Fig. 4 is a perspective view of the central spring-contact of the transmitter-circuit.

In the figures, 2 is a transmitter-support or rocking arm, one end of which is pivoted or otherwise secured in the usual way to the induction-coil casing or other support, the other end being formed with a cylindrical or tubular portion 3, which is adapted to receive an annular flange or tubular boss 4, formed integrally or as desired on the back case or part 5 of the transmitter case or head. The intermediate portion of the arm is preferably flat or oblong in cross-section, as seen in Fig. 3, is hollow, and contains a covered or insulated wire forming a part of the transmitter-circuit. This cylindrical portion 3 of the rocker-arm is slotted, as at 6, (see Fig. 2,) preferably at one side of the axis, so that one part (the thinner) will spring more easily or be flexible, though it will be understood that other constructions could be employed to accomplish the same ends or more slots formed. In the slotted portions apertures 7 are provided. The apertures 7 in one of said portions, preferably the thicker portion 8, are threaded and are adapted to receive screws 9, the heads of which are adapted to be seated in shoulders or notches 10, formed in said cylindrical portion or enlargement 10^a of said portion of the rocker-arm 2. To prevent the transmitter head or case from coming out of the arm without first entirely removing the screws, or nearly so, the said boss 4 is provided with an annular groove 11, and the apertures 7 are so located with reference thereto that the screws 9 engage therewith or lie therein when they are inserted. When the transmitter is in place and the screws are securely tightened, it will be seen that the transmitter is tightly clamped and held from moving in any way, and in some aspects of my invention it is obvious that this portion 3 of the arm may be of any other desired cross-section. In some kinds of transmitters, however, it is considered desirable to turn the head or case to prevent the carbon packing or for other purposes, in which case the cylindrical part 3 permits such a rotation of the transmitter by properly adjusting the tension of the clamping-screws 9 to merely bind the parts to-

gether that the transmitter can be easily turned by hand. This provides a good electrical connection between the parts, as well as a firm mechanical connection. The transmitter itself is provided with the usual mouth-piece and perforated web or diaphragm 12 and a front metallic cone 13, which is secured by screws to the back case 5. The sound-receiving diaphragm 14 is supported at its edge upon an annular flange or shoulder 15, carried by the cone 5, a washer of paper or other desired material being interposed between the diaphragm and the front case 13. At the rear of the diaphragm and within the case 5 the rear electrode 16, of suitable material, is placed and hollowed out in its front side to provide a space between it and the rear side of the diaphragm for the granules of carbon, as in the ordinary transmitter, and a washer or ring 17, of felt or other desired material, which may rest upon paper washers 18, being placed between the said electrode 16 and the diaphragm 14. A central screw 25 is passed through this electrode and is threaded into a metallic contact-pin 19, which is located within the said boss 4 and supported therein on an insulating-washer 20, seated upon the rear face or side of the casing 5. The electrode 16 is insulated from the rear case 5 by washers 26, of suitable substance, and is held thereagainst by the head of the screw 25. The latter forms a firm mechanical connection between said case, electrode, contact, and cooperating parts. The screw 25 also forms one terminal of the transmitter, the powdered carbon being placed between the diaphragm and the electrode, with its screw 25 in the hollowed portion of the electrode 16.

The contact-pin 19 is preferably formed with a sharp point 21, which when the transmitter is inserted engages a spring-supported circuit terminal or contact 22, which is seated in an insulating washer or cup-seat 23, placed within the cylindrical portion of the rocker-arm at the juncture of the enlarged and restricted portions of said arm, and the wire 24 of the transmitter-circuit is attached in any desired manner, as in the aperture 30, to said spring-terminal 22. The latter is provided with a shoulder 27, upon which the coil-spring 28, surrounding its shank 29, bears, the said spring finding a seat in the bottom of the cup 23. The transmitter-circuit is thus completed through the arm 2 and its cylindrical portion 3, annular boss 4, and the rear casing 5 of the transmitter, diaphragm 14, the carbon at the rear of the diaphragm, screw 25, and pin 19 to the spring terminal 22 and circuit-wire 24. The end of contact 22 may be slightly hollowed, as shown. This construction provides a much better electrical connection between the transmitting-case and supporting-arm than the ordinary set-screw and at the same time permits the rotary adjustment of the transmitter-head therein, as well

as its quick and easy removal therefrom. The connection of the other terminal of the transmitter with the circuit-wire has the advantage of no permanently-connected wire, thus allowing a ready removal of the transmitter and always maintaining a firm and perfect contact whatever rotary position the transmitter may take, there being no twisted wires, and, further, of being entirely inclosed within the arm to guard against mechanical injury.

As far as I know, I am the first to provide a split collar which is formed integral with the end of the hollow swinging transmitter-arm and to provide a transmitter having a boss or hub portion adapted to be clamped in the socket of the said split collar, whereby both the mechanical and electrical connections are established in a convenient and effective manner, the split collar being in the circuit of the transmitter.

While I have described my invention with reference to the details of construction, I would have it understood that it is not to be limited thereto, as many and various changes could be made therein and still come within the scope thereof; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination of a swinging arm provided at its distal end with a split socket, a transmitter provided with a grooved hub or boss adapted for insertion in said socket, and a clamping-screw extending through the socket and the groove in said hub or boss all substantially as and for the purpose set forth.

2. The combination of a swinging arm having its distal end provided with a split socket, a contact arranged in said socket, an insulating-cup arranged at the end of said socket, a spring interposed between the contact and cup, a wire fastened to the contact and leading through the insulating-cup to the pivoted end of said arm, a transmitter provided with a grooved hub or boss and a terminal, the said hub or boss being adapted to fit the said socket, and the said terminal being adapted to engage the said contact which is yieldingly backed by said spring, and a clamping-screw extending through said socket and a groove in said hub or boss all substantially as and for the purpose set forth.

3. The combination of a swinging hollow arm having its distal end formed with a split socket, the insulated and yieldingly-supported contact inclosed by said socket, the transmitter having a tubular and externally-grooved boss adapted to fit said socket, the said transmitter also having a back electrode and a terminal held together by a screw, a pair of clamping-screws extending through the socket and grooved portion of said boss, said yielding contact being adapted to engage said terminal all substantially as and for the purpose set forth.

4. The combination with a transmitter head

or case having an annular boss, of a slotted socket-support in which said boss fits, and means to clamp said boss within the socket to provide a good electrical connection therebetween, to prevent its withdrawal therefrom, and at the same time permit its rotation all substantially as and for the purpose set forth.

5 The combination with a transmitter having an annular boss, of a slotted socket-support in which said boss fits, an annular groove in said boss, a screw adapted to pass through said slotted portions to cause them to bind the boss to provide a good electrical connection, and lying within the said annular groove to prevent withdrawal of the transmitter all substantially as and for the purpose set forth.

10 6. The combination with a transmitter-case having a rearwardly-extending annular boss, a transmitter-arm having a cylindrical socket for said boss, the said socket being slotted and having screws passing therethrough to clamp the same to the said socket, an annular groove in the said boss in which the screws lie, whereby the transmitter-case may be rotated without interference with its electrical connections all substantially as and for the purpose set forth.

7. The combination with transmitter-head, of a supporting-arm therefor, the connection between them permitting a relative rotation of the two parts, a terminal carried by the head, a spring-pressed terminal carried by the arm and having a concave contacting portion for said other terminal so that the terminals are not easily misplaced all substantially as and for the purpose set forth.

8. The combination of a hollow transmitter-arm having one end adapted to be pivoted to a suitable support, the other end thereof being split longitudinally of its length to provide a split socket, a transmitter having its back provided with a portion adapted to enter said

socket, and a clamping-screw extending transversely of the arm and the said split therein and adapted for clamping the transmitter in the socket the side of the screw projecting into the bore of the socket all substantially as and for the purpose set forth.

9. The combination of a hollow transmitter-arm having its end split longitudinally at two points in its circumference to provide a split socket, a transmitter having its back provided with a portion adapted to enter said socket, and a pair of clamping-screws extending transversely of the arm and of the said splits therein, and adapted to clamp the transmitter in the socket the side of the screw projecting into the bore of the socket all substantially as and for the purpose set forth.

10. The combination of a hollow transmitter-arm having its end split longitudinally to provide a split socket, a transmitter having its back provided with a portion adapted to enter said socket, and a clamping-screw extending transversely through the split portion of the arm, said screw having a screw-threaded engagement with the arm at one side of the split the side of the screw projecting into the bore of the socket all substantially as and for the purpose set forth.

11. The combination of a hollow arm having one end adapted for pivotal connection to a suitable support and having the other end thereof provided with a socket which is split longitudinally, and a clamping-screw extending transversely of the split and thereby adapted for clamping a transmitter within the said socket the side of the screw projecting into the bore of the socket all substantially as and for the purpose set forth.

ERNEST E. YAXLEY.

Witnesses:

CHARLES C. BULKLEY,
HARRY P. BAUMGARTNER.