

(No Model.)

R. C. M. BOWLES.
MECHANICAL TELEPHONE.

No. 419,986.

Patented Jan. 21, 1890.

Fig. 1.

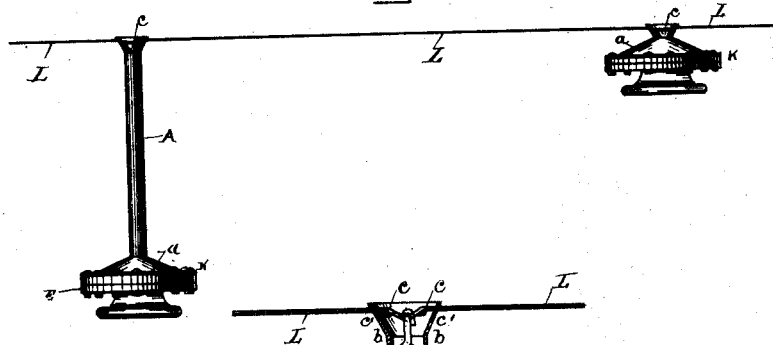


Fig. 3.

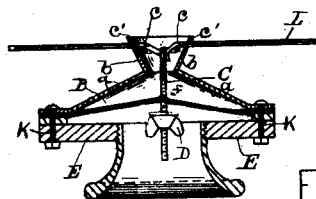
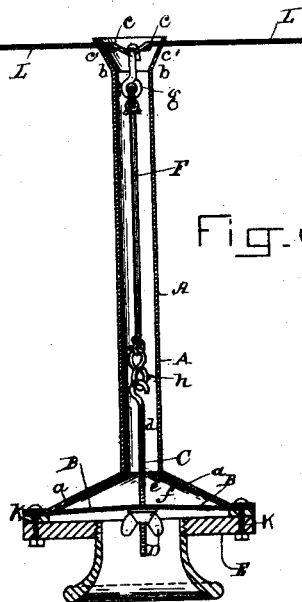


Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT C. M. BOWLES, OF BOSTON, MASSACHUSETTS.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 419,986, dated January 21, 1890.

Application filed September 15, 1888. Renewed December 26, 1889. Serial No. 334,920. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. M. BOWLES, a citizen of the United States, residing at Boston, in the county of Suffolk, State of Massachusetts, have invented a new and useful Improvement in Telephones, of which the following is a specification.

I have conceived the idea of so constructing a telephone that it can be almost instantly attached to any point in a telephone-line where desirable or practicable.

My invention consists in suspending or holding the telephone upon the line-wire without other support than the wire itself, and then providing means for holding the diaphragm of the telephone under a tension equal to or proportionate to that line-wire; and it further consists in providing means for adjusting the tension of the diaphragm. I have accomplished this object by the device of connecting the line-wire with the diaphragm of the telephone through a double funnel, of metal or wood, of any desired length, from an inch or less upward, the lower funnel being of the same diameter as, and at its perimeter resting upon, the diaphragm. One funnel may rest directly upon the other, or they may be connected by a hollow shaft of any desired length. In cases where but a short connection is to be made—say of two or three inches or less—the double funnel being constructed in accordance, I pass through the two funnels and through the center of the diaphragm beneath a connecting-rod, with its upper end formed as a hook and its lower end as a screw. I then place upon said connecting-rod a washer, and upon that, working on the said screw end of connecting-rod, an adjusting-nut. In the upper funnel, on either side, I cut a slot of, say, a half-inch in depth. At either side of said slots and near the top of funnel a hole is pierced, and through these holes 4 is passed across the two slots and rigidly secured an insulated wire. I then connect the line-wire with the combination thus formed by passing over said line-wire the hook of connecting-rod, the line-wire resting upon the insulated wire cords, and turn upon the adjusting-nut until said line-wire, funnel, and diaphragm are firmly and rigidly drawn together and the proper tension given to the diaphragm.

When a longer attachment to the line-wire is desired, I connect the two funnels by means of a hollow shaft or tube and connect the connecting-rod and line-wire by a wire, to one end of which is attached a double link of chain and to the other end a hook, hook the connecting-rod to the double link of chain and pass the hook of said connecting-wire over the line-wire, and then, as in the case of the short connection, turn the adjusting-nut till all the parts are drawn together in tension.

In the drawings herewith and forming a part of this specification, Figure 1 shows a telephone-line with the two forms of my device as described thereon.

Fig. 2 shows a cross-section of my device when the short connection with line-wire is adopted, *b b* being the upper funnel with the slots *c' c'* therein and perforations *c c*, through which pass the line-supporting insulated wires; *L L*, the line-wire; *C*, the connecting-rod with its hook end *d* and screw end *e*; *B*, the diaphragm; *f*, the washer, and *D* the adjusting-nut.

Fig. 3 shows a cross-section of my device where a long connection with the line-wire is desired. The parts thereof corresponding with those in Fig. 2 are represented by same letters. *A A* represent the hollow shaft or tube connecting the funnels; *F*, the connecting line or wire with its double link of chain *h* at lower end and its hook *g* at upper end.

In Figs. 2 and 3, *E* represents the transmitter with frame, and *K* the screw and nut by which funnel, diaphragm, and transmitter-frame may be clamped together.

I have described the line-supports held in the perforations *c c* as insulated wires; but covered wires or catgut cords or their equivalent may be used without loss of efficiency.

The instruments weigh but a few ounces, and as they turn easily upon the line they readily adapt themselves to the stature of any one.

Having thus described and illustrated my device, what I claim as new, and desire to secure by Letters Patent, is—

1. A mechanical telephone suspended on its line-wire and provided with means for holding the diaphragm under tension equal or proportionate to the tension of the line-

wire, substantially as and for the purpose described.

2. A mechanical telephone suspended on its line-wire and provided with means for
5 holding the diaphragm under tension proportionate to that of the line-wire, and means for adjusting the tension of the diaphragm, substantially as and for the purpose described.

10 3. The combination, in a mechanical telephone and line-wire, of the funnel *a a*, connecting hollow shaft or tube *A A*, funnel *b b*, with slots *c' c'*, line-wire supports held in perforations *c c*, connecting-rod *C*, and dia-

phragm *B*, substantially as described and 15 shown.

4. The combination, in a mechanical telephone and line-wire, of the double funnel *a a*, connecting hollow shaft or tube *A A*, funnel *b b*, with slots *c' c'*, line-wire supports held in 20 perforations *c c*, diaphragm *B*, connecting-rod *C*, with hooked end *d*, threaded end *e*, washer *f*, and adjusting-nut *D*, substantially as shown and described.

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Witnesses:

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