(No Model.)

2 Sheets—Sheet 1.

J. C. BATES.

MECHANICAL TELEPHONE.

No. 414,280. Patented Nov. 5, 1889.

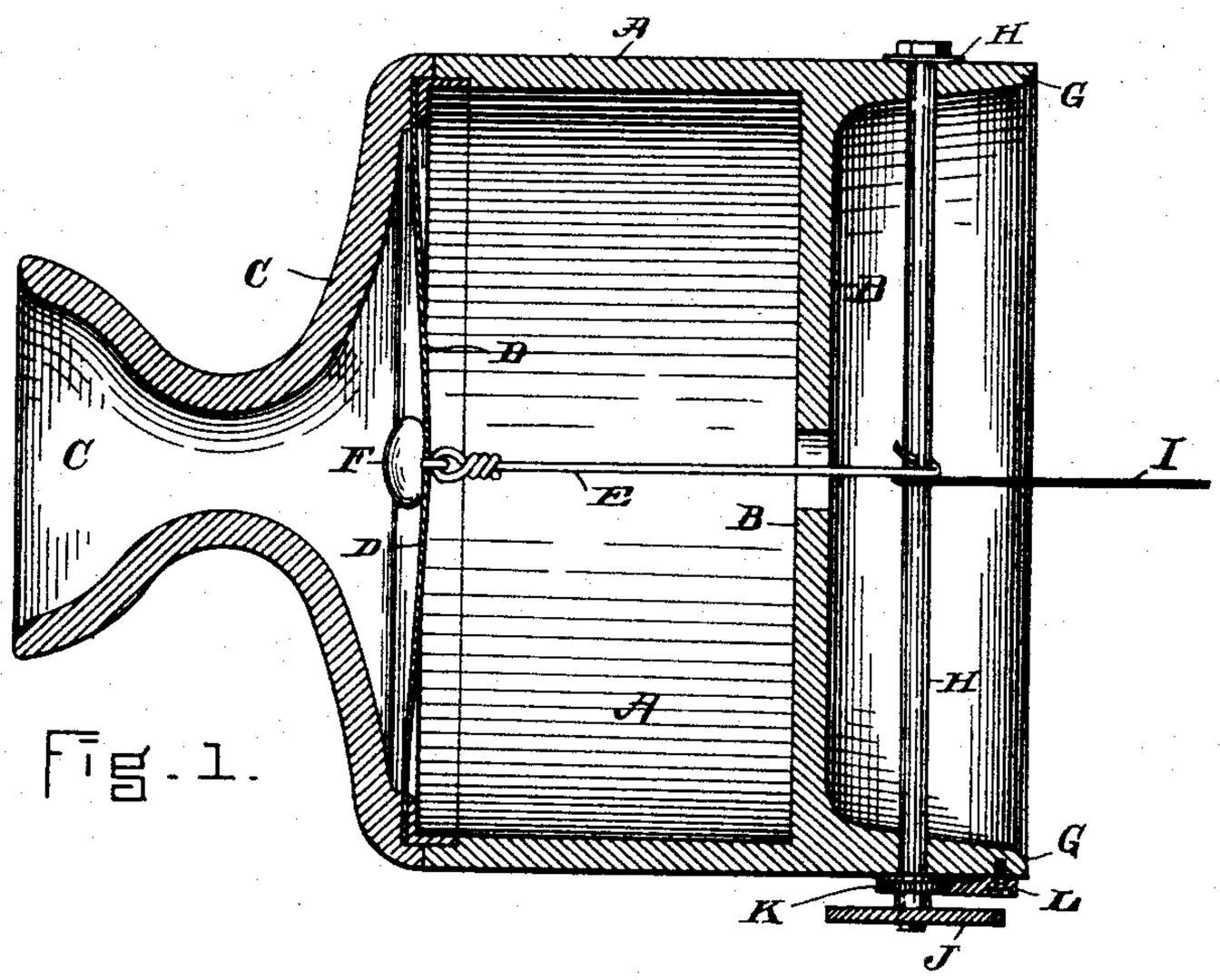

Fig. 1.

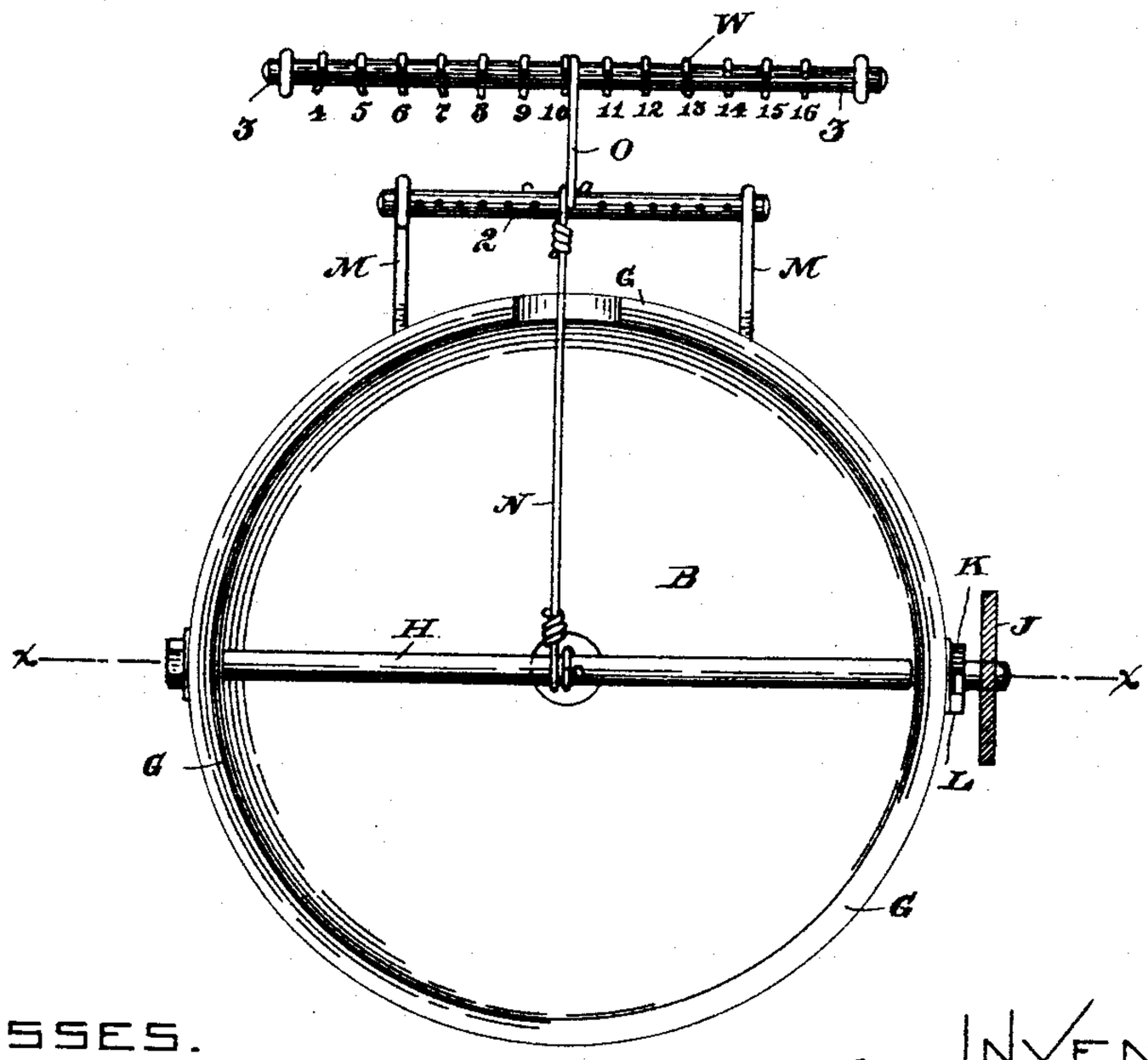

Fig. 2.

WITNESSES.

R. Henry Marsh.

Roswell C. Murch

INVENTOR.

John C. Bates

by S. H. Reed Atty

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

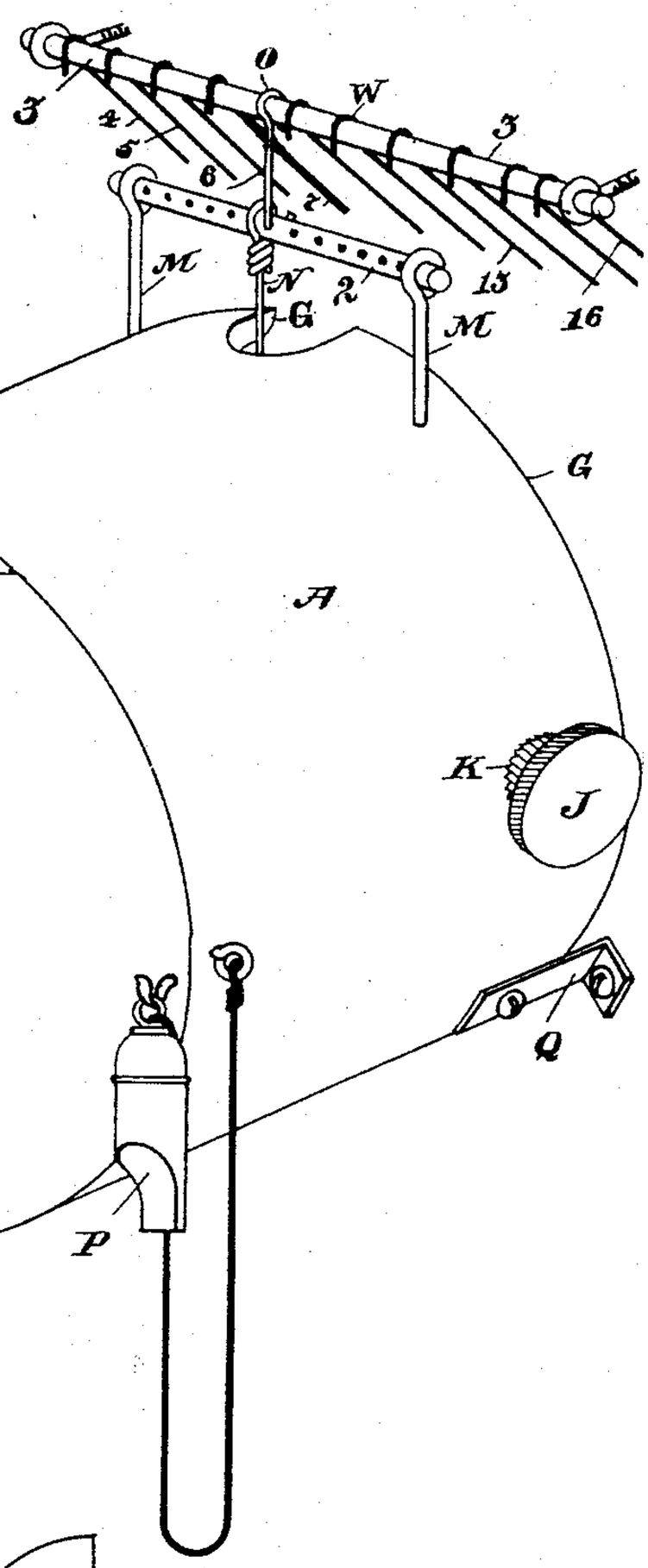

Fig. 4.

Witnesses.
R. Henry Marsh.
Roswell C. Burch

Inventor,
John C. Bates,
by R. H. Bennett,
atty

UNITED STATES PATENT OFFICE.

JOHN C. BATES, OF ASPEN, COLORADO.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 414,280, dated November 5, 1889.

Application filed January 15, 1889. Serial No. 296,377. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BATES, of Aspen, in the county of Pitkin and State of Colorado, have invented certain new and useful Improvements in Telephones, of which the following, taken in connection with the accompanying drawings, is a specification.

The primary object of this invention is to relieve the diaphragms of telephones from the excessive strains often put upon them by undue weight upon or tampering with the line-wire, and also to provide simple and efficient means for regulating the tension of the diaphragm.

A further object is to furnish telephones having my relief-bar and regulator with a central system, whereby any two of a series of lines centering in one office may be connected and disconnected at will by the attendant. I also provide each instrument with a shrill whistle, as a call or alarm device, to signal the opposite end of the line or any given station.

My invention is embodied in a telephone having in rear of its diaphragm, and preferably in rear of the back wall of its chamber, a transverse bar, to which the line is secured, so as to relieve the diaphragm of the direct strain otherwise coming upon it.

My invention also consists in said parts, in combination with a section of wire connecting the diaphragm with said bar, and with means of adjusting the tension of the diaphragm and wire section by rotation of said bar or otherwise.

My invention further consists in the combinations of devices herein shown and described, and especially referred to in the appended claims.

In the drawings, Figure 1 is a central section through an instrument provided with my improved relief and tension bar. Fig. 2 is a rear view of the same, showing also my means of connecting different lines as desired. Fig. 3 is a perspective view. Fig. 4 is a modification.

A is the body or shell of the telephone; B, the back wall of the chamber; C, the front and mouth-piece; D, the diaphragm, and E the tension-wire connected to the diaphragm by the usual button F. This wire may be integral with the main-line wire, but is preferably distinct from it.

The drawings show the preferred construction and the location and arrangement of the relief and tension bar. Beyond the rear wall B the periphery of the shell is prolonged, as as at G, giving the back side of the instrument a recessed or countersunk character, as seen in Fig. 1. The relief and tension bar H is mounted horizontally or otherwise in the walls G, and has sufficient strength to resist the strain of the line-wire I. The bar H is represented as perforated centrally to receive the tension-wire E, running to it from the diaphragm, and said bar is shown provided with a lever or milled nut J, for the purpose of giving it a complete or a partial rotation, so as to adjust the tension of the diaphragm to the extent desired. A ratchet-wheel K is shown on the bar H, and a pivoted or spring-pawl L at the same or opposite end of the bar serves by engaging with the wheel K to hold the parts at the desired tension. This adjustment may be made without affecting the tension of the line-wire.

I provide for telephones of this construction a central system or means of putting the instrument into communication with any one of a number of lines running to the central station, and also permit running the wire of the ordinary single-line telephone at any required angle, so as to facilitate erection and maintenance of lines. Figs. 2 and 3 illustrate this feature of my invention. Above the instrument is a bar 2, parallel with the tension-bar and shown mounted in screw-eyes M in the periphery of the shell. A like bar 3, above bar 2 and properly supported, has the ends of the series of line-wires W hooked upon it. A connecting-wire N extends from the tension-bar H to bar 2 through a recess in the rear edge G of the shell, and bars 2 and 3 are united by a wire O, fastened to bar 2, and simply hooked onto bar 3, so that it can be readily detached.

Each of the wires W is numbered, and may transmit a message to and from the central instrument. (Shown in the drawings.) Suppose the operator on wire 4 desires to communicate, and signals "four." The hook connecting bar 3 with bar 2 is thrown off, and

wire No. 4 is detached from bar 3 and hooked onto bar 2, thus putting line 4 alone in communication with the office. When communication is finished, wire No. 4 is replaced on bar 3 and bars 2 and 3 again connected. For a single line these bars 2 and 3 are not used, but the line-wire is connected directly to the tension-bar, as in Fig. 1.

A cheap signal device for non-electric lines is a shrill whistle P, which may be flexibly connected with the instrument, as indicated in Fig. 3. The telephone is secured in position by a foot or bracket Q.

Slight changes in adjustment of the parts adapt my apparatus for the direct connection of any two of the lines W and the temporary exclusion of all the others. For this purpose the series of wires W will be hooked on bar 2, or its equivalent, connected with the office-operator's telephone. The office receives signal, thus: "Connect five with thirteen." The operator disconnects wires 5 and 13 from bar 2 and hooks them on bar 3, and lines 5 and 13 have their communication distinct from everybody else, the connecting-wire O being dispensed with.

In the modification shown in Fig. 4 the bar 2 above the transmitter is the tension-bar or means of adjusting the tension of the diaphragm independent of the main line. In this case the bar H, directly behind the diaphragm, serves simply to change the direction of the tension-wire E from horizontal to vertical.

I claim as my invention—

1. A telephonic instrument having in rear of its diaphragm and rotating at a fixed distance therefrom a transverse bar adapted to receive the direct strain of the line-wire and to partially or wholly relieve the diaphragm therefrom, for the purpose set forth.

2. In a telephone, the shell A, diaphragm D, and tension-wire E, in combination with the rotating relief and tension bar H and the line-wire I, substantially as set forth.

3. In a telephone, the shell A, diaphragm D, and tension-wire E, in combination with the transverse bar H, mounted in bearings in the shell A, and the line-wire I, connected thereto, and with means of adjusting said bar by rotation to regulate the tension of the diaphragm, substantially as set forth.

4. In a telephone, the shell, the diaphragm, the tension-wire, and the relief and tension bar, in combination with the bar 2, the connecting-wire N, and two or more distinct lines hooked to said bar 2, substantially as set forth.

5. In a telephone system, the instrument provided with the relief and tension bar H, in combination with the parallel bars 2 and 3, the connecting-wires N and O, and the series of line-wires W, detachably secured to bars 2 and 3, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 21st day of December, A. D. 1888.

JOHN C. BATES.

Witnesses:
LEE HAYES,
MOSES BRADSHAW.