

(No Model.)

C. M. RADFORD.  
MECHANICAL TELEPHONE.

No. 411,058.

Patented Sept. 17, 1889.

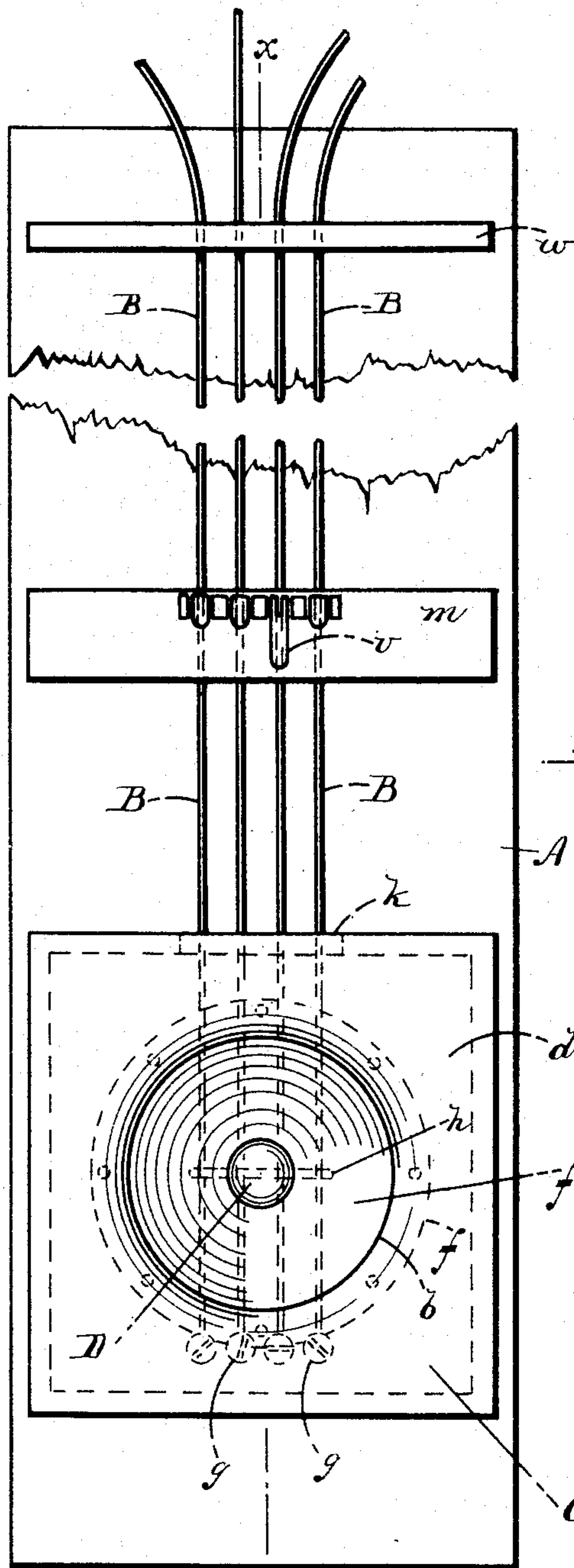


Fig. 1.

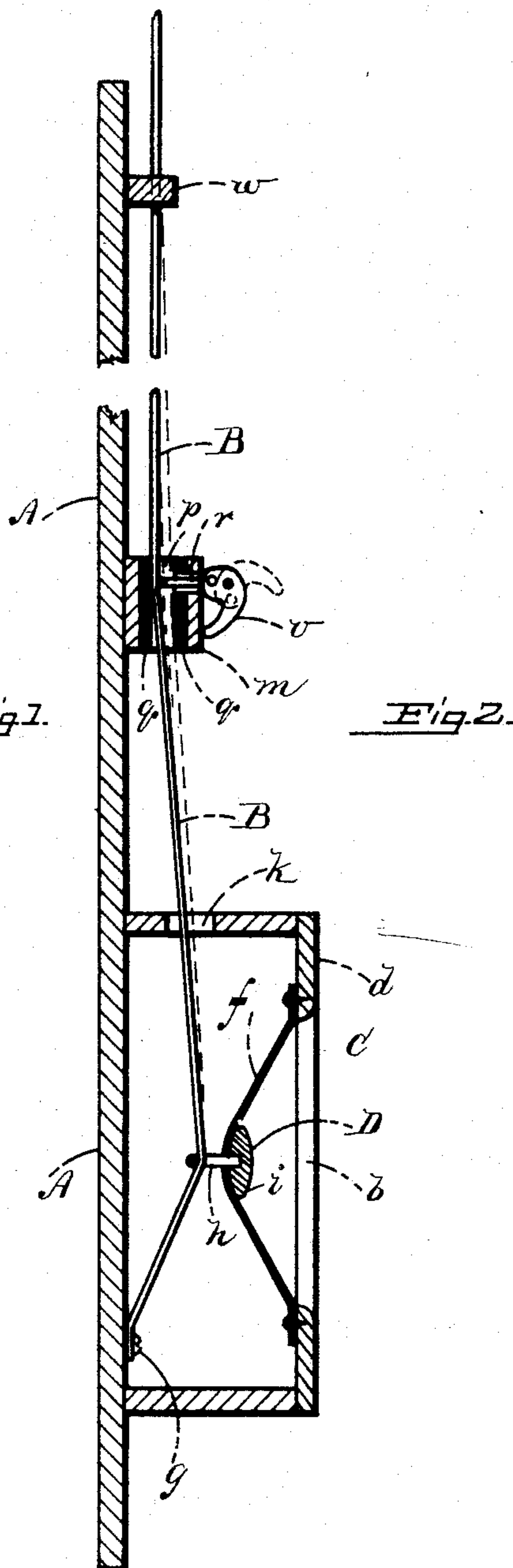
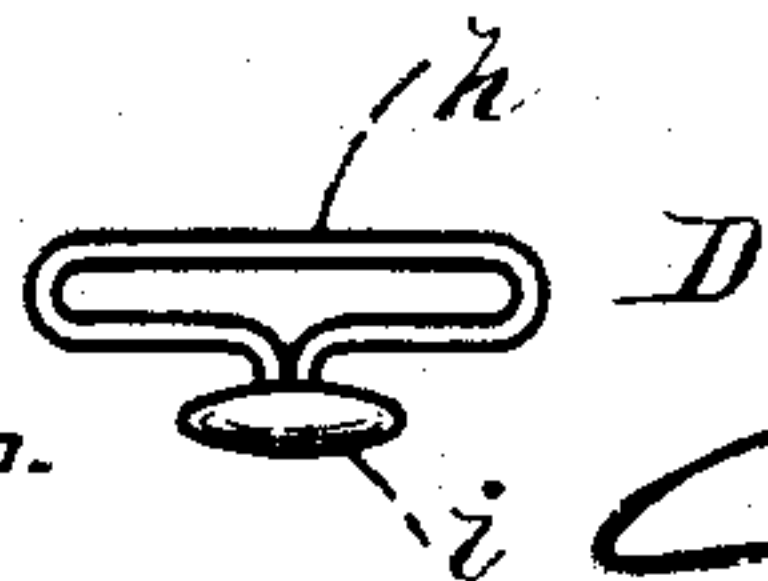


Fig. 2.

WITNESSES  
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Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 411,058, dated September 17, 1889.

Application filed June 14, 1889. Serial No. 314,211. (No model.)

*To all whom it may concern:*

Be it known that I, CASS M. RADFORD, of Concord, in the county of Merrimac, State of New Hampshire, have invented a certain  
5 new and useful Improvement in Mechanical Telephones, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make  
10 and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my improved telephone, the wires being shown as broken  
15 off; Fig. 2, a vertical transverse section of the same, taken on line *x x* in Fig. 1; and Fig. 3, an enlarged view of the button detached.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to an improvement in mechanical telephones, whereby more than one wire may be employed with a single transmitter; and it consists in certain novel features,  
25 as hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the supporting-plate, B the wires, and C the transmitter.  
35 The plate A is preferably constructed of wood and of a shape suitable to be readily adjusted against the wall of a room.

The transmitter C consists of a wooden box rectangular in cross-section, secured to the  
40 face of the plate A.

A circular opening *b* is formed in the front wall *d* of the box C, and a metallic diaphragm *f*, consisting of a cone-shaped plate of the usual form in telephones of this class, is secured to the front wall *d* around the opening  
45 *b*, in the usual manner.

A button D, (see Fig. 3,) provided with a head *i* and laterally-elongated loop or shank *h*, is disposed in the apex of the cone-shaped

diaphragm *f*, so that its loop *h* projects horizontally inside the box C.

The wires B are secured at *g* to the plate A within the box C, said wires being passed upward through the button-loop *h* and an opening *k* in the top of the box, the shape of  
55 said loop permitting the wires to be passed therethrough without coming into contact with each other. A block *m* is secured to the plate A above the box C, and is provided with a centrally-arranged vertical slot *p*, through  
60 which the wires B pass. The slot or opening *p* is lined with lead *q* or similar non-resonant substance, and a series of pins *r* project through the front of the block *m* into said slot, in position to respectively engage the  
65 wires B. Each pin is independently pivoted by its outer end to one of a series of cam-levers *v*, pivoted to the block *m* and adapted to force said pins inward against the wires, pressing them against the non-resonant lining  
70 *q* of the slot *p*, and serving to deaden or prevent them from vibrating. A guide-bar *w* is secured at the upper end of the plate, said wires B passing through the bar, and from thence diverging in the directions desired.  
75 In the use of my improvement the wires are drawn sufficiently taut to hold the button-head *i* firmly against the diaphragm *f* in the usual manner of telephones of this class. The diaphragm is employed both in receiving and  
80 transmitting in the ordinary way. When it is desired to communicate with any particular point, the levers *v* of the wires running to other places are depressed, forcing said  
85 wires against the slot-lining *q* and preventing the sound from passing over them beyond the block *m*, the vibrations on the remaining wire being interrupted. As the block *m* is disposed a considerable distance from the  
90 button, the wires with which the cam-pins are engaged vibrate between said block and button.

By thus disposing the wires that the same sound-waves cause them to vibrate in unison the apparatus is rendered especially valuable  
95 for telephoning long distances. Moreover, as any desired number of wires may be employed with a single transmitter, the device



is particularly applicable for use in hotels and similar establishments.

Having thus explained my invention, what I claim is—

5 1. In a mechanical telephone, the button *D*, comprising the head *i* and laterally-elongated loop *h*, substantially as described.

2. In a mechanical telephone, a transmitter, a button disposed in the diaphragm thereof  
10 and provided with an elongated shank, and a series of conducting-wires secured within the transmitter and passing through said button-shank, substantially as described.

3. In a mechanical telephone, a transmit-  
15 ter provided with a cone-shaped metallic diaphragm, a button secured in the apex thereof and provided with an elongated shank or loop, a series of conducting-wires passing through said loop, and mechanism for inde-  
20 pendently deadening or preventing said wires from vibrating, substantially as described.

4. In a mechanical telephone, a body-plate, a transmitter secured thereto and provided  
25 with a cone-shaped diaphragm, a button for said diaphragm having a laterally-elongated loop-shank, conducting-wires secured within said transmitter and passing through said loop, a bar on the body-plate provided with a  
30 wire-slot having a non-resonant lining, and cam-levers on the bar for forcing the wires against said lining, substantially as and for the purpose set forth.

5. In a mechanical telephone, a body-plate, a transmitter having a cone-shaped metallic  
35 diaphragm, a button disposed in the apex thereof and provided with a laterally-elongated loop, conducting-wires passing through said loop and in contact therewith, a bar se-  
40 cured to the body-plate and provided with a wire-slot having a non-resonant lining, pins projecting into said slot, and cam-levers pivoted to said pins, substantially as and for the purpose set forth.

6. In a mechanical telephone provided with  
45 a series of conducting-wires, a slotted bar through which the wires pass, said slot being lined with a non-resonant substance, and mechanism for forcing said wires into engage-  
50 ment with the slot-lining, substantially as and for the purpose set forth.

7. In a mechanical telephone, the bar *m*, provided with the wire-slot *p*, having the non-resonant lining *q*, in combination with the  
55 cam-levers *v* and pins *r*, substantially as set forth.

8. The plate *A* and transmitter *C*, having the diaphragm *f*, in combination with the button *D*, wires *B*, bar *m*, levers *v*, and pins *r*, substantially as described.

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Witnesses:

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