R. E. HOUSE.

TELEGRAPH SOUNDERS.

No. 180,094. Patented July 25, 1876.

Fig. 2

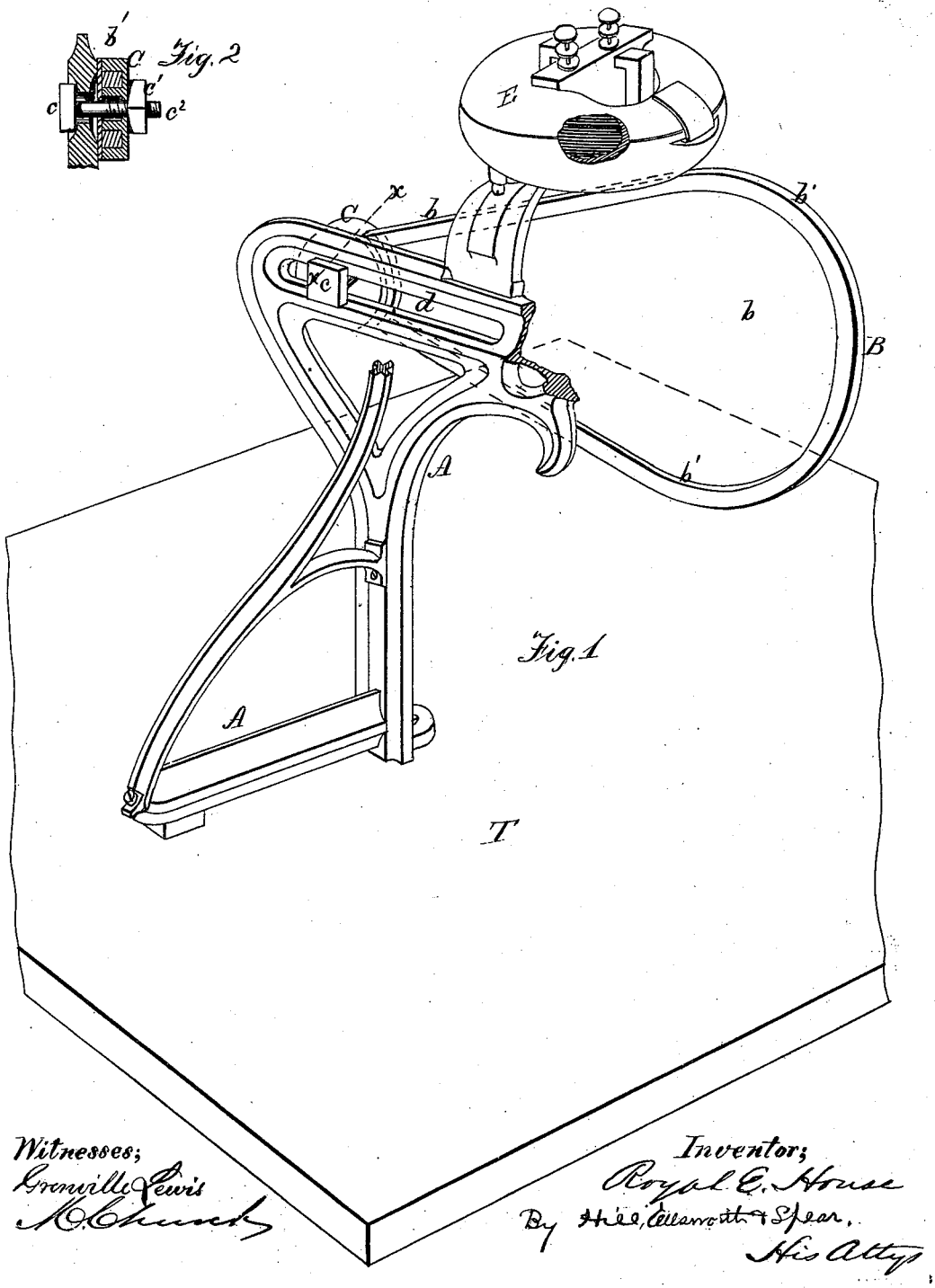

Fig. 1

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UNITED STATES PATENT OFFICE.

ROYAL E. HOUSE, OF BINGHAMTON, NEW YORK.

IMPROVEMENT IN TELEGRAPH-SOUNDERS.

Specification forming part of Letters Patent No. **180,094**, dated July 25, 1876; application filed July 1, 1876.

To all whom it may concern:

Be it known that I, ROYAL E. HOUSE, of Binghamton, in the county of Broome and State of New York, have invented a new and useful Improvement in Electric Phonetic Telegraphs; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

My invention is represented by a perspective view, as shown in Figure 1, and a section of the same, as shown in Fig. 2, taken in the line *x x*, Fig. 1.

Similar letters of reference in the drawings denote the same parts.

This application is a division of a former application, filed by me in the Patent Office June 17, 1870.

This invention relates to that class of telegraphs in which electric impulses transmitted along a wire from the sending to the receiving station are employed, through the operation of suitable mechanism, to produce at the receiving-station audible sounds, which represent the letters or other symbols of the message. The essential elements for producing the sounds are, of course, a hammer operated either by the currents of the main line or by the local power, and a suitable anvil, upon which it strikes. In operating by the currents of the main line, where the line is long or the weather is damp, the escape of electricity from the wires is so great that the feeble currents which reach the receiving-station are hardly able to move the hammer, and the sounds, if there is any movement, are so slight as to be nearly or quite inaudible. The same result may also be experienced occasionally, to a greater or less extent, when operating the hammers by a feeble local power. The object of this part of my invention is, therefore, to provide means by which the slightest movements of the hammers will make distinctly audible sounds; and to this end it consists in an anvil or sonorous plate of new and improved construction, substantially as I will now proceed to describe.

In the drawings, A is the receiving-instrument of a telegraph-line. Its form, construction, and mode of operation are entirely unessential, provided, only, that it is furnished with hammers which are set in operation, directly or indirectly, by the electric impulses sent through the main line, and are thereby caused to strike against the sonorous anvil or plate, hereinafter described. B is the sonorous anvil or plate, the body of which is preferably made of thin plate-glass, *b*, surrounded by a wooden frame or hoop, *b'*, and mounted upon a suitable support, C, held in a slot, *d*, in the frame of the instrument, in such a manner that by means of the screw-clamps c c^1 c^2, or otherwise, it can be adjusted back and forth toward and from the operator, while its outer end, nearest to the operator, can be adjusted higher or lower, as his convenience may require. The plate is intended to be relatively larger, and to project farther from its support, than is shown in the drawings, my design being that it shall extend alongside of the ear of the operator as he sits writing at the table T, so that while his eyes and hands are free to write out the dispatch that is coming over the line his ear will detect the slightest sounds by which the message-symbols are manifested; and the adjustment of the outer end of the plate up and down is to exactly accommodate it to his stature or his position at the table.

I am aware that disks of glass supported near their center, with their edges free to vibrate, and operating to all intents and purposes the same as bells, have been heretofore employed for receiving the strokes of the hammers, and I do not claim such device as my invention. In bells and other similar devices, such as I have just referred to, the difficulty is that the vibrations continue too long, and, when the instrument is worked rapidly, run into each other, so that the strokes of the hammer become undistinguishable. My invention, therefore, does not consist, broadly, in using glass sounders, although I consider glass best for the purpose, but rather in combining with the sonorous glass a less sonorous material, which, by its contact with the glass immediately after the stroke, shall arrest the vibrations, and instantly stop the sound, so that the successive strokes of the hammer will be distinctly audible. I find the surrounding wooden

frame to answer the purpose admirably, although in actual contact with the glass all the time.

I find by experiment that some of the sonorous metals, and even wood with small metal pegs or plates for the hammers to strike on, will answer in place of the glass, though not so well, and that some other hard and partially sonorous substances will answer in place of the wood, though not so well; while substances not sonorous cannot be substituted for the glass, and substances not to some extent sonorous, when used for the frame, deaden the sound of the glass more than I desire, and, when too sonorous, permit or cause too much vibration. I prefer, therefore, as the best construction, the glass combined with the wood, as described, although I consider any combination of a sonorous body for receiving the stroke of the hammer with a less sonorous body for instantly arresting the secondary vibrations thereof as coming within the limits of my invention, when used for the purpose herein referred to; and, so far as the projecting form of the sounder and its adjustability are concerned, those characteristics are obviously independent of any materials of which it or its frame may be constructed.

In those instruments in which the hammers are in the circuits and charged at times with electricity, the sounding-plate or anvil should be of glass, or else the part struck by the hammers should be insulated, so as to prevent the currents from being discharged by any persons accidentally touching the sounder.

Having thus described this part of my invention, I claim as new—

1. In electric telegraphs, a sounder projecting from the receiving-instrument to or near the ear of the operator, and arranged in such relation to the table that he can conveniently hold his ear close to the sounder while writing upon the table, substantially as described.

2. In electric telegraphs, a sounder combined with a less sonorous material, for instantly arresting the vibrations thereof, substantially as described.

3. In electric telegraphs, a sounder adjustable substantially as and for the purposes set forth.

4. In electric telegraphs, the combination of the plate *b* with the surrounding frame *b'*, substantially as and for the purposes set forth.

5. In electric telegraphs, the combination of a glass plate or anvil with a surrounding frame of wood, substantially as described, for the purposes set forth.

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Witnesses:
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