

(No Model.)

L. H. McCULLOUGH.

MAIN LINE SOUNDER.

No. 263,419.

Patented Aug. 29, 1882.

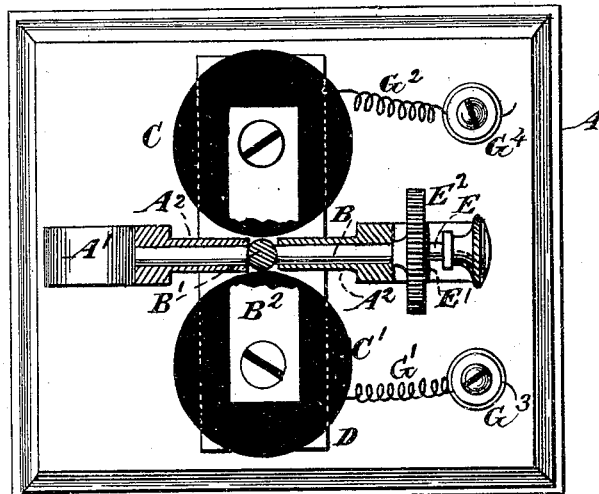


Fig. 1.

Fig. 2.

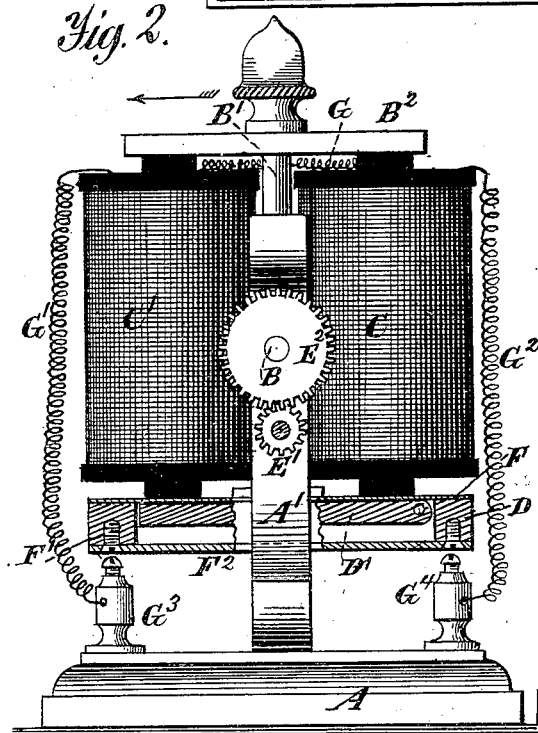


Fig. 3.

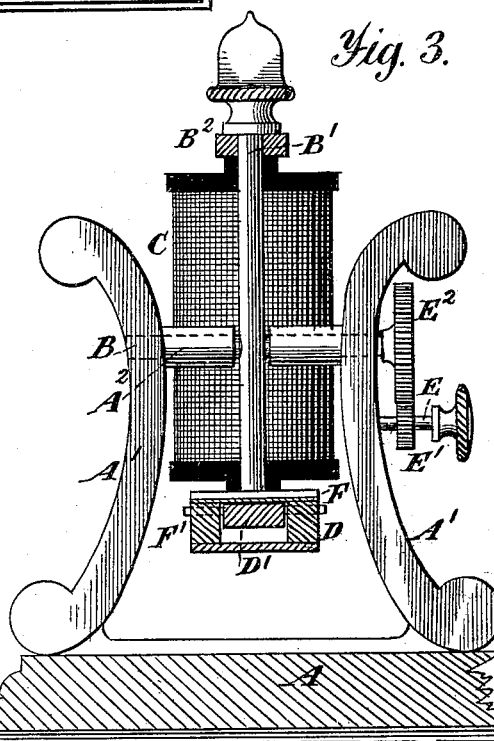
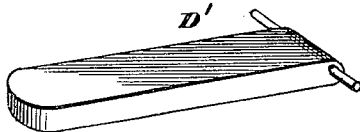


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

LEWIS H. McCULLOUGH, OF RICHMOND, INDIANA.

MAIN-LINE SOUNDER.

SPECIFICATION forming part of Letters Patent No. 263,419, dated August 29, 1882.

Application filed May 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, LEWIS H. McCULLOUGH, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Main-Line Sounders, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a magneto-electric sounder to be placed in the main line or circuit of a system of telegraph-wires, which is capable of having its position so changed that it can be operated with equal certainty and facility in all kinds of weather; and the object of my improvement is the production of certain combinations of devices for producing the desired results, to be hereinafter described. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved instrument, showing a base or frame to which the parts are attached, two spools or helices which form the magnet, a portion of a frame upon which the instrument is suspended, mechanism for adjusting it, and binding-posts and connecting-wires. Fig. 2 is an elevation partly in section, showing the parts above enumerated in a vertical position, the heel-piece for supporting the magnet, the sonorous plates, and the armature. Fig. 3 is a transverse sectional elevation, showing the magnet as suspended, the scroll-shaped suspending-frame, the adjusting or tilting mechanism, and the armature; and Fig. 4 is a perspective view, showing the armature, the point at which it is suspended, and one method of suspending it.

Similar letters refer to similar parts throughout the several views.

In the transmission of telegraphic messages it has heretofore been customary to provide at the points to which the message was to be sent a local battery for operating a local sounder so arranged that as the message was being received certain sounds were made, and these sounds have been interpreted by the operator and formed into words, which have been placed upon paper and delivered to the person for whom they were destined.

My object is to provide for the reception of messages without the use of the local battery,

and without the use of a sounder outside of the main line of wire.

In constructing this type of instrument, which is capable of producing the above-named and other results, I place in the main line or circuit of a telegraph-wire an instrument consisting of any suitable form of base, A, for supporting the mechanism, and to the upper surface of said base attach a frame, A', of the scroll-form shown, or of any other that will hold the magnets, armature, and sounding-box in their suspended position. Upon the inner surfaces of the frame sockets A² A² are placed, through which and the frame there passes a horizontal shaft, B, which forms a part of a vertical column, B', to the upper end of which a heel-piece, B², is secured, to which the spools or helices C C' of the magnet are attached. To the lower end of the column B' the sounding-box D is attached, and in this there is placed an armature, D'.

It will be seen upon referring to the drawings that the arrangement of the parts above enumerated is such that upon turning the shaft B the column B', the magnets C C', the sounding-box D, and the armature D' will be made to assume any position between a vertical and a horizontal one, such movement being effected by turning a shaft, E, which has its bearing in the frame A' and carries a gear-wheel, E', which meshes into another wheel, E², placed upon the outer end of the shaft B.

The sounding-box D, above alluded to, consists of a thin sheet of any kind of sonorous non-magnetizeable metal, F, which composes its upper surface, a metal frame, F', and a lower sonorous non-magnetizeable plate, F². To the frame of this box the armature D' is pivoted, as shown, or, by preference, by screws or pins passing through said frame and having pointed ends, which enter conical cavities formed in the sides of the armature. The spools or helices of the magnet are made in the usual or any approved manner, they being united at one of the ends by a wire, G, and provided with the usual induction and education wires G' and G², the outer ends of which are attached to binding-posts G³ and G⁴, to which the ends of the main conducting-wires are also attached.

The above-recited construction and combi-

nation of parts enable the operator to place the operating parts of the instrument at any desired angle between a vertical and a horizontal position, in doing which the force required to bring the armature in contact with the plate F of the sounding-box, through which the magnetic force acts, will be varied as the angularity of the armature is changed.

As shown in the drawings, the parts are in a vertical position, at which time a magnetic force would be required sufficient to overcome the entire gravity of the armature, which would be in proportion to its weight; but suppose the upper end of the instrument to be moved to the left, or in the direction indicated by the arrow in Fig. 2, until it should stand at an angle of, say, twenty, thirty, or forty degrees to the horizon, such movement would cause the weight of a greater portion of the armature to rest upon its pivotal point, and, owing to its angularity, a less expenditure of force would be required to cause it to be brought into contact with the upper surface of the sounding-box. The angularity of the instrument, and consequently of the armature, may be carried up to the point where its gravity would fail to carry it away from the plate F when the circuit is open; but it is not desirable or necessary to carry it to that extent, as the object is only to provide for the efficient operation of the device in different kinds of weather without any adjustment of the main wire or without any change in the condition of the battery.

The connecting-wires of G' and G² are to be formed into a spiral coil, so that as the angu-

larity of the instrument is changed they will be lengthened or shortened without causing strain upon the parts.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, 40 is—

1. The combination, in an electro-magnetic sounder, of a pivoted electro-magnet, a sounding-box attached thereto, substantially as described, whereby it is made to move with said magnet, and a gravitating armature pivoted within the sounding-box, substantially as and for the purpose set forth. 45

2. The combination, in a tilting adjustable telegraph-sounder, of tilting magnets and their connecting-wires adapted to move with the magnets, and a sounding-box attached to and moving with said magnets, and a pivoted armature operated partially by gravity and partially by electro-magnetism, substantially as set forth. 50 55

3. In combination with a main line of telegraph-wire, a stationary frame, A', tilting magnets C C', supporting-column B', sounding-box D, attached to and moving with said magnets, a pivoted armature, wheels E' E², or equivalent mechanism, for adjusting the angularity of the armature and the magnets, substantially as set forth. 60

In testimony whereof I affix my signature in presence of two witnesses. 65

LEWIS H. McCULLOUGH.

Witnesses:

D. P. HOLLOWAY,
A. RUPPERT.