A. LÜNGEN.

ELECTRIC BELL OR ALARM.

APPLICATION FILED DEC. 24, 1910.

1,066,929. Patented July 8, 1913.

Fig. 1

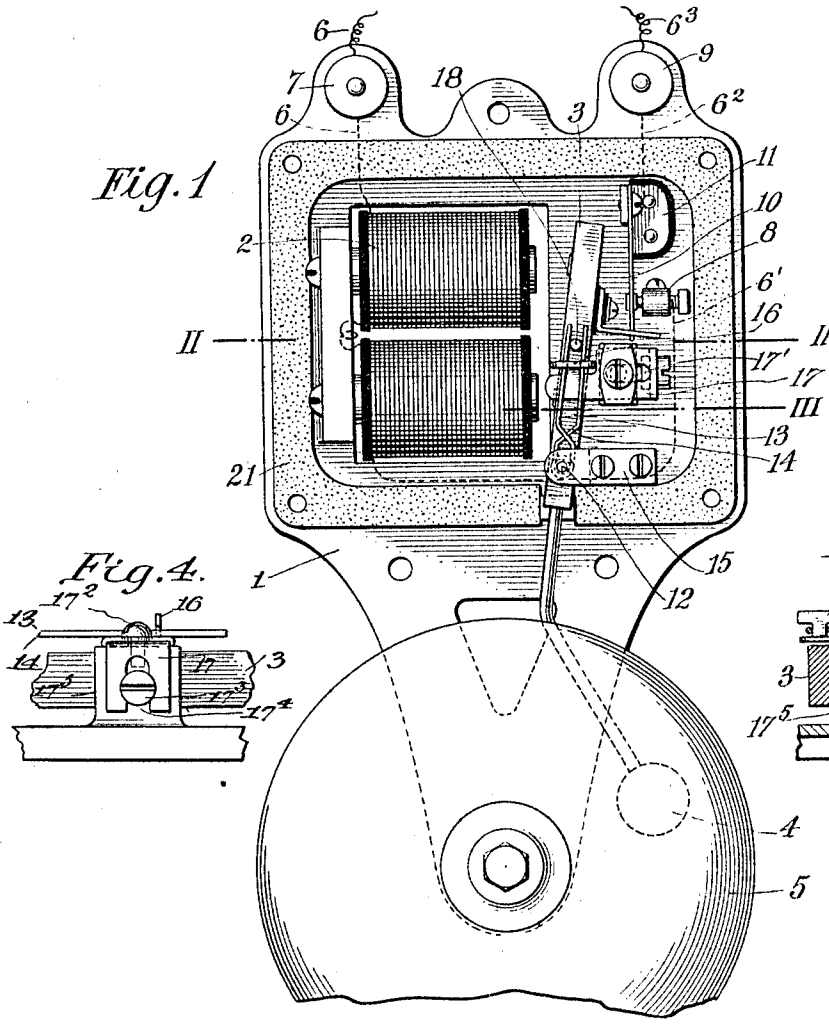


Fig. 4.

Fig. 3

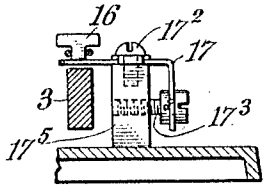
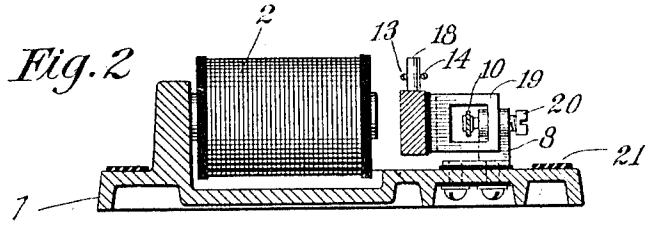


Fig. 2



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ELECTRIC BELL OR ALARM.

1,066,929. Specification of Letters Patent. Patented July 8, 1913.

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To all whom it may concern:

Be it known that I, ADAM LÜNGEN, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Electric Bells or Alarms, of which the following is a full, clear, and exact description.

This invention relates to an electric bell or alarm, and the same consists of a device which is more efficient in operation and not so liable to get out of order and consists of means whereby the parts can be readily adjusted, should the parts become worn, bent or weak.

It consists especially of a double action spring which retracts the armature whereby the latter will not be subjected to the shocks ordinarily found in alarms of this type due to the fact that means have been introduced to impede the armature when the same is retracted from the cores.

To these ends the invention consists in certain novel and peculiar features of construction and combination of parts, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which:

Figure 1 is a front view of the alarm and its mounting; Fig. 2 is a cross section on the line II—II of Fig. 1; Fig. 3 is a section on the line III—III of Fig. 1; and Fig. 4 is a side elevation of Fig. 3.

Referring to the drawing in detail, the reference numeral 1 designates a suitable mounting for my alarm. Located upon this mounting is the usual electromagnet 2 having the armature 3 and the latter having rigidly connected thereto the usual hammer 4 which strikes the bell 5. The line wire 6 is connected with the binding screw 7, with which is also connected one end of the wire 6′ of the electromagnet. The other end of the wire of the electromagnet is connected to the circuit closing device 8. This closing device 8 is in turn connected to the binding post 9 by means of the spring 10 and its mounting 11, a short wire 6^2 under the mounting connecting the latter with the binding post 9. The usual ground wire 6^3 is connected to the latter.

A double action spring wound around a post 12, the latter projecting from the armature, has the active arms 13 and 14 adapted to retract and cushion the armature of the electromagnet. By a double action spring I mean the following: A spring so placed and supported that normally it is under no stress but whenever the part to which it is attached (in this case the armature) is moved in either direction the spring is under a stress and tends to regain its normal position. In so doing it carries with it the armature.

A similar projection, not shown on the drawing, occurs on the other side of the armature just opposite to the projection 12 and has a bearing on the base or mounting 1. These projections form a pivoted support for the armature and are so constructed as to allow free movement thereof. The projection 12, it will be noted has bearing in the plate 15 mounted upon a suitable portion projecting from the base 1.

The arms 13 and 14 engage on opposite sides of a projection 16 on the adjustable portion 17. The adjusting means 17 is adapted to adjust the position of the armature with respect to the electro-magnet. This may be necessitated for several reasons. In the first place, it may be necessary to adjust it owing to a very weak or a very strong current passing through the circuit. In the second place, in renewing the double action spring the same may be stronger or weaker and adjustment necessitated thereby. Further adjustments may be necessitated when using different sized bells, or different sized clappers, as in some cases a slow action is desired while in others, such as in the annunciator, a very rapid action is more desirable. The action of the bell as an entirety may be further regulated by the contact screw associated with the circuit closing device 8. The portion 17 has an upward as well as a lateral adjustment. The lateral adjustment results from the slot 17′ and is effected by loosening screw 17^2 and screwing or unscrewing the double headed screw 17^3. The upward adjustment is effected by loosening the screw 17^2 and raising the part 17, this being permissible owing to the fact that a slot 17^4 in the portion 17 produces arms which engage the screw 17^3 between the heads thereof. This will be seen by referring to Figs. 3 and 4, the slot 17^4 being shown in the latter figure. This upward adjustment, however, is seldom necessary and when so adjusted washers or

equivalent means must be inserted between the portion 17 and its support 17^5 (see Fig. 3). Upon the armature, on the side of the projection 16 which is remote from the pivot projection 12 is mounted a post 18 mounted between the arms 13 and 14 of the double action spring. The result is that when the armature is moved in either direction from the normal position shown in Fig. 1 energy will be stored up in the respective arm. Heretofore, so far as I am aware, the part corresponding to the resilient arm 14 was a rigid stop which was more or less detrimental to the bell. A breaking device 19 is mounted on and insulated from the armature, the construction of which is clearly shown in Fig. 2. 20 is an adjusting screw mounted in the standard 8 for the make and break device of the alarm.

The operation is as follows: Whenever the current passes, which is affected by a small contact maker called a push (not shown) the armature is attracted carrying with it the hammer, which strikes the bell and causes it to sound. The moment this takes place, contact between the spring 10 and the circuit-closing device 8 is broken by means of the breaking device 19 engaging with the spring and disengaging it from the part 8, and the current being stopped the electromagnet ceases to act. The double action spring by virtue of its elasticity, supplemented initially by means of the contact spring 10 retracts the armature and allows contact spring to engage with the circuit closing device 8 whereby the current again passes, and so on as long as the circuit is kept closed.

The cover for the mechanism is not shown. A resilient connection 21 however is provided between the same and the base 1.

The device specifically described above is only one embodiment of my invention, and I do not limit myself to the specific details herein set forth, as other embodiments may be made and still fall within the spirit and scope of the appended claims.

What I claim is:

1. In an electric bell or alarm, a support, an electromagnet located upon said support, an armature for said electromagnet pivoted to said support, said armature adapted to oscillate about said pivot, and a single resilient means connected with said armature for maintaining the same in equilibrium between its extreme oscillatory positions, said means adapted to dampen or cushion the movement of the armature in either direction from its position of equilibrium.

2. In an electric bell or alarm, a support, an electromagnet mounted upon said support, an armature for said electromagnet pivoted to said support, said armature adapted to oscillate about the pivot, a single resilient means connected with said armature for maintaining the same in equilibrium between its extreme oscillatory positions, and means for adjusting the position of equilibrium of said armature, said resilient means adapted to dampen or cushion the movement of the armature in either direction from its equilibrated position.

3. In an electric bell or alarm, a support, an electromagnet mounted on said support, an armature for said electromagnet pivoted to said support, said armature adapted to oscillate about its pivot, a resilient means fulcrumed upon said pivot and provided with arms normally parallel with the longitudinal axis of the armature, means located between the arms of said resilient means for limiting the movement of either arm in one direction, and a stud on the armature projecting upwardly between said arms whereby the armature is maintained by said resilient means in a position of equilibrium between its extreme oscillatory positions.

4. In an electric bell or alarm, a support, an electromagnet mounted on said support, an armature for said magnet pivotally located upon said support, said armature adapted to oscillate about its pivot in a plane substantially parallel to its support, a resilient means fulcrumed upon said pivot and provided with arms normally parallel with the longitudinal axis of the armature, a member located between the arms of said resilient means for limiting the movement of either arm in one direction, means on said armature protruding upwardly between the arms of said resilient means whereby the armature is maintained by said resilient means in a position of equilibrium between its extreme oscillatory positions, and means for adjusting the aforesaid member to vary the equilibrated position, said resilient means adapted to dampen or cushion the movement of the armature in either direction from its equilibrated position.

5. In an electric bell or alarm, a support, an electromagnet located upon said support, an armature for said electromagnet pivoted to said support, said armature adapted to oscillate about said pivot, a single resilient means connected with said armature for maintaining the same in equilibrium between its extreme oscillatory positions, a make and break device adjacent said armature comprising a resilient member adapted to be engaged by the armature when in one extreme position whereby the same is given a quick return impulse after the circuit is broken, said resilient means adapted to dampen or cushion the movement of the armature in either direction from and to return the same to its normal position of equilibrium.

6. In an electric bell or alarm, a pivoted armature, a projection substantially at one side of the plane of movement of said arma-

ture, means for retracting said armature comprising a double action spring fulcrumed upon the pivot of said armature and having arms engaging on opposite sides of the projection, a post on the armature on the side of the projection remote from the pivot of the armature said post also located between the arms of the double action spring, a breaking device mounted on and insulated from the armature, and a circuit connection adjacent to said breaking device one element of which is adapted to be engaged by the breaking device and removed from the other element just before the armature contacts with the cores of the electromagnet.

7. In an electric bell or alarm provided with a base, an electro-magnet, a pivoted armature for the electro-magnet, an adjustable projection substantially at one side of the plane of movement of said armature, means for retracting the armature comprising a double action spring fulcrumed upon the pivot of said armature having arms which engage said projection on the opposite sides of the latter, a post on the armature on the side of said projection remote from the pivot of the armature, said post also located between the arms of the double action spring, a breaking device mounted on and insulated from the armature, a circuit connection adjacent to said armature comprising a post projecting from the base and a resilient means in contact with said post adapted to be engaged by the breaking device and removed from the post just before the armature contacts with the cores of the electromagnet.

8. In an electric bell or alarm, a support, an armature pivoted to said support, a post on said armature, a projection substantially at one side of the plane of movement of said armature and located between the pivot and post of the armature when the latter is in its normal position, a spring fulcrumed on the pivot of the armature, the ends of which contact with the post and the projection on either side to maintain the said armature in normal position substantially in alinement with said projection.

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

ADAM LÜNGEN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."