Nov. 1, 1955 O. W. HENRIKSON 2,722,635

ELECTRIC BELLS

Filed June 2, 1951

FIG. 1

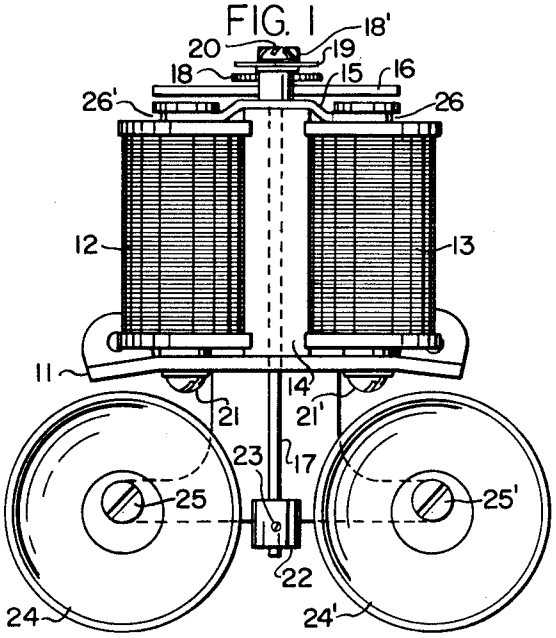


FIG. 1A

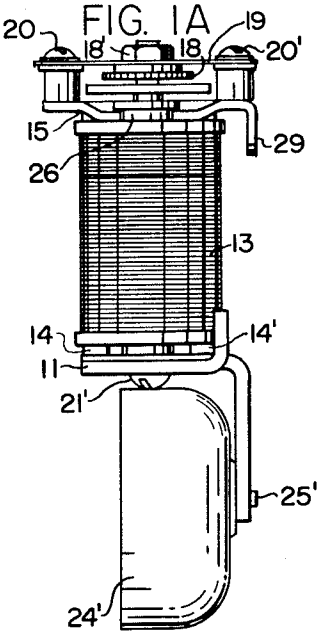


FIG. 2

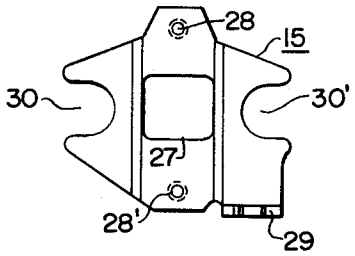


FIG. 2A

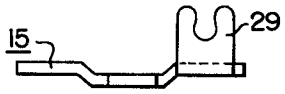


FIG. 3

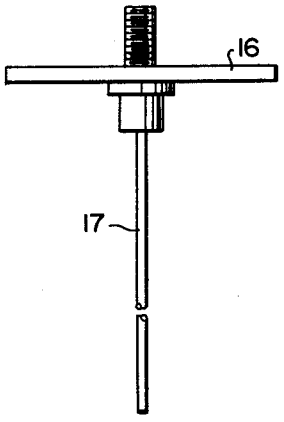


FIG. 4A

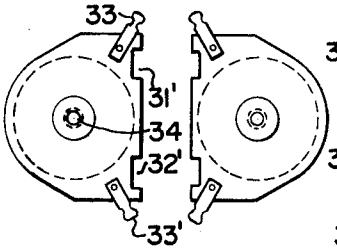
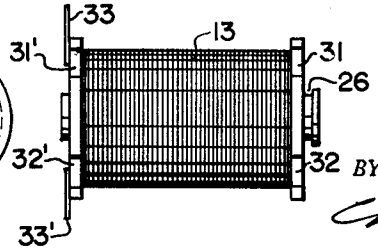


FIG. 4B

FIG. 4



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United States Patent Office 2,722,635 Patented Nov. 1, 1955

2,722,635

ELECTRIC BELLS

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Application June 2, 1951, Serial No. 229,623
3 Claims. (Cl. 317—171)

This invention relates to electric bells or ringers and more particularly to electromagnetic ringers for use on telephone lines.

It is an object of this invention to provide a more efficient and compact assembly of the bell parts.

It is another object of this invention to provide an improved arrangement whereby the bell can be more readily adjusted to respond to a specific frequency of alternating current.

A feature of the invention relates to the arrangement by which certain parts of the bell cooperate in locating and holding each other in place.

Another feature of the invention relates to an arrangement which permits the armature gap and the bell stroke to be changed by a single adjustment.

Other objects and features not specifically enumerated will be apparent after a consideration of the following description and the appended claims.

The invention will be understood more clearly from the following description based on the accompanying drawing, in which:

Fig. 1 is a plan view of a preferred embodiment of the invention.

Fig. 1A is an elevation of Fig. 1.

Fig. 2 is a plan view of the armature supporting detail.

Fig. 2A is an elevation of Fig. 2.

Fig. 3 is a plan view of the armature and clapper rod assembly.

Fig. 4 is a plan view of one of the bell coils.

Fig. 4A is an elevation of Fig. 4.

Fig. 4B is similar to Fig. 4A and shows the other coil of the bell.

Referring to the drawing, the bell comprises a formed bracket **11** on which the coils **12** and **13** are mounted and held in place by the screws **21** and **21'**. The permanent magnet **14** is mounted on the bracket **11** and is held in place by the slots **31** and **31'** in the coil **13** cooperating with similar slots in the coil **12**. Another similar unit **14'**, which may be another permanent magnet or a supporting member preferably of soft magnetic iron, is held in place on the bracket **11** by the slots **32** and **32'** in coil **13** cooperating with similar slots in coil **12**. The upper end of the permanent magnet **14** and the upper end of the support **14'** rest against the armature support **15**. The cut-outs **30** and **30'** fit into the slots **26'** and **26** of coils **12** and **13**, respectively. When the screws **21** and **21'** are tightened the permanent magnet **14** and the support **14'** are held in place by the armature support **15** and in turn, in cooperation with the slots **26** and **26'**, hold the armature support **15** in its proper position.

The reed **19** is similar to the reed shown in Fig. 5 of Patent 1,062,586 issued to Charles J. Erickson May 27, 1913. The armature and clapper rod assembly (Fig. 3) is attached to the reed and held in place by the round nut **18** and the hexagonal nut **18'**. This reed in conjunction with the armature and clapper provide for arranging the bell so that it will respond only to a specific frequency of alternating current. This feature is well known and is described in the forementioned Erickson patent. The clapper rod **17** is inserted through the cut-out **27** in armature support **15** and the reed **19** and the armature and clapper rod assembly are held in place by the screws **20** and **20'** for which the tapped holes **28** and **28'** are provided. The gap between the armature **16** and the cores of the coils **12** and **13** is controlled by turning the nuts **18** and **18'**. Increasing or decreasing the gap between the armature **16** and the cores of the coils **12** and **13** is accompanied by a corresponding change in the length of the clapper rod in relation to the reed **19**.

The gongs **24** and **24'** are mounted eccentrically on the bracket **11** so that by turning the gongs around the screws **25** and **25'** favorable contact between the gongs **24** and **24'** and the clapper **22** can be obtained. The clapper **22** is held in place on the clapper rod **17** by the screw **23**.

As the movement of the armature **16** in relation to the cores of the coils also causes a change in the length of the clapper rod **17** in relation to the reed **19** a relatively small movement of the armature will have a great effect on the electrical performance of the bell. The gongs **25** and **25'** are adjustable so that the position of the clapper **22** need not be changed if the length of the clapper rod **17** is changed.

While one particular embodiment has been described herein, it will be understood that various changes may be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. In an electric bell, a pair of electromagnets, a permanent magnet, a support for said electromagnets and said permanent magnet, a detail for mounting an armature, guides on said electromagnets for said detail, other guides on said electromagnets for said permanent magnet, means for assembling together in fixed relationship said permanent magnet, said electromagnets, said support and said detail, means for engaging said detail with said first mentioned guides, and means for engaging said permanent magnet with said detail and said other guides and said support whereby said first mentioned guides and said detail locate and secure said permanent magnet in position and said other guides and said permanent magnet locate and secure said detail in position.

2. In an electric bell, an armature mounting detail, a plurality of coils, a permanent magnet, means for assembling said parts together so that each part has a definite position in relation to the others of said parts, guides on said coils, means for engaging said armature mounting detail with said permanent magnet, means for engaging said armature mounting detail with some of said guides, means for engaging said permanent magnet with other of said guides, and means including said three last mentioned means for securing said armature mounting detail and said permanent magnet in position.

3. In an electric bell, a pair of coils, a permanent magnet, a mounting detail, a bracket, first slots on said coils for receiving said permanent magnet, other slots on said coils for receiving said mounting detail, means for assembling said coils and said permanent magnet on said bracket and for engaging portions of said permanent magnet with the first slots on each of said coils whereby lateral movement of said permanent magnet is prevented, and means for engaging said mounting detail with said other slots of said coils and for securing said mounting detail in contact with said permanent magnet whereby said bracket and said mounting detail prevent longitudinal movement of said permanent magnet.

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