

(No Model.)

F. W. MANGER & O. H. HUEBEL.
CONTACT POST FOR ELECTRIC BELLS.

No. 475,783.

Patented May 31, 1892.

FIG. 1.

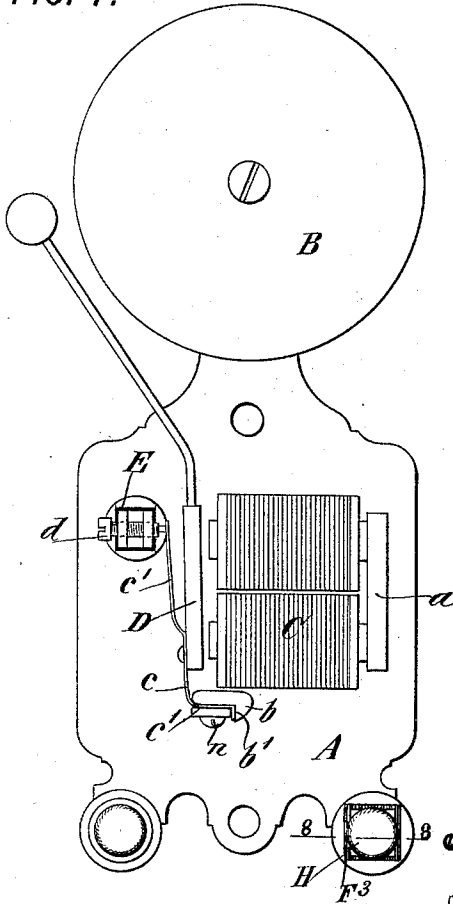


FIG. 2.

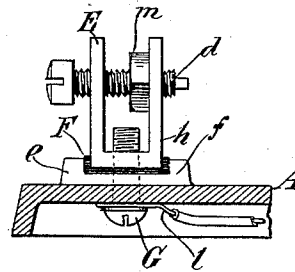


FIG. 3.

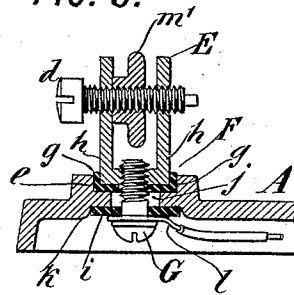


FIG. 8.

FIG. 4.

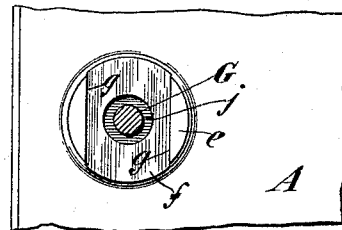
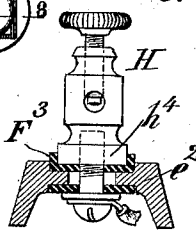


FIG. 5.

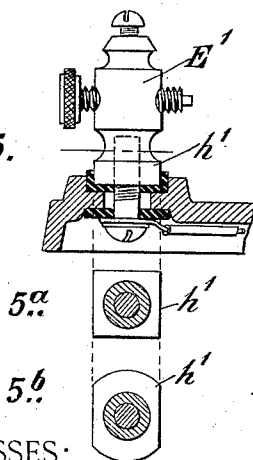


FIG. 6.

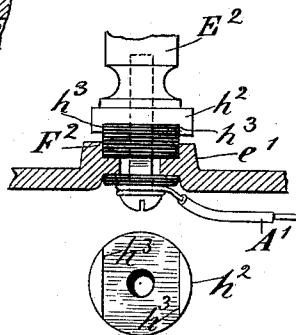
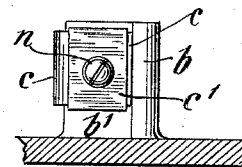


FIG. 7.



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CONTACT-POST FOR ELECTRIC BELLS.

SPECIFICATION forming part of Letters Patent No. 475,783, dated May 31, 1892.

Application filed February 29, 1892. Serial No. 423,214. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK W. MANGER and OTTO H. HUEBEL, citizens of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Contact - Posts for Electric Bells, &c., of which the following is a specification.

This invention provides an improved construction applicable to rheotomic electric bells and other instruments requiring contact-posts or screw-stops which shall be electrically insulated from the base of the instrument.

The object of the invention is to provide a construction for fastening a contact-post to a base while insulating it therefrom which shall guard against and prevent the turning or twisting of the post in the event that the fastening thereof is loosened in course of time by the shrinking of the intervening insulating-layers. Electric bells frequently become inoperative, because the insulating-bushings interposed between the post and base shrink or contract, thereby loosening the connection of the post to the base which is commonly made by a clamping-screw, so that the post being thus loosened will be liable, by reason of the vibration to which it is subjected, to turn to one side, so that it no longer presents the platinized end of the screw to the action of the contact-spring.

The invention also involves certain other improvements in the details of construction and mounting of screw-posts and armatures for electric bells and other instruments.

Figure 1 of the accompanying drawings is a front elevation of our improved electric bell. Fig. 2 is a fragmentary transverse section thereof, showing the post in elevation. Fig. 3 is a similar transverse section taken through the post. Fig. 4 is a fragmentary elevation of the base-plate with the post removed. Figs. 5 and 6 are fragmentary sections showing modified constructions. Fig. 7 is an under side view of the post *b*. Fig. 8 is an elevation of one of the binding-posts.

Let A designate the base-plate, which may be of cast-iron, as usual; B, the bell; C, the electro-magnet; D, the armature thereof, and E the contact-post.

The base-plate A is constructed with a raised projection or wall *a*, to which the screws of the magnet are fastened in the usual manner, and with a projecting post *b*, to which is fastened the end of a leaf-spring *c*, which is made fast to the lower end of the armature, thereby constituting a sort of pivotal connection between the armature and the post. A spring *c'*, conveniently constructed as an extension of the spring *c*, is carried by the armature, and its tip acts against the platinized end of the contact-screw *d*, held by the post E. So far as described the construction is substantially that commonly employed in making continuously-ringing or rheotomic bells.

The post E in the preferred construction is made of a strip of sheet or plate metal bent into U form, as best shown in Figs. 2 and 3. Its base is made square and sinks into a recess formed in a raised boss *e* on the base-plate A. This boss has a broad flat groove *f* planed out across it, as best shown in Fig. 4, this groove being slightly wider than the post, so that it will admit the latter with the added thickness of an intervening layer F of insulating material. The opposite side faces *g g* of the groove constitute angular shoulders, which embrace between them the turned-up side edges of the insulating-plate, while these turned-up edges in turn embrace the opposite flat sides *h h* of the bottom portion of the post. The post is turned down and held in place by a fastening-screw G, as usual. In order that this screw shall not make metallic contact with the base A, an insulating-washer *i* is interposed between the head of the screw and the back of the base, and the hole *j*, through which the shank of the screw passes, is made considerably larger than the screw, so as to avoid touching it. To keep the screw exactly in the center of this hole, the washer *i* is sunk into a recess *k*, formed in the rear side of the plate, into which recess the washer exactly fits, while the hole in the washer closely embraces the shank of the screw, so that the washer holds the screw concentrically within the opening and prevents its displacement into contact with the sides thereof, even in case the parts should become loose. Beneath the head of the screw is clamped, as usual, the end of a conducting-wire *l*, by which

connection is made between this wire and the contact-screw d through the medium of the fastening-screw G and post E .

When the bell is put together, the screw G , of course, is drawn as tight as possible, so as to closely compress the insulating-plates F and i . In course of time, however, by reason of the hot dry air in the room or otherwise, the insulating-layers gradually shrink and become thinner, whereby the connection of the post is loosened. Heretofore when the post has been merely clamped in place, relying upon the frictional engagement due to the tightening of the screw, this loosening of the post has resulted in its eventually working or twisting around rotatively until its contact-screw no longer presents its platinized tip to the spring c' , whereupon the bell usually becomes inoperative. Our improved construction effectually cures this defect, since, although the fastening-post may become loose, the post cannot turn, because it is made with a square base having angular shoulders h embraced through the medium of the insulation between the angular faces or shoulders g of the groove in the boss.

Heretofore it has been necessary to place a tubular insulating sheath or ring around the shank of the screw in the hole j to prevent contact between the screw and the base. We avoid this trouble by providing the base with a recess k , which receives a washer i and enables the latter to hold the screw G concentrically within the hole j .

The U-shaped post E (shown in Figs. 2 and 3) is a simple, cheap, and convenient construction, and enables a set-nut to be applied to the screw d between the limbs of the post. An angular set-nut m is shown in Fig. 2, screwed against one limb, while a milled set-nut m' is shown in Fig. 3, screwed against the other limb. By thus arranging the set-nut within the bifurcation of the post less room is taken, so that the screw d may be made shorter than would otherwise be necessary.

Fig. 5 shows a modification wherein the screw-post (here lettered E') is made as a solid casting of brass turned up, its base h' being either made square, as shown in plan at 5^a , or being made round and milled off straight on both sides, as shown in plan at 5^b . In other respects the construction is the same as that already described.

Fig. 6 shows a further modification. In this construction the post (here lettered E^2) is made with its base h^2 milled out with a channel similar to the groove f in Fig. 4. The sides h^3 of this channel form angular shoulders, which embrace between them the insulating-block F^2 , while the lower portion of the insulating-block is embraced by the opposite shoulders of the channel in the boss e' on the plate A' , in the manner first described.

Our improved construction of mounting of contact-post is not limited in its application to electric bells, as it may be used wherever a contact-post is mounted on but insulated

from a base-plate. For example, it may be applied to telegraph-relays.

Our invention is also applicable to other posts than merely contact-posts. It may, for example, be applied to binding-posts for attaching wires. Fig. 8 shows its application to the insulated binding-post H in Fig. 1, which is of ordinary construction, except that the base flange or foot h^4 thereof is squared or flattened at its sides, as at h' in Fig. 5, and is drawn into a channel in a boss e^2 with an intervening insulation F^3 , having its edges turned up between the sides of the channel and the squared sides of the foot of the post, as shown.

Our invention also provides an improved means of attaching the leaf-spring c to the post b . This post is made with an angular recess b' , into which is fastened a clamping-plate c' , drawn to place by a screw n . A spring c is formed with a double bend, and is laid into the recess b' and drawn tightly into this recess by the application of the clamping-plate c' . A very strong and secure fastening is thus provided, since the elasticity of the spring exerts a sufficient thrust against the clamping-plate to effectually lock the screw and prevent its unscrewing.

We claim as our invention the following-defined novel features, substantially as hereinbefore specified, namely:

1. The combination, with a base-plate and conducting-post, of an intervening insulation and means for preventing the post from turning, consisting of angular shoulders on the base-plate and post engaging the intervening insulation.

2. The combination, with a base-plate and conducting-post, of an intervening insulation and means for preventing the post from turning, consisting of opposite shoulders on the base engaging the sides of the insulation and opposite shoulders on the post engaged by the sides of the insulation.

3. The combination, with a base-plate, of a raised boss formed with an angular groove or channel, a conducting-post formed at its bottom with angular shoulders, and an intervening insulation having angular sides engaged by said channel in the boss and said shoulders on the post, respectively, in order to prevent the post from turning.

4. The combination, with a base-plate having a raised boss formed with an angular channel, of a conducting-post having a square base entering said channel and an intervening insulation having angularly upturned edges embraced by the sides of the channel and embracing the base of the post.

5. The combination, with a base-plate, of a bifurcated contact-post fastened to said plate and a contact-screw screwing through the two limbs of the post.

6. The combination, with a base-plate, of a bifurcated contact-post fastened to said plate, a contact-screw screwing through the two limbs of the post, and a set-nut engaging

the screw and arranged in the bifurcation of the post.

7. In an electric bell, a vibrating armature, a leaf-spring *c*, on which it is mounted, a base-plate having a post *b*, formed with an angular recess *b'*, and a fastening-plate *c'*, entering said recess and clamping said spring into the angular space between.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

FREDERICK W. MANGER.
OTTO H. HUEBEL.

Witnesses:

GEORGE H. FRASER,
CHARLES K. FRASER.