Feb. 10, 1931. H. M. FINN 1,791,666

LEAD-IN DEVICE

Filed March 8, 1929

Fig. 1

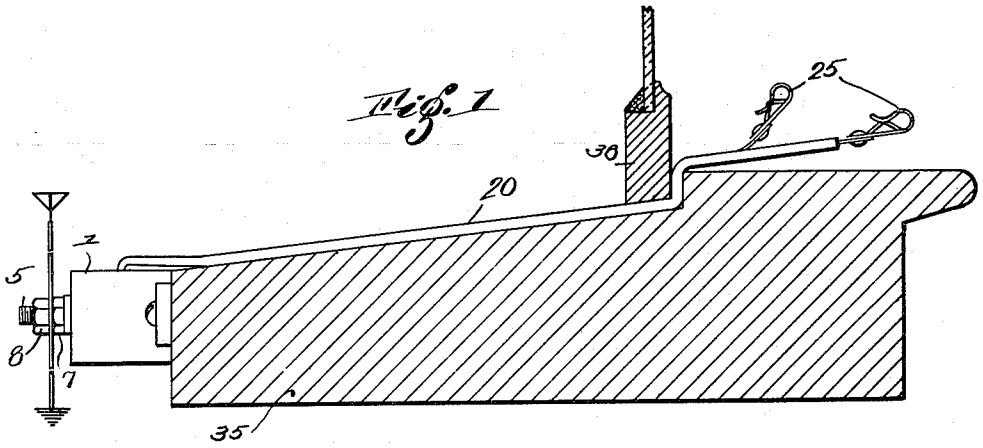


Fig. 2

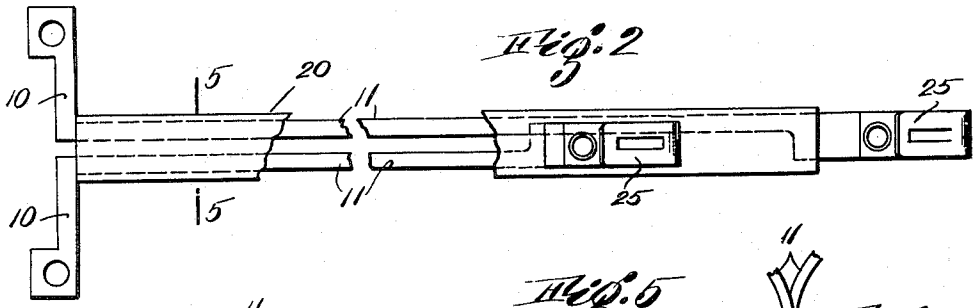


Fig. 3

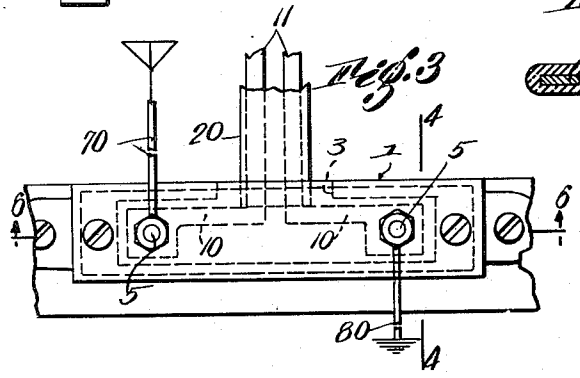


Fig. 5

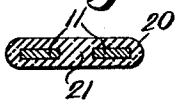


Fig. 4

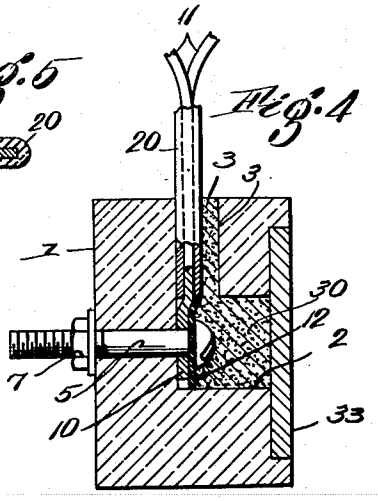
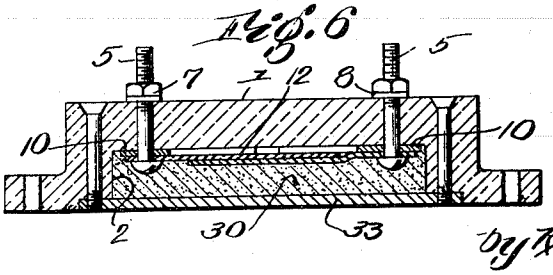


Fig. 6



Inventor
Henry M. Finn,
By Roberts Cushman & Woodbury
his Attorneys.

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UNITED STATES PATENT OFFICE

HENRY M. FINN, OF HYANNIS, MASSACHUSETTS

LEAD-IN DEVICE

Application filed March 8, 1929. Serial No. 345,501.

This invention relates to a lead-in for ground and antenna connections for a radio set or the like, which is preferably combined in a unit with a lightning arrester.

Heretofore it has been common to provide flexible lead-in strips adapted to pass under an ordinary window for connection to ground and antenna wires and to dispose a lightning arrester between the exterior portions of such connections. The present invention affords a single unitary article which is more convenient to install and which takes the place of the separate ground and lead-in connections previously provided. It avoids the necessity of the user arranging a multiplicity of electrical connections outside of the building and only necessitates the connection of ground and lead-in wires and of the wires running to the set. Not only does this device facilitate the connection of the lead-in wires to the radio set but it also affords a neater appearance and reduces the liability of loose connections which are likely to interfere with satisfactory reception. To this end the present invention affords a block of insulating material in which metal strips are attached with portions in juxtaposition to comprise a lightning arrester, the spaced ends of these strips being connected to bolts or the like which extend from the insulating block for ready attachment to the ground and antenna wires respectively. The adjoining portions of the strips may be connected to or made integral with flexible metal elements that extend from the block in a sheath of insulating material for connection to wires within a building. Preferably these flexible metal elements are closely spaced and are enclosed in a single sheath of flexible insulating material having quick attachable clips for connection with wires upon their inner ends so that it is only necessary to pass a single flexible element of this character beneath a window for connection to the interior wires.

In the accompanying drawings:

Fig. 1 is a sectional view of a portion of a window and a window sill with my improved device applied thereto;

Fig. 2 is a top plan view of a portion of the device;

Fig. 3 is a plan view of the portion of the device that comprises the lightning arrester with related parts;

Fig. 4 is an enlarged section on line 4—4 of Fig. 3;

Fig. 5 is a section on line 5—5 of Fig. 2; and

Fig. 6 is a section on line 6—6 of Fig. 3.

As shown in the accompanying drawings, my improved lightning arrester and lead-in for ground and antenna wires may comprise a block 1 of insulating material such, for example, as porcelain, this block being provided with a cavity 2 and with a slot 3 extending through one wall of the cavity to the exterior portion of the block. Connections 5 extend from opposite ends of the cavity through a wall of the same to the exterior of the insulating block, these connections preferably comprising bolts which receive nuts 7 and 8 for ready engagement with the antenna and ground wires 70 and 80 respectively.

Metal strips 10 are located within chamber 2 having their ends held in place by the bolts 5. The strips extend toward each other so that there is a gap of moderate size between them adjoining the mouth of passage 3. These portions of the strips are preferably joined to metal elements 11 that extend outwardly through slot 3. If desired mica strips 12 may be disposed above the metal elements 10 within the cavity.

As shown the exterior connections 11 preferably are flexible metal ribbons which may be integral with the strips 10, being imbedded in a common sheath 20 of flexible insulating material which, for example, may be formed of molded rubber. Fig. 5 shows a cross section of this sheath with the metal strips 11 imbedded therein and with an insulating portion 21 disposed between the flexible metal strips. The ends of the strips which are remote from the poreclain block are exposed and secured to quick attachable clips 25 for ready connection with interior wires extending to the radio set. In order to ensure the proper spacing of the ends of these wires from each other one of the metal strips extends from an intermediate portion of the sheath 20,

while the other strip may project from the end of the same. Preferably, as shown, the width of the exposed ends of the strips may be greater than that of their body portions which are imbedded within the insulating sheath in order to facilitate their connections with the clips 25.

The slot 3 and the cavity 2 are preferably filled with a plastic insulating and protective material 30 such, for example, as wax, the mica elements 12 preventing this material from passing into the gap between strips 10. A cover plate 33 or the like may be detachably disposed over the cavity 2 as shown.

In the use of a device of this character it is evident that the block 1 may ordinarily be secured to the outer face of the window sill as shown in Fig. 1 with the bolts 5 projecting horizontally therefrom for convenient connection to the ground and antenna wires 80 and 70 respectively. The sheath 20 extends from the mouth of slot 3 at the top of the insulating block and rests upon the surface of the window sill, its flexibility permitting it to pass beneath the window sash 36 with the clips 25 disposed upon the inside of the window in spaced relationship to each other ready for the instantaneous attachment to wires passing to the radio set.

It is evident that the elements 10 have ends closely spaced with an air gap therebetween and have connections to the antenna and ground respectively so that they form a lightning arrester, since a charge of lightning received through the antenna connection will jump the intervening air gap and pass in a straight line to the adjoining metal strip 10 and thence to the ground wire without injury to the radio set.

It is evident that this device may be more conveniently installed than the lead-in connections and lightning arresters heretofore afforded since it merely requires attachment to two external and two internal leads and since it merely entails the passing of a single element from the exterior to the interior of the building, and furthermore that, when installed, it has a neater, more unobstrusive appearance than the arrangements heretofore used.

I claim:

1. As an article of manufacture a unitary lightning arrester, ground and antenna lead-in, comprising a block of insulating material having a cavity, a pair of metal strips extending into the cavity in spaced relation to each other, means for connecting the strips to a ground wire and antenna respectively, portions of said strips exterior of the insulating block being flexible and sheathed in insulating material, and means for connecting leads to their ends remote from the block.

2. As an article of manufacture a unitary lightning arrester, ground and antenna lead-in, comprising a block of insulating material having a cavity, a pair of metal strips extending into the cavity in spaced relation to each other, a pair of aligned metal portions within the cavity connected to the respective strips and having ends spaced from each other, elements extending from these respective portions through a wall of the cavity for connection to a ground wire and an antenna, a single insulating sheath containing portions of said strips exterior of the block, said strip portions being insulated from each other and their ends remote from the block being exposed for connection to leads to a radio set or the like.

3. As an article of manufacture a unitary lightning arrester, ground and antenna lead-in comprising a block of insulating material having a cavity, connections for ground and antenna respectively extending into opposite ends of the cavity, metal strips extending toward each other from these connections, adjoining portions of the strips being closely spaced in the cavity and flexible metal connections extending from these portions of the strips and flexible means insulating these strips.

4. As an article of manufacture a unitary lightning arrester, ground and antenna lead-in comprising a block of insulating material having a cavity, connections for ground and antenna respectively extending into opposite ends of the cavity, L-shaped metal strips having portions extending away from each other within the cavity and joined to said connections and portions of said strips extending out of the cavity in closely spaced parallelism, the portions within the cavity being aligned and separated by a gap to form a lightning arrester, the outwardly extending connections being flexible and a single flexible sheath enclosing the same.

5. As an article of manufacture a unitary lightning arrester, ground and antenna lead-in comprising a block of insulating material having a cavity, connections for ground and antenna respectively extending into opposite ends of the cavity, a slot extending through a wall of the cavity to the exterior of the block, L-shaped metal strips having portions extending away from each other within the cavity and jointed to said ground and antenna connections and portions of the strips extending out of the cavity through the slot in closely spaced parallelism, the portions within the cavity being aligned and separated by a gap to form a lightning arrester, the outwardly extending portions being flexible, and a single flexible sheath enclosing the same, filling material packed into the cavity and an insulating strip covering the gap to prevent said material from occupying the gap.

6. As an article of manufacture a unitary lightning arrester, ground and antenna lead-in comprising a block of insulating material having a cavity, connections for ground and antenna respectively extending into opposite

ends of the cavity, metal strips extending toward each other from these connections, adjoining portions of the strips being closely spaced in the cavity and flexible metal connections extending from these portions of the strips and a single insulating sheath enclosing these flexible connections and insulating them from each other, one of said connections projecting from the end of the sheath, the other projecting from an intermediate portion thereof for attachment to an interior lead.

7. As an article of manufacture a unitary lightning arrester, ground and antenna lead-in comprising a block of insulating material having a cavity, connections for ground and antenna respectively extending into opposite ends of the cavity, L-shaped metal strips having portions extending away from each other within the cavity and joined to the connections at the ends thereof and portions extending out of the same in closely spaced parallelism, the portions within the cavity being aligned and separated by a gap to form a lightning arrester, the outwardly extending portions comprising a pair of flat metal ribbons with body portions disposed in a common plane, a flat sheath enclosing and insulating the same from each other, end portions of the ribbons projecting from the sheath in spaced relation to each other, and spring clips secured to said end portions.

Signed by me at Hyannis, Mass., this 6th day of March, 1929.

HENRY M. FINN.