United States Patent

Tissot

[15] 3,649,742

[45] Mar. 14, 1972

[54] COMBINED POWER AND ANTENNA CORD FOR TELEVISION SETS

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[22] Filed: **Sept. 23, 1970**

[21] Appl. No.: **74,734**

[52] **U.S. Cl.** .....**174/70 R,** 174/66, 174/74 R, 174/115, 333/24 C, 335/219, 339/12 R, 339/63 R, 339/147 R, 343/850, 343/905

[51] **Int. Cl.**.....**H01q 1/50,** H04b 1/00, H01r 11/30

[58] **Field of Search**.....174/53, 55, 56, 70 R, 74 R, 174/115; 325/308, 356; 333/24 C; 335/219; 336/DIG. 2; 339/12 R, 12 G, 28, 59 R, 62, 63 R, 102 R, 122 R, 123, 147 R, 147 P, 195 R; 343/850, 905, 906

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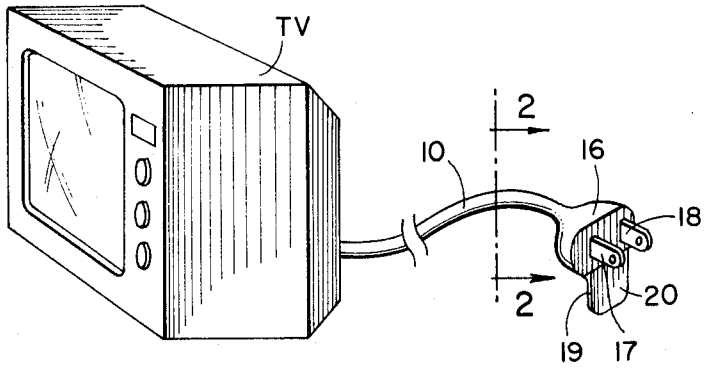
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[57] **ABSTRACT**

A power cord for a television set encompasses the antenna cable in a single, molded unit. An exterior antenna cable terminates in a capacitive coupling unit adjacent to the electrical power wall outlet in the building such that when the power cord is plugged in, the television antenna lead is automatically capacitively coupled to the exterior antenna television cable. Permanent magnet means in the outlet aid in holding the capacitive coupling in place.

8 Claims, 18 Drawing Figures



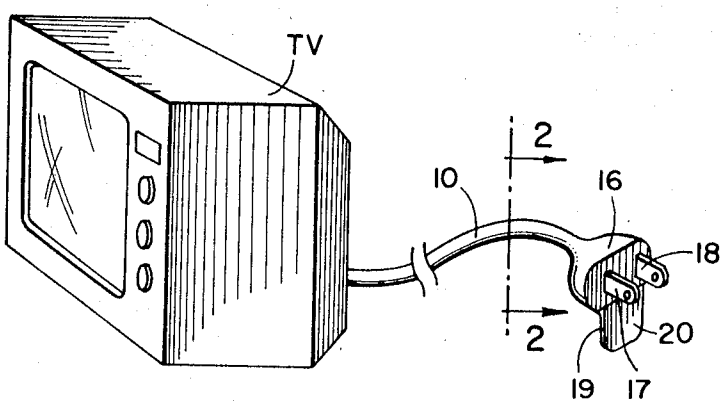


FIG. 1

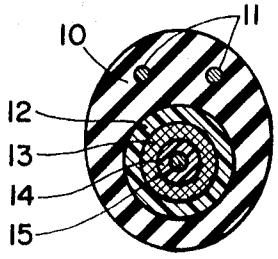


FIG. 2

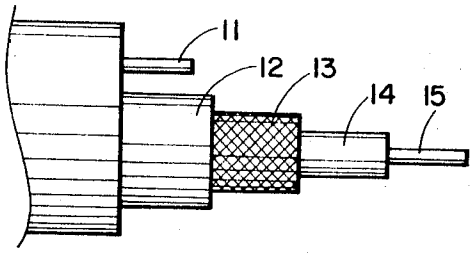


FIG. 3

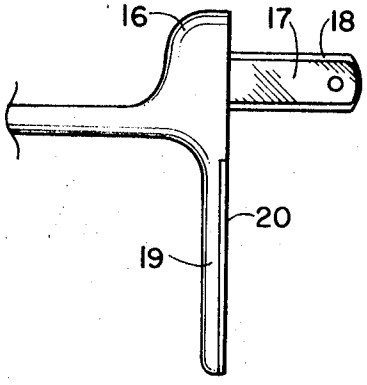


FIG. 4

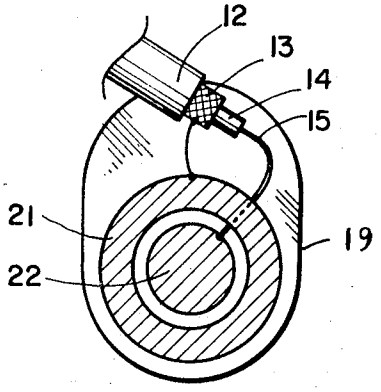


FIG. 5

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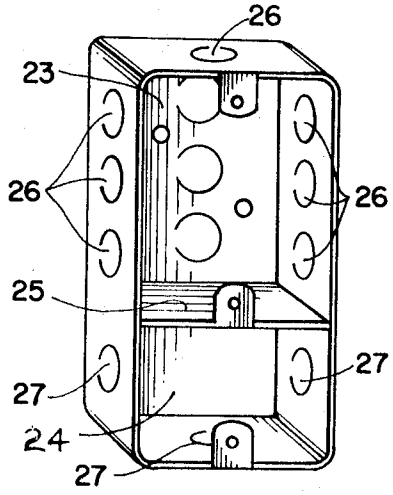


FIG. 6

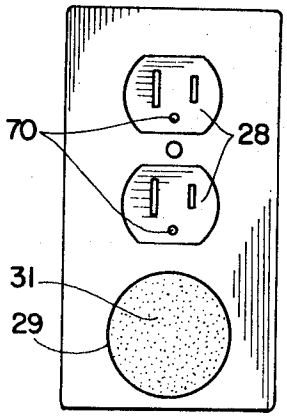


FIG. 7

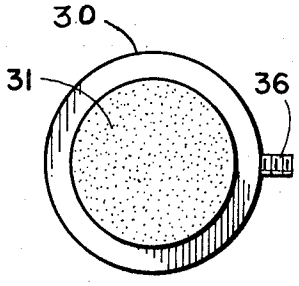


FIG. 8

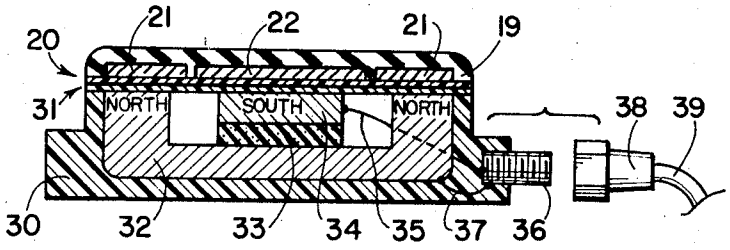


FIG. 9

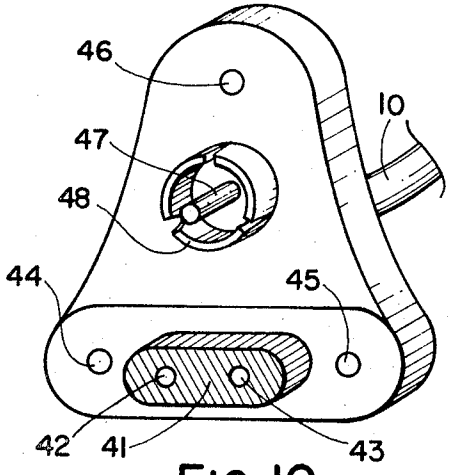


FIG. 10

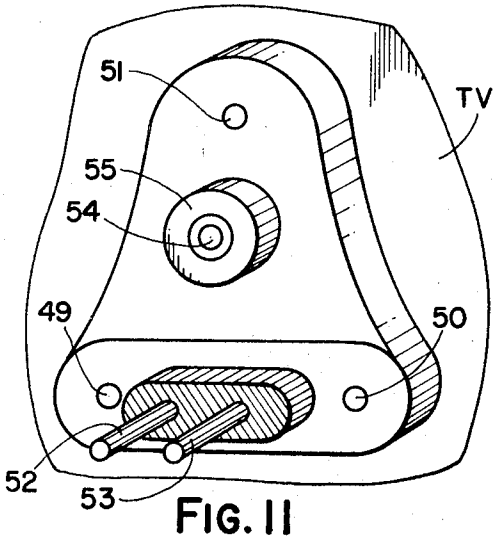


FIG. 11

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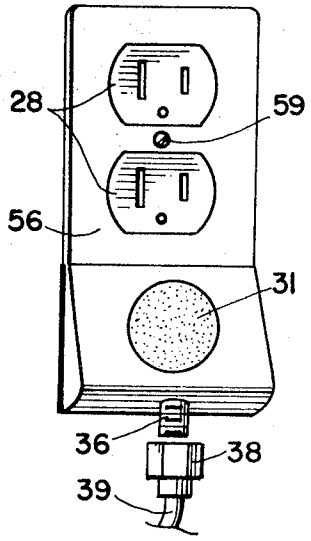


FIG. 12

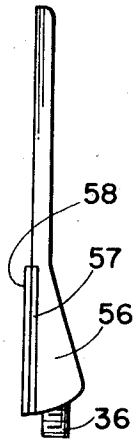


FIG. 13

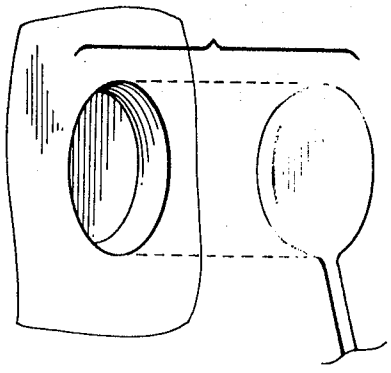


FIG. 14

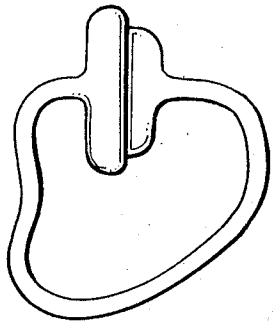


FIG. 15

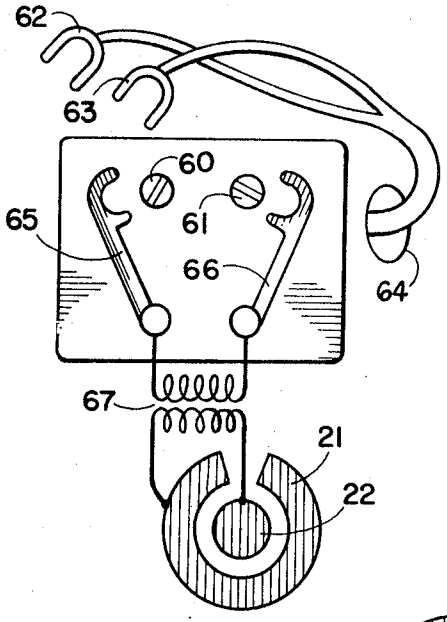


FIG. 16

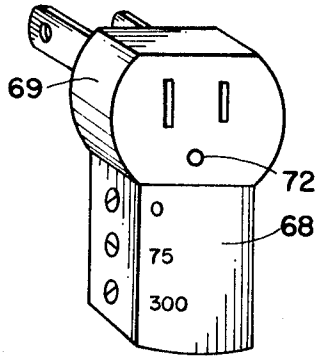


FIG. 17

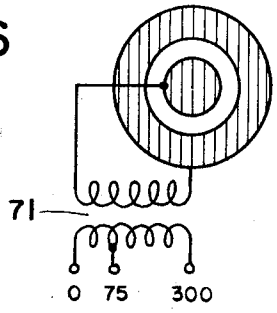


FIG. 18

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COMBINED POWER AND ANTENNA CORD FOR TELEVISION SETS

BACKGROUND OF THE INVENTION

The use of antenna leads on television receivers is cumbersome and a great source of difficulties, particularly when sets have to be moved from room to room. Who has not, at one time or another, fumbled with the primitive "two-screw/twin-lead" arrangement on the back of a television receiver with frazzled-out, stiff and brittle steel wire ends ? Coaxial screw connectors are an improvement but bring new problems with the need for a dangling accessory on the back of the television receiver. On the fragile antenna terminal screws hangs suspended the fairly heavy combination of a transformer with the attached coaxial cable, resulting in frequently ripped-out coaxial screw connectors. Attaching coaxial connectors requires know-how, it requires the right size connector and, further, the right-sized crimp-ring matching the particular cable size used. Finally, one needs a special crimping tool. All of this procedure is essentially impossible for the layman.

A vast field of plugs and connectors all have one common ailment: one hefty yank on the antenna cord results in a severed connection, needing professional repairs. Frequently a television benchman is faced with the arduous task of finding and removing a hairlike bit of steel strand that fell off a "birds-nest-style" antenna connection down into the chassis wiring, creating havoc.

BRIEF DESCRIPTION OF THE PRESENT INVENTION

My invention does away with all this by doing away with a conventional antenna cord even though an outside- (or master-) antenna is used. Sets are simply plugged into the nearest electrical wall outlet not necessitating any further thought since this act accomplishes all that is needed. Proposed is the use of a fairly lightweight, 8 foot long, flexible, rugged, seamless, plastic cord with a molded-on, indestructible, polarized male powerplug; in essence, a combination coaxial antenna cable and power cord. Power companies and underwriters should welcome this design, even though added code regulations might have to be sought, permitting my cord.

With the foregoing arrangement, television receivers can easily be moved from room to room by otherwise incompetent help resulting in a tremendous boon in the hotel-motel field. Anyone, having enough wits to plug in a lamp, can be sent to correctly install a television-receiver equipped with my cord. A less obvious but great advantage of my invention is the fact that a strong tug either cord or plug will merely dislodge the plug from the wall outlet with no harm done. Both light and sound on the television receiver will go out. Thus, a "yanked" cord will teach the user to plug it in again, thereby restoring perfect reception. On the other hand, with one lead-in-wire broken off one antenna terminal (or even with both gone) people have been known to suffer with "snow" and intermittent color for months, never suspecting simple lead-in-wire troubles and shying away from the expense involved in calling a television serviceman.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the invention as well as various further features and modifications thereof will be had by now referring to the accompanying drawings in which:

FIG. **1** is a perspective view of a television set using my new power cord in accord with the invention;

FIG. **2** is a cross section of the power cord taken in the direction of the arrows **2—2** of FIG. **1**;

FIG. **3** is a stripped away elevational view of the various components making up the power cord of FIG. **1**;

FIG. **4** is a side elevational view of the plugged body portion of the power cord;

FIG. **5** is an "X-ray" front view of the plugged body of FIG. **4**;

FIG. **6** is a perspective view of a modified electrical outlet box;

FIG. **7** is a front elevational view of a cover plate for the box of FIG. **6**;

FIG. **8** is a front view of part of the internal mechanism incorporated in the control box;

FIG. **9** is a view partly in cross section of the component of FIG. **8** in mating relationship with a portion of the plug of FIG. **4**;

FIG. **10** is a perspective view of a terminal unit affixed to the inside cover of the TV set for the cord **10** of FIG. **1**;

FIG. **11** shows a corresponding mating unit incorporated in the TV for cooperation with the unit of FIG. **10**;

FIG. **12** is a front partial perspective view of a modified unit for use with a conventional electrical outlet;

FIG. **13** is a side elevational view of the structure of FIG. **12**;

FIG. **14** is a perspective view of a connector without power-lines in accord with the invention;

FIG. **15** is a side elevational view of an extension cord for an antenna lead-in in accord with the invention;

FIG. **16** illustrates certain terminal board portions of a TV set;

FIG. **17** illustrates a modified plug usable with conventional TV sets; and,

FIG. **18** illustrates certain internal connections in the unit of FIG. **17**.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIGS. **1** to **3**, there is shown a TV set with an oval cable **10** comprised of a molded vinyl jacket with two imbedded, stranded copper conductors **11**. Below is a thin plastic sleeve **12** which surrounds a shielding copper braid **13** as shown in FIG. **2**. Inside braid **13** is lightweight, plastic foam **14** and finally in the center of foam **14** is a thin copper conductor **15**, also stranded. FIG. **3** clarifies the makeup of this cable in a cutaway view and an 8-foot section is fastened in manufacturing onto the back cover of the TV set. This later phase will be presently covered.

The end of the cable **10** as shown in FIG. **1** terminates basically in a standard male powerplug body **16** with molded-in, nonreversible power blades **17** and **18** firmly imbedded in the vinyl body. Blade **18** of course is wider than blade **17**. Also molded onto body **16** is a seemingly useless, down-hanging thin flap **19**, also made out of vinyl.

The side view FIG. **4** shows that the flap **19** also possesses a thin layer **20** which will face the wall having an electrical outlet. Flap **19** has a certain "give" or flexibility. The purpose of layer **20** shall be explained presently. It shall be noted, however, that it is an insulating material. **16**, **19**, and **20** all form one molded unit and molded together with the cord of FIG. **1**. Power wires **11** are of course anchored onto power blades **17** and **18** inside plastic body **16**.

Referring now to FIG. **5**, this drawing can be considered an "X-ray view" of flap **19**. Revealed are two soft iron sheet metal stampings imbedded in the plastic, one, a large washer **21** which has been fastened electrically and mechanically onto braid **13**, preferably by soldering. Concentrically arranged to **21** is disc **22** onto which core **15** has been soldered. But neither side of flap **19** has any visible contacts, a very important feature of my invention. Discernible in FIG. **5** is also sleeve **12** leading away into the power cord.

FIG. **6** shows a basically standard electrical wall outlet box made out of steel, commonly referred to as "plaster-box" but designed here with two compartments. The large section **23** is the equivalent to a "two-outlet" "plaster-box" for standard electrical use, several being found in almost any room of almost any home. Small section **24** adjacent below and separated by a solid steel wall **25** has been provided for coaxial cable termination, totally independent from the electrical section **23**. Shown at **26** are the familiar, partially stamped-out openings. Significantly the customary bottom one in steel wall **25** is now missing. Section **24** carries three such cutouts shown at **27** thru one of which the installer brings in the coaxial antenna cable arriving from the antenna amplifier in the building. This phase will be covered in more detail presently.

In FIG. 7 we see an ivory colored plastic cover plate to deck the "plaster-box" shown in FIG. 6. There are two of the familiar, semiround openings 28 accepting traditional plastic, electrical inserts such as: outlets, switches, pushbuttons, signal lamps and others. The larger round bottom opening 29 has been provided to accommodate the part according to FIG. 8, showing a soft green thru said opening 29.

FIG. 8 shows a circular, shallow, plastic body 30 with a front protrusion, the latter decked with a thin outermost layer 31. Layer 31 is the actual active, circular front area, shouldering neatly into opening 29 to produce a flush fit with the cover plate shown in FIG. 7. The eye perceives then a soft green area in lieu of an insert at opening 29 without any holes, slots or contacts. Layer 31 is identical in nature to layer 20 and it will be explained in more detail presently. 36 is a molded-in coaxial male screw connector, a standard part in the coaxial cabling industry.

FIG. 9 shows an enlarged internal side view of the body 30 shown first in FIG. 8, whereby 32 represents a shallow but powerful pot magnet, similar to those used in the loudspeaker industry. But here the customary, cylindrical center pole piece breaks down into two different sections, 33 and 34. The rim of the pot magnet 32 is a magnetic north pole, the two centerpieces 33 and 34 together form the opposing magnetic south pole. 34 is made out of the same magnet-steel as 32. Section 33, shown dotted in FIG. 9, is also a permanent magnet, but it does not conduct electricity. Magnets with this feature are well known in the art under such names as "flexible magnetic strip" etc. A short piece of insulated copper wire 35 has been soldered onto magnet 34, which of course conducts electricity, and the other end of wire 35 is soldered onto the center terminal of the plastic imbedded, male coaxial connector 36. The outer threads of connector 36 have a soldered-on short piece of insulated copper wire 37. The other end of wire 37 has been soldered onto pot magnet 32 which of course also conducts electricity. Female screw connector 38 with its attached coaxial cable 39 establishes the connection to the antenna amplifier in the building. Body 30, shown in both FIGS. 8 and 9, can be rotated into one of three positions so as to make connector 36 face the most desirable one of the three cutouts 27 once body 30 sits inside compartment 24 of the "plaster-box" shown in FIG. 6. In FIG. 4 with 20, in FIG. 8 with 31 and in FIG. 9 again with both 31 and 20 are shown thin layers of a soft green colored, filmlike material with high dielectric properties but being an electrical insulator. Thin films with high dielectricity are well known in the art of making ceramic capacitors. Film 31 has been bonded onto the front protrusion of 30 and also onto pot magnet rim 32 and south pole 34 whereas film 20 has been bonded onto soft iron stampings 21 and 22 and of course also onto the encasing vinyl flap 19.

The powerplug described in FIGS. 1 to 4 is inserted now into the lower one of the two electrical outlets 28 in FIG. 7 which is only possible in such a way, that the down-hanging flap 19 mates with disc area 31 in FIG. 7. In practice this happens with a soft, but positive "tap" whereby any slight misalignment is automatically compensated for by the resiliency of flap 19. Referring again to FIG. 9, it can be seen, that the magnetic flux from the north pole 32 finds an easy path into washer 21, hence over the small plastic gap into disc 22 and back into the south pole formed by 34 and 33. The resulting magnetic pull keeps flap 19 snugly against the front protrusion of body 30. The two layers, 20 and 21, being only paper thick, pose little hindrance to the magnetic flux.

A very significant feature of my invention is the fact that I do not have to rely on any intimate (galvanic), metallic touch with all inherent problems such as loose, corroded, dirty, bent, damaged or even lacking (broken-off) contacts. The radiofrequency signal transfer takes place by capacitive action through the two intervening layers of plastic film: 31 and 20 in FIG. 9. In effect, the whole arrangement is nothing electrically but two small capacitors linking core with core and braid with braid from the coaxial cable 39 in the wall of the building over to the coaxial cable 12, 13, 14 and 15 in the power cord, as can be seen by studying the FIGS. 4, 5, and 9. A very significant feature of my invention is the fact that washer 21 and pot magnet 32 both together form a logical continuation of the shielding (static preventing) qualities of both braids of both coaxial cables, the one in the building and the one in the power cord. This can readily be appreciated by observing how "hot" 34 and 22 are nested within radio-electrically "grounded" metals. Of course there will be a slight loss in the signal transfer, easily born by the antenna amplifier in the building. As already mentioned above, as seen in FIG. 9, coaxial cable 39 terminates at screw connector 38 and is brought through one of the cutouts 27 to be screwed onto connector 36.

Insertion of the powerplug of FIG. 1 into the topmost of the two power outlets 28 in FIG. 7 is illogical, though utterly harmless: the only result is no television reception and obstructed bottom power outlet 28. Rather, the identically soft green colored plastics of both flap 19 and dot area 31 will guide the user to avail himself of the bottom outlet 28 for television use. Insertion of the plug with flap 19 sticking upwards of course is rendered impossible by the polarization feature of both plug and power outlets 28 in FIG. 7. Power companies retain their absolute priority in the intended use of their outlets. Any electricity consuming device can of course be inserted as always in either one of the two power outlets 28 in FIG. 7.

Analyzing the side view in FIG. 4 reveals that the power cord 10 is not placed in the same line as the power blades 17 and 18. This has been done in order to accomplish a clean mechanical separation, should the cord 10 be "yanked." In such a case the magnetically held-on flap 19 will get a share of the tug. Contemplating my design one might wonder where the customary coaxial matching transformer is to be found, a standard piece of equipment between the wall and television wherever coaxial cable is used. As will be explained later, the coaxial matching transformer will be relegated into the interior of the television receiver, in close proximity of the tuner. Doing away with such a vulnerable "outboard" item is very desirable.

FIG. 10 shows how the power cord shown in FIG. 1 is terminated at the inside of the back cover of the TV equipped with my power cord. Use has been made of the standardized "two-hole," female, plastic, "interlock" shown striped with 41. With 42 and 43 the recessed ferrules are denoted onto which power wires 11 are fastened as they arrive out of power cord 10. In my design the original body 41, shown striped, has been enlarged and is riveted onto the television back cover by the three rivets 44, 45, and 46, the enlarged body is shown not striped. It shall be noted here, that the accepted mounting fashion of "interlocks" is the two-point suspension with rivets at 44 and 45. In my design three rivets are used in triangular fashion, the third one being shown with 46. The body encompasses a molded-in, standard, coaxial, "pushon" male connector for low energy radiofrequency signal transfer with center male pin 47 and "spring-tensioned," surrounding steel jacket 48. Core 15 from power cord is soldered onto male pin 47 and braid 13 is soldered onto steel jacket 48.

FIG. 11 shows the matching counterpart to FIG. 10 as it is riveted onto the rear apron of a television receiver embodying my power cord. Here again the "old-fashioned" male interlock is shown striped. Three-point riveting at 49, 50, and 51 insures rigidity. Male pins 52 and 53 lead to the power section of the television receiver. Center female ferrule 54 is soldered to the core of a section of coaxial cable leading to the tuner of the television whereas the steel rim 55 of the female coaxial connector is soldered to the braid of the same section of coaxial cable leading to the tuner of the television receiver. Since self-explanatory and beyond the scope of this invention, the internal wiring of the TV has not been shown. It is obvious, that while accepting pins 52 and 53 into ferrules 42 and 43, simultaneously a "pushon" connection is established between the two coaxial connectors as pin 47 will enter ferrule 54 and jacket 48 will slip over steel rim 55.

Standard and basic safety requirements are met by the foregoing arrangement. A "do-it-yourselfer" disrupts power

going to the set in the process of removing the back cover of a television receiver equipped with my power cord. More, now with my design, the signal transfer also is uncoupled. Thus, my invention overcomes a present day difficulty. In order to service a television receiver antenna wires have to be unscrewed, matching coaxial transformers have to be removed (if used) and in addition, often so-called "VHF-UHF band-splitters" have to be removed until finally the back cover can be loosened. My power cord design avoids all this elegantly with a clean plug/unplug separation. "Splitter-networks" and matching transformers are built together with the tuner, a vast improvement from all aspects. At the present time, some high-class television receivers already incorporate internal matching transformers for coaxial cabling; this principle is known and of course no claims to novelty are made regarding this detail. Thus, plug **16** of FIG. **1** with the cable **10** and end unit of FIG. **10** together form one sleek, 8 foot long (legal length) subassembly, ready to be riveted onto the back cover of a television receiver during factory production.

While the outlet box according to FIG. **6** leads to a very neat subsurface installation, in existing buildings the required electrical work in most instances will rule out adaptation of said outlet box. Therefore, a modification of the part shown with FIG. **8** has been worked out, the scope being circumvention of the molestation of the electrical outlet box as such. Little or no code modification will have to be sought since now we have a surface-mounted feeder cable not entering the outlet box at all. The part shown with the FIGS. **12** and **13** is electrically the same as the one shown with the FIGS. **8** and **9** and there is very great mechanical similarity. The only actual difference being the fact, that the active, "signal-giving" part has been lifted out of the wall. Therefore, only a brief explanation shall follow.

Plastic outlet cover plate **56** is conventional with its two outlet holes **28** for power but thickens below into a desklike configuration embodying again part **30** shown in the FIGS. **8** and **9**. Discernible on the front is green dot area **31** and male connector **36**. New is the fact that the wall-facing area, which extends beyond the length of an ordinary cover plate, has been adhesive covered by **57** and the adhesive has been paper protected by **58** during manufacturing. This has been done as an assist to the existing and customary single, center mounting screw **59**. Adaptation is simple: screw **59** is loosened and the old cover plate is discarded. The new cover plate **56** is applied and checked for snug fit at the wall opposite **57** and **58**. Next paper **58** is peeled off and plate **56** secured with screw **59**. As with FIG. **9**, screw connector **36** accepts female connector **38** and the coaxial cable **39**, now obviously surface mounted, leads to the antenna amplifier in the building. Flap **19** for the plug shown in FIG. **1** easily bends away the few degrees needed to mate with dot area **31** as the plug is inserted into the lower one of the two receptacles **28**. Neither the electrical house wiring nor the "plaster-box" need to be touched other than switching cover plates. For the latter function a licensed electrician is not required.

If one removes the power wires **11** from the cable of FIGS. **1**, **2**, and **3** then one arrives at a configuration according to the FIG. **14**. Very significantly, here are no contacts at all, the plug assumes a podlike appearance. A flexible coaxial cable has been molded into the pod and of course terminates at the internal pole pieces, not specifically shown in FIG. **14** since self-explanatory with the foregoing text. The magnetic counterpieces, the pot magnet assembly is contained in the electronic apparatus indicated to the left which does not have to be a television receiver. The podlike "plug" neatly fits into a circular depression in a "self-aligning" fashion, even rotation is possible, i.e., the coaxial cable can lead away in any radial direction. If the touching surfaces are designed to withstand friction, one arrives at a coaxial magnetic coupler being held on magnetically onto the center of a piece of rotating machinery.

FIG. **15** shows the concept of an extension cord for coaxial cable use. Again there are no visible contacts so that it is a child- and foolproof linkup. The item has been shown "plugged into itself" in FIG. **15** to demonstrate the ease and simplicity of such connectors, very particularly for underwater (marine) use or in outer space where the absence of metals precludes corrosion problems or "sticking together" of metal controls, as can occur in vacuums. Of course one cable end carries the somewhat heavier pot magnet assembly whereas the other cable end carries the lighter soft iron pole pieces, all plastic imbedded. In FIG. **15** too, internal parts are not shown since the construction has already been explained.

Experimentation has shown that it is desirable to place the "heavy" pot magnet assembly into the wall or into whatever stationary machinery shall be chosen. The "light" parts, the iron stampings, are placed into the generally movable plug end of the cable. Thus in marine use, the magnet assembly would be in the hull or in outer space use, in the side of a spaceship. However, the reversed arrangement is feasible and the scope of my invention should not be circumvented by a change of the relative positions of magnets and pole pieces. Also different shaped magnets could be used, such as laterally open U-shaped magnet; however, the proposed, closed pot magnet assembly proved the best configuration.

The invention presented herewith adapts itself particularly well to new construction, where all power outlets in a building can be furnished and wired according to my system, and where they all are fed from a central antenna amplifier. Television receivers equipped with my power cord, will have to carry on their backs an antenna terminal board according to FIG. **16**. Since virtually all television receivers manufactured already carry such a terminal board (of a somewhat simpler nature), the added cost for my terminal board is negligible. With **60** and **61** the actual tuner input connections are denoted with standard 300 ohms twin lead termination. Onto these screws "pigtails" **62** and **63** can be connected, they come out of the back cover through opening **64** and are inside the television fastened to rod aerials, so-called "rabbit-ears"; or, a roof aerial being on hand, "pigtails" **62** and **63** are disconnected from terminals **60** and **61** and the roof aerial (in twin lead configuration) is connected onto **60** and **61**. All this is standard and accepted procedure and only mentioned here to illustrate my particular antenna terminal board wireup. In a building that has been wired up according to my proposals, the connecting links **65** and **66** are closed, i.e., connected onto respectively **60** and **61** and no wire is now attached onto **60** and **61** since my power cord takes over.

What happens now inside the television receiver is shown within FIG. **16**. Swiveling links **65** and **66** are leading to a matching transformer **67** whose secondary winding receives the antenna signal from washer **21** and disc **22** through the coaxial cable **12**, **13**, **14**, and **15**, the latter numbers being shown in detail in FIG. **3**.

Thus, the three possible modes of television reception have been described, namely:

a. indoor rod aerial reception,

b. roof aerial reception,

c. reception through my power cord.

Conversely, should an older television receiver be brought into a modern building that has been wired up according to my proposals, then an inexpensive adapter as per FIG. **17** comes into play. Developed out of the powerplug shown in FIG. **1**, here the cord as such has been omitted. The soft green colored lower plastic plug body **68** contains of course again body **30** shown in FIG. **9** and is held on magnetically onto dot area **31** shown in FIG. **7**, in the way that has been covered repeatedly.

New in this version is a molded-in matching transformer **71**, establishing the proper connections according to FIG. **18**. Either 300 ohm twin lead termination or 75 ohm coaxial cabling is selected by the user. Top part **69** is a "feed-thru" plastic power outlet, in this case solely needed for mechanical linkup, as can be readily understood. In this case, the bottom one of the two grounding ferrules **70** from the bottom outlet **28** in FIG. **7**, that was not mentioned before, is now available again past the "feed-thru" device **68**, it is denoted with **72**.

With the two above-described devices, namely the terminal board in FIG. **16** and adapter in FIG. **17**, full compatibility in the use of my power cord has been achieved.

The power cord described herewith clearly upgrades present day television installations by forcing the user to directly attach the set to a wall outlet thus preventing the use of a so-called "three-way plug." (Two "three-way plugs," connected in series and hot to the touch have been encountered in homes. If really a "three-way plug" has to be used due to a scarcity of available outlets, then the user will automatically operate lower-powered items (such as lamps) through such a "three-way plug," greatly alleviating the unsafe conditions.

But the greatest fire hazard in homes is undoubtedly the overloaded extension cord with an undersized copper cross section, the kind readily available on the open market. Heavy loads are often times operated through such a flimsy "lamp-cord." Such a cord, stapled to a wooden baseboard, presents an explosive situation. Now, the one high wattage item in nearly constant use in homes is the large color television but with my power cord no longer functional through an extension cord. By these considerations, power companies and underwriters should welcome my design and the general use should be made mandatory over a period of time.

What is claimed is:

1. A combined power and antenna cord for television sets comprising, in combination:

a. power leads for connection to one end of the TV set and terminating at their other ends in plug prongs;

b. a signal transmission line including two conductors for connection at one end of the TV set and connecting respectively to a central flat conducting disc and surrounding conducting washer; and

c. an insulating plastic material molded about said power leads and transmission line to define a single elongated integral cord, said plastic material defining a plug body for said plug prongs and a downwardly extending flexible flap within which are imbedded said disc and surrounding washer, whereby capacitive coupling of TV signals can be effected to said disc and washer.

2. The combination of claim **1**, in which said two conductors are defined by a coaxial cable.

3. The subject matter of claim **1**, further including, in combination, an electric wall outlet box for receiving said prongs; conductive magnetic means incorporated in said electrical wall outlet box having north and south poles for connection to a master television antenna and coaxially arranged and terminating in flat surfaces positioned and dimensioned to be substantially opposed to and congruent with said disc and surrounding washer in said flap when said prongs are received in said box so that capacitive coupling is retained by magnetic attraction of said disc and surrounding washer to said poles respectively.

4. The subject matter of claim **3**, in which said electrical outlet box includes a removable cover plate, said magnetic means being incorporated in said cover plate.

5. The subject matter of claim **3**, in which a portion of said cord extends away from said plug body and flexible flap at an intermediate point such that pulling on said cord will exert a substantially equal force on said prongs and flap to facilitate separation from said outlet box.

6. An integral elongated plastic material defining a flexible cord; and a signal transmission line including two conductors imbedded in said cord, said conductors at one end of the cord connecting respectively to a central flat metallic disc and surrounding flat metallic washer, the said one end of the cord completely imbedding said disc and washer whereby signals may be capacitively coupled from said transmission line through said one end of said cord without exposure of any metallic portions of said transmission line.

7. The subject matter of claim **6**, in which said two conductors are defined by a coaxial cable.

8. The subject matter of claim **7**, further including power leads imbedded in said plastic material whereby said flexible cord may be utilized to transmit both power and signal energy to a television set.

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