



(11) Publication number : **0 552 066 A1**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number : **93300305.5**

(51) Int. Cl.⁵ : **H01R 13/66**

(22) Date of filing : **18.01.93**

(30) Priority : **17.01.92 GB 9201007**

(43) Date of publication of application :
21.07.93 Bulletin 93/29

(84) Designated Contracting States :
AT BE CH DE DK ES FR GB IT LI NL SE

(71) Applicant : **Yang, Tai-Her**
5-1 Taipin Street
Si-Hu Town Dzan-Hwa (TW)

(72) Inventor : **Yang, Tai-Her**
5-1 Taipin Street
Si-Hu Town Dzan-Hwa (TW)

(74) Representative : **Arthur, Bryan Edward**
Withers & Rogers 4 Dyer's Buildings Holborn
London EC1N 2JT (GB)

(54) **Isolated mains socket and mains circuit arrangement.**

(57) An electrically isolated mains circuit arrangement comprises a 1:1 transformer having a primary winding connected across the incoming mains conductors and an ungrounded secondary winding (103) which is isolated from the primary winding and connected to one or more domestic mains sockets (105-1), (105-n). Since the secondary circuit is unearthed there is no danger of an electric shock and since the core (101) or alternatively, the casing of the transformer is earthed the circuit arrangement is also protected against lightning.

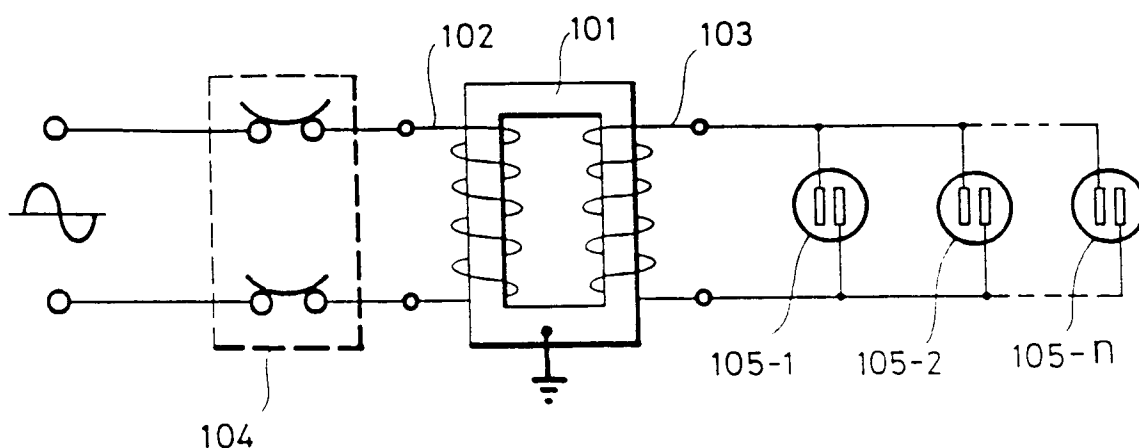


FIG. 1

The present invention relates to an electrically isolated mains socket and to a mains circuit arrangement having mains sockets connected to an electrically isolated secondary winding of a transformer.

In a conventional transmission and distribution system one of the conductors is normally grounded in order to provide protection against lightning. As a result, however, any user who touches a live mains conductor is liable to receive an electric shock.

Such a danger is particularly liable to arise in a bathroom.

The present invention provides an electrically isolated mains socket comprising a transformer having a primary winding arranged to be connected across the mains supply and an ungrounded secondary winding which is isolated from the primary winding and connected to the socket contacts, said socket contacts being located and dimensioned to receive a mains plug. Preferably the transformer has a grounded core and/or a grounded casing.

The invention also provides a mains circuit arrangement comprising a transformer having a primary winding connected across the incoming mains conductors and an ungrounded secondary winding which is isolated from the primary winding and connected to one or more domestic mains sockets. Preferably the transformer has a grounded core and/or a grounded casing.

A preferred embodiment of the invention is described below by way of example only with reference to Figure 1, which is a schematic diagram of a mains circuit arrangement in accordance with the invention.

The arrangement comprises a 1:1 transformer having an earthed core (101) and a primary winding (102) connected to the incoming mains supply via a safety cutout device (104) which may be a residual current circuit breaker for example. One of the conductors connected to primary winding (102) may be earthed (not shown). The secondary winding (103) is connected to a plurality of mains sockets (105-1, 105-2....., 105-n).

In an alternative embodiment, the transformer may be integral with a mains socket. The safety cut-out device (104) may also be either separate from or integral with the or each mains socket.

The or each transformer may have a metal casing (not shown) which may be earthed in addition to or as an alternative to earthing the core.

contacts being located and dimensioned to receive a mains plug, characterised in that the transformer has a grounded core and/or a grounded casing.

2. An electrically isolated mains socket according to claim 1, further comprising a safety cut-out device connected to said primary winding (102).
3. A mains circuit arrangement comprising a transformer having a primary winding (102) connected across the incoming mains conductors and an ungrounded secondary winding (103) which is isolated from the primary winding and connected to one or more domestic mains sockets (105-1, 105-2....., 105-n), characterised in that the transformer has a grounded core (101) and/or a grounded casing.
4. A mains circuit arrangement according to claim 3, further comprising a safety cut-out device connected to said primary winding (101).

Claims

1. An electrically isolated mains socket comprising a transformer having a primary winding (102) arranged to be connected across the mains supply and an ungrounded secondary winding (103) which is isolated from the primary winding and connected to the socket contacts, said socket

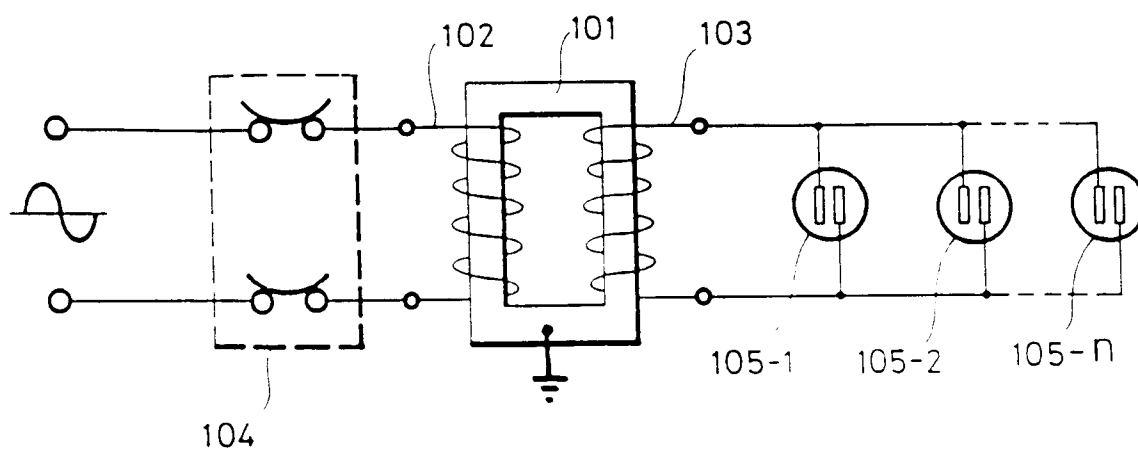


FIG. 1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 93 30 0305

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	DE-A-2 833 969 (D.MÜLLER) * page 3, last paragraph - page 4, paragraph 1 * * page 4, last paragraph * * page 5, last paragraph; figures 2,3 * ---	1-4	H01R13/66
X	J.WEINERT ET AL 'Einführung in VDE 0100 mit Fragen und Antworten', H.STAM, KÖLN DEUTSCHLAND * page 41, paragraph 2-3; figure 3.21 * -----	1-4	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			H01R
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 26 MARCH 1993	Examiner ALEXATOS G.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 150 CL.82 (P0601)