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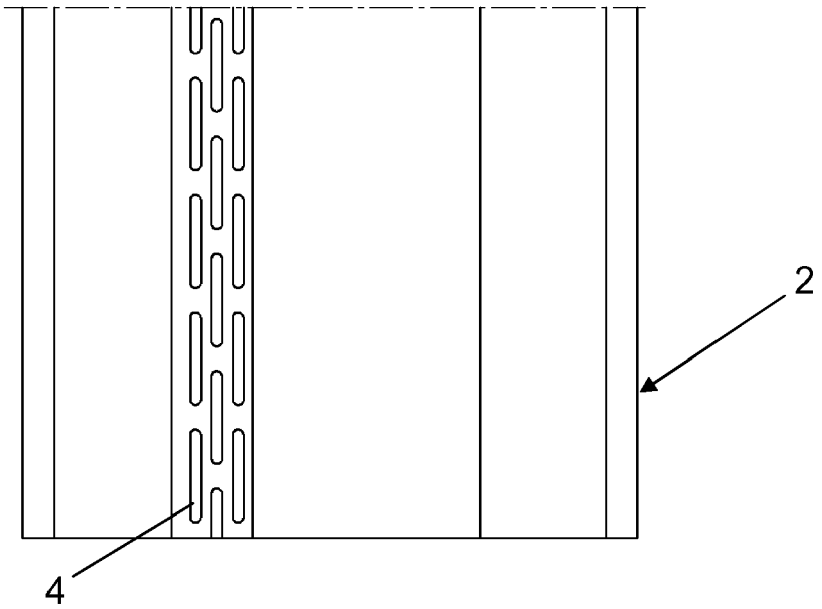
(54) Frame for metal doors

(57) A frame for metal doors and consisting of a piece (2) of sheet metal bent to U-shape with its arms (6) fixable to the masonry and with its base (10) disposed parallel to the edge (14) of the masonry, said base (10) being provided with at least one lip (18) parallel to the base and facing the edge (14) of the masonry, said lip being obtained by coupling together two facing ledges (20, 20'), at least one of which is provided with a plurality of holes, an insulating gasket (22) being positioned between said ledges characterised in that said holes consist of a plurality of rows of longitudinally offset slotted holes.

FIG. 1



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Description

[0001] The present invention relates to a frame for metal doors.

[0002] Metal frames are known for metal doors consisting of a single piece of U-bent sheet metal, connected to the masonry and comprising on one side the hinges and on the other side the holes for the locks and for the hinges.

[0003] In fire door applications, and with the purpose of improving thermal insulation, metal frames have been produced with doors consisting of two pieces of bent metal which are joined together via a gasket of plastic material of lesser thermal conductivity.

[0004] By achieving this purpose, the heat insulation and cold insulation from one side to the other of the piece of sheet metal is further improved.

[0005] This type of frame involves however considerable labour during installation, considerable complication during production, and a high final cost of the industrial product obtained.

[0006] The objects of the invention are to eliminate these drawbacks by providing for doors, a metal frame which can be produced simply and comfortably, which presents a very low thermal conductivity between the inside and outside of the environment, and which at the same time is of pleasant appearance from the outside.

[0007] These objects are attained according to the invention by a frame for metal doors, as described in claim 1.

[0008] A preferred embodiment of the invention is further clarified hereinafter with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a piece of sheet metal for obtaining the frame according to the invention, and

Figure 2 shows the frame obtained.

[0009] As can be seen from the figures, the metal frame for metal doors is formed starting from a piece of sheet metal 2 which along a longitudinal band thereof is provided with a plurality of apertures 4.

[0010] In the illustrated example, the apertures consist of slotted holes which can be formed by removal or by expansion (cutting and stretching the material).

[0011] The piece of sheet metal is bent and U-shaped to form, by means of its arms, the flanges 6 for connection to the masonry 8 and, by means of its base 10, two portions 12, 12' parallel to each other and to the edge 14 of the masonry and a central portion 16 which with the portion 12' forms a step acting as the striker for the movable door leaf (not shown in the drawing).

[0012] In particular, at this step the piece of sheet metal is bent over to form a lip 18 obtained by coupling together two facing bands 20, 20', one 20 of which, namely that closer to the side of the masonry, consists of the longitudinal band with apertures 4.

[0013] A gasket 22 of insulation material is interposed between the two bands 20, 20'.

[0014] From the aforegoing it is apparent that the frame according to the invention presents numerous advantages, and in particular:

- a constructional simplicity achieved by the facility to form the apertured band during the actual profiling stage,
- a low coefficient of thermal conductivity between the outside and inside by virtue of the slotted holes 4 which substantially reduce the metal cross-section through which the heat is transmitted,
- a pleasant appearance in that the apertured band is not visible from the outside,
- a lengthening of the path which the heat has to take in passing from the inside to the outside of the profile.

[0015] Moreover, the insulating gasket 22 prevents contact between the band 20 comprising the slotted holes 4 and the band 20' which faces it, so as to prevent the heat being able to be transmitted by direct conduction in case of their contact.

[0016] The present invention also extends to other similar profiles in which thermal conduction must be reduced between two parts of the profile in a direction perpendicular to the profile axis, such as window frames, continuous façade profiles, or other construction profiles.

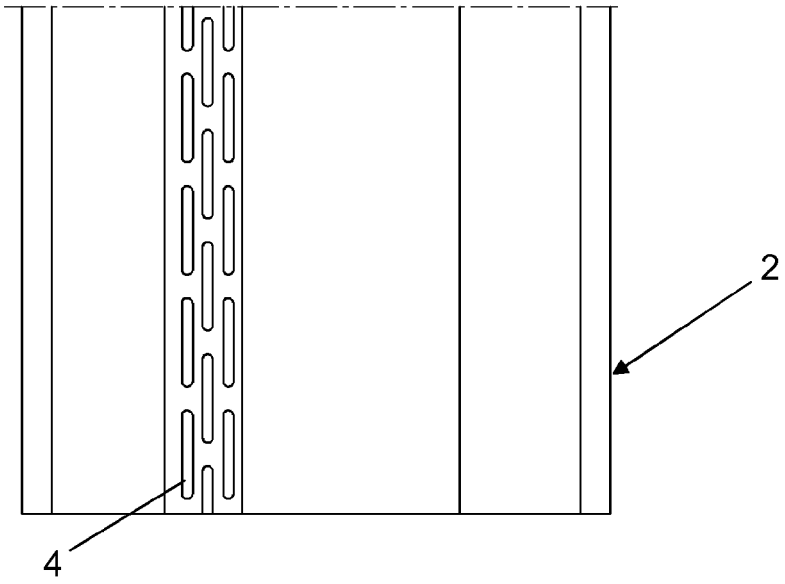
Claims

1. A frame for metal doors and consisting of a piece (2) of sheet metal bent to U-shape with its arms (6) fixable to the masonry and with its base (10) disposed parallel to the edge (14) of the masonry, said base (10) being provided with at least one lip (18) parallel to the base and facing the edge (14) of the masonry, said lip being obtained by coupling together two facing ledges (20, 20'), at least one of which is provided with a plurality of holes, an insulating gasket (22) being positioned between said ledges **characterised in that** said holes consist of a plurality of rows of longitudinally offset slotted holes.

2. A frame as claimed in claim 1, **characterised in that** said holes are obtained by removal of material.

3. A frame as claimed in claim 1, **characterised in that** said holes are obtained by expansion (cutting and stretching the material).

FIG. 1



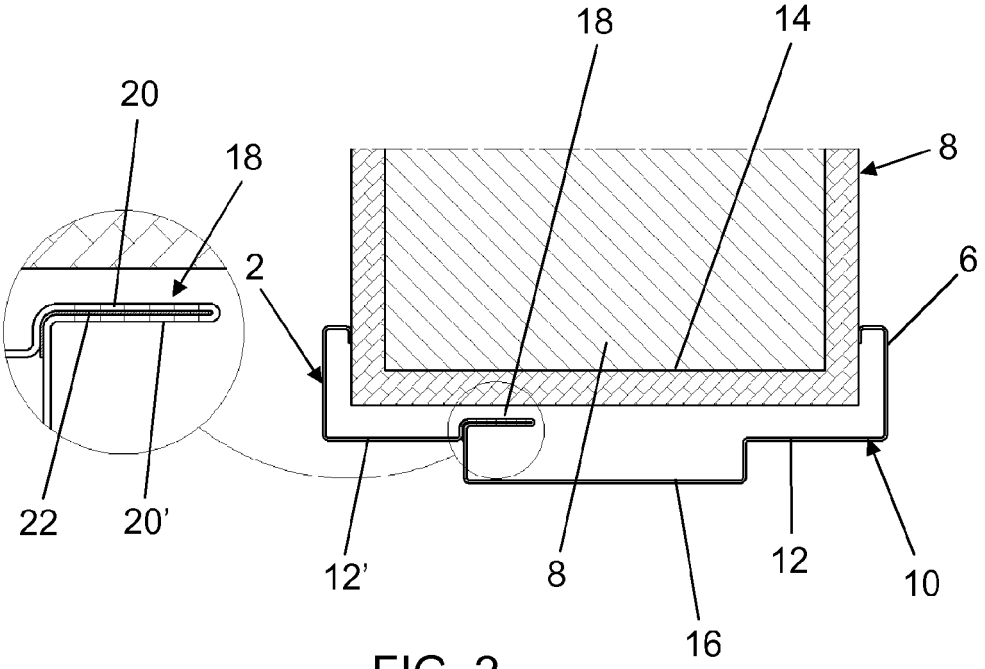


FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 14 19 5861

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	NL 1 003 974 C2 (ANDUSTA BEHEER B V [NL]) 9 March 1998 (1998-03-09) * page 2, line 10 - page 3, line 22; figure 1 * -----	1-3	INV. E06B1/12 E06B1/32
A	EP 0 460 444 A1 (HOERMANN KG FREISEN [DE]) 11 December 1991 (1991-12-11) * column 1, lines 9-23; figures 1,2 * -----	1-3	
A	US 4 930 257 A (WINDGASSEN WILLIAM P [US]) 5 June 1990 (1990-06-05) * column 2, line 64 - column 3, line 29; figures 1-3 * -----	1-3	
			TECHNICAL FIELDS SEARCHED (IPC) E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	5 March 2015	Gallego, Adoración

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 19 5861

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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05-03-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		EP 0460444 A1	11-12-1991
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82