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(71) Applicant: **EUR.EX S.r.l.**
47899 Serravalle (SM)

(72) Inventor: **Santi, Emiliano**
47899 Serravalle (SM)

(74) Representative: **Porsia, Dino, Dr. et al**
c/o Succ. Ing. Fischetti & Weber
Via Caffaro 3/2
16124 Genova (IT)

(54) Plastic flue head-piece for airing and venting ducts

(57) Flue head-piece for airing and venting ducts, formed by two single pieces and in particular by a first bottom piece (A) with a bush (1, 1') designed at the bottom for connection to the venting duct (E) and designed at the top for rapid and if necessary releasable connection, for example by means of snap engagement, to the second top piece (C) which comprises a collar (9) provided as one piece with lugs (10, 110) directed upwards and integral with the covering cap (11), the said two pieces (A, C) being designed in any way so that between them there may be removably housed an optional third piece (B) consisting of a disk-shaped screen for protection against the entry of insects or other small foreign bodies.

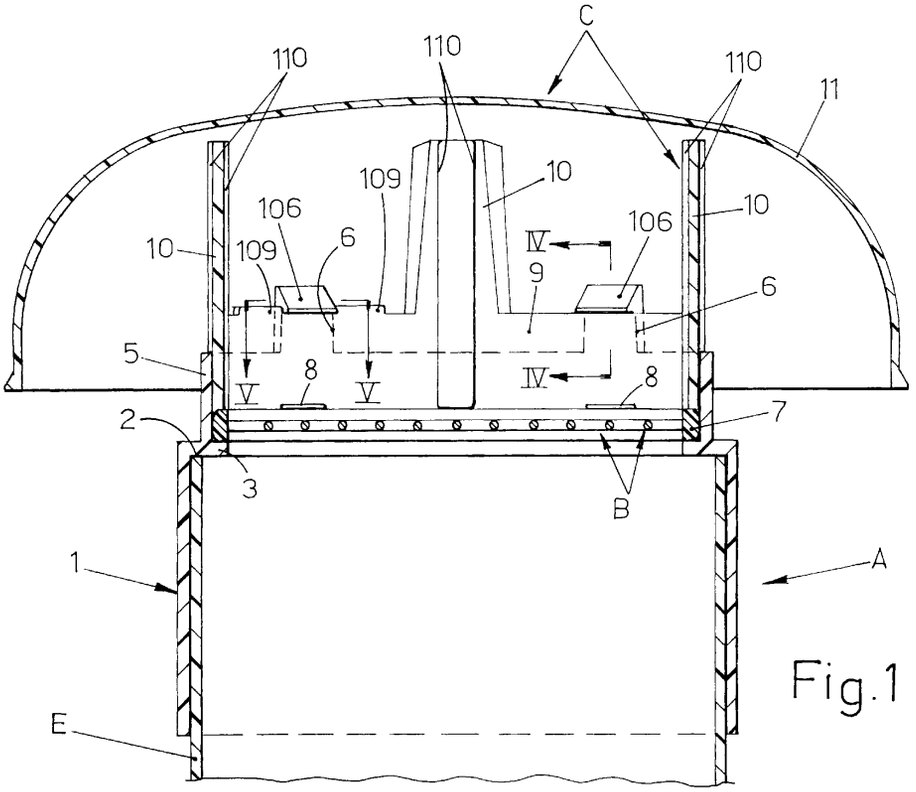

Fig.1

EP 1 562 003 A2

Description

[0001] In the civil and residential building sector, kitchens, waste water discharge pipes, rubbish disposal chutes and sometimes also the premises where an excessive amount of water vapour is produced, such as baths, laundry rooms or the like, are usually equipped with an venting device or venting system composed of vertical pipes or tubes, which are generally made of plastic, embedded in the walls, open at the end situated in the zone where the fluids to be disposed of are produced and at the other end terminate above the roof of the building where they are provided with a so-called plastic flue head-piece which is formed so as to prevent the entry of atmospheric precipitation and at the same time allow the necessary connection of the duct with the atmosphere. In order to avoid the use of costly moulds for the production of pieces with undercut parts, the present flue head-pieces require the carrying-out of operations involving heat-welding or gluing of the parts which form them and are not designed for supporting - if necessary removably - a screen which prevents the entry of insects or other small foreign bodies which are transported by the wind, such as leaves or the like. The invention intends to solve these important problems by means of a flue head-piece formed by two single pieces and in particular by a first piece with a bush designed at the bottom for connection to the venting duct and designed at the top for rapid and releasable connection, for example by means of snap-engagement, to the second piece which comprises a collar provided as one piece with lugs directed upwards and integral with the covering cap, the said two pieces being arranged in any way so that between them there may be removably housed an optional third piece consisting of a disk-shaped protective screen.

[0002] Further characteristic features of the invention and the advantages arising therefrom will become clear from the following description provided with reference to the figures of the accompanying illustrative plates in which:

- Fig. 1 shows, with some parts sectioned longitudinally, a flue head-piece during use, provided with the protective screen and of the type having a system for engagement on the outside of the top opening of the venting duct;
- Figs. 2 and 3 show, sectioned longitudinally, the bottom piece of the flue head-piece, respectively in the version as shown in Figure 1, with a female or male system for engagement with the opening of the venting duct;
- Figs. 4 and 5 show details along the sections IV-IV and V-V of Figure 1, respectively.

[0003] From Figures 1, 2 and 3 it can be seen that the head-piece in question is formed by a first bottom piece A obtained by means of plastic injection moulding and comprising a bush 1 or 1' with a round cross-section, having an internal diameter such that it may be engaged and if necessary fixed with glue onto the top opening of the venting flue E, on the outside of the latter as shown in Figures 1 and 2, or on the inside as can be seen in Figure 3. The top edge of the flue E rests against a step 2 which in the solution according to Figures 1 and 2 is formed by an annular edge 3 which entirely projects towards the inside of the top end of the female bush 1 and which in the solution according to Figure 3 projects by a small amount inwards and projects mostly towards the outside of the male bush 1' so as to form an effective protection against the entry of rain water between the parts E and 1'. A small annular projection 4 which acts as a drip may be provided at the bottom on the perimeter of the edge 3' so as to circumscribe partly the flue E, as shown in broken lines in Figure 3. Above the edge 3 or 3' there is provided, as one piece and coaxial with the bush 1 or 1', a sleeve 5 with a round cross-section, from the top edge of which there extend upwards lugs 6 which are angularly spaced at the same distance from each other - for example three or four in number - and which terminate at the top in a respective tooth 106 formed by the convergence of inclined and inwardly projecting surfaces of the sleeve 5, as can be seen from the detail in Figure 4. In order to form the teeth 106 using a mould of simplified design, without movable components, the edge 3 or 3' may be provided, opposite the said teeth, with special openings not shown in the drawings in that they may be deduced by persons skilled in the art.

[0004] A screen B made of any suitable non-oxidizable material may be rested with its perimetral part on the part of the edge 3 or 3' which projects inside the sleeve 5, said screen having meshes with a size such as to prevent the entry of insects or other small foreign bodies. The screen B may be flat or may be rounded so as to have a larger exposed area and therefore a greater air permeability. According to a preferred embodiment, the screen B is made by means of injection of suitable plastic material inside a mould and is provided with a perimetral rim 7 which rests on the edge 3 or 3' and which may be retained on the latter by means of snap-engaging co-operation with small slightly raised ridges 8 formed on the inner side of the sleeve 5 opposite the above-lying lugs 6, particularly in the case where the teeth 106 are made using a mould having parts which are movable relative to the piece formed.

[0005] The other piece C, which completes the top part of the flue head-piece and which is also made by means of plastic injection moulding, comprises a collar 9 with a round cross-section, having an external diameter such that it may be engaged inside the sleeve 5 of the piece A and with a height such as to rest at the bottom substantially on the rim 7 of the optional screen B and be able to receive, by means of snap-engagement on the top edge, the teeth 106 which firmly fasten the piece A to the piece C, with the possibility of removal so as to allow the inspection and cleaning of the optional

screen B between the pieces A and C. From Figure 1 it can be seen that the top edge of the annular collar 9 may be provided with small raised lugs 109 which are spaced from each other by an amount slightly greater than the width of a tooth 106 so as to signal to the person performing assembly the snap-engagement which indicates correct mounting of the piece C on the piece A when, after axial coupling together of the pieces A and C and after a slight relative rotation thereof, the tooth 106 engages inside the depression existing between the said reliefs 109. At least one of the sides of the reliefs 109 which is directed towards the associated tooth 106 may optionally be shaped with an inclined profile, as indicated by 209 in Figure 5, so that, by imparting a relative rotation to the pieces A and C, the tooth 106 may slide on the external surface of the relief 109 so as to allow subsequently easy disassembly of the piece C from the piece A.

[0006] From the top edge of the collar 9 there extend as one piece lugs 10 - for example three or four in number - which are angularly spaced at the same distance from each other, for example having a width decreasing upwards and are connected to the collar 9 also by means of longitudinal ribs 110 which are both internal and external and have a varied length, the external ribs terminating at the top edge of the collar 9. The said ribbed lugs 10, 110, with their top end, are joined as one piece to the internal surface of the cap 11 which is open downwards, having a diameter which is suitably greater than that of the parts 1, 5, and which with its bottom edge terminates preferably in suitable manner underneath the top edge of the sleeve 5 so as to provide effective protection against the entry of rain through the zones where the pieces A and C are joined together. If the reliefs 109 are not present, the said aforementioned function of releasing the teeth 106 for disassembly of the piece C from the piece A (Fig. 5) may be obtained by providing at least one or both the sides of the lugs 10 with a suitable inclined profile. From Figure 1 it is obvious that, when the piece C is snap-engaged on the piece A, the external ribs 110 of the lugs 10, which are shorter than the internal ribs, rest on the top edge of the sleeve 5 and act as an end-of-travel stop for ensuring correct engagement between the pieces A and C even if the screen B is not inserted between them.

Claims

1. Plastic flue head-piece for venting and airing ducts, **characterized in that** it is formed essentially by two pieces and in particular by a first bottom piece (A) with a bush (1, 1') designed at the bottom for connection to the venting duct (E) and designed at the top for rapid and if necessary releasable fixing, using any suitable solution, to a second top piece (C) which comprises an annular collar (9) provided with lugs (10) directed upwards and formed as one piece with the covering cap (11).

2. Flue head-piece according to Claim 1), in which said two pieces (A, C) are designed for rapid and if necessary releasable fixing together, by means of a snap-engaging system.

3. Flue head-piece according to Claim 1), **characterized in that** the said two pieces (A, C) are designed in any way so that between them there may be removably housed an optional third piece (B) consisting of a protective screen which prevents the entry of insects or other small foreign bodies transported by the wind.

4. Flue head-piece according to Claim 1), in which the bush (1, 1') of the first piece (A) may be such as to form a female connection or a male connection with the top opening of the venting duct (F), there also being in the second case the zone for connection of the two parts which is suitably protected against the entry of rain water.

5. Flue head-piece according to Claim 1), in which the bush (1, 1') for connection to the top opening of the venting duct (E) is provided at the top, as one piece, with an annular edge (3, 3') on which there is provided, integrally and coaxially with the said bush, a sleeve (5) with a round cross-section inside which the said edge (3, 3') projects at the bottom wholly or partly and from the top edge of which there extend upwards lugs (6) which are angularly spaced at the same distance from each other - for example three or four in number - and which terminate at the top in a respective tooth (106) formed by the convergence of suitably inclined surfaces projecting towards the inside of the said sleeve (5).

6. Flue head-piece according to Claim 5), **characterized in that**, in order to form the teeth (106) using a mould of simplified design, without movable components, the annular edge (3, 3') of the sleeve (5) may be provided, in alignment with the said teeth, with openings for receiving the mould components.

7. Flue head-piece according to Claim 5), **characterized in that** the part of the edge (3 or 3') which projects inside the sleeve (5) supports perimetrally the optional protective screen (B) made of any suitable non-oxidizable material, with meshes having a size such as to prevent the entry of insects or other small foreign bodies.

8. Flue head-piece according to Claim 7), in which the screen (B) may be flat or may be rounded so as to have a greater exposed area and therefore a greater air permeability.

9. Airing head-piece according to Claim 7), in which the screen (B) is made by means of injection of suitable plastic material inside a mould and is provided with a perimetral rim (7) which may rest on the said edge (3, 3') and which may be retained on the latter by the snap-engaging co-operation with small slightly raised ridges (8) formed on the inner side of the sleeve (5), opposite the toothed lugs (6, 106), particularly in the case where the teeth (106) are made using a mould provided with parts movable relative to the piece formed.

10. Flue head-piece according to Claim 1), in which the top piece (C) which forms it comprises a collar (9) with a round cross-section, having an external diameter such that it may be engaged inside the sleeve (5) of the underlying piece (A), with a height such as to rest at the bottom on the rim (7) of the protective screen (B) and be able to receive, by means of snap-engagement on the top edge, the teeth (106) of the lugs (6) of the underlying piece (A) which is thus firmly fixed to the top piece (C), with the optional possibility of removal so as to allow the inspection and cleaning of the optional screen (B) between the said two pieces.

11. Flue head-piece according to Claim 10), in which the top edge of the collar (9) may be provided with small raised lugs (109) which are spaced from each other by an amount slightly greater than the width of a tooth (106) so as to signal to the person performing assembly the snap-engagement which indicates correct mounting of the top piece (C) on the bottom piece (A) when, after axial coupling together the pieces and after a slight relative rotation thereof, a tooth (106) engages inside the depression existing between the said reliefs (109).

12. Flue head-piece according to Claim 11), in which at least one of the sides of the said reliefs (109), which is directed towards the associated tooth (106), may be shaped with an inclined profile (209), so that, by imparting a relative rotation to the two main pieces (A, C) of the head, the tooth (106) slides on the external surface of the relief (109) so as to allow easy disassembly of the two pieces.

13. Flue head-piece according to Claim 10), in which from the top edge of the collar (9) of the top piece (C) there extend as one piece lugs (10) - for example three or four in number - which are angularly spaced at the same distance from each other, for example having a width decreasing upwards and are connected to the said collar (9) preferably also by means of special longitudinal ribs (110) which are at least external and preferably also internal, the said lugs being joined as one piece at their top end to the internal surface of the cap (11) which is in the form of an overturned cup and therefore open downwards, having preferably a round plan-view form and a base diameter suitably greater than that of the cylindrical parts (1, 5, 9) of the head which are joined together and which with its bottom edge terminates preferably in suitable manner underneath the top edge of the sleeve (5), so as to provide effective protection against the entry of rain through the zones where the said parts (5, 9) are joined together.

14. Flue head-piece according to Claim 13), in which the external ribs (110) of the said lugs (10) of the top piece (C) terminate at the top edge of the collar (9) and rest on the top edge of the sleeve (5) of the bottom piece (A) so as to ensure a correct snap-engaging connection of the two pieces (A, C) even if the protective screen (B) is not present between them.

15. Flue head-piece according to Claim 11), **characterized in that**, if the said reliefs (109) are not present, on the top edge of the collar (9) of the top piece (C), the said aforementioned function of releasing the teeth (106) for easy disassembly of the said top piece (C) from the bottom piece (A) may be obtained by imparting a suitable inclined profile to at least one or both the sides of the lugs (10) which connect the said collar (9) to the covering cap (11).

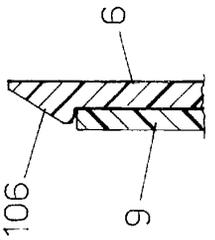

Fig.4

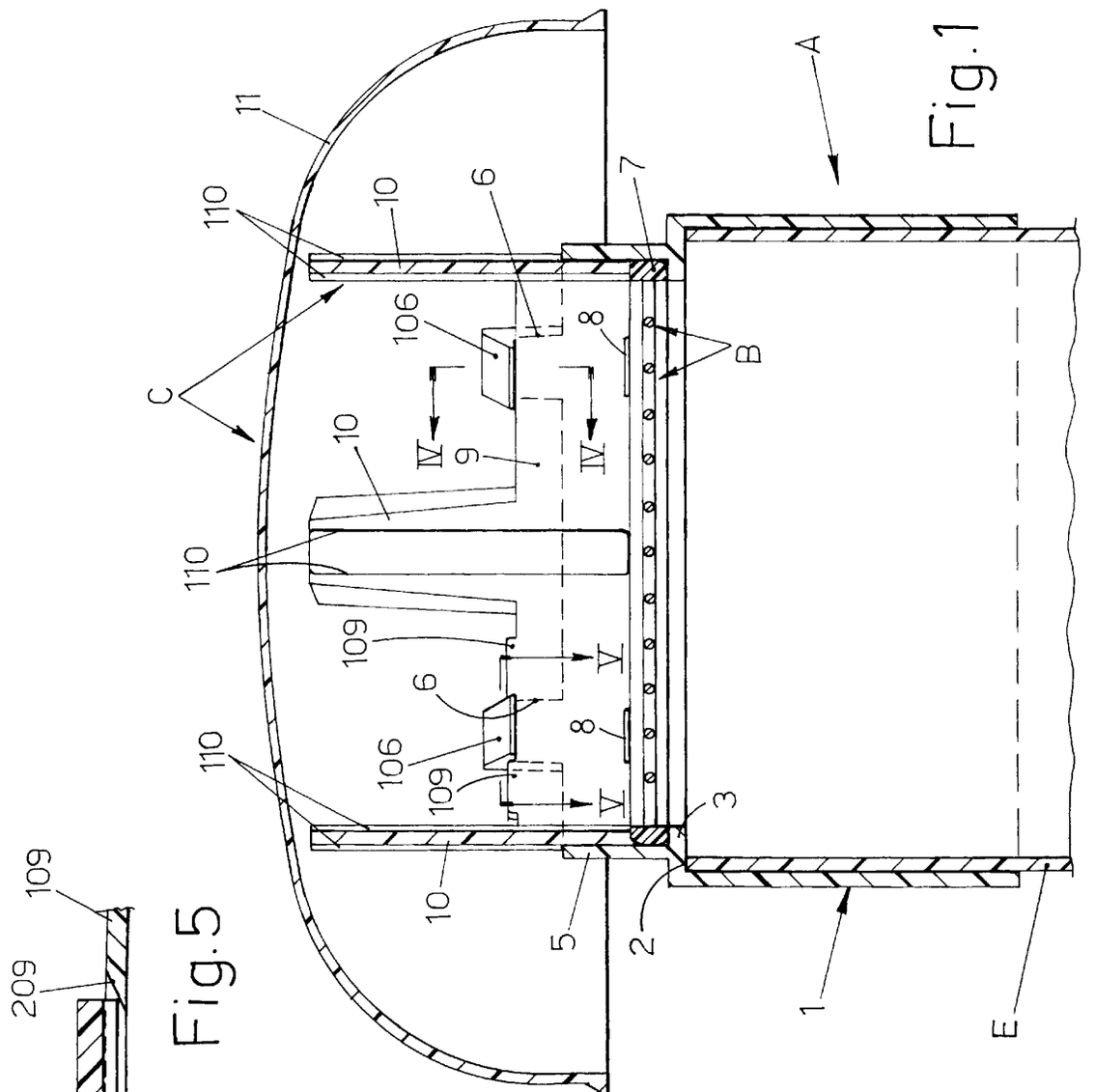

Fig.1

Fig.5

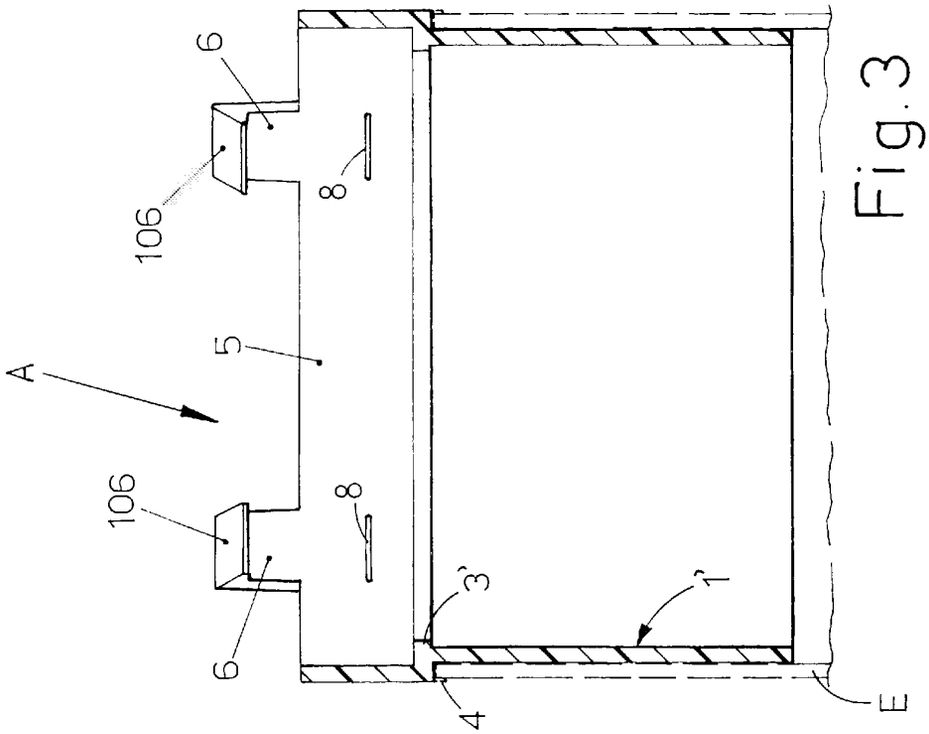

Fig.3

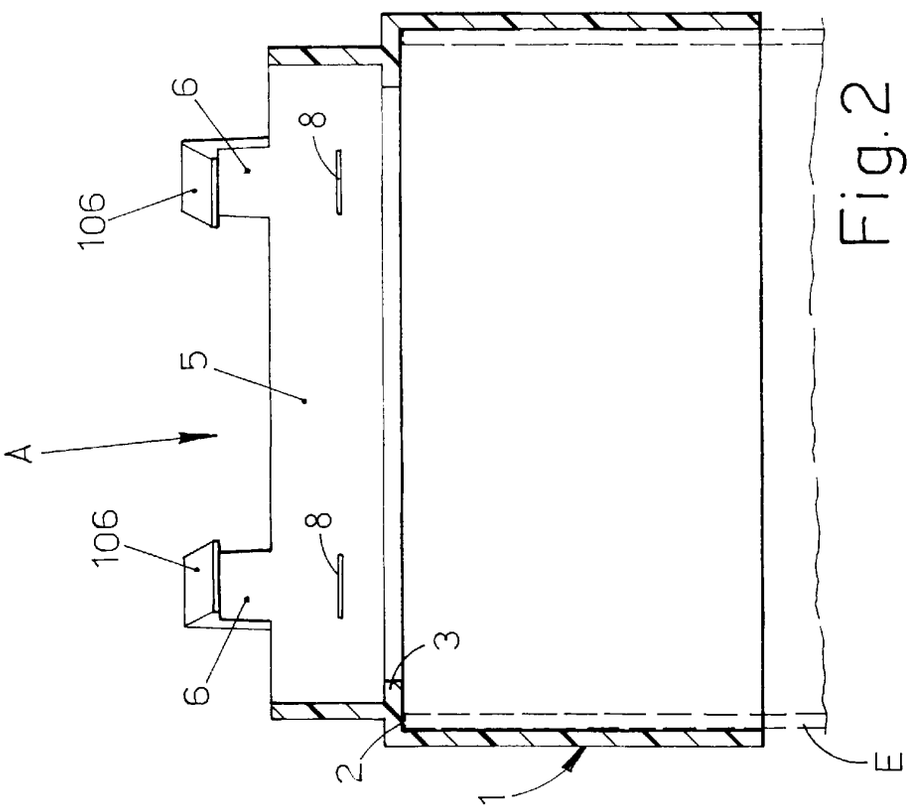

Fig.2