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(54) **Chimney-stack**

(57) Chimney cap (1) for the flow of smoke and residual combustion products from a flue (100) towards the outside, comprising: a top cover member (2), vertically spaced from the outlet (101) for smoke and residual combustion products and having a cover member (2) apt to divert descensional air currents so as not to have them entering the flue (100); and a defluxion member (3), located at the flue (100), below the cover mem-

ber (2), and apt to outlet smoke and combustion residual products therethrough, said defluxion member (3) being apt to divert ascensional air currents so as not to have them entering the flue (100), in which the overall arrangement is such that each (20, 30) of the cover (2) and defluxion (3) members is apt to divert the descensional and ascensional air currents, respectively, so that the latter do not interfere with the other member (2, 3) (Figure 2).

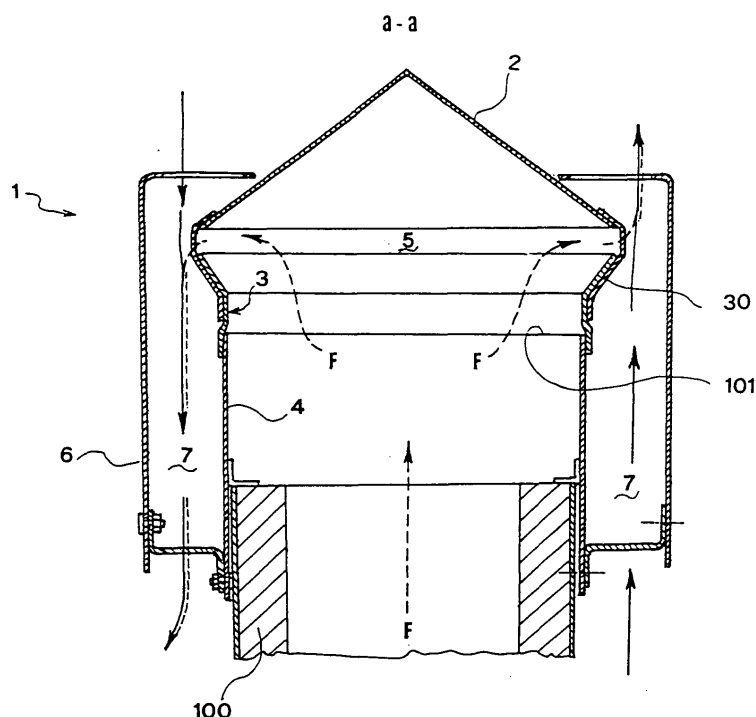


fig. 2

Description

[0001] The present invention relates to a chimney cap for the discharge of smoke and residual combustion products from a flue and to a relative component. In particular, the invention pertains to the field of chimney caps for the suction and the flow of smoke from the combustion of solids, liquids and gases by fireplaces, thermal chimneys, stoves, heat stoves, boilers, and so on.

[0002] Several chimney cap designs for the flow of smoke and the like from a flue are known, said chimney caps being generally associated with household or industrial burning devices like e.g. fireplaces, thermal chimneys, stoves, heat stoves, boilers, and so on.

[0003] A known drawback occurring in known-art chimney caps lies in the fact that air currents or turbulences having a substantially ascensional or descensional component may cause the refluxing of smoke and residual combustion products into the flue and/or the entering into the flue of rain, hail, snow and foreign bodies in general.

[0004] Therefore, the technical problem underlying the present invention is that of providing a chimney cap allowing to overcome the drawbacks mentioned above with reference to the known art.

[0005] Such a problem is solved by a chimney cap according to claim 7.

[0006] The invention further provides a defluxion member according to claim 1.

[0007] The present invention provides some relevant advantages. The main advantage lies in the fact that the presence of a defluxion member and of a cover, cooperating in diverting ascensional and descensional air currents, prevents said currents from concerning the flue and from dragging rain, hail, snow or foreign bodies in general into the latter, and/or from determining a reflux of smoke and residual combustion products into the flue.

[0008] Moreover, by virtue of said structure the chimney cap of the invention allows an efficient and effective bidirectional flow of smoke, dusts and residual combustion products in general from the flue, i.e. an upward as well as a downward defluxion of the latter. In particular, the chimney cap allows keeping the pressure in the flue substantially constant, thereby obtaining a smooth defluxion of smoke and residual combustion products therefrom.

[0009] Other advantages, features and operation steps of the present invention will be made apparent in the detailed description of some embodiments thereof, given by way of example and without limitative purposes. It will be made reference to the figures of the annexed drawings, wherein:

Figure 1 shows a front view of a first embodiment of the chimney cap according to the present invention;

Figure 2 shows a longitudinal sectional view of the chimney cap of Figure 1, taken along A-A thereof;

Figure 3 shows a cross-sectional view of the chimney cap of Figure 1, taken along line B-B thereof; and

Figure 4 shows a front view of an alternative embodiment of the chimney cap according to the present invention.

[0010] Referring initially to Figures 1 and 2, a chimney cap for the defluxion of smoke F and/or of other residual combustion products from a flue 100 towards the outside is generally indicated by 1.

[0011] The chimney cap 1 comprises a cover member 2, hereinafter called 'cover' for simplicity's sake, located above the flue 100 in a position vertically spaced from the outlet 101 of the smoke and combustion residual products coming from the flue 100 itself.

[0012] The cover 2 has an external contour 20 having a substantially tapered shape, e.g. conical or pyramidal, and in particular with a section decreasing bottom-to-top.

[0013] The cover 2 is supported onto the flue 100 according to conventional modes.

[0014] The chimney cap 1 further comprises a defluxion member, or counter-cover, 3, located at the outlet 101 of smoke and residual combustion products.

[0015] In the present embodiment, the counter-cover 3 has a tubular structure. In particular, it comprises a first portion 31, substantially sleeve-shaped and apt to externally engage a sheathing member 4, or plating, of the actual flue 100, it also having a tubular shape. Thus, the counter-cover 3 is made fixed with the flue 100. The counter cover 3 further comprises a second shaped portion 32, located above the first portion 31 and having an external contour 30 substantially shaped as a frustum-of-cone or as a frustum-of-pyramid, and in particular having a section decreasing top-to-bottom. This second portion 32 projects externally with respect to the flue 100 and to its sheathing member 4.

[0016] Evidently, said tubular structure of the counter-cover 3 allows smoke and residual combustion products to be outletted from the flue 100 and the sheathing member 4 by going through the shaped portion 32.

[0017] It will be understood that although the counter-cover 3 and the sheathing member 4 have been depicted as distinct bodies, in a variant embodiment they can also be made integral the one to the other, and optionally also to the flue 100. Moreover, the plating 4 can also be absent.

[0018] The overall arrangement of the cover 2 and of the counter-cover 3 is such that an interspace 5 is defined therebetween to discharge smoke and residual combustion products in general towards the outside.

[0019] Moreover, in the present embodiment the cover 2 and the counter-cover 3 have an arrangement that is substantially specular the one with respect to the other; likewise, the respective external contours 20 and 30 are substantially specular.

[0020] The chimney cap 1 of the present embodiment

further comprises an external shielding member 6 for said interspace 5, apt to prevent the entering of horizontal air currents into the flue 100. For this purpose, the shielding member 6 is located around the cover 2 and the counter cover 3, so that between it and such portions there is defined a flow interspace 7 having a substantially vertical development.

[0021] The shielding member 6 is opened at its top and at its bottom in order to allow the inlet and the outlet of air and smoke, or it has top and bottom openings suitable for the purpose. In order to allow an effective defluxion of the residual combustion products towards the outside environment, the shielding member 6 has a substantially tubular shape.

[0022] The shielding member 6 is connected to the flue 100 and/or to other components of the chimney cap 1 by conventional means.

[0023] As it is shown in Figure 3, the chimney cap 1 of the present embodiment provides, in a cross section, a substantially quadrangular geometry. Of course, variant embodiments may provide any one alternative geometry.

[0024] Viable materials for manufacturing the different components of the chimney cap 1, and in particular the cover 2 and counter-cover 3, are copper, stainless steel, galvanised steel and cement composite.

[0025] Hereinafter, the operation modes of the chimney cap 1 will be illustrated with further reference to Figure 2.

[0026] In said figure, the defluxion direction and verse of the smoke F in and out of the flue 100 and of the plating 4 have been depicted with in dashed and relative arrows.

[0027] Always in Figure 2, the descensional air currents are exemplarily depicted on the left of the Figure with solid lines and relative arrows, whereas the ascensional air currents are exemplarily depicted on the right of the figure, always with solid lines and relative arrows.

[0028] The descensional air currents interfering with the cover 2, and therefore at risk of entering the flue in known-art chimneys, are diverted by the contour 20 of the cover itself, so as to shift them away from the flue 100 and so as not to have them interfere with the counter-cover 3.

[0029] Likewise, the ascensional air currents interfering with the counter cover 3, and that hence in known-art chimneys would risk to impinge on the cover 2 and to enter the flue 100, are diverted by the contour 30 of the counter-cover itself, so that they neither enter the flue 100 nor interfere with the cover 2.

[0030] Hence, both the cover 2 and the counter-cover 3 redirect the descensional and the ascensional air currents, respectively, so as to determine an effective dragging of smoke and residual combustion products towards the outside of the chimney cap 1, as indicated always in Figure 2, thereby allowing the abovementioned bidirectional defluxion of the residual combustion products.

[0031] Moreover, the cover 2 and the counter-cover 3 effectively convey the ascensional and descensional currents into the interspace 7 defined between them and the shielding member 6, thereby fostering the dragging of smoke and the like towards the outside. In particular, fumes are made flow along the natural direction of the atmospheric currents.

[0032] Moreover, the shielding member 6 prevents the entering into the space 5, and therefore potentially into the flue 100, by horizontal air currents.

[0033] It will now be better understood that the structure of the hereto-described chimney cap allows it to go along with atmospheric currents having any direction and verse, preventing - under any circumstance, atmospheric condition and technical application - the refluxing of smoke and of other residual combustion products into the flue and towards the source.

[0034] Therefore, the chimney cap of the invention allows the defluxion of smoke and the like regardless of atmospheric conditions, land morphology and local context with reference in particular to what is nearby and how it is shaped.

[0035] Moreover, in the described embodiment the chimney cap is of easy and cost-effective manufacturing.

[0036] The chimney cap is also highly versatile, and it is apt to internal and external applications and on any type of flue.

[0037] Furthermore, the chimney cap of the described embodiment requires no maintenance, as it has no moving members and it is self-cleaning. Always by virtue of the fact that there are no moving members, the chimney cap is not noisy.

[0038] Additional advantages lie in the fact that the chimney cap entails an extremely reduced need to clean the flue, by virtue of the reduced sedimentation of residual combustion products therein, of the improved suction attained and of the fact that the chimney cap can very easily be assembled on any flue typology

[0039] In particular, disassembling the cover 2 may facilitate the cleaning of the flue 100.

[0040] Moreover, it will be appreciated that the improved defluxion of smoke and other residual combustion products associated with the present invention further provides a greater freedom of installation of the chimney cap with respect to the ridge of the roof.

[0041] It will further be understood that the present invention is susceptible of several variant embodiments alternative to the hereto-described ones, some of which will briefly be illustrated hereinafter, with reference to the sole aspects differentiating them from the above-considered embodiments.

[0042] First of all, the chimney cap of the invention may also be provided in form of a kit for its installation.

[0043] The chimney cap may also be provided in the context of a system for sucking smoke and the like additionally comprising a flue onto which the former is to be assembled.

[0044] Moreover, both the cover and the defluxion member may have any external contour apt to divert the descensional or ascensional currents as described above.

[0045] Further, as it is shown in Figure 4, the chimney cap of the invention is apt to be applied on flues arranged in a series, even on the same level, without negative interferences for to the discharging of smoke and the like.

[0046] As it is shown always in Figure 4, the counter-cover and/or the plating of the flue to which it is integral may engage the flue internally rather than externally.

[0047] Moreover, the defluxion member, or counter-cover, of the chimney cap may also be provided to end users separately from the other chimney cap members, and optionally associated with a chimney cap having a conventional cover.

[0048] The present invention has been hereto described with reference to preferred embodiments thereof. It is understood that other embodiments may exist, all falling within the concept of the same invention, and all comprised within the protective scope of the claims hereinafter.

Claims

1. A defluxion member (3), for use in association with a flue (100) for discharging smoke and combustion residuals provided with a top cover member (2) spaced from the outlet (101) of smoke and combustion residuals, which defluxion member (3) is apt to be arranged at the outlet (101) of smoke and combustion residuals and to allow discharge of the latter there-through, which defluxion member (3) has an external contour (30) apt to divert ascensional air currents in such a way to move them away from the flue (100) and in a such a way that said currents do not interfere with the cover member (2).
2. The defluxion member (3) according to claim 1, wherein said external contour (30) has a sectional shape substantially decreasing top-to-bottom.
3. The defluxion member (3) according to the preceding claim, wherein said external contour (30) has a substantially conical, pyramidal, frustum-of-cone or frustum-of-pyramid shape.
4. The defluxion member (3) according to any one of the preceding claims, having a substantially tubular shape.
5. The defluxion member (3) according to any one of the preceding claims, having a substantially sleeve-shaped portion (31) to fix the defluxion member itself to the flue (100).

6. The defluxion member (3) according to the preceding claim, having a substantially sleeve-shaped portion (31) apt to engage the flue (100).

7. A chimney cap (1) for the flow of smoke and combustion residuals from a flue (100) towards the outside, comprising:

- a cover member (2), located above and spaced from the outlet (101) of smoke and combustion residuals, which cover member (2) has an external contour (20) apt to divert descensional air currents in such a way not to have the latter entering the flue (100); and
- a defluxion member (3), located at the outlet (101) of smoke and combustion residuals and apt to allow discharge of the latter there-through, which defluxion member (3) has an external contour (30) apt to divert the ascensional air currents so as to move them away from the flue (100),

wherein the overall arrangement is such that each (20, 30) of said external contours of said cover (2) and defluxion (3) members is apt to divert the descensional and the ascensional currents, respectively, in such a way that the latter do not interfere with the other one of said members (2, 3).

8. The chimney cap (1) according to the preceding claim, wherein said external contour (20) of said cover member (2) has a shape with a section substantially decreasing bottom-to-top.
9. The chimney cap (1) according to the preceding claim, wherein said external contour (20) of said cover member (2) has a substantially conical, pyramidal, frustum-of-cone or frustum-of-pyramid shape.
10. The chimney cap (1) according to any one of the claims 7 to 9, wherein said external contour (30) of said defluxion member (3) has a shape with a section substantially decreasing top-to-bottom.
11. The chimney cap (1) according to the preceding claim, wherein said external contour (30) of said defluxion member (3) has a substantially conical, pyramidal, frustum-of-cone or frustum-of-pyramid shape.
12. The chimney cap (1) according to any one of the claims 7 to 11, wherein said defluxion member (3) has a substantially tubular shape.
13. The chimney cap (1) according to any one of the claims 7 to 12, wherein said defluxion member (3) has a substantially sleeve-shaped portion (31) to fix

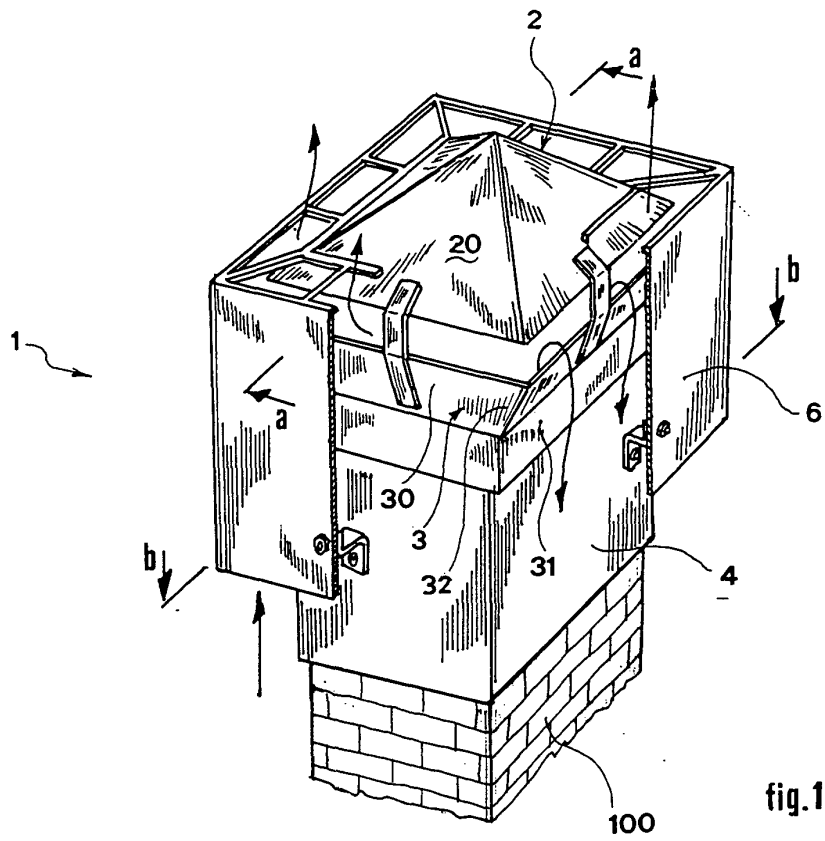
the defluxion member itself to the flue (100).

14. The chimney cap (1) according to the preceding claim, wherein said defluxion member (3) has a substantially sleeve-shaped portion (31) apt to engage the flue (100). 5
15. The chimney cap (1) according to any one of the claims 7 to 14, wherein said cover member (2) and said defluxion (3) member have a substantially specular arrangement the one with respect to the other. 10
16. The chimney cap (1) according to any one of the claims 7 to 15, wherein said external contours (20, 30) of said covering (2) and defluxion (3) members are substantially specular the one with respect to the other. 15
17. The chimney cap (1) according to any one of the claims 7 to 16, wherein between said cover (2) and defluxion (3) members there is defined an interspace (5) to discharge smoke and combustion residuals and comprising an external shielding member (6) of said interspace (5) apt to prevent the entering of substantially horizontal air currents into the flue (100). 20 25
18. The chimney cap (1) according to the preceding claim, wherein said shielding member (6) has a substantially tubular shape. 30
19. The chimney cap (1) according to any one of the claims 7 to 18, comprising an external shielding member (6) such that between it and said cover (2) and defluxion (3) members there is defined an interspace (7) having a substantially vertical development apt to cause a conveying of smoke and combustion residuals towards the outside by ascensional and/or descensional air currents. 35 40

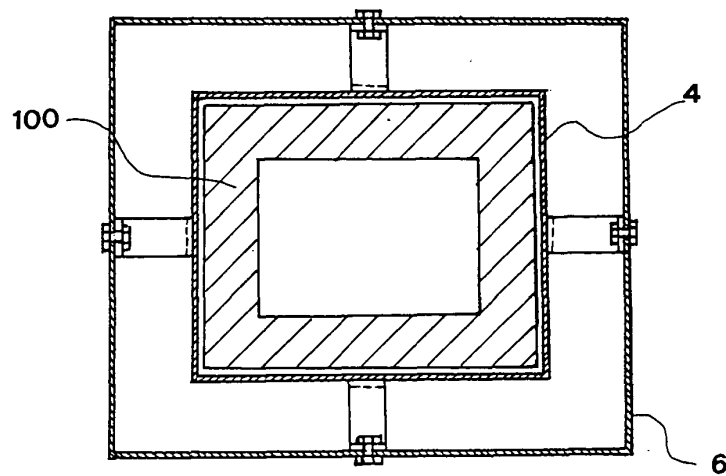
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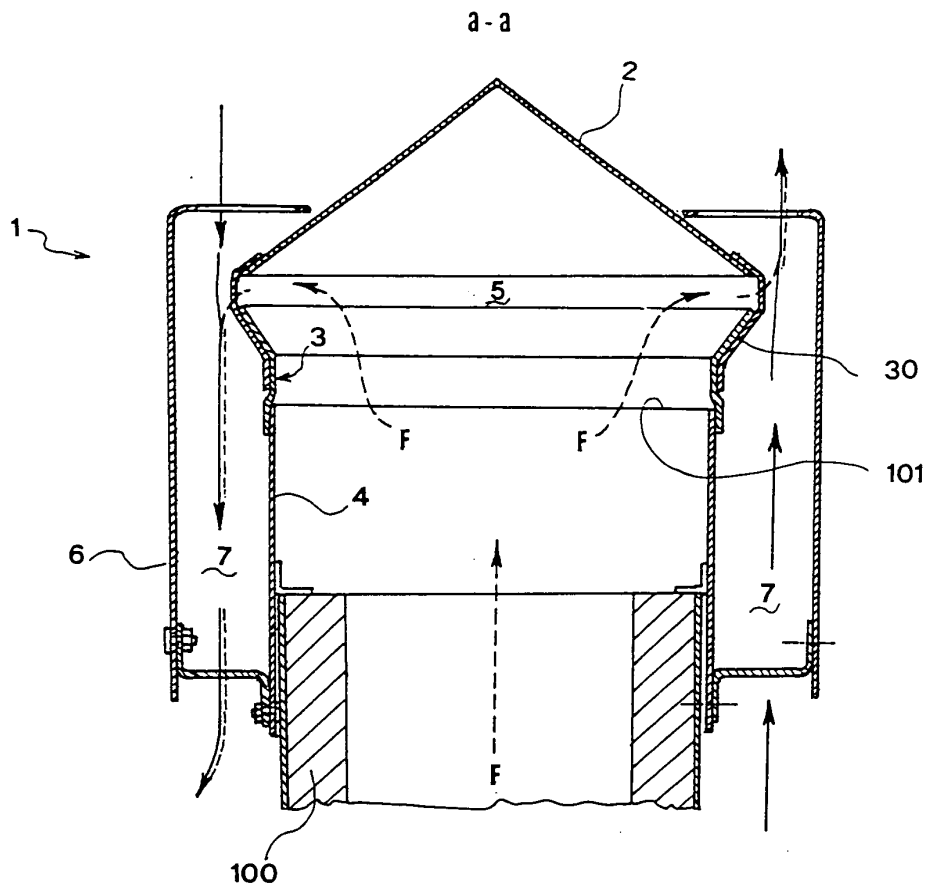


fig.2

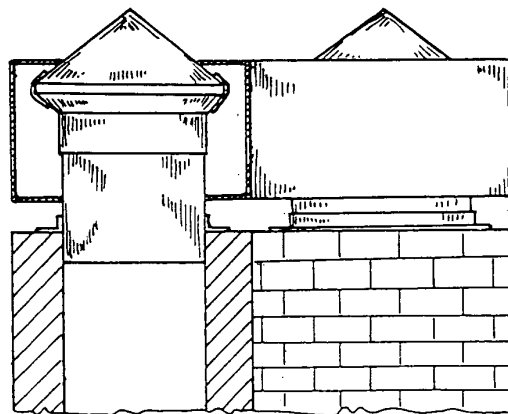


fig.4