

CURTAIN

The present invention relates to an emergency curtain, in particularly a fire curtain.

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As used herein, the term "fire curtain" is used to indicate any curtain intended to contain or at least retard not only fire as such but any effect or combustion product of fire, such as smoke.

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Fire curtains are installed in premises, such as shops, for dividing the interior of the premises in the event of a fire to slow the spread of smoke and the fire.

Generally they are installed in ceilings and are deployed by unrolling down from an opening in the ceiling. Typically the opening is an elongate gap or slot in the ceiling. The latter may be a conventional ceiling attached to joists or a suspended ceiling

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lower than the joists or other structural members, the opening being between boards, panels or like member comprising the ceiling. Closing the opening in the ceiling can be aesthetically difficult.

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The object of the invention is to provide a curtain having an improved ceiling aperture closure of a ceiling opening.

An emergency curtain of the invention for installation at a ceiling opening comprises:

25 a curtain roll, curtain winding mechanism, curtain fabric wound on the roll and a bottom bar attached to the bottom edge of the curtain fabric,

the bottom bar having:

an inner member fastened to the fabric as such,

an outer member adapted to engage the ceiling at the opening and close it and resilient means connecting the inner member and the outer member for

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drawing the outer member to the ceiling opening.

To assist closure of the ceiling opening along its length, the outer member is conveniently of a section and material to be flexible for following ceiling undulations.

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Although it can be envisaged that the outer member should engage the ceiling internally of the opening, with the member fitting within the opening; preferably, the outer member is wider than the opening and engages the underside of the ceiling.

5 Preferably, the resilient means comprises a series of spring connections between the inner and outer members. Conveniently the springs are arranged longitudinally of the outer member with flexible connections turning their line of action upwards the to inner member.

10 To help understanding of the invention, a specific embodiment thereof will now be described by way of example and with reference to the accompanying drawings, in which:

Figure 1 is a cross-sectional view of a fire curtain of the invention, installed in a ceiling;

15 Figure 2 is a larger scale cross-section of the bottom bar of the curtain of Figure 1; and

Figure 3 is a perspective view of the bottom bar.

The curtain 1 shown in the drawings comprises a conventional pair of curtain
20 rolls 2,3 - for a double skin curtain - mounted in a housing 4 suspending from a ceiling structural member 5 above an opening 6 in the ceiling 7. A winding mechanism (not shown) is arranged at one end of the housing for driving and stopping the rolls to raise or lower the curtain fabric 8 rolled on the rolls as required. A bottom bar 9 is attached to the bottom edge of the curtain fabric.

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In accordance with the invention, the bottom bar has an inner member 11 formed of two identical members 12,13 fastened by screws 14 back-to-back with the fabric 8 clamped between. The inner member is of a width to drop through the opening 6. Beneath the inner member, a wider outer member 15 is arranged. It is
30 wider than the opening, so that when drawn against the ceiling, it obscures the edges of the ceiling at the opening. The outer member is connected to the inner member by wires 16 and springs 17.

The inner member has upwardly divergent lower sides 18. The outer member is essentially flat, with low flanges 19 extending up from its top surface. The flanges have upwardly divergent lips 20, which engage the lower sides 18 for centring of the inner and outer members when they are in contact as shown in Figure 2. In this position, the members are held slightly apart by plastics material eyelets 21 pressed into horizontal portions of the flanges 19. The wires 16 pass through apertures 22 in the inner member above the eyelets and terminate above them. Below the eyelets, or at least each pair of them, the wires turn in pairs towards each other and are fixed to opposite ends of the springs 17. Thus tension in the springs urges the outer member up towards the inner member. The wires and spring tension are sized to be able to lift the outer member. They are of stainless steel, the wires being nylon covered.

It will be noted that the outer member has little vertical height, whereby even when extruded in aluminium it is flexible for vertical deflection. Thus when drawn up against the ceiling in the Figure 1 position, the outer member can flex to accommodate undulations in the ceiling level. The springs are strong enough in their extended, use state to flex the outer member. This is the normal use position. On deployment of the curtain, the inner member of the bottom bar drops through the opening in the ceiling and the springs draw the outer member up against the inner member.

It should be noted that the curtain just described has the following additional advantages:

not only do the springs pull the outer member against the ceiling, they act to pull the inner member downwards in the direction to start the curtain un-rolling in the event of the need for gravity deployment of the curtain;

the ability of the springs to extend allows the inner member to be less critically positioned when the roll is stopped from winding up by its limit switch. Thus less even rolling of the fabric can be tolerated.



CLAIMS:

1. An emergency curtain for installation at a ceiling opening comprising:
a curtain winding mechanism, a curtain roll connected to the winding
mechanism, curtain fabric wound on the roll and a bottom bar attached to the bottom
5 edge of the curtain fabric,
the bottom bar having:
an inner member secured to the fabric as such,
an outer member adapted to engage the ceiling at the opening and close
it and
10 resilient means connecting the inner member and the outer member for
drawing the outer member to the ceiling opening when the curtain is wound
up.
2. An emergency curtain as claimed in claim 1, wherein the outer member is of a
section and material such that the member is flexible for following ceiling
15 undulations.
3. An emergency curtain as claimed in claim 1 or claim 2, wherein the outer
member is adapted to engage the ceiling internally of the opening, with the member
engaging within the opening.
4. An emergency curtain as claimed in claim 1 or claim 2, wherein the outer
20 member is wider than the opening for engaging the underside of the ceiling.
5. An emergency curtain as claimed in any preceding claim, wherein the resilient
means comprises a series of spring connections between the inner and outer members.
6. An emergency curtain as claimed in claim 5, wherein the springs are arranged
longitudinally of the outer member with flexible connections turning their line of
25 action upwards to the inner member.
7. An emergency curtain as claimed in any preceding claim, wherein the inner
member has upwardly divergent lower sides, and the outer member has low flanges
extending up from its top surface, the flanges having upwardly divergent lips for
engagement with the lower sides of the inner members for centring of the inner and
30 outer members when in contact.
8. An emergency curtain substantially as hereinbefore described with reference
to Figure 1 to 3 of the accompanying drawings.