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(54) Safety curtain arrangement.

(57) There is disclosed a safety curtain arrangement comprising a flap-like member mounted to a ceiling and extending thereacross from wall to wall deployable between a stowed postiion in which it lies flush against the ceiling and an operative position in which it depends from the ceiling to form a barrier extending between the walls and the ceiling.

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SAFETY CURTAIN ARRANGEMENT

This invention relates to safety curtain arrangements, particularly, but not exclusively, to fire and smoke curtains.

Such arrangements conventionally comprise rolled up curtains which are unrolled to operative position. There may be automatic arrangements for unrolling the curtains upon the detection of fire or smoke, and these may allow the curtain to be unrolled by the force of gravity, the bottom of the curtain being weighted.

The weight required to ensure deployment to the operative position against what might be a substantial inertia of the rolled-up curtain and its spool, and also possibly the resistance less-than-friction-free bearings, can be substantial enough to create its own hazard, namely hurting somebody passing beneath it as the curtain unrolls.

The roller mechanism is in any event complicated and costly and aesthetically not very pleasing, presenting a bulky appendage extending across a ceiling which may spoil the lines the architect designed. Moreover, even with a heavy weight, deployment, involving unrolling, is not exactly instantaneous.

The present invention provides an improved safety curtain arrangement.

The invention comprises a safety curtain arrangement comprising a flap-like member mounted to a ceiling and extending thereacross from wall to wall deployable between a stowed position in which it lies flush against the ceiling and an operative position in which it depends from the ceiling to form a barrier extending between the walls and the ceiling.

The member in its operative condition may have ground clearance to provide an escape route across the barrier - this is usual in the case of smoke curtains, which remain effective so long as the upper part of the corridor, for example, is sealed.

The member may be hinged to the ceiling, or it may be arranged on running gear so that one end can deploy vertically downwardly while the other end runs along the ceiling into the operative position. This could reduce the need to keep wall areas clear of projections such as pictures, light switches, fire extinguishers and so on which would impede the downward motion of the flap member.

The curtain may be held in its stowed position by lifting gear, which can be used to restore it to its stowed position from its deployed position.

The lifting gear may comprise a piston-in-cylinder arrangement, which may hold the curtain in its stowed position under pressure and release it to its deployed position on release of pressure. The piston-in-cylinder arrangement may be pivoted at one end to the curtain and at the other end to the ceiling and arranged so that pressure causes contraction in length of the piston-in-cylinder arrangement so as to lift the curtain to its deployed position against the ceiling.

The lifting gear may however comprise a cable drum driven by a motor, which may be an air motor which, on release of air pressure, frees the drum to release the curtain to its deployed position.

The stowed curtain may conceal a smoke ventilator, which may become operative when the curtain deploys to its operative position, simply, even, as by the flap member uncovering the ventilator. If the curtain arrangement is in an intermediate floor level, the smoke ventilator could be ducted through the floor above.

Safety curtain arrangements according to the invention will now be described with reference to the accompanying drawings, in which :-

Figure 1 is a cross-section through a corridor having one arrangement installed therein;

Figure 2 is a cross-section like Figure 1 with another arrangement;

Figure 3 is a cross-section like Figure 1 of another arrangement;

and Figure 4 is a cross-section like Figure 1 of yet another arrangement.

The drawings illustrate safety curtain arrangements comprising a flap-like member 11 mounted to a ceiling 12 and extending thereacross from wall to wall (full lines) in which it is flush against the ceiling and an operative position (dashed lines) in which it depends from the ceiling 12 to form a barrier extending between the walls and the ceiling.

The member 11 in each case is shown as having ground clearance "C" to provide an escape route across the barrier.

Figure 1 illustrates an arrangement in which the member 11 is hinged (at 13) to the ceiling 12.

Figure 2 illustrates an arrangement in which the member 11 is arranged on running gear 14 so that one end 11a can deploy vertically downwardly while the other end 11b runs along the gear 14 on the ceiling 12 into the operative position.

The arrangements can be operated by gravity, a detent 16 being withdrawn automatically upon detection of fire or smoke or other hazard condition as by a smoke detector 17.

Figures 3 and 4 illustrate arrangements in which the curtain is held in its stowed position by lifting gear 31 which can be used to restore the curtain to its stowed position from its deployed position.

Figure 3 illustrates lifting gear 31 comprising a

piston-in-cylinder arrangement 32 which holds the flap-like member 11 in its stowed position under pressure and releases it to its deployed position (under gravity) on release of pressure. The piston-in-cylinder arrangement 31 is pivoted at one end 31a to the member 11 and at the other end 31b to the ceiling and arranged so that pressure causes the piston to retract into the cylinder so as to lift the member 11.

Figure 4 illustrates lifting gear 31 comprising a cable drum 41 driven by an air motor 42 arranged, so long as pressure is on, to act as a brake to hold the cable drum 41 stationary but on release of pressure to release the drum to allow the member 11 to drop under gravity. The cable 43 may of course be of rope, wire chain, or any other suitable means.

The stowed curtain can conceal a smoke ventilator 15 in each case.

The arrangements illustrated are capable of rapid installation and of inexpensive construction, with little or nothing to go wrong or require maintenance. They can be recessed into the ceiling so as to be particularly unobtrusive.

Claims

1. A safety curtain arrangement comprising a flap-like member mounted to a ceiling and extending thereacross from wall to wall deployable between a stowed position in which it lies flush against the ceiling and an operative position in which it depends from the ceiling to form a barrier extending between the walls and the ceiling.

2. An arrangement according to claim 1, in which the member in its operative condition has ground clearance to provide an escape route across the barrier.

3. An arrangement according to claim 1 or claim 2, in which the member is hinged to the ceiling.

4. An arrangement according to claim 1 or claim 2, in which the member is arranged on running gear so that one end can deploy vertically downwardly while the other end runs along the ceiling into the operative position.

5. An arrangement according to any one of claims 1 to 5, in which the curtain is held in its stowed position by lifting gear, which can be used to restore it to its stowed position from its deployed position.

6. An arrangement according to claim 5, in which the lifting gear comprises a piston-in-cylinder arrangement.

7. An arrangement according to claim 6, in which the piston-in-cylinder arrangement holds the curtain in its stowed position under pressure and releases it to its deployed position on release of pressure.

8. An arrangement according to claim 6 or claim 7, comprising a piston-in-cylinder arrangement pivoted at one end to the curtain and at the other end to the ceiling and arranged so that pressure causes contraction in length of the piston-in-cylinder arrangement so as to lift the curtain to its deployed position against the ceiling.

9. An arrangement according to claim 5, in which the lifting gear comprises a cable drum driven by a motor.

10. An arrangement according to claim 9, in which the motor is an air motor.

11. An arrangement according to any one of claims 1 to 10, in which the stowed curtain conceals a smoke ventilator.

12. An arrangement substantially as hereinbefore described with reference to the accompanying drawings.

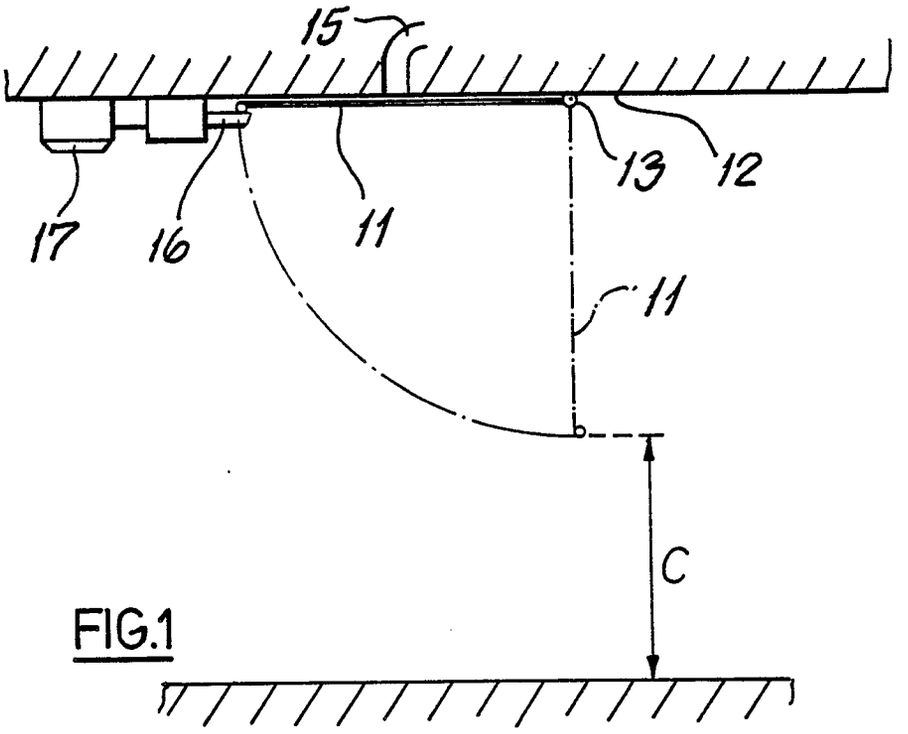

FIG.1

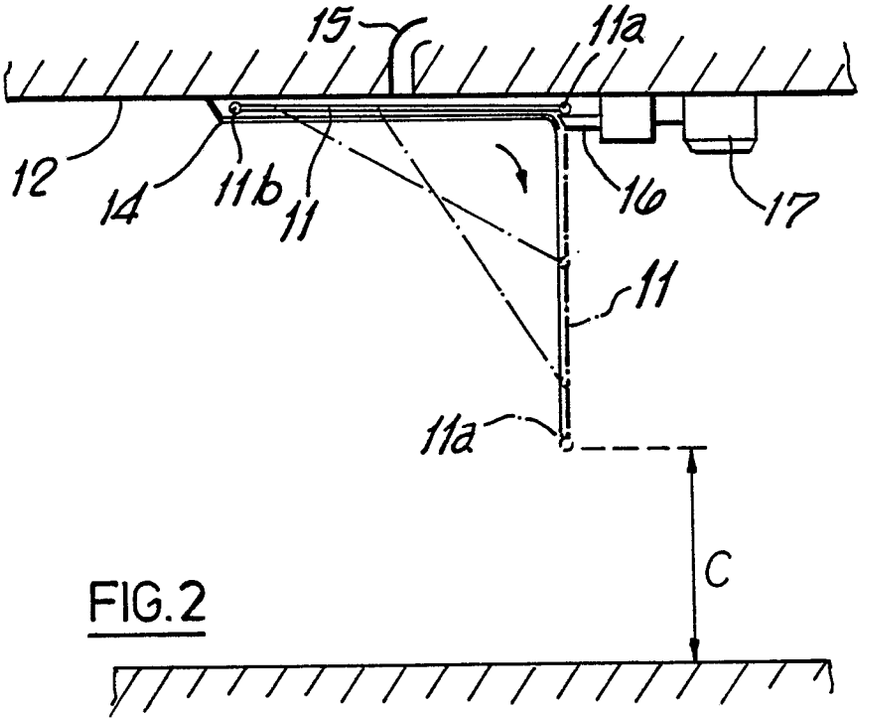

FIG.2

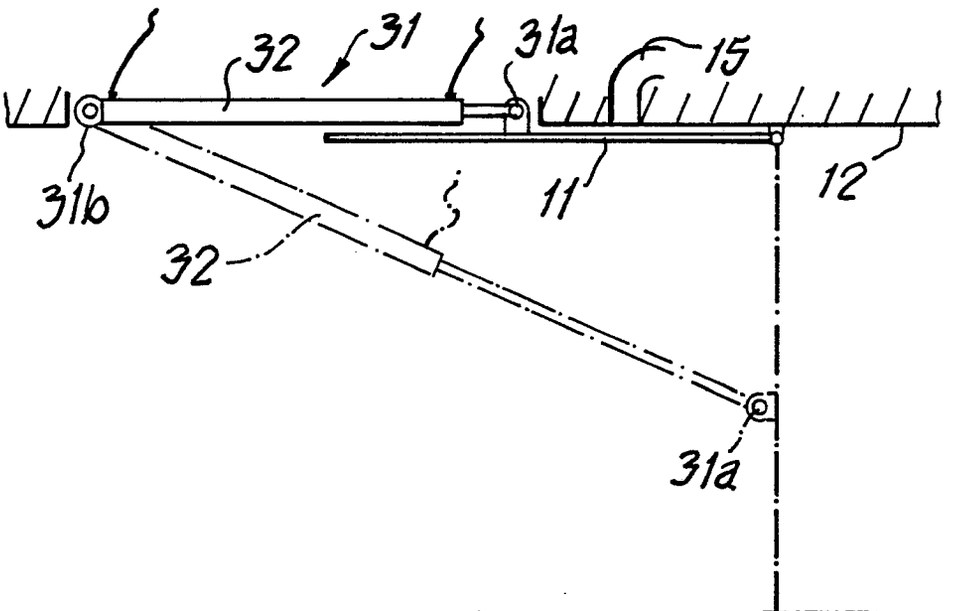

FIG.3

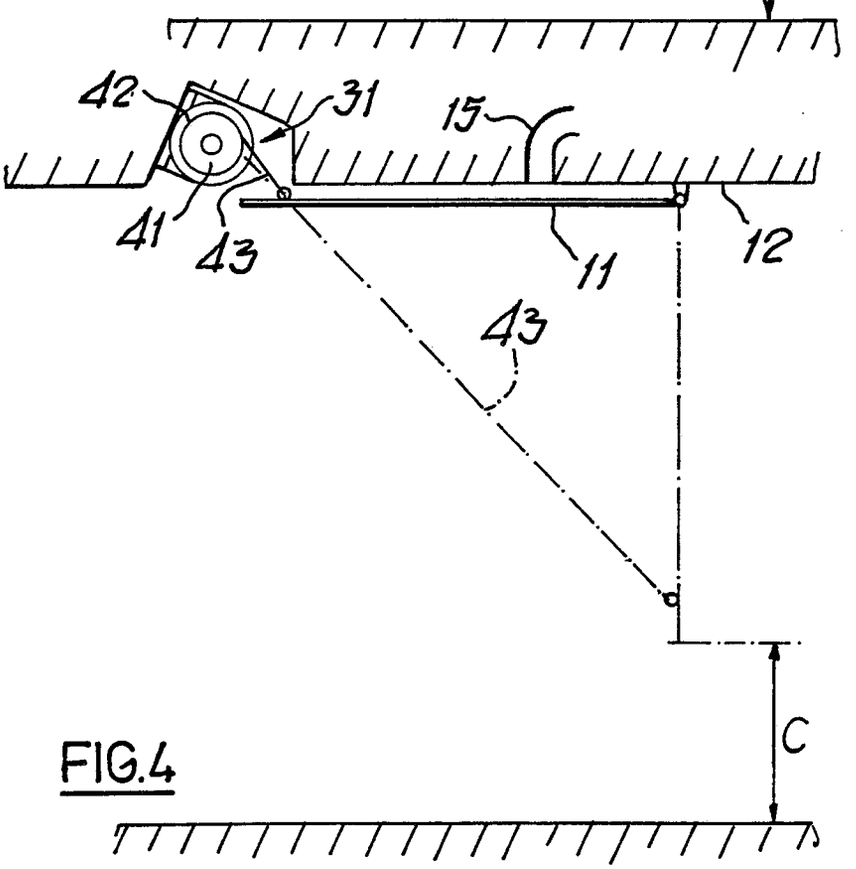

FIG.4