Oct. 5, 1965 M. A. FREEDMAN 3,209,837

FIRE EXTINGUISHING APPARATUS

Filed May 16, 1963 2 Sheets-Sheet 1

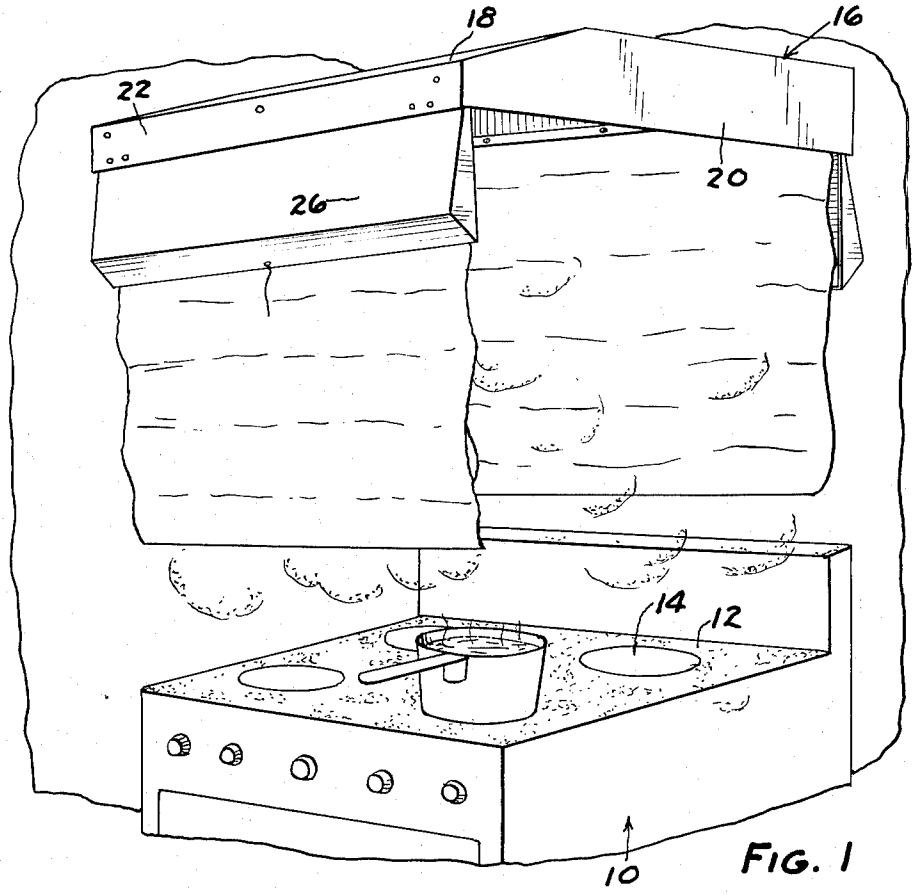


FIG. 1

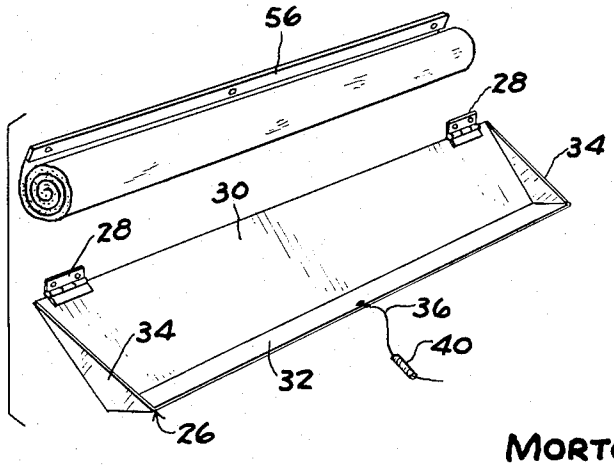


FIG. 2

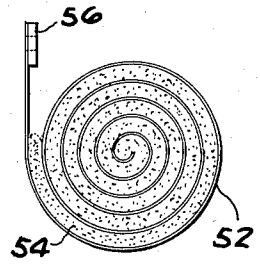


FIG. 3

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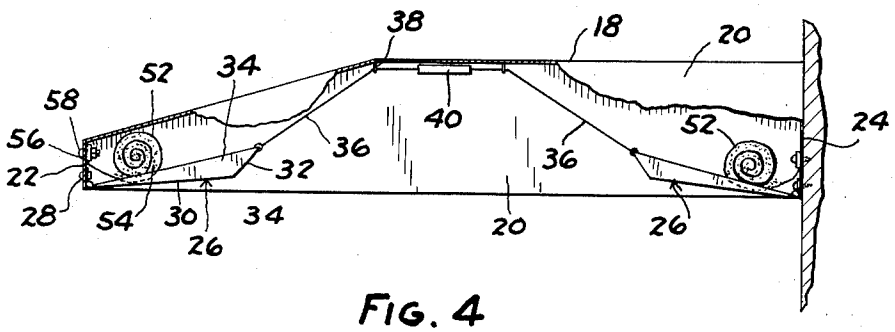


FIG. 4

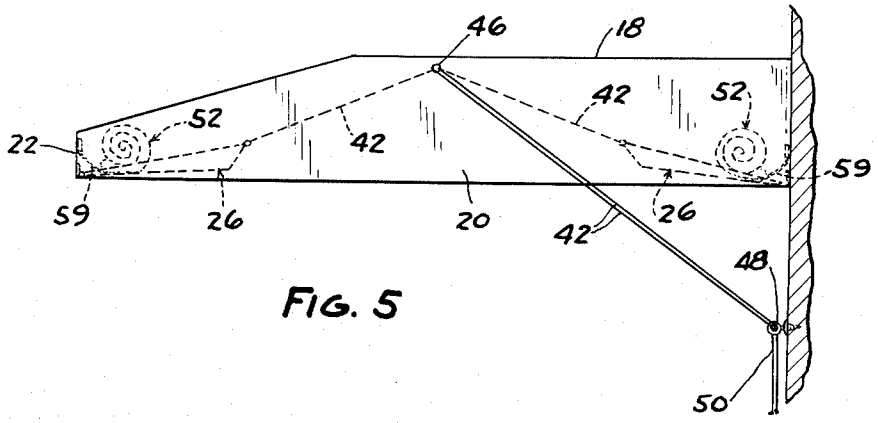


FIG. 5

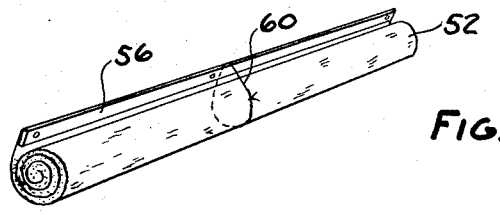


FIG. 6

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3,209,837
Patented Oct. 5, 1965

3,209,837

FIRE EXTINGUISHING APPARATUS

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Filed May 16, 1963, Ser. No. 280,880
15 Claims. (Cl. 169—42)

This invention relates to a fire extinguishing apparatus and more particularly to a device of this character that is particularly adapted for use in conjunction with a hood structure mounted over an area where combustion may likely occur such as the top of a stove, a laboratory heating device, etc.

The occurrence of stove top fires in kitchens is not an uncommon occurrence. In many such kitchens, a hood structure is mounted over the stove top to collect fumes, odors, etc. emanating from the product being prepared on the stove. I have devised a fire extinguishing device admirably adapted for use with such hood structures to extinguish a fire that might develop in the area which the hood structure overlies.

The object of this invention is to eliminate the danger of such fires causing considerable damage. This is accomplished by providing a roll of inexpensive heat-resistant material such as metal foil having a powder material, such as baking soda, adapted to extinguish a fire, loosely retained within the convolutions of the roll, the roll being anchored to the hood structure at the outer end of the sheet so that when released, it unwinds in a downward direction to disperse a fog of the powder material over the area which the hood overlies and thereby extinguish a fire which may have ignited at such area.

In the drawings:

FIG. 1 is a fragmentary perspective view of a stove and a hood structure therefor which incorporates the present invention.

FIG. 2 is a perspective view of a portion of the hood structure of the present invention.

FIG. 3 is an end view of the fire extinguishing roll of the present invention.

FIG. 4 is a sectional view illustrating one form of roll releasing means according to the invention.

FIG. 5 is a sectional view illustrating another form of roll releasing means according to the invention.

FIG. 6 is a further modification of the invention illustrating the simplest form which the invention may take.

In FIG. 1, the numeral **10** generally designates a stove, the top **12** of which is provided with a plurality of burners or heating elements **14**. Above the stove, there is supported by any suitable means a hood **16** having a top wall **18**, two side walls **20** and front and rear walls **22** and **24**, respectively. Adjacent the lower edges of the front and rear walls **22** and **24**, there are hingedly supported within the hood structure a pair of shelf-like members **26**. Each member **26** has a hinge connection as at **28** with a lower edge of the respective wall on which it is supported and each member **26** has a bottom wall **30** which inclines upwardly as at **32** along the edge thereof remote from the hinge connection **28**. The members **26** are provided with end walls **34** at each end. The dimensions of members **26** are such that they can be pivoted upwardly about the hinge connection **28** to a position nested within the hood structure as shown in FIGS. 4 and 5. Suitable means are provided for retaining the shelf-like members **26** in the upwardly hinged or nested position illustrated in FIGS. 4 and 5.

In the showing of FIG. 4, these means are in the form of flexible elements such as wires or the like **36** which are extended through a pair of eye supports **38** with the ends of the flexible elements **36** interconnected by a heat responsive element **40**. The element **40** may take any of

several forms. This element may be in the form of a combustible heat fusible member which simply melts and permits the wires **36** to part or it may comprise a thermostatic element which mechanically releases wires **36**. In any event, the member **40** is designed such that when it is subjected to a predetermined high temperature, it releases wires **36** and causes the two shelf-like members **26** to swing downwardly under the influence of gravity about the hinge connections **28** to the positions shown in FIG. 1.

In the showing of FIG. 5, the two shelf-like members **26** are interconnected by wires **42** which in turn are connected to a flexible actuating element such as a wire or cable **44** that passes through one end wall **20** of the hood structure as at **46**. The actuating element **42** is designed to pass through an eyelet **48** and extend to a position remote from the hood structure as at the trailing end **50** thereof to be hooked onto a retaining hook, not illustrated. In the arrangement illustrated in FIG. 5, if a fire should occur on the stove top **12**, then the trailing end **50** of the actuating element is manually released which causes the two shelf-like members **26** to swing downwardly to the position illustrated in FIG. 1.

The essence of the present invention resides in the specific fire extinguishing means employed in connection with the hood structure **16**. These means are in the form of a roll **52**. Roll **52** is preferably formed of a sheet of flexible, dead soft fire resistant material such as metal foil. The sheet is rolled up and in the process of rolling up the sheet to form the roll **52**, a layer of powder material **54** such as baking soda or any other powder having the ability to smother a fire when dispersed thereover is incorporated between the successive convolutions of the roll. In forming a roll such as illustrated at **52**, the sheet material is laid in the flat and a layer of the fire extinguishing powder is spread thereover. Thereafter, the sheet is rolled up so that the powder material **54** is loosely retained between the convolutions of the roll. The outer end of roll **52** is preferably provided with a reinforcing member **56** that is adapted to be secured to the hood structure as at **58**. The rolls **52** are otherwise unsupported within hood structure **16**. In other words, the rolls **52** simply rest on the shelf-like members **26** with the outer ends of each roll sheet anchored to the hood structure as at **58**. With this arrangement, it will be appreciated that when the shelf-like members **26** are released, either automatically by means of the heat responsive element **40** or by manually releasing the flexible element **50**, the two members **26** will swing downwardly about hinge connections **28** and thereby cause the two rolls **52** to unwind in a downward direction by reason of gravity. As the rolls **52** unwind, the fire extinguishing powder **54** retained between the convolutions thereof is thrown and dispersed laterally and downwardly by this unwinding action as a cloud throughout the space which the hood overlies. In this manner, it smothers the fire which may have ignited on the stove top. If desired, leaf springs **59** may be fastened to the hood structure with one end thereof pressing downwardly on the shelf-like members **26** so that when the members **26** are released, their downward swinging movement will be accelerated by the action of leaf springs **59**. A more violent dispersal of the fire extinguishing powder **54** may thus be obtained.

In FIG. 6, I have illustrated what is probably the most simple form of fire extinguishing apparatus in accordance with this invention. In this modification, the roll **52** is retained in the rolled form by being bound with a burnable cord **60** such as twine or the like. Roll **52** may, if desired, be provided with the reinforcement **56** along one edge thereof. The form of roll shown in FIG. 6

also comprises the replaceable cartridge or roll for use with the hood structure shown in FIGS. 1 through 5. If desired, the shelf-like members **26** might be eliminated and the burnable cord **60** used in place thereof. With the latter arrangement, the rolls **52** would unwind when the cords **50** burned through to release the rolls.

Thus, it will be seen that I have provided a fire extinguishing apparatus that is economical and positive in its action. It does not involve the use of many mechanical parts and thus is substantially fool-proof in its operation. Furthermore, it is adapted to be employed in conjunction with new or existing hood structures over kitchen stoves and in no way detracts from the appearance of the hood structure because it is substantially concealed when retained in position ready for extinguishing a fire.

I claim:

1. Fire extinguishing apparatus comprising a thin sheet of fire resistant material in the form of a loosely wound roll, a fire extinguishing material in powder form loosely retained between the convolutions of the roll, means supporting the roll horizontally, means anchoring the outer end of the sheet and means for moving said support means from supporting relation to the roll whereby to permit the roll to unwind and by said unwinding action disperse said powder material over an area substantially greater than that occupied by said wound up roll.

2. Fire extinguishing apparatus as called for in claim **1** wherein said support means comprises a pivotally supported shelf-like member and means for retaining the shelf-like member in a generally horizontally disposed position.

3. Fire extinguishing apparatus as called for in claim **2** wherein the means for moving the support means comprises means for actuating said shelf-retaining means to permit the shelf-like member to pivot downwardly under the influence of gravity.

4. Fire extinguishing apparatus as called for in claim **1** wherein said means for moving said support means are of the manually actuated type.

5. Fire extinguishing apparatus as called for in claim **1** wherein said means for moving said support means includes a release member responsive to a predetermined high temperature to release said support means.

6. In a hood structure adapted to be supported above an area where combustion may likely occur, the combination of a support mounted on the hood for movement from a supporting position to a non-supporting position, means for retaining said support in said supporting position, a sheet of fire resistant material wound into a roll and supported on said support means, said roll being of relatively small diameter relative to the overall dimensions of said hood and said area, a fire extinguishing powder loosely retained between the convolutions of the roll, the outer end of the roll being anchored to the hood structure and means for releasing said support means to thereby cause the roll to unwind in a downward direction and thereby forcibly disperse said powder over said area.

7. A hood structure as called for in claim **6** wherein said release means is manually operable.

8. A hood structure as called for in claim **6** wherein said release means comprises a heat responsive member

adapted to release the support when the temperature thereof exceeds a predetermined maximum value.

9. In a hood structure adapted to be supported over an area where combustion may likely occur, the combination of a flexible sheet of fire resistant material wound into a roll with its outer end anchored to the hood structure, said roll being of relatively small diameter relative to the overall dimensions of said hood and said area, a fire extinguishing material in the form of a powder loosely retained between the convolutions of the roll, means retaining the sheet in roll form and adapted to be released to permit the roll to unwind downwardly and thereby forcibly disperse the powder material over said area.

10. In combination, a hood adapted to be mounted above an area where a fire may likely occur, a flexible sheet of fire resistant material wound into a roll and having its outer end anchored to the hood structure, said roll being of relatively small diameter relative to the overall dimensions of said hood and said area, a fire extinguishing material in powder form loosely retained between the convolutions of the roll and releasable means for supporting said sheet in said roll form within the hood structure such that when the last mentioned means are released, the roll unwinds downwardly from within the hood structure and forcibly disperses the powder material over the area which the hood overlies.

11. The combination called for in claim **10** wherein said releasable means includes a heat responsive element which, when heated to a predetermined high temperature, is adapted to release the roll.

12. The combination called for in claim **10** wherein said last mentioned means comprises a support mounted on the hood structure for movement from a roll supporting position to a non-supporting position, means for retaining said support in said roll supporting position and means for releasing said retaining means to move said support to said non-supporting position.

13. The combination called for in claim **12** wherein said support comprises a shelf-like member hinged to said hood structure to swing downwardly when released.

14. The combination called for in claim **13** wherein said release means are adapted to be actuated in response to being heated to a predetermined high temperature.

15. The combination called for in claim **13** wherein said release means are adapted to be manually actuated.

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