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2,568,276

WALL SHIELD FOR COOKING STOVES

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FIG. 1.

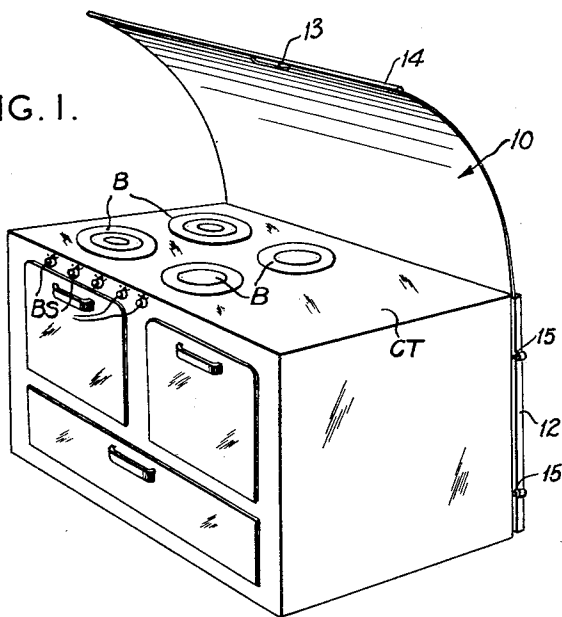


FIG. 2.

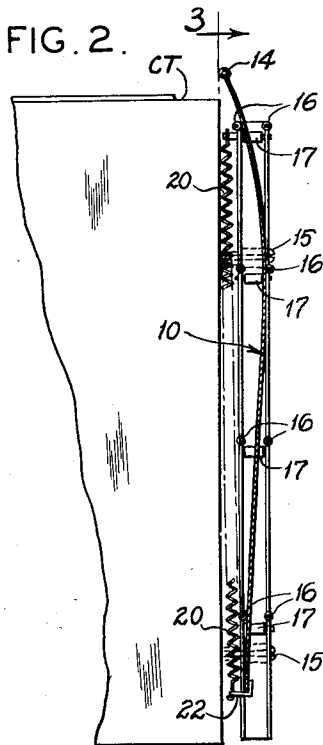


FIG. 3.

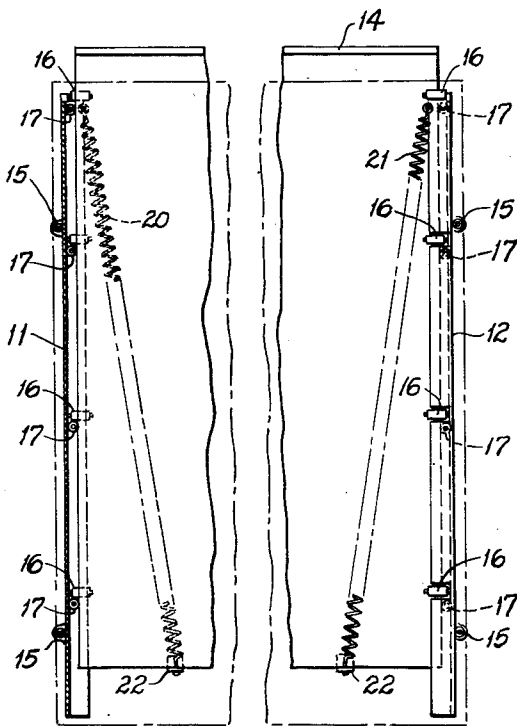


FIG. 4.

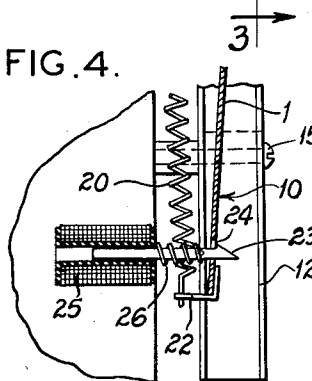
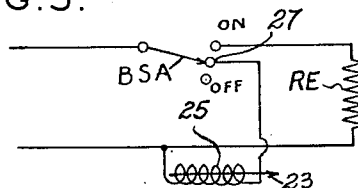


FIG. 5.



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WALL SHIELD FOR COOKING STOVES

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6 Claims. (Cl. 126—1)

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This invention relates to wall shields for cooking stoves, and more particularly to a retractable or disappearing canopy assembly arranged to serve the primary purposes of a deflector for volatiles and smoke emanating from the cooking top of the stove, and a shield to protect wall areas at the rear of the stove.

There have occasionally appeared in the trade various forms of canopy, protector or guard extending upwardly of the rear part of the cooking top of ranges and other types of cooking stoves. As far as is known to this applicant, all such devices have been of rigid character, or in any event not of such nature that they might be retracted or caused to disappear between periods of active use, to afford a better appearance and to enable better access to the space around and above the stove. It is accordingly a major objective of the invention to provide a low cost, readily attachable, disappearing canopy or shield for use with cooking stoves.

An important objective of the invention is realized in an improved light weight canopy element for the purpose noted, which, by reason of its low mass and light weight may be easily actuated between active and inoperative positions. The attainment of this objective further includes the provision of guiding means of a type which will serve positively to constrain and direct the disappearing member in all parts of its range of movement.

Yet another and important aspect of the invention is realized in a light weight member of sheet form for use as a wall guard and stove canopy, which member is self-supporting in a bowed form when in a position of use, and which is of such inherent flexibility that for minimization of space requirement, it may be brought substantially to a planar form in its inactive or disappearing relation to the stove.

A still further object of the invention is realized in an improved arrangement of biasing means aiding materially in the movement of the canopy from one limit to another of its range of travel.

An additional objective is realized in the provision of improved latching means and latch-operating means serving virtually to render the device automatic, at least in its movement in one direction. This facility in its most advanced form, is best utilized as an attachment to, or an added facility of electric cooking stoves.

The foregoing and numerous other objects will more clearly appear from the following detailed description of a presently preferred embodiment of the invention, particularly when considered

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in connection with the accompanying drawing, in which:

Fig. 1 is an isometric view of a cooking stove to which the present improvements are applied;

Fig. 2 is a vertical sectional elevation somewhat enlarged, showing certain features of the trackage and retracting springs for the flexible canopy member;

Fig. 3 is an elevation, partly in section, of the assembly as shown by Fig. 2, and particularly as viewed along line 3—3 thereof;

Fig. 4 is a detail view of a latch and latch-operating assembly employed to retain the canopy element in one of its positions, this being as shown, a retracted position of the shield or canopy, and

Fig. 5 is a circuit diagram illustrating one manner of consolidating the control circuit for an electromagnetic latch, with a burner switch of an electric stove.

Referring now by characters of reference to the drawing, the stove selected as an example may consist of an electric range of somewhat conventional construction, and includes a plurality of burners B, a plurality of burner switches BS, there being indicated on this figure solely for reference, a cooking surface, level or top indicated at CT.

More particularly characterizing the present improvements is a flexible, disappearing or retracting canopy or shield member generally indicated at 10, and which may be formed of stainless steel, aluminum, or other suitable non-corroding metal of a character such that it may be easily cleaned and is not subject to rusting, tarnishing or stains from cooking volatiles. The element 10 is preferably of a sheet material of flexible construction and a suitable gauge, although not necessarily formed of metal. Without intended restriction it may be noted that the member 10 may consist of any of several available plastic materials, such, for example, as certain of the so-called low-pressure laminates. It is a preference that irrespective of the material selected for the canopy, it is given at the time of its formation an initial curvature which approximates a portion of a cylinder. By preference, the lowermost one-third of the area of the canopy 10 (Fig. 1) is given a relatively reduced curvature, i. e. on a very large radius, whereas to the outermost one-half or two-thirds, proceeding upwardly and outwardly of the cooking surface, is imparted a greater curvature, i. e. on a smaller radius. From this it will now appear that the canopy or shield, when in the op-

erative position shown by Fig. 1, projects upwardly of and forwardly over the cooking top CT.

It is of course desirable to provide a suitable form of trackage for the purpose of guiding the sheet member or canopy 10 through its range of movement between fully operative position, and fully retracted or disappearing position, the former position being shown by Fig. 1 and the latter by Figs. 2 and 3. In the present example and as a preference, the trackage consists of a pair of channel members 11 and 12. These are vertically disposed, preferably slightly to the rear of the stove and in such locations that the member 10 is in width, at least fully coextensive with, or exceeds as is sometimes desirable, the length of the stove. The proportion of canopy to stove dimensions serves fully to protect the wall behind the stove, from particles of grease, smoke, volatiles and other cooking emanation otherwise likely to stain the wall. The channel members 11-12 open toward each other, and each receives one of the opposite lateral marginal portions of the sheet element 10. The length of the guide channels 11-12 is preferably such that, even when the canopy member 10 is fully extended as in Fig. 1, at least a length of several inches thereof remains in engagement with the channels and thus affords plenary support for the canopy in this position. When the canopy is in retracted position, it is a preference that a portion of the shielding member project slightly above the cooking top of the stove as will appear from Fig. 2, in order that the outermost margin may be grasped and the member 10 drawn upward to its fully operative position. For ease of manipulation, it is a preference to provide the shield or canopy 10 with a handle-forming aperture 13 and in order better and permanently to preserve the shaping of the flexible canopy, it is provided with a full width bead 14 which, if the element be of metal, may be imparted as by rolling, crimping or any of the usual beading operations.

In order to facilitate both the withdrawal and the restoring movement of the canopy, each of the channels 11 and 12 is preferably provided with a plurality of rollers. If these be limited in number, a preference is to employ in each channel a first series of rollers 15 each mounted on a suitable pivot pin as shown which extends transversely of the channel so that each roller lies at substantially a right angle to the plane of the canopy element, and is engaged during movement of the latter, by the adjacent edge thereof. The sheet is thus guided in a fixed course, with rolling engagement of its sides, and without lateral deviation from its path.

As a further guiding expedient each of the channels preferably includes a series of rollers engaging the opposite side faces of the member 10 adjacent its margins, the rollers of this group being indicated at 16, and each operating on a pin which is substantially parallel to the plane of the member 10. Each channel contains two sets of these rollers certain of which engage the frontal margin and others the rear margin of the canopy. Since the most advanced and preferable design includes series of rollers of both said arrangements, it will appear that the flexible canopy sheet 10 is in this manner entirely precluded from rubbing action with any part of the guide elements themselves.

By reason of the initially bowed conformity of the canopy, it has been noted as a preference to locate the guide channels slightly spaced to the rear of the stove. This may be accomplished

by assembling the guide channels to the stove with long screws, the locations of which are indicated at 17 and which carry spacers (not shown) between the channel and the stove. Alternately, toggle bolts or the like (not shown) may be employed, or other suitable fastening means may be utilized.

The device as thus far described is complete and fully operative, but will require a moderate manual effort for moving the canopy between its operative and disappearing positions. It is accordingly a distinct advantage to provide spring means which may be loaded when the canopy is in either position, the spring bias serving to restore it to the opposite extreme of its path of travel. In the example selected, there are provided two elongate tension springs 20 and 21, each having a fixed anchorage at its upper end and a movable anchorage, as through L-shaped clips 22, to the lower margin of the member 10. In the arrangement shown the springs are substantially relieved of loading when the canopy is raised. Friction between the relatively moving parts, partly by reason of the bowed construction of the canopy, will usually be sufficient to retain the canopy in its retracted position, only a negligible effort being required upon engagement of the handle portion 13 to bring the canopy up to its operative placement. A loading of springs may however be selected such that a latch member is necessary to retain the canopy, for example, in its retracted location, and so that upon release of the latch, the loading of the springs 20 and 21 will immediately bring the canopy to its uppermost or operative position. In this case an upper limit of movement is definitely established as by suitable stop lugs (not shown) or alternately by disappearance of the spring loading when the canopy has been elevated to the desired extent.

A latch member, when such expedient be employed, conveniently consists of a horizontally movable rod 23, having a latch head coacting with an aperture 24 located just above the lowermost margin of the sheet member 10. A pair of latch elements 23 coacting with a pair of such apertures may be provided near the opposite side margins of the canopy. Although the latch may be remotely operated by manual actuation, in the case of electric cooking stoves, a latch of electromagnetic character is conveniently provided as suggested by Figs. 4 and 5. In this arrangement it will be assumed that the loading of springs 20 and 21 is sufficient fully to elevate the canopy and with this feature the latch element or bar 23 is part of or connected to the armature of an electromagnet 25, the arrangement being such that when magnet 25 is energized, the latch bar 23 will be moved to the left against the loading of a spring 26 and withdrawn from the latch keeper opening 24, whereupon the loading of springs 20 and 21 will raise the canopy. When the canopy is again lowered, its lowermost margin acting on the camming face of the latch 23, will first cause a partial withdrawal of the latch, and as soon as the opening 24 is brought into register with the latch arm the latter will project therethrough and retain the canopy in the position shown.

In the electric stove installations, in order to assure that the canopy will be brought to active or operative position prior to cooking, the solenoid 25 may be energized incident to the act of moving one or any of the arms of the burner switches BS from an "off" to and "on" position.

A diagrammatic arrangement of such facility is included in Fig. 5, wherein BSA represents a movable switch arm of one of the burner switches, the resistance heating element of the burner being indicated at RE, and the winding of the electromagnet at 25. This arrangement includes an intermediate fixed contact between the "off" position and the adjacent "on" position of the burner, which is indicated at 27 and may be referred to as a sweep contact, since it need be only momentarily traversed and contacted by the switch arm BSA for momentary energization of magnet 25 for the short yet sufficient time to withdraw the latch 23.

The manner of manipulation of the retractable canopy element will have become fully apparent from the foregoing description, with attention particularly directed to the fact that it augments only to a minimal extent when in retracted position, the normal dimensions of the stove without the present improvements.

Although there exists a wide choice of materials from which the canopy element proper may be formed, it is preferred that it be non-conductive and heat-insulating in character, as well as distinctly fire proof. Many of the plastic materials as well as aluminum, stainless steel and other materials, will possess inherently the desirable characteristic of effecting condensation of cooking vapors. The smooth widely curved waterproof surface of the shield or canopy is such that it is easily cleaned and may be kept sanitary and in good appearance at all times. The fact of condensation, as has been shown by experiments, actually prevents a great proportion of cooking vapors and staining particles from reaching the wall surfaces of the room.

When the device is in its position of utility, its smooth almost cylindrical surface, serves as a full width deflector, wall guard or canopy, so that smoke, volatiles and the like are, upon rising, either condensed or carried safely away from the walls in avoidance of the prevalent wall-staining effects. The device otherwise fully realizes each of the several objectives hereinabove expressed as well as others implied from the description.

Although the improvements have been referred to by detailed description, the specific nature thereof should be regarded as applicable only to a single embodiment, being instructive rather than limiting, numerous variants being possible within the scope of the claims hereunto appended.

I claim as my invention:

1. In a disappearing canopy for use with cooking stoves, a sheet metal canopy element, a pair of substantially vertical channeled guide members located at the rear of the stove and secured thereto, and in and along which the canopy is movable between a disappearing position and a position of active use in which it extends upwardly of and forwardly over the cooking level of the stove, rollers carried by the channel members for rolling engagement with the side marginal portions of the canopy, certain of said rollers being located on axes parallel to the path of the canopy and others of said rollers being mounted with their axes at substantially a right angle to the path of movement of the canopy between its operative and inoperative positions.

2. In a disappearing canopy for use with cooking stoves as a deflector for volatile substances and a shield for a wall in the region of the stove,

a flexible concavo-convex sheet member of a substantially part-cylindrical form and adapted to extend upwardly of and forwardly over the cooking top of the stove, the canopy member being of such section as to present a substantially greater degree of curvature in its outermost region, and a substantially lesser degree of curvature near its lowermost portion, and further being of a flexibility to enable its restoration upon moderate stress, to a substantially planar form, a pair of guide channels having openings presented toward each other and located rearwardly of and in spaced relation to the stove and being secured thereto, the guide channels being so located and dimensioned as to receive the lateral marginal portions of the canopy and to act in guiding relation thereto, the canopy adapted to be moved substantially into a position in register with the channels to assume an out-of-action relation to the stove, a plurality of guide rollers carried by the channels with their axes at right angles to the plane of movement of the canopy, an additional series of guide rollers carried by the channels and located with their axes substantially parallel to the path of movement of the canopy, a plurality of tension springs each having a fixed anchorage to an upper portion of one of the channels, and an opposite anchorage near the lower portion of the canopy, the canopy being movable against said springs as it is moved to a disappearing or retracted position substantially rearwardly of the stove, and latch means coacting with the canopy for retaining same in its retracted position against the loading of said springs, whereby upon release of the latch, the canopy tends to assume an elevated or operative position partly within but with the major portion of its area outside of the guide channels.

3. In a disappearing canopy assembly for use with cooking stoves, a retractable canopy element formed of a sheet of material bowed to present a concave frontal aspect and adapted to be moved to a substantially disappearing or retracted position rearwardly of the stove and to be moved therefrom to a position upwardly and forwardly over the cooking level of the stove, trackage means for guiding the canopy between its limits of movement, the trackage means being of a form to straighten the canopy sheet when retracted spring means arranged for urging the canopy toward one limit of its movement, latch means for retaining the canopy in an opposite position and electromagnetic means for actuating the latch.

4. In a disappearing canopy assembly for use and in combination with an electric cooking stove, a canopy element movable between lowered and raised positions, spring means connected to the canopy and acting to bias same toward one of its limits of movement, a latch coacting with the canopy to retain it in one of its opposite positions, electromagnetic means for controlling the latch, a burner and burner switch constituting elements of the stove, a circuit for energizing the stove burner and the electromagnetic means, and a switching device for the electromagnetic means including parts of and arranged for actuation by the burner switch.

5. The combination and arrangement of elements as recited by claim 4 but further characterized in that the switching means controlling the burner, and the electromagnetic latch controlling means, includes a sweep contact adapted to be traversed by a switch arm incident to con-

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trol of the burner between "off" and "on" positions.

6. In a retractible canopy structure for attachment to cooking stoves, a sheet metal canopy of a normally part-cylindrical or bowed form, adapted in a position of use, to extend upwardly and forwardly over the cooking top of the stove, a pair of channel elements of substantially linear form vertically arranged rearwardly of the stove, and adapted to receive opposite marginal portions of the canopy, the channel elements being of a width to exert a straightening effect on the canopy when moved downwardly therein, and a plurality of guide rollers carried by the channel members, said rollers adapted to engage the lateral edges of the canopy and being disposed on axes normal to the path of movement of the canopy when same is actuated between

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an inoperative position substantially at the rear of the stove, and the said operative position.

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