July 6, 1948. E. J. THOMES 2,444,862

GRID FOR FLUID FUEL STOVES

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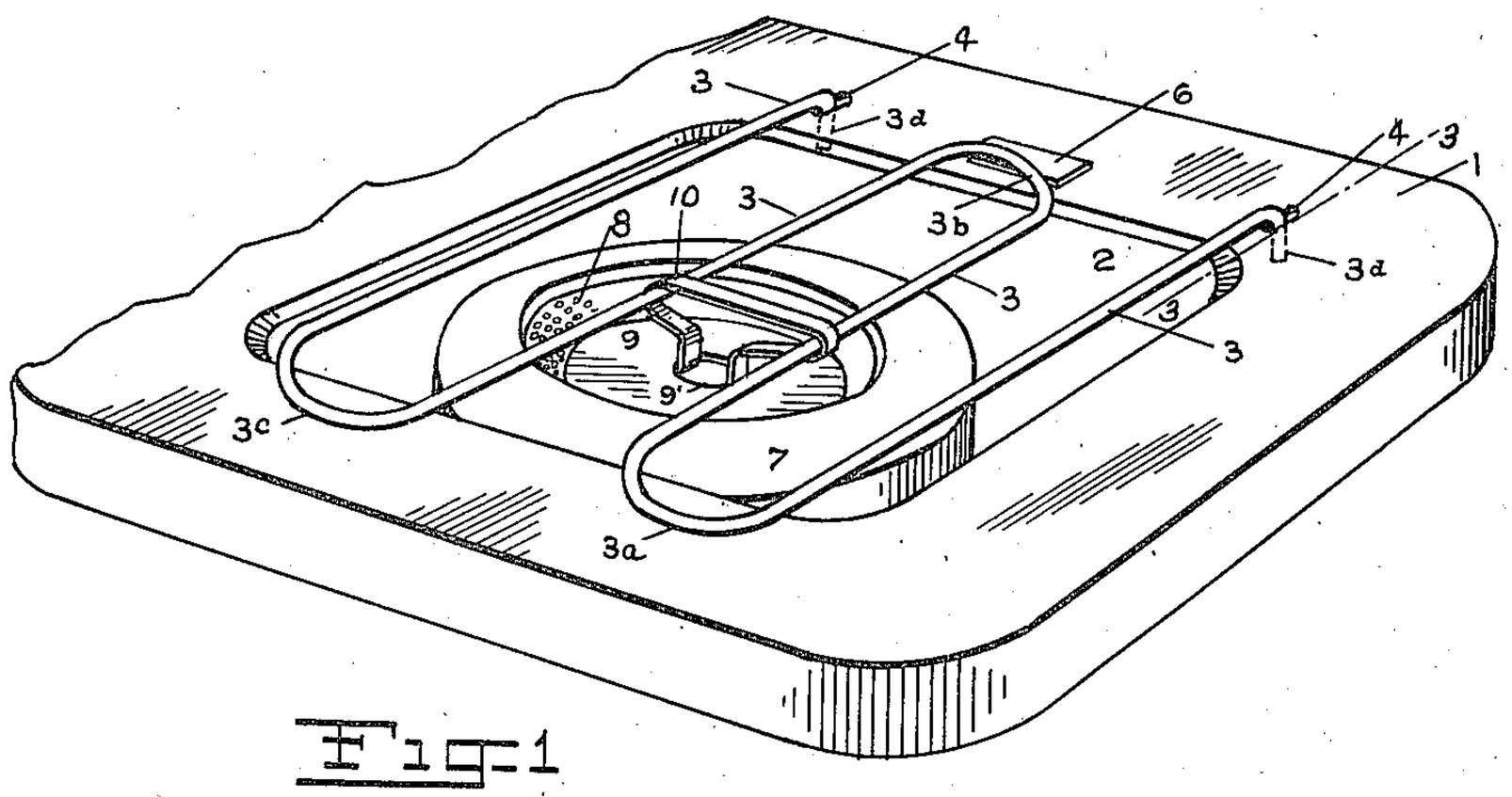

Fig-1

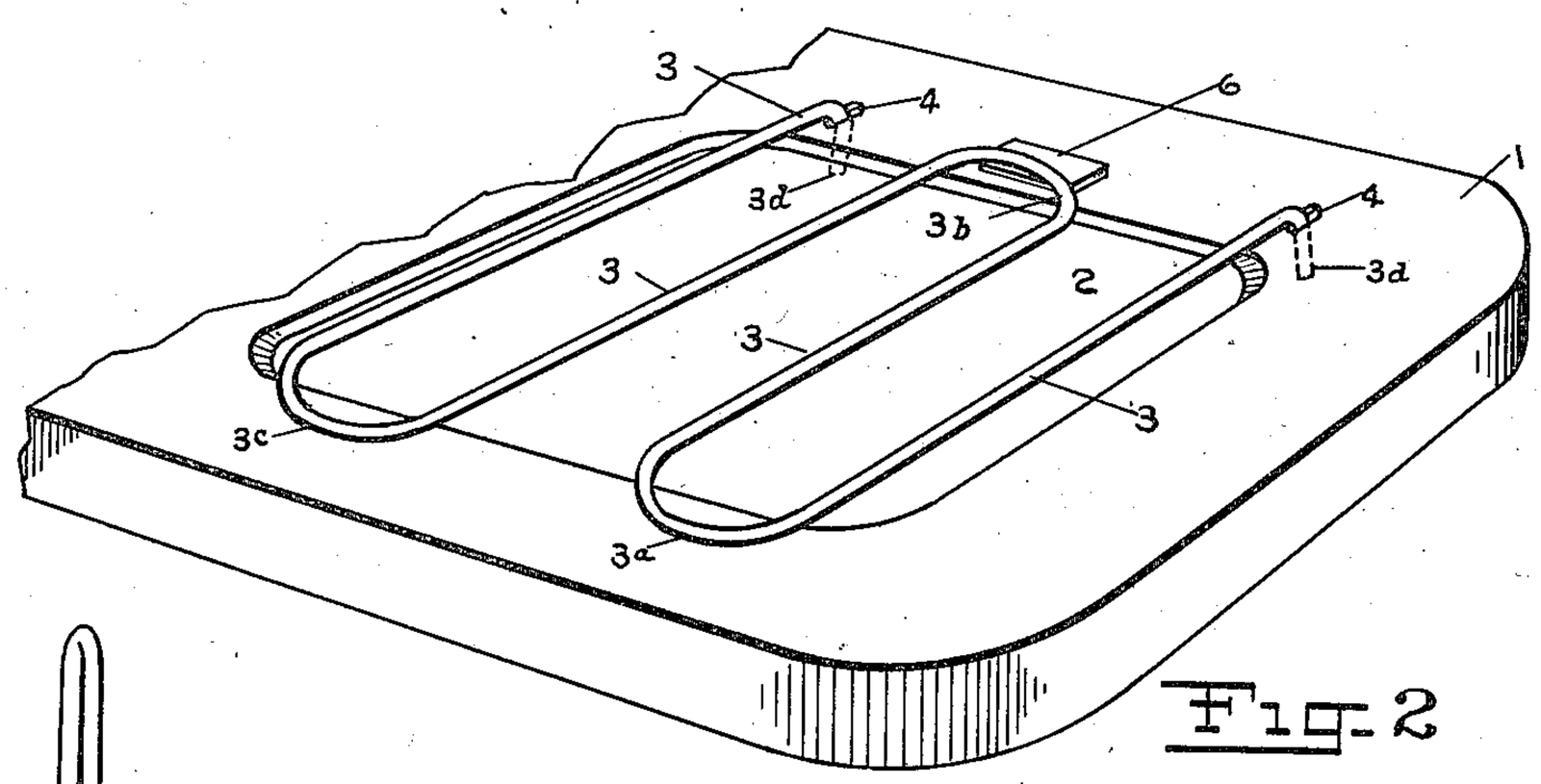

Fig-2

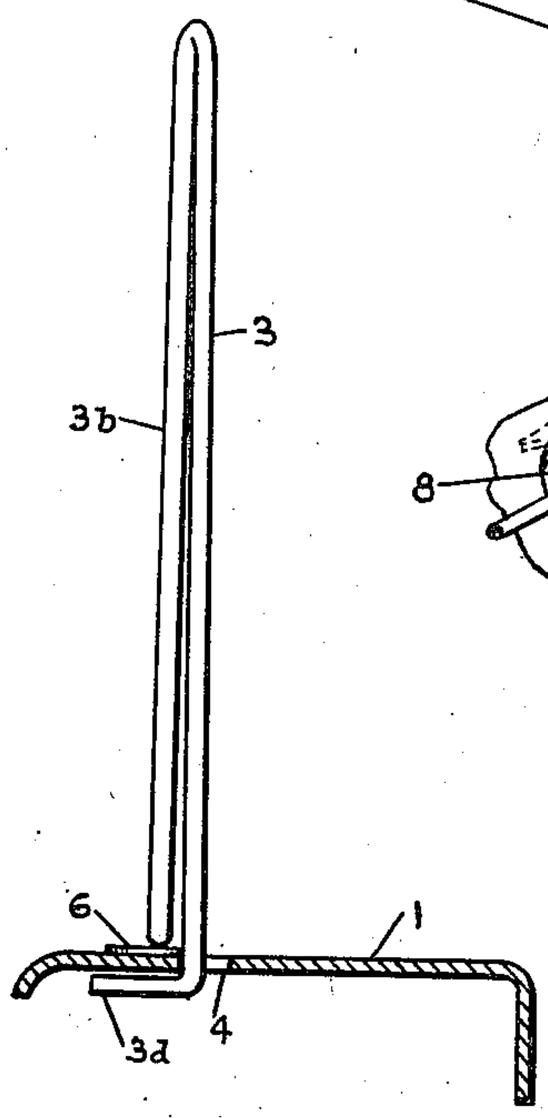

Fig-3

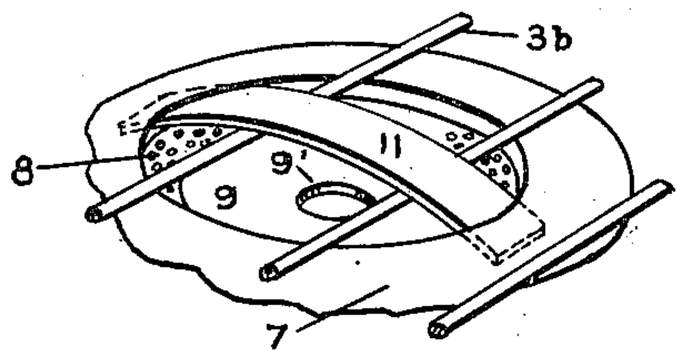

Fig-4

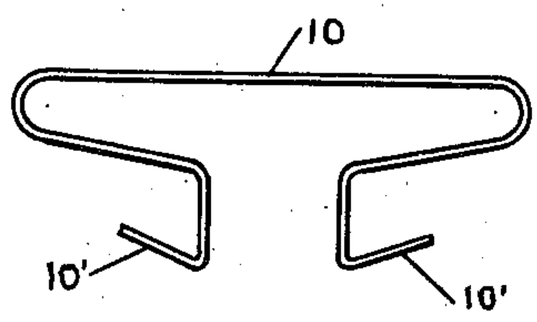

Fig-5

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GRID FOR FLUID FUEL STOVES

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5 Claims. (Cl. 126—214)

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The improvements relate to grids extending over the cooking holes of oil or gas stoves and particularly the former, but may be employed in any analogous use to which they may be adaptable. They also relate to means cooperative with the said grid for positioning and holding in place the perforated sheet metal chimneys or combustion tubes and their outer jackets—commonly called "drums"—of an oil stove or range.

Among the objects of the improvements are the construction of the grid of light, resilient, tough and durable wire or other attenuated metal formed into a series of loops or cross bars spanning the cooking hole or opening and resting on its edges, and connected with the top of the stove adjacent its edges directly, without the use of any connecting parts or interposed members and in such a manner that it is securely held in its proper position but may be removed and replaced or turned up to uncover the opening by a simple manipulation; to provide means in the grid for securely but detachably engaging a clip or other device in turn detachably engaging the drum of an oil stove, the two devices cooperating with each other, so that the said chimney will be held in place thereby without the need of employing twisted wires interlocked with the grid and drum, which must be first secured together at their ends and finally cut or broken and removed, or packing the chimney or drums separately and then placing the package inside the stove unsecured, as heretofore practiced with unsatisfactory results and at a considerable expense for labor and materials: to so construct the grid that it does not intercept or interfere with the combustion issuing from the drum and permits it to play upon the bottom of a cooking or heating vessel on the hole, while at the same time providing a firm and adequate support and spacer for the vessel.

Other objects and advantages will appear from the following specification in which an illustrative embodiment of the improvements is described and in which the accompanying drawings are referred to. In the said drawings—

Fig. 1 is a perspective view from above of a detached portion of a stove top with grid, spring clip and combustion drum assembled thereon;

Fig. 2 is a view similar to Fig. 1 showing the top and grate in operating position and disconnected from the clip and drum;

Fig. 3 is a vertical section of the top substantially on the line 3—3 of Fig. 1 showing the grid turned up and in side elevation;

Fig. 4 is a view similar to Fig. 1 showing a modified form of drum-holding clip assembled with the other parts illustrated in Fig. 1; and

Fig. 5 is an elevation of the clip partly shown in Fig. 1.

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The stove or range top 1 is of usual sheet metal construction and has one or more cooking holes 2 therein. The cooking hole or opening in the present case is substantially rectangular and the grid 3 covers an area approximately of that form and corresponds to the opening roughly in size, extending a little beyond it at front and back so as to have its extremities supported on the top adjacent the edges of the opening.

This grid 3 is composed of a continuous piece of heavy steel wire formed into loops 3^a, 3^b and 3^c spanning the opening from front to back, all three extending a short distance over the top 1 and the ends 3^d of the wire being turned down substantially at right angles to the plane of the grid and the top, and passed through slots 4 in the top at the rear of said opening. There is a space between the sides of the opening and the side bars of the loops 3^a and 3^c to permit the passage of combustion and its heated products from the burner drum and to give them free access to a vessel or other cooking utensil supported on the grid. The spaces between the bars of the grid are so wide relatively that there is practically no obstruction to the heat and combustion of the burner, the looped ends of the grid being beyond the opening and offering no obstruction. This would also be the case if the opening were round or elliptical or of some other form. At the same time the heavy resilient wire of which the grid is formed affords ample and even support for the heaviest cooking utensils, and because the wires are rounded and slightly yielding they do not dent, cause abrasion or other damage to and are not damaged by these utensils. It will thus be seen that the resilient wire grid not only effects economy in materials and labor and provides an effective and stable support but permits an even and unobstructed spread of the combustion and its hot gases over the entire cooking space.

The slots which receive and hold the turned down ends 3^d of the grid wire are disposed parallel with the straight, bars of the grate when the said bars are in normal position. The bars are also slightly spread so that their ends are spaced apart a little more than the slots, and therefore when contracted and inserted in the slots then released these ends will bear against the side edges of the slots and hold their position therein by frictional coaction. The ends 3^d

are also turned sidewise toward opposite ends of the top as well as bent down, so as to additionally insure against accidental displacement.

By having the holes 4 in the form of slots several advantages are secured, among them accommodation for expansion and contraction of the grid 3 under the wide variations in temperature to which it is subjected and the prevention of binding between the edges of the slots and the angle between the horizontal rods of the grid and the turned down ends 3^d when the grid is turned up to give access to the interior of the stove through the opening 2. In order to facilitate the turning up of the grid and to hold it in upright position the extremity of the loop 3^b is within the hooked ends 3^d by about the thickness of the stove top 1 (see Fig. 3), so that when the grid is turned up on the grid ends the said loop extremity will bear against the upper surface and the turned down ends 3^d against the under surface of the top, and due to the resiliency of the wire of which the grid is formed will grasp the top with a spring grip and retain the grid in its upright position. To facilitate this, and also to prevent abrasion of the top finish a small wear plate 6 is welded or otherwise secured to the top at the point where the extremity of the loop 3^b engages it in this position. This quick and easy removal of the grid from over the cooking opening without disconnecting it from the top greatly facilitates the removal of the combustion drum through the opening for cleaning or other purposes and for cleaning of the oil trough or wicks and wick tubes beneath it and on which it is positioned in use, as well as the cleaning of the grid. The combustion drum, as well as the other parts of the burner, is of usual construction, the drum consisting of an outer imperforate jacket or shield 7 and spaced inner perforated sheet metal cylinders 8 and 9, rigidly connected, the latter numeral referring to the imperforate cap of the inner perforated cylinder, which is provided with a central vent opening 9'.

To provide for the securement of the combustion drum in the stove for packing, shipping and handling, a spring clip 10 composed of a strip of resilient sheet metal or other attentuated material is provided, and this strip is bent into approximately mushroom form with laterally expanding and slightly up-turned ends 10', so that it can be contracted at its bottom, passed through the opening 9' and permitted to expand. The loop 3^b is then passed through the loop of the clip, after being slightly contracted, and the connected parts placed in position, as shown in Fig. 1, where they will be securely held by the grid, which in turn is secured by the bent ends 3^d engaging in the slots 4. This dispenses with the need for wires passed through the drum and portions of the grid and twisted together at its ends or separate packing of the drum, and effects a great saving in labor and materials. The drum may be quickly and easily secured to the grid or removed therefrom by simply slipping the loop 3^b through the loop of the clip 10.

Instead of the clip 10 a strip of sheet metal 11 (Fig. 4) may be passed under the top of the outer jacket 7 and the loop 3^b passed thereunder and over the top of the drum. The clip 10 may be permitted to remain in position in the top of the drum if desired and may also be elongated vertically so that the drum may be seated on the burner while still connected with the grid so that the drum may be raised by the grid when not in use to remove it from the oil wet wick tubes or oil trough to prevent creeping of the oil thereon.

Various modifications of the exemplary embodiment of the improvements described and shown herein may be made without departing from the scope of the invention. Thus, the wire of the grid may be made angular or of other cross sectional form and the clip 10 may be made round in cross section. The specific form of the grid may also be varied within certain limits and without impairing its functions.

The burner has not been illustrated as it may be of any well known wick or "wickless" form, such as those shown and described in many prior patents which show and describe burners of both wick and wickless type with combustion drums mounted thereon forming a part of the burner or combustion unit, and to which reference may be had for details of construction not herein set forth.

I claim:

1. In a fluid fuel stove, a cooking top, a burner below said top, said top having a cooking opening above and aligned with the burner, a grid composed of wire-like metal shaped to form a plurality of loops extending across said opening and having their ends resting upon and supported by said top, the extremities of said wire-like metal being normally engaged with the top, said top having small recesses therein at one side of said cooking opening into which said extremities are passed to form a hinge connection on which said grid may be turned to upright position, the end of one of said loops terminating inwardly of said extremities with respect to the cooking opening a distance approximately equal to the thickness of the said top and bearing against the said top when said grid is in upright position.

2. In a fluid fuel stove, a cooking top, a burner below said top, said top having a cooking opening above and aligned with the burner, a grid composed of metal of relatively great length and small diameter; shaped to form a plurality of bars extending across said opening and having their ends resting upon and supported by said top, the extremities of said metal being normally engaged with the top, said top having small recesses therein at one side of said cooking opening into which said extremities are passed to form a connection between said grid and top, a combustion drum forming a part of said burner located below said cooking opening, an elongated piece of metal material engaging said drum below said opening and extending above the top of the drum, one of said bars being passed between said drum top and said piece of material to form a holding and positioning connection between the grid, drum and top and a hinged member on which said drum may be turned to a position above said cooking top.

3. In a fluid fuel stove, a cooking top, a burner below said top, said top having a cooking opening above and aligned with the burner, a grid composed of metal of relatively great length and small diameter; shaped to form a plurality of bars extending across said opening and having their ends resting upon and supported by said top, the extremities of said metal being normally engaged with the top, said top having small recesses therein at one side of said cooking opening into which said extremities are passed to form a connection between said grid and top, a combustion drum forming a part of said burner located below said cooking opening, an elongated piece of resilient metal engaging said drum below said opening and extending above the top of the drum, one of said bars being passed between said drum

top and said piece of material under tension to form a holding and positioning connection between the grid, drum and top and a hinged member on which said drum may be turned to a position above said cooking top.

4. In a fluid fuel stove, a cooking top, a burner below said top, said top having a cooking opening above and aligned with the burner, a grid composed of metal of relatively great length and small diameter; shaped to form a plurality of bars extending across said opening and having their ends resting upon and supported by said top, the extremities of said metal being normally engaged with the top, said top having small recesses therein at one side of said cooking opening into which said extremities are passed to form a connection between said grid and top, a combustion drum forming a part of said burner located below said cooking opening, an elongated piece of material engaging said drum below said opening and extending above the top of the drum, said piece of material having a loop at its upper part, one of said first-named bars being passed through the last-named loop to form a holding and positioning connection.

5. In a fluid fuel stove, a cooking top, a burner below said top, said top having a cooking opening above and aligned with the burner, a grid composed of metal of relatively great length and small diameter shaped to form a plurality of bars extending across said opening and having their outer portions resting upon and supported by said top between its edges and said opening and above said opening, the extremities of said metal being turned downwardly so as to be disposed substantially normal to the plane of the top, said top having small openings thereon at one side of said cooking opening through which said downwardly

turned extremities are passed downwardly a distance sufficient to form a hinge and to removably connect the grid with the top and enough whereby the same acts as a means to limit backward movement of the grid when raised, said small openings being normally spaced a slightly different distance than the distance between said downwardly turned extremities, so that there is frictional engagement between said extremities and the edges of said small openings.

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