July 11, 1933. L. S. CHADWICK ET AL 1,917,751

GAS BURNING APPLIANCE FOR ABSORPTION REFRIGERATORS

Filed May 31, 1930 5 Sheets-Sheet 1

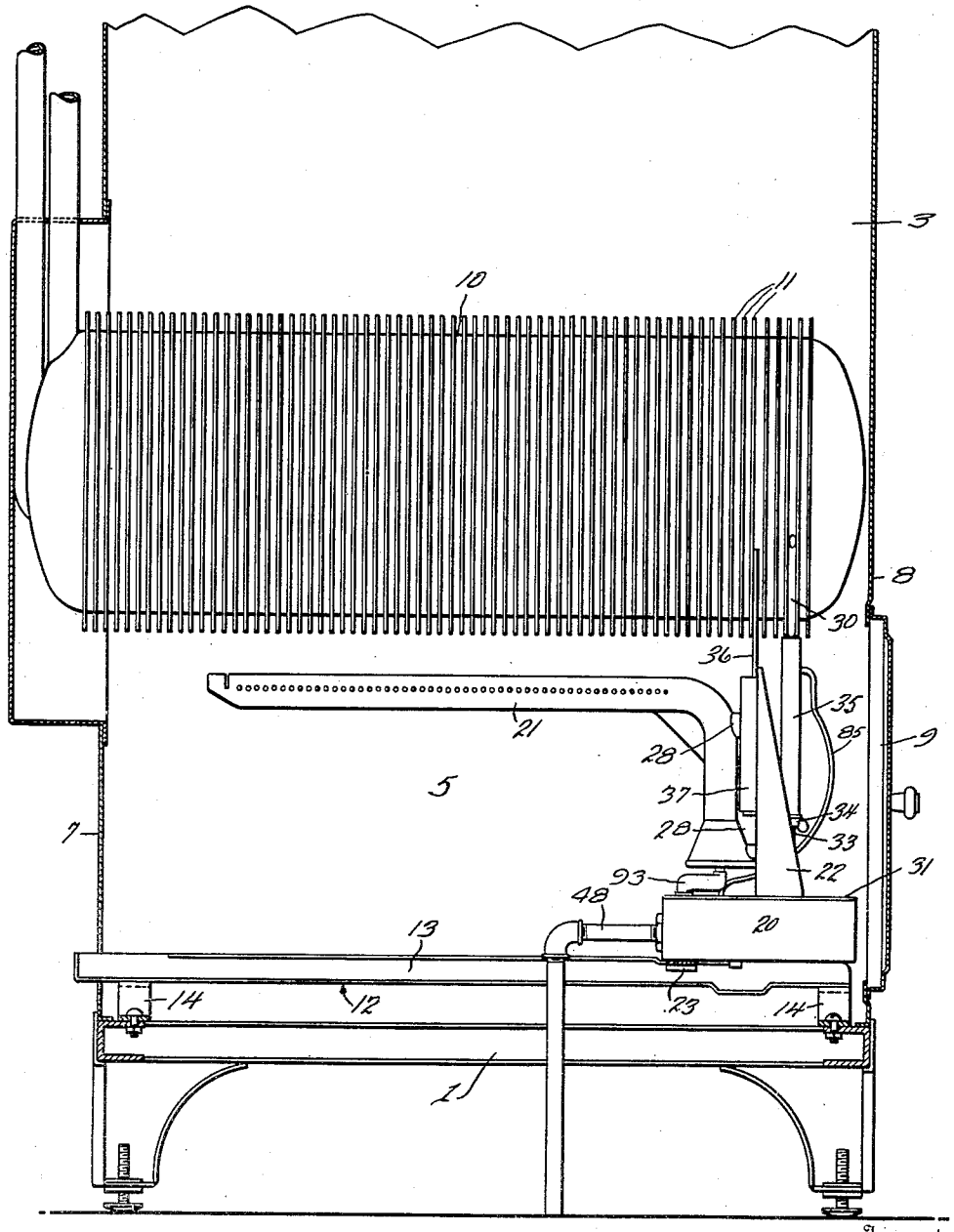


Fig. 1

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GAS BURNING APPLIANCE FOR ABSORPTION REFRIGERATORS

Filed May 31, 1930 5 Sheets-Sheet 2

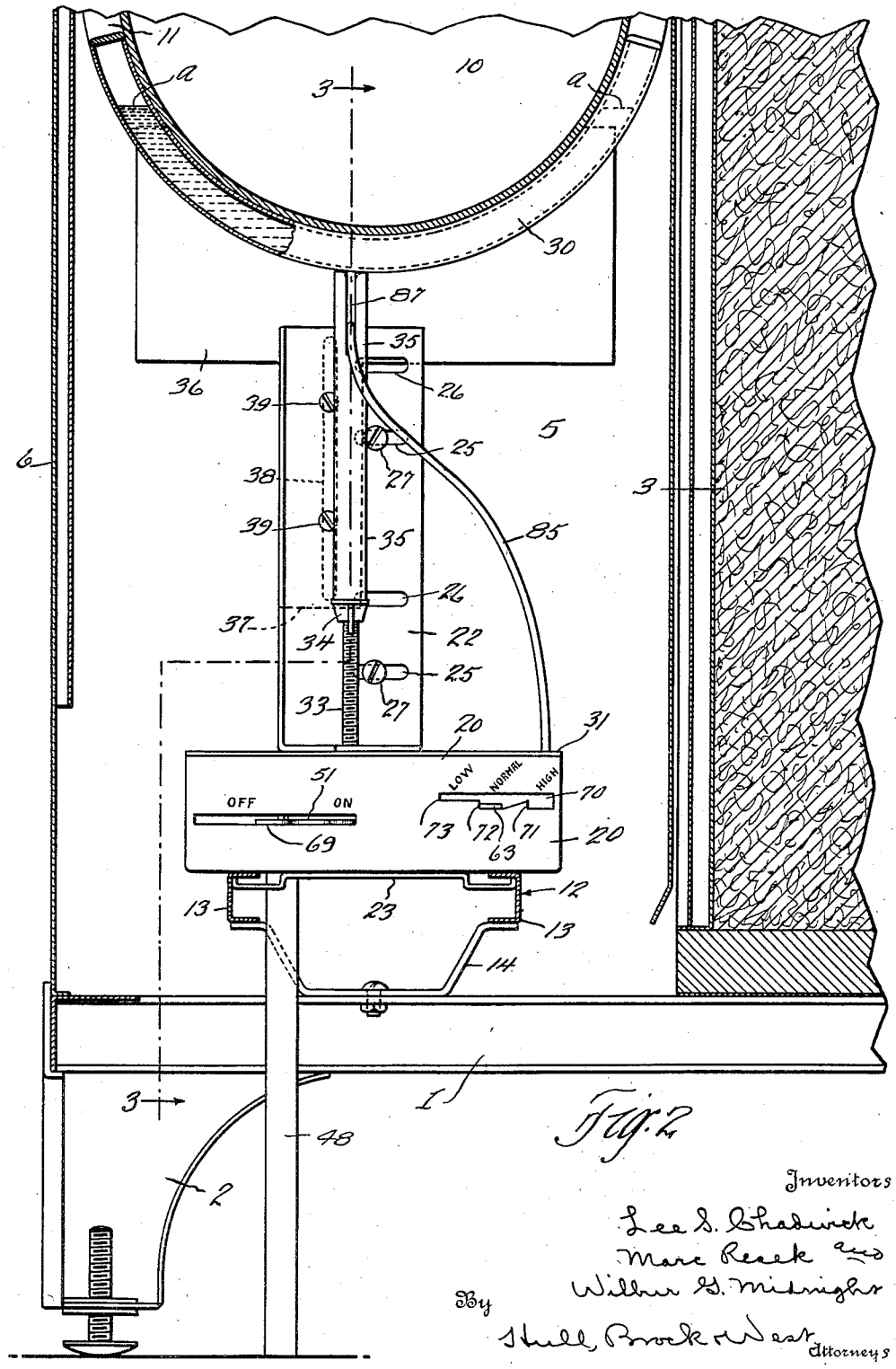


Fig. 2

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GAS BURNING APPLIANCE FOR ABSORPTION REFRIGERATORS

Filed May 31, 1930 5 Sheets-Sheet 3

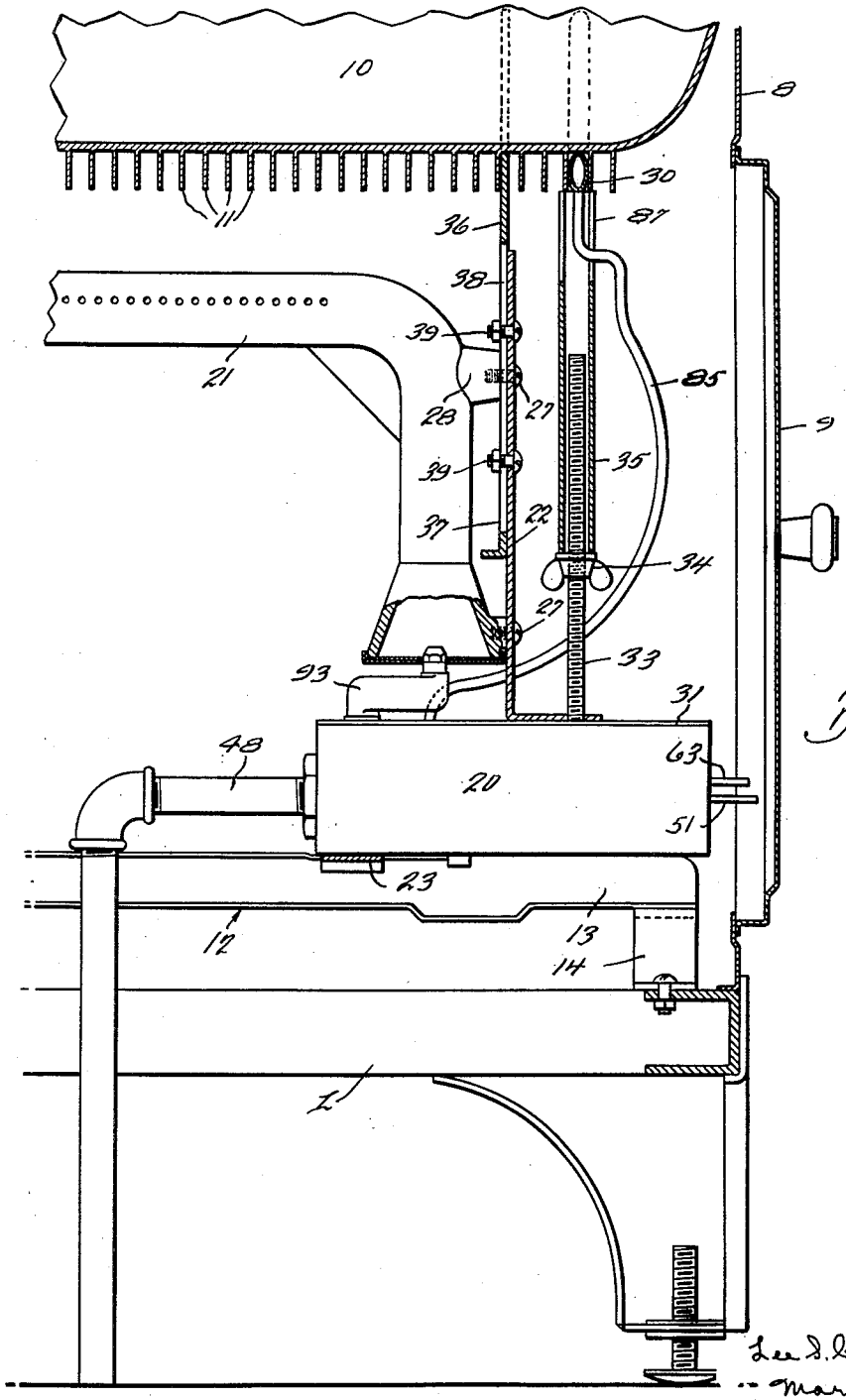


Fig. 3

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GAS BURNING APPLIANCE FOR ABSORPTION REFRIGERATORS

Filed May 31, 1930 5 Sheets-Sheet 4

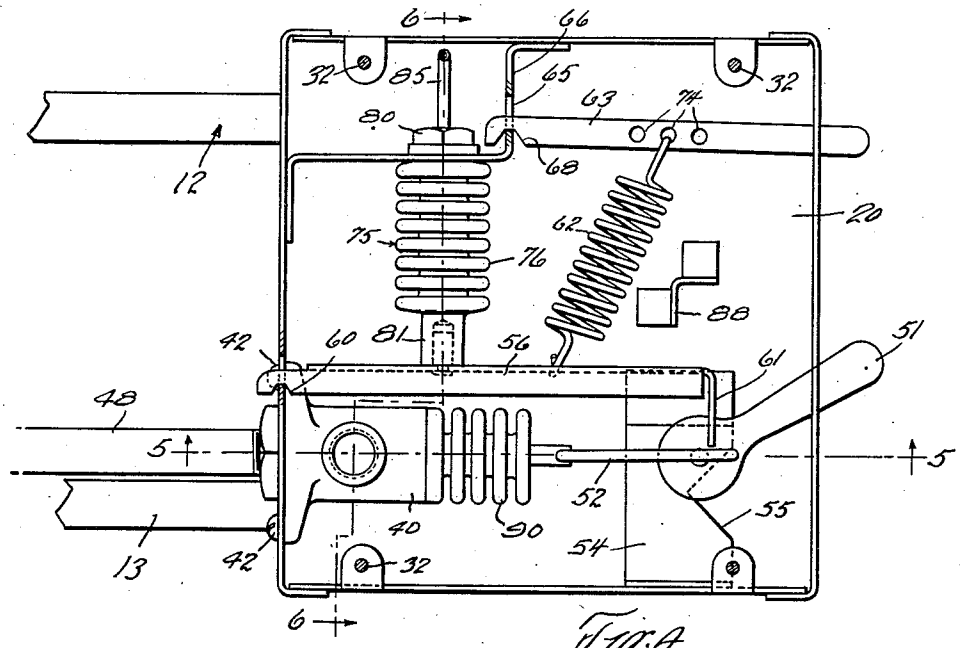


Fig. 4

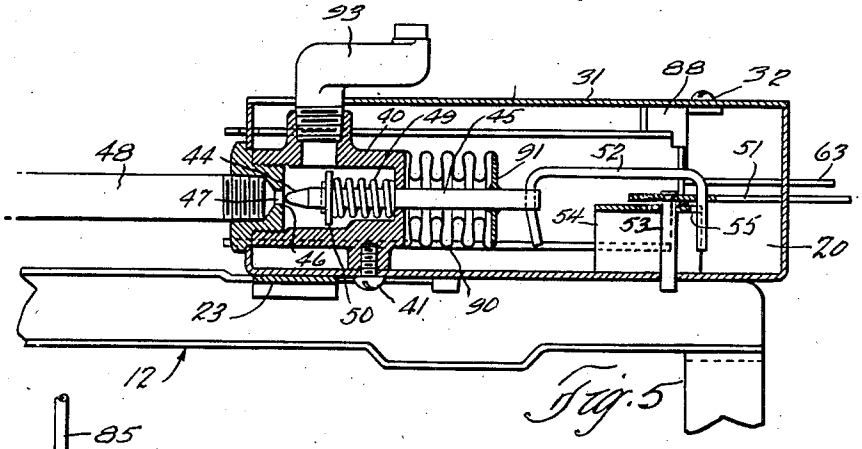


Fig. 5

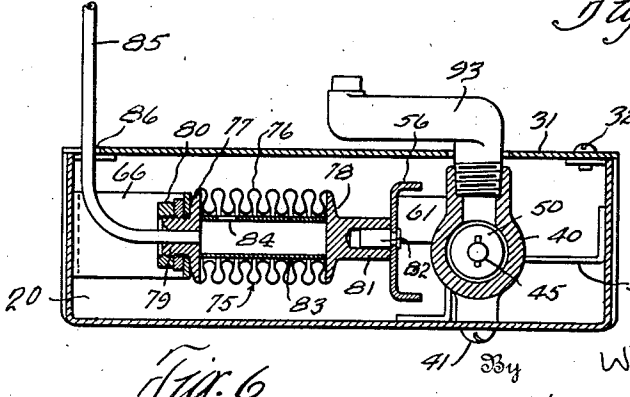


Fig. 6

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July 11, 1933. L. S. CHADWICK ET AL 1,917,751

GAS BURNING APPLIANCE FOR ABSORPTION REFRIGERATORS

Filed May 31, 1930 5 Sheets-Sheet 5

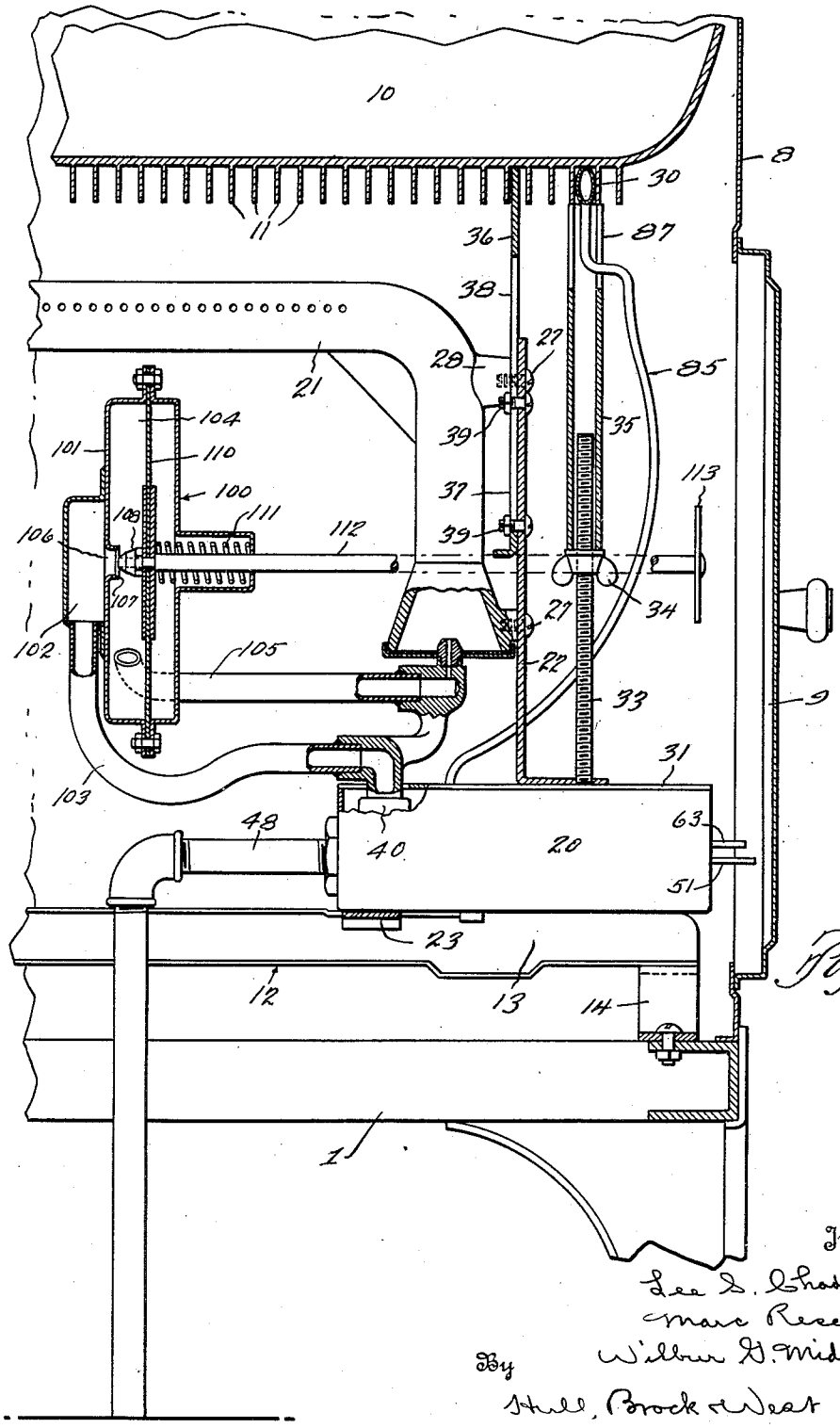


Fig. 1

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UNITED STATES PATENT OFFICE

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GAS BURNING APPLIANCE FOR ABSORPTION REFRIGERATORS

Application filed May 31, 1930. Serial No. 457,881.

This invention relates to a gas burning appliance for use especially with intermittent absorption refrigerators, and it has to do more particularly with a gas burner attachment for converting oil-fired refrigeration apparatus, of the type shown in the copending application of Lee S. Chadwick and Marc Resek, two of the present applicants, filed June 26, 1929, Serial No. 373,740, into gas-fired apparatus.

Among the more general objects of the invention are those of providing a relatively simple gas burning appliance that is especially convenient of use; that is economical of manufacture; that incorporates reliable automatic shut-off mechanism, and wherein said mechanism is readily adjustable to take care of various temperature conditions.

Other objects of the invention are to provide a gas burning attachment that may be easily and quickly applied to existing refrigerators as a substitute for the oil burning apparatus wherewith they were originally equipped, and which has provisions for adjusting it to the different dimensions of various models.

It will be seen from the above that, by reason of our invention, an owner of an oil-fired refrigerator may readily and at nominal expense convert the same into one in which gas may be used if and when the latter fuel becomes available to him.

Objects and advantages additional to those above set forth will become apparent as we proceed to describe the invention by reference to the accompanying drawings wherein embodiments of the same are illustrated. In the drawings,

Fig. 1 is a fragmentary sectional side elevation of a refrigerator to which the gas burning appliance of our invention is applied;

Fig. 2 is a similar front elevation on a scale somewhat enlarged over that of Fig. 1;

Fig. 3 is a section substantially on the line 3—3 of Fig. 2;

Fig. 4 is a plan view of the casing that constitutes the base of the appliance with the cover removed to disclose the operating parts housed therein;

Fig. 5 is a section on the line 5—5 of Fig. 4;

Fig. 6 is a transverse section through the base on the line 6—6 of Fig. 4; and

Fig. 7 is a view, similar to Fig. 3, showing a modification.

The refrigerator (as may be seen more fully by reference to the above mentioned application Serial No. 373,740) includes a base 1, in the nature of a horizontal frame, that is supported a suitable distance above the floor, by legs 2. A cabinet 3, that encloses the refrigeration compartment, is mounted upon the base and is spaced from the left hand side thereof, as viewed from the front in Fig. 2, and above the unoccupied portion of the base is a combustion chamber 5 that is closed on one side by the adjacent wall of the cabinet 3, and the remainder of the way around by a side wall 6, a rear wall 7 and a front wall 8, the latter having a door 9 through which access is had to said chamber.

Supported within the combustion chamber a suitable distance above the base 1 is the generator 10 of the apparatus. This generator consists of a cylindrical vessel surrounded by heat abstracting fins 11.

As will be readily understood by those familiar with intermittent absorption refrigerators, the generator forms a part of an intercommunicating closed system, including an evaporator and a condenser (not shown) and permanently containing a refrigerant, such as ammonia, and an absorbent therefor, such as water, in proper proportions, and at given intervals the mixture is heated in the generator for the purpose of driving off the refrigerant vapors thereby to initiate a cycle of operation. In the type of refrigerator herein shown a combustion device is adapted to be sustained below the generator by a support 12 which, in the present instance, consists of opposed guides 13 in the form of inwardly facing channel members that are supported at their opposite ends by brackets 14. The respective brackets are secured to the front and rear sides of the base 1.

The gas burning appliance (provided by the present invention as a substitute for the

oil burning outfit wherewith the refrigerator was originally equipped and which outfit was removably supported by the guides 13) consists, generally, of a base 20, and a gas burner 21 that is supported, through a bracket 22 from the base 1, in operative relation to the generator 10, the base 20 resting on the front ends of the guides 13 of the burner support. A cross member 23 is secured to the bottom of the base 20 near its rear side, and the ends of said member are formed for engagement beneath the top flanges of the channel guides 13. The bracket 22 is provided with two sets of slots, those of one set being designated 25, and those of the other 26, and screws 27 are adapted to be engaged through either the slots 25 or 26 and threaded into bosses 28 of the casting which forms the burner 21. The two sets of slots provide an adjustment for adapting the appliance to different models of the refrigerator in which the generators are spaced different distances above the burner support 12.

The base 20 consists of a casing that encloses a valve for controlling the supply of gas to the burner, and also mechanism for actuating the valve, including a pressure fluid device that is part of a thermostatic mechanism involving an arcuate bulb 30 designed for engagement with the under side of the generator 10 directly above the base 20, the same occupying the space between the lower sides of adjacent fins 11. A cover 31 is secured, as by screws 32, to the casing forming the base 20. The bracket 22 is suitably fastened to the cover 31 and forwardly of the upright portion of the bracket to which the burner is attached, is a screw 33 that is secured to and rises from the cover. A wing nut 34 operates on the screw and supports a sleeve 35 which bears at its upper end against the central portion of the bulb 30. By turning the nut 34 upwardly the sleeve is elevated to press said bulb 30 firmly against the generator 10 and the screw 33 is depressed to force the base 20 tightly against the burner support 12. Thus the appliance is clamped securely in place, and intimate contact is assured between the bulb 30 and the generator wall so as to promote heat interchange between the two. When the parts are in clamping condition, the upper end of the sleeve 35 may bear against the adjacent fins 11.

A shield 36, in the nature of a flat plate, formed at its upper edge to fit the curvature of the generator, is supported by the bracket 22 between the bulb 30 and the burner 31. The shield includes an extension 37 which bears against the rear side of the bracket 22 and has a vertical slot 38 through which screws or bolts 39 are engaged, said screws or bolts occupying apertures in the bracket. The slot 38 provides for adjusting the shield 36 for the same purpose that the burner is made vertically adjustable, as hereinbefore explained. This shield protects the bulb 30 from the direct heat of the burner flame and makes it dependent, for its actuating heat, upon the generator.

Referring now to Figs. 4, 5 and 6, a gas valve 40 is mounted within the base, the same being shown as held in place by a screw 41 that extends through an opening in the bottom wall, and by screws 42, that extend through the rear wall, of the casing that constitutes the base. This valve includes a member 44, formed by the tapered end of a stem 45, which is arranged to engage a seat 46 that surrounds an inlet port 47. This port communicates with a supply pipe 48 through which gas is delivered to the appliance from any suitable source, as from a gas main, or from interchangeable portable tanks that are being used in increasing numbers in rural communities for delivering gas to users. A spring 49 surrounds a part of the valve stem 45 and is compressed between the wall of the valve casing through which the stem projects and an abutment 50 that is secured to the stem near its tapered end. The spring tends to seat the valve member, and the latter is adapted to be retracted in opposition to action of the spring by an operating handle 51 to which the valve stem is connected through a link 52. This link is shown as constructed of a rod of suitable length which has its front and rear ends turned downwardly and engaged, respectively, through an aperture in the operating handle 51 and a hole in the forward end of the stem 45. The operating handle is pivotally supported by a pin 53 that is shown as extended through aligned apertures in the bottom wall of the base and in a horizontal portion of a bracket 54. This bracket is notched at 55, and when the operating handle is thrown to the left, as the parts are viewed from the front, until the forward downturned end of the link 52 engages the right hand wall of the notch 55, the point of connection between the link and the operating handle is beyond "dead center" so to speak, which means that it has been moved through and beyond the direct line of movement of the valve, which line is shown as coincident with the pivotal axis of the operating handle. By reason of this arrangement, the valve is held retracted against the action of the spring 49 when the operating handle is in the position shown in the drawings.

The thermostatic mechanism, whose purpose it is to automatically release the valve so as to allow the spring 49 to close it when the temperature of the generator rises to a predetermined degree, will now be described. 56 is a lever which is preferably made of sheet metal in the form of a channel. At its rear end the side flanges of the channel are ex-

tended beyond the web thereof, as clearly shown in Fig. 4, and the extended portions of said flanges are notched at 60 and projected through apertures in the rear wall of the base, the notches 60 embracing the adjacent portions of said wall to define a pivotal axis on which the lever swings. The opposite end of the lever has a lateral extension 61 that overlies and bears upon the enlarged inner end of the operating handle 51 in a position to strike the forward end of the link 52. A tension spring 62 has one of its ends connected to the lever 56 and its opposite end attached to an arm 63, and said spring tends to withdraw the lateral extension 61 of the lever from the link 52. The arm 63 has its rear end projected through an aperture 65 that is formed in one branch of an angle member 66 that is suitably secured within the rear corner of the base opposite the valve 40. The arm has a notch 68 that is engaged with a side wall of the aperture 65 to provide a fulcrum for the arm. The forward ends of the arm 63 and the operating handle 51 extend through respective slots 69 and 70 that are formed in the front wall of the base, and the slot 70 is of a shape to provide a series of stops, designated 71, 72 and 73, with any one of which the arm may be engaged. Thus the tension of the spring 62 may be varied, and a further adjustment may be obtained by hooking the forward end of the spring in any one of a plurality of openings 74 in the arm 63. Suitable indicating marks may be associated with the slots 69 and 70, as shown in Fig. 2, to facilitate the adjustment of the arm 63 for changing the tension of the spring 62, and to show when the valve 40 is open and closed.

Supported by the angle member 66, between it and the lever 56, is a pressure fluid device 75. As best shown in Fig. 6, this device consists of a bellows 76 whose opposite ends are secured and sealed to heads 77 and 78, the former head including a threaded stud 79 that is projected through a hole in the angle member 66 and has applied to it thereabeyond a clamping nut 80. The head 78 has a recessed extension 81 that is piloted upon a pin 82 on the lever 56. A spacing sleeve 83 extends from the head 77 forwardly and is adapted to be engaged by the head 78 when the bellows 76 is in contracted condition. The sleeve has an opening 84 for insuring free communication at all times between its interior and the space exterior of it that is enclosed by the bellows 76. A tube 85 connects the pressure fluid device 75 with the previously metioned bulb 30, so that the two are in direct communication at all times, and a suitable fluid is contained within the enclosure of this assembly. Water is found suitable for the purpose, and in Fig. 2 the level thereof in the bulb 30 is indicated at *a*. The cover 31 is notched at 86, and the sleeve 35 is notched at 87 to accommodate the tube 85. The tube is long enough and flexible enough to yield to the vertical adjustments of the appliance that are necessary in order to adapt the appliance to different models of the refrigerator.

In order to prevent deformation of the cover 31 of the base, which might otherwise result from the pressure exerted downwardly thereon by the screw 33, an abutment 88 is interposed between the cover and the bottom wall of the base, the same being shown as an angular post that is suitably attached to the bottom wall.

To avoid the use of a stuffing box for preventing leakage of gas about the valve stem 45, and which would have obvious disadvantages in this particular instance where absolute freedom of movement of the valve stem is essential, we employ a metallic bellows 90 whose opposite ends are sealed, respectively, to the forward end of the valve casing and to a head 91 that is brazed or otherwise secured to the valve stem 45. A tubular fitting 93 connects the valve 40 with the mixer of the burner 21.

In the use of refrigerators of the class herein refered to, the burner is lit at reasonably regular intervals, for example, at about the same time every morning, and it is allowed to burn long enough to distill over into the evaporator of the apparatus a full charge of anhydrous refrigerant. In the case of liquid fuel burners, the length of time the combustion device operates is fixed by placing only a limited quantity of oil in the font or reservoir of the burner. The burner goes out when the oil supply is exhausted. In the present case, the length of time the burner operates is determined by the temperature of the generator. Assuming that the burner has been lit in order to initiate a cycle of operation of the apparatus, the burner functions until a given degree of temperature has been reached in the generator that is sufficiently high to insure the required amount of refrigerant being distilled over into the evaporator. When such a temperature has been reached, the fluid in the bulb 30 expands, creating pressure that is transmitted to, and results in the elongation of, the bellows 76. This action of the bellows swings the lever 56 so as to throw the forward end of the link 52 "over center" so to speak, or, in other words, to move it through the line of movement of the valve 44, thereby releasing the valve and permitting the spring 49 to snap it against the seat 46, the operating handle 51 swinging in the meantime to "off" position.

When it is time again to light the burner, which is at the conclusion of the present cycle of operation of the apparatus, the door 9 is opened and the operating handle 51 is

swung to "on" position, thereby to open the valve 40 and retain it open, when the burner may be lit in the ordinary manner.

As previously stated, the shield 36 protects the bulb 30 from the radiant and more direct heat of the burner flame. It has also been explained how the shield and the burner can be adjusted vertically to adapt the appliance to different models of refrigerators, the slot 38 in the extension 37 of the shield, and the two sets of slots 25 and 26 in the bracket 22, providing for such adjustments. The nut 34 is, of course, adjustable up and down on the screw 33 so that the base 1 and bulb 30 may be adjusted toward and from each other, for the same purpose, and the tube 85 is of sufficient length and flexibility to permit of such adjustments.

Inasmuch as different springs vary in tension to a greater or less degree, provision is made to compensate for such variations with respect to spring 62 by making a series of holes 74 in the arm 63. The forward end of the spring is hooked into such of these holes as will create the desired tension in the particular spring used. Under normal conditions, the arm 63 is engaged with the center stop 72 that is formed at the bottom of the slot 70 in the front wall of the base through which the arm projects. If, in the operation of the apparatus, it is found that the refrigeration space does not become cold enough, the arm 63 may be engaged with stop 71 so as to increase the tension of the spring and thus cause the burner to operate for a longer period of time, thereby to distill over into the evaporator a greater quantity of refrigerant with the result that the refrigeration compartment will become colder before the next heating period is reached. It follows from this that if the tension of the spring 62 is decreased by engaging the arm 63 with the stop 73, the burner will be shut off after a shorter period of time and there will be less refrigerant to effect the chilling of the refrigeration compartment.

In the modification illustrated in Fig. 7, we have provided means for positively closing the gas line in case the gas pressure drops below a predetermined value or the flow ceases altogether. This is for the obvious purpose of safeguarding against the serious consequences that would result from a resumption of gas pressure while the valve of the appliance is open. Such a condition might be met in connection with the previously mentioned systems in which portable tanks are used for supplying the gas. If the burner were in operation at the time a tank of gas became exhausted, for example, and a new tank were then attached to the line before closing the valve of the appliance, there would be an escape of gas at the burner unless the burner were immediately lighted.

In the present case, a pressure operated valve, designated generally by the reference numeral 100, is incorporated in the appliance between the previously described valve 40 and the burner. This pressure operated valve consists of a casing 101 that encloses an intake chamber 102 to which a supply tube 103 leads from the valve 40, and a chamber 104 that is connected, through a tube 105, to the burner. The chambers 102 and 104 communicate through a port 106 surrounded by a valve seat 107 wherewith a valve 108 cooperates. This valve is carried by a diaphragm 110 whose peripheral portion is clamped between opposed parts of the casing 101. A spring 111 tends to close the valve, and the valve is adapted to be retracted against the tension of said spring by a rod 112 which terminates at its forward end in a handle 113 that is disposed just inside the door 9 above the base of the appliance.

In order to light the burner, it is first necessary to open the valve 40 by means of the handle 51 and then withdraw the valve 108 from the seat 107 by pulling on the rod 112. The burner may now be lit, and the pressure of gas against the diaphragm 110, which is considerably greater than the force of the spring 111, holds the valve 108 off its seat; but in case of a failure of the gas supply, the valve is seated by the spring 110.

Now, in the event the gas pressure returns to normal, the valve 108 will not open because of the fact that the gas cannot gain access to the diaphragm 110, and the area of the valve 108 that is exposed to the gas in the chamber 102 is so small that the gas pressure applied thereto is quite insufficient to overcome the spring 111. The presence of the valve 100 also serves as a check against any leakage which might occur in the valve 40.

Having thus described our invention, what we claim is:—

1. A gas burning appliance for absorption refrigerators comprising a burner, a valve for controlling the delivery of gas to the burner, a spring tending to close the valve, means shiftable in one direction transversely of the line of movement of the valve for holding the valve open against the tension of the spring and shiftable through and beyond said line in the opposite direction to permit said spring to close the valve, and thermostatic mechanism arranged to be subjected to the temperature of the generator of the refrigerator for shifting said means in said opposite direction.

2. A gas burning appliance for absorption refrigerators comprising a burner, a valve biased toward closed position for controlling the delivery of gas to the burner, means movable through an arcuate course in part transversely of the line of movement of the valve

for opening the valve, said means when moved through and beyond said line in one direction serving to hold the valve open, and thermostatic mechanism arranged to be subjected to the temperature of the generator of the refrigerator for moving said means in the opposite direction through said line.

3. A gas burning appliance for absorption refrigerators comprising a burner, a valve biased toward closed position for controlling the delivery of gas to the burner, manually operated means movable through an arcuate course in part transversely of the line of movement of the valve and connected to said valve for opening the same, said means when moved through and beyond said line in one direction serving to hold the valve open, and thermostatic mechanism arranged to be subjected to the temperature of the generator of the refrigerator for moving said means in the opposite direction through said line.

4. A gas burning appliance for absorption refrigerators comprising a burner, a valve biased toward closed position for controlling the delivery of gas to the burner, means movable through an arcuate course in part transversely of the line of movement of the valve and connected to said valve, a stop engaged by said means when moved through and beyond said line in one direction, said means when engaging the stop serving to hold the valve open, and thermostatic mechanism arranged to be subjected to the temperature of the generator of the refrigerator for dislodging said means from the stop and moving it in the opposite direction through said line.

5. A gas burning appliance for absorption refrigerators comprising a burner, a valve biased toward closed position for controlling the delivery of gas to the burner, a member pivotally supported substantially on the line of movement of the valve, a link connected at one end to the valve and at the other to said member beyond the latter's pivotal support so that the latter end of the link passes through and beyond the line of movement of the valve when the member is swung in one direction, and thermostatic mechanism arranged to be subjected to the temperature of the generator of the refrigerator for moving the last mentioned end of the link in the opposite direction through said line.

6. A gas burning appliance for absorption refrigerators comprising a burner, a valve biased toward closed position for controlling the delivery of gas to the burner, a pivotally supported valve operating member, a link connecting the valve and said member, the point of connection between the link and member passing through the line of movement of the valve on the side of the pivotal axis of the member remote from the valve, a stop for holding the member against further movement when said point has passed a short distance beyond said line in one direction, and thermostatic mechanism arranged to be subjected to the temperature of the generator of the refrigerator for moving the member and thereby shifting said point in the opposite direction beyond said line.

7. A gas burner appliance for absorption refrigerators comprising a burner, a valve for controlling the delivery of gas to the burner, said valve being biased toward closed position, releasable means for holding the valve open, a member movable to release said means, thermostatic mechanism arranged to be subjected to the temperature of the generator of the refrigerator for moving said member, a pivoted lever, a spring interposed between the lever and member for opposing the movement of the latter by said thermostatic mechanism, and a plurality of stops wherewith said lever is adapted to be engaged for varying the tension of said spring.

8. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to said support, a burner sustained thereby in operative relation to the generator, mechanism controlling the supply of gas to the burner, said mechanism including a thermostatic element for engagement with the underside of the generator, and means interposed between the base and said element for holding the element firmly against the generator.

9. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to said support, a burner sustained thereby in operative relation to the generator, and means interposed between the base and generator for holding the base firmly upon the burner support.

10. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to said support, a burner sustained thereby in operative relation to the generator, and extensible means interposed between the base and the generator for depressing the base and thus holding it firmly upon the support.

11. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to the burner support, a gas burner sustained thereby in operative relation to the generator, a valve for controlling the supply of gas to the burner, valve actuating mechanism, thermostatic means for controlling said mechanism, said thermostatic means including a member for application to the underside of the generator above the base of the appliance, and exten-

sible means interposed between said member and the base for urging the member upwardly against the generator and the base downwardly against the burner support.

12. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to the burner support, a gas burner sustained thereby in operative relation to the generator, a valve carried by the base for controlling the supply of gas to the burner, valve actuating mechanism, thermostatic means for controlling said mechanism, said thermostatic means including a member for application to the underside of the generator above the base of the appliance, and an extensible device interposed between said member and the base and consisting of a screw and a sleeve surrounding the same, and a nut operable upon said screw and wherewith one end of the sleeve engages.

13. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to the burner support, a gas burner sustained thereby in operative relation to the generator, a valve for controlling the supply of gas to the burner, valve actuating mechanism, thermostatic means for controlling said mechanism, said means including a thermostatic element for application to the underside of the generator above the base of the appliance, and a shield supported from the base in juxtaposition to the generator between said element and the burner.

14. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to the burner support, a gas burner sustained thereby in operative relation to the generator, a valve for controlling the supply of gas to the burner, valve actuating mechanism, thermostatic means for controlling said mechanism, said means including a thermostatic element for application to the underside of the generator above the base of the appliance, and a shield supported from the base in juxtaposition to the generator between said element and the burner, said shield being vertically adjustable.

15. For use with absorption refrigerators incorporating a generator and a burner support situated below and in fixed relation to the generator, a gas burning appliance comprising a base for application to the burner support, a gas burner sustained thereby in operative relation to the generator, a valve for controlling the supply of gas to the burner, valve actuating mechanism, thermostatic means for controlling said mechanism, said means including a thermostatic element for application to the underside of the generator above the base of the appliance, the element conforming substantially to the contour of the generator, a screw rising from the base beneath said element, a nut adjustable along said screw, and a sleeve bearing upon said nut and having its upper end engaged with said element.

16. For use with absorption refrigerators incorporating a generator and a burner support therebelow, a gas burning appliance comprising a base for application to the burner support, a bracket rising from the base, a burner adapted to be sustained at different elevations by said bracket, a valve for controlling the supply of gas to the burner, valve actuating means, thermostatic mechanism for governing the action of said means, said mechanism including a member for engagement with the underside of the generator above the base, extensible means interposed between said member and the base for urging the former upwardly in contact with the generator and the latter downwardly upon the burner support, and a shield supported by the bracket between the burner and said member, the said shield being vertically adjustable with respect to the bracket.

17. For use with absorption refrigerators incorporating a generator and a burner support therebelow, a gas burning appliance consisting of a casing constituting a base for application to the burner support, a bracket rising from the casing, a burner sustained by the bracket in operative relation to the generator, a valve within the casing for controlling the supply of gas to the burner, valve actuating means within the casing having a handle for manual operation accessible from outside the casing, thermostatic mechanism for controlling the operation of the valve actuating means, said mechanism including a member for application to the bottom of the generator above the base, thrust means interposed between said member and the base, and a shield supported by the bracket in juxtaposition to the generator between the burner and the aforesaid member of the thermostatic mechanism.

18. For use with absorption refrigerators incorporating a generator and a burner support therebelow, a gas burning appliance consisting of a casing constituting a base for application to the burner support, a bracket rising from the casing, a burner sustained by the bracket in operative relation to the generator, a valve within the casing for controlling the supply of gas to the burner, valve actuating means within the casing having a handle for manual operation accessible from outside the casing, thermostatic mechanism for controlling the operation of the valve actuating means, a spring within the

casing opposing the action of the thermostatic mechanism, means for adjusting the tension of the spring accessible from outside the casing, said thermostatic mechanism including a member for application to the bottom of the generator above the base, thrust means interposed between said member and the base, and a shield supported by the bracket in juxtaposition to the generator between the burner and the aforesaid member of the thermostatic mechanism.

19. In combination with the generator of an absorption refrigerator, said generator being provided with spaced heat abstracting fins, means for heating the generator, mechanism for controlling the action of said heating means involving a thermostatic element that is adapted to be subjected to the heat of the generator, said element being held in intimate heat-exchanging relation to the generator between adjacent fins thereof.

20. In combination with a cylindrical generator of an absorption refrigerator, means for heating the same, and mechanism for controlling the action of said heating means including an elongated thermostatic element of substantially the same cross-sectional area throughout its length, said element being adapted to be applied to the exterior of the generator and curved bodily from end to end to approximately fit the transverse curvature thereof.

21. A gas burning appliance for absorption refrigerators comprising a burner, a valve for controlling the delivery of gas to the burner, and a second valve governing the flow of gas between the first valve and the burner, means tending to close the second valve, manually operated means for opening said second valve, and means operated by the gas pressure for retaining the second mentioned valve open when it has been manually opened but which is incapable of opening the valve when the latter is closed.

22. A gas burning appliance for absorption refrigerators comprising a burner for heating the generator, a valve biased toward closed position for controlling the delivery of gas to the burner, means for holding the valve open, thermostatic mechanism arranged to be subjected to the temperature of the generator for rendering said holding means ineffective, a second, self-closing valve which operates in conjunction with the first mentioned valve for controlling the flow of gas to the burner, manually operated means for opening said valve, and means operated by the gas pressure for retaining the second mentioned valve open but incapable of opening the same.

23. A gas burning appliance for absorption refrigerators comprising a burner, a conduit through which gas is supplied to the burner, two valves arranged one ahead of the other in said conduit for controlling the supply of gas to the burner, both of said valves being biased toward closed position, individual means for manually opening each of said valves, thermostatic means subjected to the temperature of the generator of the apparatus for effecting the closing of one of said valves, the other of said valves being held open by gas pressure and closing in case the gas pressure falls below a predetermined value, the gas pressure being incapable of opening said valve.

In testimony whereof, we hereunto affix our signatures.

LEE S. CHADWICK.
MARC RESEK.
WILBUR G. MIDNIGHT.