June 11, 1929. B. B. KAHN 1,717,221

STOVE

Filed Sept. 2, 1925

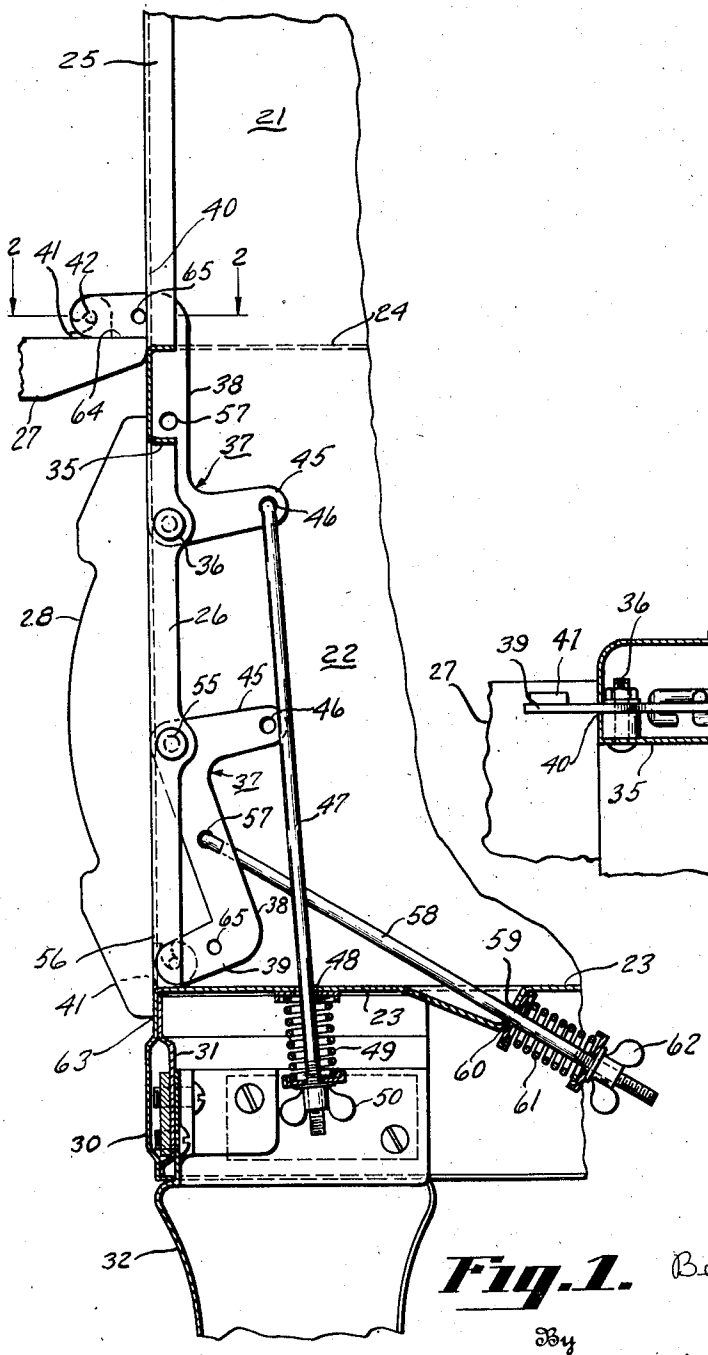


Fig. 1.

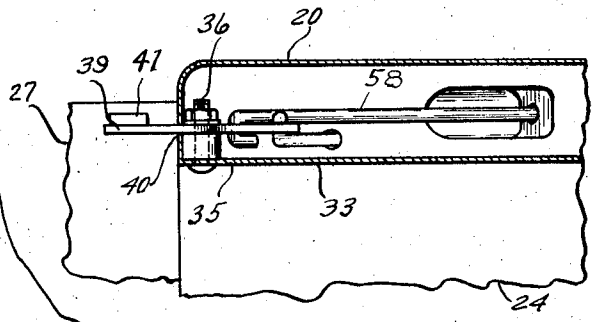


Fig. 2.

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STOVE.

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The present invention relates to door mountings, and particularly to door mountings adapted for use on stoves.

One of the principal objects of the present invention is to provide concealed means for supporting a door and urging it towards closed position.

Another object is to provide yielding door closing means so constructed as to maintain its effectiveness when employed on apparatus subject to relatively high temperatures; and to permit ready access to such means for adjustment or repair, without disturbing the setting of the stove.

A still further object of the invention is to provide normally concealed means for supporting or hinging a door.

Other objects of the invention will be apparent from the following description when taken in connection with the accompanying drawings in which:

Fig. 1 is a fragmentary vertical section through the body of a stove embodying the present invention, the false side wall being omitted for clearance in illustration; and

Fig. 2 is a section on the line 2—2 of Fig. 1.

Referring to the drawings 20 denotes the side wall of the main body portion of the stove which is provided with upper and lower compartments or ovens 21 and 22, it being understood that the stove has suitable burners or heating means, not shown, for heating the oven or compartments in the usual manner. The stove illustrated is of the type adapted to receive gas burners and these may be placed in the upper part of compartment 22 and when thus placed the compartment 22 constitutes a broiling oven and the compartment 21 constitutes a baking oven. It will be understood, however, that the particular location of the burners or heating devices may be varied widely, and that the location of the burners is immaterial with respect to the present invention.

The main body portion of the stove of course comprises suitable top, bottom, and side walls, the side wall being illustrated at 20 and the bottom wall at 23. A horizontal partition 24 generally divides the body into the upper and the lower compartments above mentioned. The side wall of the stove is provided at its front with door openings 25 and 26 which are adapted to be covered by the upper door 27 and the lower door 28, respectively. The bottom wall 23 is here illustrated as having its outer edges turned downwardly to form flanges 30 which may be reinforced at the corners by reinforcing members 31, to which reinforcing members may in turn be attached the supporting legs 32.

The door openings 25 and 26 may be provided with inturned flanges 35, which, as shown in Fig. 2, are spaced from the side walls 20 of the ovens. Pivotally mounted as at 36 upon each side flange 35 of the lower compartment 22 is a bell crank lever 37 one arm 38 of which extends upwardly and is provided at its upper end with a laterally or outwardly extending ear 39 passing through an aperture 40 in the front wall of the upper compartment 21. A false side wall 33 is preferably attached to the flanges 35 to provide a flue space, in which flue space the door supporting mechanism is positioned. The upwardly extending arms of the bell crank lever 38 together with their forwardly projecting ears 39 constitute supporting members for the upper door 27. Hook ear members 41 extending rearwardly from the rear face of the door at each end adapted to hook over pivot pins 42 extending laterally from the portions 39 of the supporting members, form a pivotal connection between the door and its supporting members. The bell crank lever 37 is also provided with a rearwardly extending arm 45 having an aperture 46 by which it may be connected with tension rod 47 of a yielding means which normally tends to rock the bell crank lever 37 in such a direction as to draw the supporting member and its ear 39 inwardly, to thus urge the door 27 toward closed position. The lower end of the tension rod 47 passes through an aperture 48 in the bottom wall 23 to the relatively cool space below the compartment 22. Surrounding the lower end of the tension rod 47 is a coiled spring 49 which bears at its upper end against the bottom wall 23 of the lower oven and which is engaged at its lower end by the wing nut 50 screw threaded upon the tension rod 47, to permit of varying the closing tension of the spring.

The supporting means for the lower oven door 28 is generally similar to that described above for the upper door. It will be noted, however, in the case of the lower door, that the arm 38 of the bell crank lever 37 extends downwardly from the pivot 55 and that the ear 39 which is now at the lower end of the arm 37 is adapted to move inwardly and out-

wardly through an aperture 56 in the lower part of the oven 22. The long arm 38 of the bell crank lever is provided with an aperture 57 corresponding with the aperture 46 in the short arm 45 and spaced substantially an equal distance from the pivotal support 55. Owing to the reversal of position of the bell crank lever which supports the lower door, the tension rod 58 of the yielding means is engaged in aperture 57 instead of in aperture 46, as in the case of the upper door. The tension rod 58 is extended downwardly through an opening 59 in the lower wall 23 of the oven, and this wall is formed or bent downwarly to form an abutment 60 for the upper end of coil spring 61 surrounding the lower portion of the tension rod 58. Wing nut 62 screw threaded upon the lower end of the tension rod 58 engages the lower end of compression spring 61 and serves to place the compression spring under compression or to adjust such compression. Spring 61, like spring 49, tends to draw inwardly the supporting member to which it is attached. The connection between the lower door 28 and its supporting member is similar to that between the upper door and its supporting member and, therefore, need not be further described.

The operation of the invention may be best understood from Fig. 1 in which the lower door 28 is closed so as to show one extreme position of the supporting members, and the upper door 27 is open so as to show the other extreme position of the supporting members. It will be observed that when the door is moved from its closed position towards its open position, it fulcrums about the lower edge 63 of the door and draws ear 39 of the supporting member outwardly, the lower edge of the door meanwhile sliding upwardly on the front face of the oven until the inner edge or face of the door comes into engagement with the lower edge of the supporting ear 39, as indicated at 64. This relation of the parts is shown by the door 27, and it will be observed that the door is stopped in a substantially horizontal position and approximately at the level of the partition 24 forming the bottom wall of the oven 21. In moving the door to its open position the spring 49 is, of course, placed under additional compression. While the door is being closed the spring draws the arm or supporting member 38 inwardly as rapidly as the movement of the door will permit, and when the door is fully closed, as shown at 28, it draws the hooked member or ear 41 inwardly to the position shown in the lower part of Fig. 1. The force of the spring is adequate not only to assist the closing movement of the door but also to hold the door firmly against the front face of the oven after it has been moved to its closed position. In this position the lower edge of the door acts as a fulcrum the closing means then placing a relative force upon the door to urge the upper part tightly against the body of the oven.

An important feature of the present invention resides in the fact that the springs 49 and 61 are readily accessible for readjustment, inspection, or replacement. Being below the bottom wall 23 of the stove, the springs and their adjusting nuts can be easily reached without the necessity of moving the stove away from the wall or disconnecting the gas pipes. Further, the location of the springs in the position shown, removes the necessity for placing such springs in the rear or at the sides of the stove where they form unsightly projections and interfere with the placing of the stove against the wall of the room. In addition the springs are located completely outside of the oven and are so mounted as to be not subjected to destructive heat influences.

Although the door is connected with its supporting member merely through a hook and pin connection, as illustrated, the door is nevertheless securely held in position for when the door is open, as illustrated at 27, the pin 42 is held in the hook 41, and when the door is closed, as indicated at 28, then the hook 41 is likewise locked against disengagement from the pin 42. To enable the removal of the door, the supporting ear 39 is provided with an opening 65 through which a nail or other tool may be inserted while the door is fully open so as to prevent the supporting ear from being drawn inwardly by the spring. Then, by merely raising the door to its vertical position, the hook 41 and pin 42 may be disengaged, and the door thus removed.

Another feature of the invention is the construction and arrangement of the parts such that the bell crank lever 37 may be used interchangeably either in supporting an upper door, as illustrated, or for supporting a lower door. The bell crank lever with its laterally extending ears 39 and 45 is of a general Z shape and is adapted, merely by inverting its position, to support upper or lower doors. In the manufacture of this part it is preferably provided with two apertures 46 and 57 for receiving the tension means in whichever position the supporting means may be used. In this connection it is to be noted that the lever arm from the fulcrum of the member 37 to either of the attaching apertures 46 or 57 is considerably shorter than the lever arm between the fulcrum of the member 37 and the point of attachment of the door at 42. The extent of movement of the tension device attached either at 46 or at 57 is thus considerably less than the movement of the pin 42 and as a consequence there is a comparatively short movement of the tension rod and of the spring of the yielding means,

which is an advantage in that it enables a reduction in length and in size of the spring and the associated parts.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. In a stove, a hollow main body portion comprising a side wall having an opening therethrough, a bottom wall, a supporting member carried by said body and mounted for movement inwardly and outwardly through said side wall, a door for said opening pivotally supported upon said supporting member and adapted upon movement towards open position to draw said supporting member outwardly, and yielding means disposed below the bottom wall of said main body and connected with said supporting member tending to draw the same inwardly.

2. In a stove, a hollow main body portion comprising a side wall having an opening therethrough, a bottom wall, a supporting member carried by said body and mounted for movement inwardly and outwardly through said side wall, a door for said opening pivotally supported upon said supporting member and adapted upon movement towards open position to draw said member outwardly, and yielding means disposed below the bottom wall of said main body and connected with said supporting member tending to draw the same inwardly, said yielding means being accessible from below for adjustment.

3. In a stove, a hollow main body portion comprising a side wall having an opening therethrough, a bottom wall, a supporting member carried by said body and mounted for movement inwardly and outwardly through said side wall, a door for said opening pivotally supported upon said supporting member and adapted upon movement towards open position to draw said member outwardly, yielding means for resisting outward movement of said member, said yielding means comprising a spring disposed below the bottom wall of said body, a connection between one end of said spring and said supporting member, and means accessible from below said main body for adjusting the length of said connection whereby to vary the effect of the yielding means upon the supporting member.

4. In a stove, a main body having upper and lower compartments, each of said compartments having a door opening in a side wall thereof, upper and lower doors for the upper and lower compartments respectively, an upper supporting member movable inwardly and outwardly through the wall of said body and supporting the upper door thereon, a lower supporting member movable inwardly and outwardly through the wall of said body and carrying the lower door thereon, means for supporting both of said supporting members in the lower compartment, and yielding means connected with said supporting members for resisting outward movement thereof.

5. In a stove, a main body having upper and lower compartments, each of said compartments having a door opening in a side wall thereof, upper and lower doors for the upper and lower compartments respectively, an upper supporting member movable inwardly and outwardly through the wall of said body and supporting the upper door thereon, a lower supporting member movable inwardly and outwardly through the wall of said body and carrying the lower door theron, means entirely below the upper compartment for supporting said supporting members, and yielding means connected with said supporting members tending to resist outward movement thereof.

6. In a stove, a main body having upper and lower compartments, each of said compartments having a door opening in a side wall thereof, upper and lower doors for the upper and lower compartments respectively, an upper supporting member movable inwardly and outwardly through the wall of said body and supporting the upper door thereon, a lower supporting member movable inwardly and outwardly through the wall of said body and carrying the lower door thereon, means carried by the body for supporting said supporting members, and yielding means connected with said supporting members and disposed entirely below the upper compartment for resisting outward movement of said supporting members.

7. In a stove, a body having upper and lower compartments, a door-opening in said upper compartment, a supporting member movable inwardly and outwardly through the wall of said body, a door for said opening pivotally mounted upon said supporting member and adapted when moved towards open position to draw said supporting member outwardly, and yielding means connected with said supporting member and tending to draw the same inwardly, said yielding means extending through the lower compartment.

8. In a stove, a body portion having a door opening in the wall thereof, a supporting member movable inwardly and outwardly through the wall of said body, a door for said opening mounted upon said supporting member and adapted when moved towards open position to draw the supporting member outwardly, yielding means tending to draw the supporting member inwardly, said supporting member having provision whereby it

may be restrained in an outward position to permit the dismounting of the door therefrom.

9. In a stove, a body portion having a door opening in the wall thereof, a supporting member movable inwardly and outwardly through the wall of said body, a door for said opening mounted upon said supporting member and adapted when moved towards open position to draw the supporting member outwardly, yielding means tending to draw the supporting member inwardly, said movable supporting member having an opening adapted to receive a holding tool therein for locking said member in an outward position to facilitate dismounting said door therefrom.

10. In a stove, a body portion having an outer opening in the wall thereof, a supporting member movable inwardly and outwardly through the wall of said body, a door for said opening mounted upon said supporting member and adapted when moved towards open position to draw the supporting member outwardly, said door having a hook connection with the movable member such that the door may be unhooked from the movable member when the door is disposed approximately in its closed position, said movable supporting member having provision whereby it may be restrained in an outward position to permit the dismounting of the door therefrom.

11. In a stove, a body portion having upper and lower compartments having door openings in the side walls thereof, upper and lower doors for said door openings, an upper movable door-supporting member mounted in said body and extending upwardly from its mounting for connection with said upper door, yielding means connected with said upper door-supporting member for resisting movement thereof in one direction, a lower movable door-supporting member mounted in said body and extending downwardly from its mounting for connection with said lower door, and yielding means connected with said lower door-supporting member for resisting movement thereof in one direction, the door-supporting members being adapted for use interchangeably as said upper door-supporting member or as said lower door-supporting member.

12. In a stove, a body portion having upper and lower compartments having door openings in the side walls thereof, upper and lower doors for said door openings, an upper movable door-supporting member pivotally mounted in said body and extending upwardly from its mounting for connection with said upper door, yielding means connected with said upper door supporting member for resisting movement thereof in one direction a lower movable door-supporting member pivotally mounted in said body and extending downwardly from its mounting for connection with said lower door, and yielding means connected with said lower door-supporting member for resisting movement thereof in one direction, the door-supporting members being Z-shaped and having provisions for connection with said pivotal mountings and for connection with said yielding means and said doors, and adapted for use interchangeably as said upper door-supporting member or as said lower door-supporting member.

13. In a stove, a hollow main body portion comprising a side wall having an opening therethrough, a door for closing said opening, means on said stove for movably supporting said door, and yielding means disposed below the bottom wall of said main body portion so as to be freely accessible from below and connected with said door so as to tend to draw the door to closed position.

14. In a stove, a hollow main body portion comprising a side wall having an opening therethrough, a bottom wall, a door pivotally mounted on said stove for closing said opening, and a spring disposed below said bottom wall, and freely accessible from the bottom of the stove and connected with said door so as to tend to draw the same to closed position, and means freely accessible from the bottom of the stove and located below the bottom wall for adjusting the effect of said spring.

15. In a stove, a main body having upper and lower cooking compartments each of said compartments having a door opening in a side wall thereof, upper and lower doors movably mounted on said stove for the upper and lower door openings, a bottom wall and spring means disposed below said bottom wall and connected with said doors for resisting opening movements thereof, and means for adjusting the effect of said yielding means, said adjusting means being freely accessible from the underside of the stove and disposed below said bottom wall.

In testimony whereof I hereto affix my signature.

BERTRAND B. KAHN.