Nov. 1, 1932. E. C. BAMBERG ET AL 1,885,404

OVEN RACK OPERATING MECHANISM

Filed March 11, 1932

Fig. 1

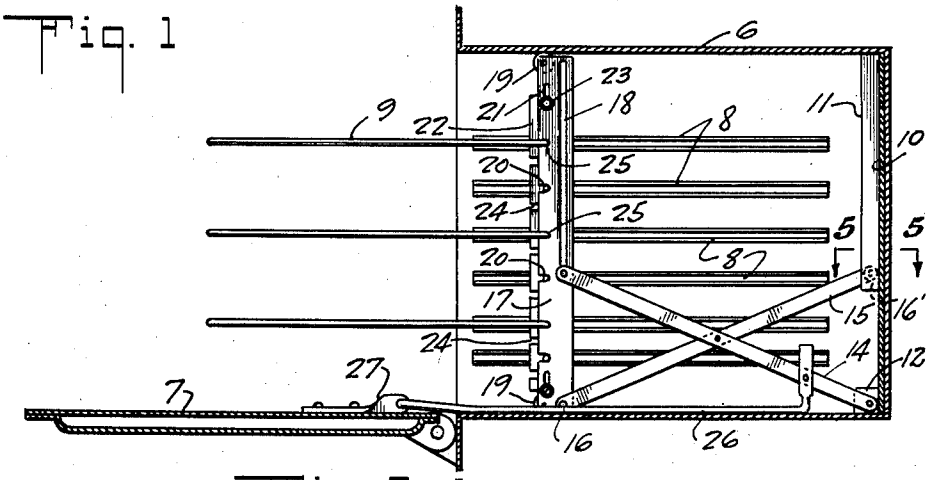


Fig. 2

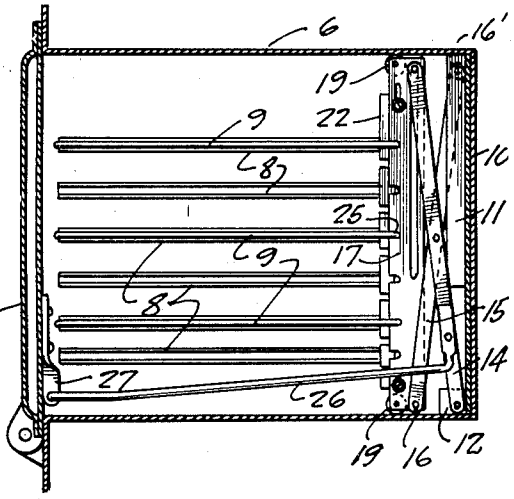


Fig. 3

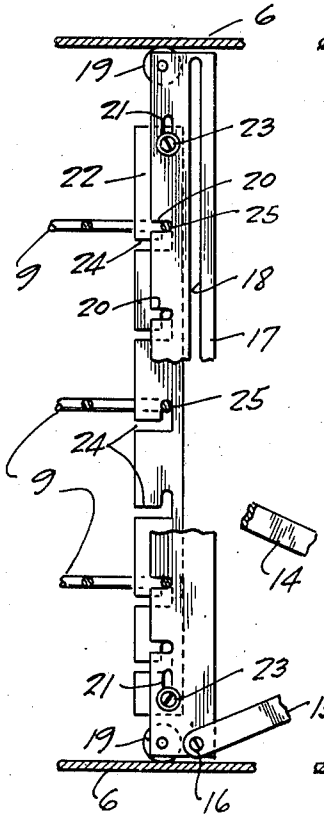


Fig. 4

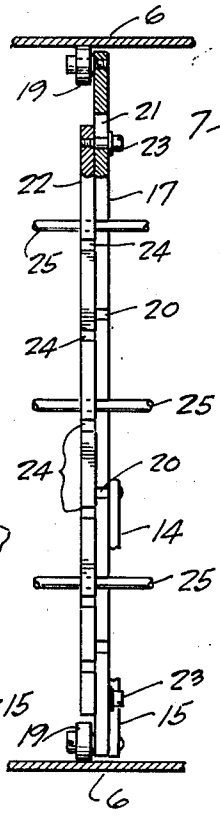
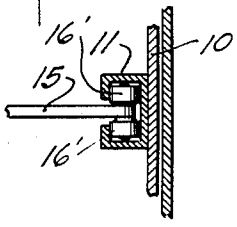


Fig. 5



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Patented Nov. 1, 1932 1,885,404

UNITED STATES PATENT OFFICE

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OVEN RACK OPERATING MECHANISM

Application filed March 11, 1932. Serial No. 598,194.

This invention relates to a device for sliding the racks of an oven to outer position on opening of the oven door and to inner position on closure of the oven door. Heretofore, door operated mechanisms have been proposed for drawing out the shelves or grates of an oven on opening of an oven door. Such mechanisms have involved some of the following features: special shelf structures; alteration of parts of the oven; or mutilation of oven parts.

It is the primary object of our invention to provide mechanism for the purpose described which may be applied to conventional oven and rack structures without mutilation or alteration of parts. It is also an object of this invention to provide a mechanism of the character described having any or all of the following features:

A coupling bar movable forwardly and backwardly with the opening and closing of the oven door and so constructed that racks may be selectively coupled thereto; a compact mechanism in association with the coupling bar for projecting and retracting the latter; a mechanism which will maintain the racks against tilting when in open position; and a unit which may be installed in ovens.

These objects are accomplished by means of the embodiment of our invention illustrated in the accompanying drawing, in which:—

Fig. 1 is a vertical sectional view through an oven equipped with our improved rack operating mechanism and the oven door open; Fig. 2 is a sectional view similar to Fig. 1 showing the door closed; Fig. 3 is a side elevation of the coupling bar on an enlarged scale with fragments of racks, a portion of the keeper bar being broken away to better show the construction; Fig. 4 is a front elevation of the coupling bar partially shown in section; Fig. 5 is a section as seen on the line 5—5 of Fig. 1.

Referring with more particularity to the drawing, an oven of a stove or range is denoted by 6. The oven is provided with a swinging door 7 and has rails 8 on its side wall for slidably receiving oven racks 9. The construction as described is that of a conventional type of oven. Secured at the back wall of the oven by any suitable means is a plate 10 having mounted thereon a channel slideway 11. Secured to the bottom of the plate is a bracket 12 to which is pivotally attached an arm 14 of a lazy tongs. The companion arm 15 of the lazy tongs has a pintle upon which rollers 16′ are journalled, these rollers sliding in the channel of slideway 11. The front end of arm 15 is pivotally secured at 16 to a coupling bar 17. The coupling bar has a slot 18 for slidably receiving a pin on the front end of arm 14 to provide for easy movement of the coupling bar, rollers 19 are provided at the top and bottom to engage the upper and lower walls of the oven. The bar 17 has recesses 20 disposed for alinement with racks. Elongated openings 21 are formed at the top and bottom of the coupling bar. A keeper bar 22 is slidably secured for limited movement to the coupling bar by means of pins 23 mounted in slots 21. In the keeper bar are angled slots 24. The range of movement of the keeper bar is such that the mouths of recesses 20 and 24 may be registered by elevating the keeper from the position shown in Figs. 3 and 4. The keeper will by its own weight move to the position shown in Figs. 3 and 4 such that the mouths of the recesses are out of register, and in such position the rear rods 25 of racks disposed in recesses 20 will be locked to the coupling bar. An operating link 26 is connected to arm 14 and at its front end to a bracket 27 secured to the door.

The desired racks are secured to the coupling bar. On moving the door to closed position shown in Fig. 2 the lazy tongs will be collapsed retracting the racks within the oven. On opening the door to the position shown in Fig. 1 the lazy tongs is expanded and the racks withdrawn from the oven. The coupling bar holds the rear ends of the racks so they will not tilt.

The structure is of such a character that when collapsed it occupies little space at the rear of the oven. The amount of expansion of the lazy tongs may be adjusted by proper

positioning of the bracket 27 with respect to the hinge axis of the door.

What we claim is:—

1. A unit adapted to be used with an oven having a door, rails for racks and racks slidably mounted on the rails; comprising an upright coupling bar for selective engagement with the racks; a lazy tongs having at its front an arm pivotally connected to said coupling bar and a companion arm slidably connected to said coupling bar, a plate adapted to be secured at the back wall of the oven, the arms at the rear end of said lazy tongs being pivotally and slidably connected to said plate inversely in relation to the front connections, and an operating rod secured to one of the arms of said lazy tongs and adapted to be secured to said door so as to be moved back and forth with opening and closing of said door.

2. A unit adapted to be used with an oven having a door, rails for racks and racks slidably mounted on the rails; comprising an upright coupling bar having recesses facing and in alinement with said racks, a keeper slidably mounted on said coupling bar having angled recesses with mouths for registration with the recesses in said coupling bar and whereby in one position of said keeper bar the mouths of the recesses in said coupling bar will be closed; a lazy tongs having at its front an arm pivotally connected to said coupling bar and a companion arm slidably connected to said coupling bar, a plate adapted to be secured at the back wall of the oven, the arms at the rear end of said lazy tongs being pivotally and slidably connected to said plate inversely in relation to the front connections, and an operating rod secured to one of the arms of said lazy tongs and adapted to be secured to said door so as to be moved back and forth with opening and closing of said door.

3. In combination with an oven having a door, rails for racks and racks slidably mounted on the rails; an upright coupling bar having recesses facing and in alinement with said racks for selectively engaging racks; a lazy tongs having at its front an arm pivotally connected to said coupling bar and a companion arm slidably connected to said coupling bar, the arms at the rear end of said lazy tongs being pivotally and slidably connected to the rear of the oven inversely in relation to the front connections, and an operating rod secured to one of the arms of said lazy tongs and actuated by said door whereby said coupling bar will be moved back and forth with opening and closing of said door.

4. In combination with an oven having a door, rails for racks and racks slidably mounted on the rails; an upright coupling bar having recesses facing and in alinement with said racks for selectively engaging racks; a lazy tongs having at its front arm pivotally connected to said coupling bar and a companion arm slidably connected to said coupling bar, a plate adapted to be secured at the back wall of the oven, the arms at the rear end of said lazy tongs being pivotally and slidably connected to said plate inversely in relation to the front connections, and an operating rod secured to one of the arms of said lazy tongs and actuated by said door whereby said coupling bar will be moved back and forth with opening and closing of said door.

5. In combination with an oven having a door, rails for racks and racks slidably mounted on the rails; an upright coupling bar having recesses facing and in alinement with said racks for selective engagement with said racks, a keeper slidably mounted on said coupling bar having angled recesses with mouths for registration with the recesses in said coupling bar and whereby in one position of said keeper bar the mouths of the recesses in said coupling bar will be closed; a lazy tongs having at its front an arm pivotally connected to said coupling bar and a companion arm slidably connected to said coupling bar, the arms at the rear end of said lazy tongs being pivotally and slidably connected to the rear of the oven inversely in relation to the front connections, and an operating rod secured to one of the arms of said lazy tongs and actuated by said door whereby said coupling bar will be moved back and forth with opening and closing of said door.

6. In combination with an oven having a door, rails for racks and racks slidably mounted on the rails; an upright coupling bar having recesses facing and in alinement with said racks for selective engagement with said racks, a keeper slidably mounted on said coupling bar having angled recesses with mouths for registration with the recesses in said coupling bar and whereby in one position of said keeper bar the mouths of the recesses in said coupling bar will be closed; a lazy tongs having at its front an arm pivotally connected to said coupling bar and a companion arm slidably connected to said coupling bar, a plate adapted to be secured at the back wall of the oven, the arms at the rear end of said lazy tongs being pivotally and slidably connected to said plate inversely in relation to the front connections, and an operating rod secured to one of the arms of said lazy tongs and actuated by said door whereby said coupling bar will be moved back and forth with opening and closing of said door.

In witness that we claim the foregoing we have hereunto subscribed our names this 5th day of March, 1932.

EDWARD C. BAMBERG.
LAWRENCE M. SYLVA.