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W. J. MILLER ET AL
ADJUSTABLE OVEN RACK

2,804,068

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3 Sheets-Sheet 1

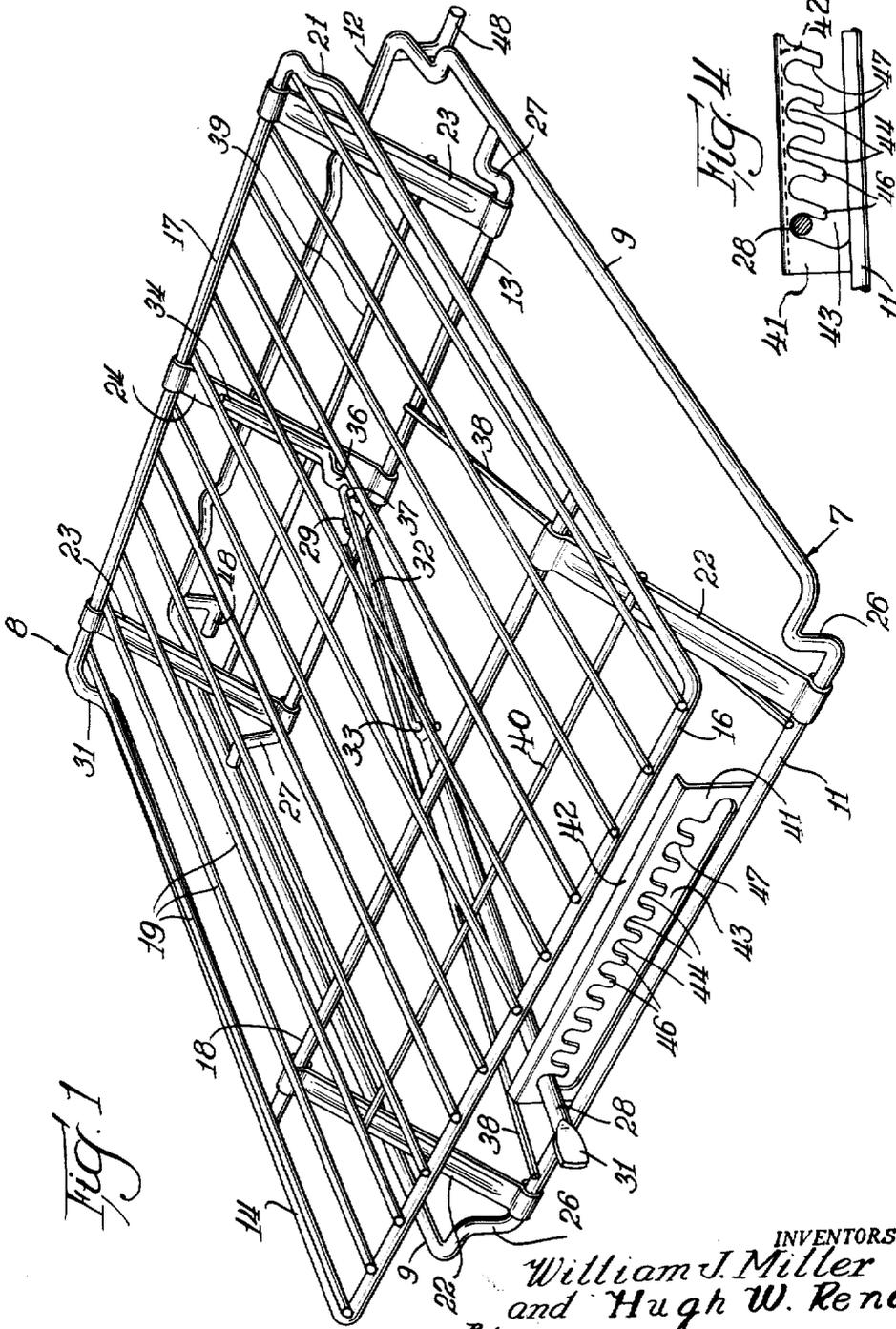


Fig. 1

Fig. 2

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Fig. 2

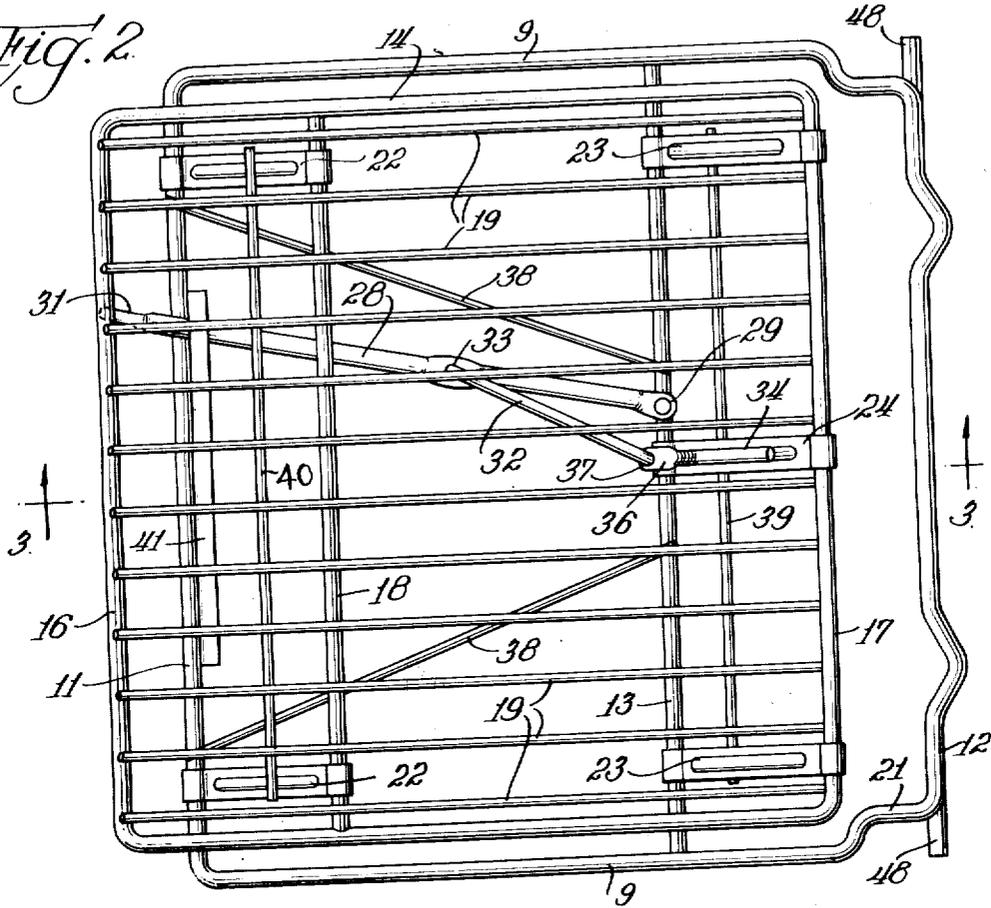
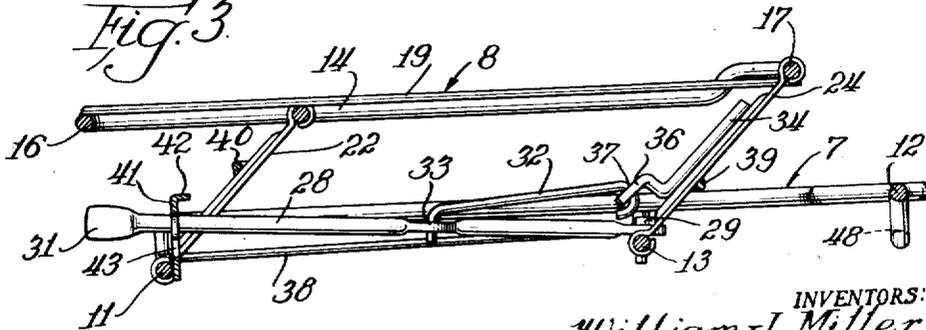


Fig. 3



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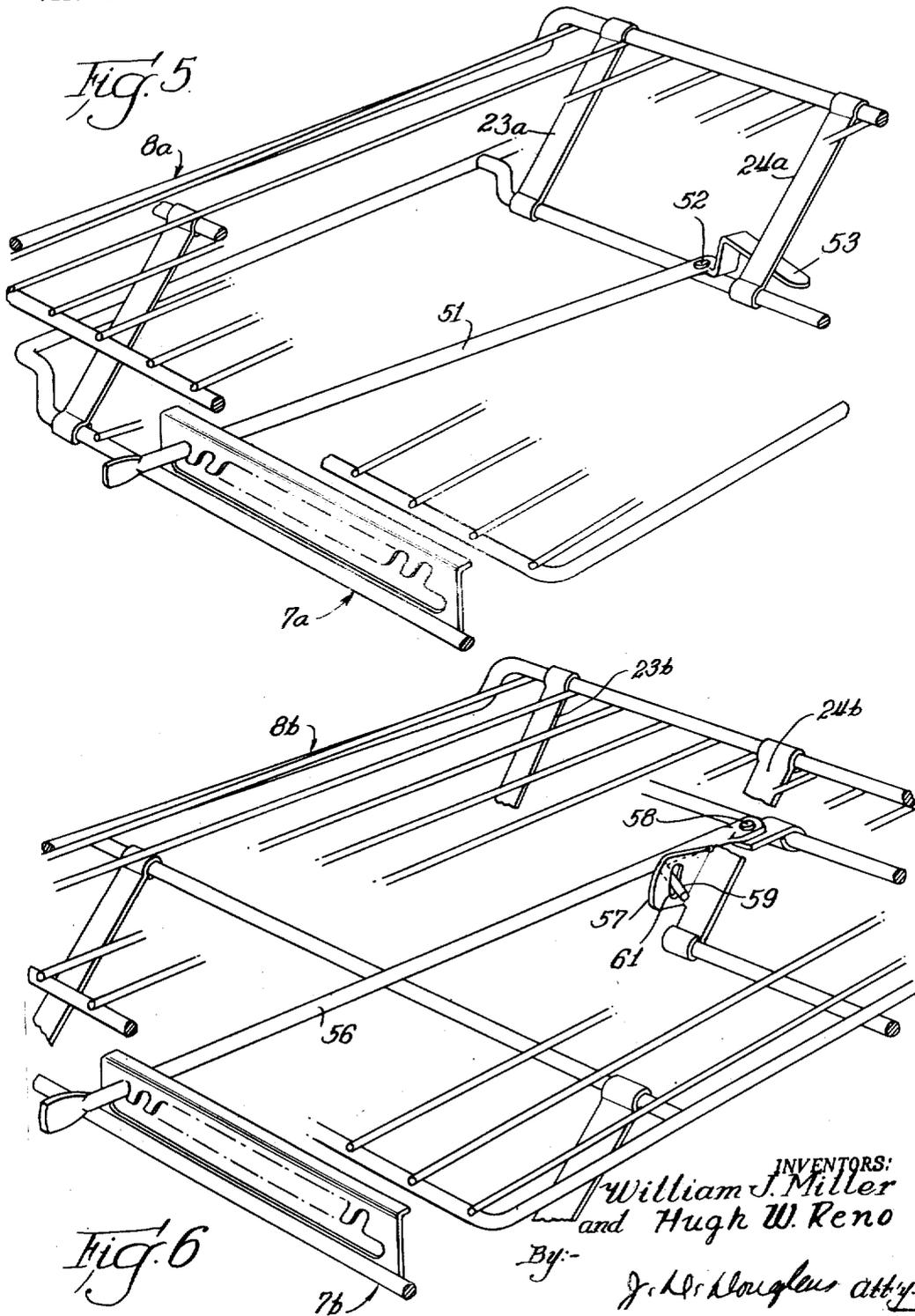
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ADJUSTABLE OVEN RACK

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5 Claims. (Cl. 126—337)

This invention relates to an accessory for the oven of a domestic stove or the like. More specifically, the invention comprehends an oven rack comprising a base and a carrier structure in combination with which is mechanism for moving the carrier structure vertically relative to the base so that the proximity of food, supported by the carrier structure, is variable with respect to a source of heat at the top of the oven.

Improvements incorporated in the structure involve simplicity of construction and consequently economy of manufacture besides reliability of operation over a long period.

Other advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims:

In the drawings:

Fig. 1 is a perspective view of the novel oven rack;

Fig. 2 is a top plan view thereof;

Fig. 3 is a vertical section taken on line 3—3 of Fig. 2;

Fig. 4 is a fragmentary view, in elevation, of a portion of the selector bar;

Fig. 5 is a perspective view of a second embodiment of the invention; and

Fig. 6 is also a perspective view of a third embodiment of the invention.

Throughout the drawings, the reference character 7 is used to denote a base in its entirety, while the character 8 denotes a grill or support portion on which food and dishes are positioned while they are subject to heat of an oven or broiler, not shown. Horizontally, the base 7 is rectangular, this shape being defined by an endless metallic rod formed to provide a pair of spaced-apart side rails 9, the ends of which are joined by a front rail 11, and a rear rail 12. Toward the rear rail 12 and disposed in parallel relation thereto is a support rail 13, the ends of which are rigidly fixed to the side rails 9.

The grill 8 is also rectangular in formation and defined by an endless rod formed to provide a pair of spaced-apart side rails 14 and integral front and rear rails 16 and 17 respectively. Parallel to the front rail 16 but spaced therefrom is a second support rail 18, the ends of which are fixed to the side rails 14 in some suitable manner as by welding. Similar means may be adopted for securing the ends of a series of spaced-apart carrier rods 19 to the front rail 16 and rear rail 17. Adjacent the rail 17, rails 14 are offset at 21 by the thickness of one of the rails 14 and rods 19, the arrangement providing for extension of the rail 17 over the rods 19. Owing to this construction, a receptacle may be readily slid over the rail 16, but may be arrested in its sliding motion by the rail 17 acting as a stop.

Links swingable about axes fixed with respect to the base and pivoted to the grill at concurrently movable axes are provided to support the grill from the base. The front rail 11 therefore affords fixed axial support, adja-

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cent either end thereof, for a pair of links 22. In like manner, the support rail 13 affords fixed support for a pair of links 23, swingable thereabouts, and additionally, bearing support for a control link 24, intermediate the links 23. The links 22, 23 and 24 are preferably metal stampings, the lower ends of which are formed to embrace the rails 11 and 13 in which they are in journalled relationship. The upper ends of the links are formed similarly to the lower ends so as to embrace the rails 17 and 18, adjacent the side rails 14. To enable links of maximum length to be employed, and for other reasons later to become evident, the front rail 11 is offset at 26 and the rail 13 is offset at 27 so that the portions of the rails between said offsets, and affording support for the links, are at a level lower than the side rails 9.

As has been indicated, the grill 8 is elevated and lowered by swinging the links about their fixed axis. This is effected by a control member or lever 23. It is pivoted to the upper side of rail 13 at 29 from which it extends between and beyond the rails 11 and 16 to provide a handle 31. In order that motion of the lever 23 in a horizontal plane may be communicated to the links to move them in vertical planes, the pivot 29 is spaced from the vertical plane in which the link 24 is movable. Additionally, a draft member, preferably taking the form of a rod 32, has one end thereof pivotally anchored to the lever 23 at a point 33, remote from the pivot 29. The link 24 bears an extension or bracket 34 having an end portion 36, offset from the link, to which the rod 32 is articulately anchored at 37 so that when the link is in its lowermost position adequate leverage may be imparted to the link 24 to swing it about the rail 13 and move it upward when the lever 23 is moved toward the position in which it is indicated.

If desired, the base 7 may be stiffened to resist deflection by operation of the lever 23. This may be carried out by a pair of rods 38, adjacent ends of which are suitably fixed to the rail 13 at points on either side of the link 24 and lever 23. From the rail 13 the rods 38 diverge to the rail 11 to which they are rigidly fastened at points adjacent the links 22. Also, if desired, a unitary and rigid relationship between the links 23 and 24 may be provided by a reinforcement taking the form of a rod 39 rigidly fixed to both of the links 23 and the link 24 intermediate the ends of said links. Similarly, the links 22 may be joined to each other by a rod 40.

As will now be apparent, the weight of the grill, and/or containers of food supported thereby, exerts a tendency to swing the links to their lowermost position, and to consequently move the point of connection between rod 32 and bracket 34 about the rail 13. The rod 32 therefore being biased in a direction away from the rail 11, communicates its urge to the lever 23 which is consequently biased away from the position in which it is shown in Fig. 1.

Selector means in association with the front rail 11 is employed to resist movement of lever 23 from left to right (Fig. 1). The selector means comprises a rectangular plate 41, one of whose longitudinal edges is rigidly secured to the rail 11 from which it extends vertically to a free edge portion taking the form of a flange 42, formed for the sake of rigidity. Between the flange 42 and rail 11 the plate 41 has a slot 43 of width adequate to accommodate the lever 23 so that it may be moved freely between the extremities of the slot. The upper edge of slot 43 is scalloped or recessed to provide a series of teeth 46 (Fig. 4) defining sockets 44. The pivotal connection 29 is of such a nature that the lever 23 has limited play laterally of the plane through which it is normally moved so that it may be moved into any one of the sockets 44 for engagement with one of the teeth 46. In this connection it should be noted that the teeth are

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inclined downward to the left to provide cam surfaces 47 so that once the lever 31 is moved into engagement with one of the teeth it is cammed upward to the extremity of a socket and there retained by the biasing force of the grill, the latter being maintained at selected elevation. In order to readjust the elevation of grill 8, the lever 31 is moved downward out of the socket 44 and horizontally in the slot 43 to one of the other sockets into which it is similarly positioned.

For a complete understanding of the scope of the oven rack, it is noteworthy that the device is constructed for use in conjunction with an oven, the two opposite side walls of which are formed with horizontal ridges on which the two side rails 9 rest when the rack is positioned in the oven. The rack may be installed in or removed from this position by sliding it horizontally. During this operation the rails 9 are in engagement with the ridges aforesaid, while a pair of L-shaped fingers 48, one at either corner of the rear of base 7, extends under the ridges. The purpose of the fingers 48 is to oppose tilting of the rack about the doorway of the oven, after the center of gravity of the rack has been displaced to a point outwardly of the oven.

In a second embodiment of the invention (Fig. 5), wherein links 23a and 24a space a grill 8a from a base 7a, a lever 51 corresponding to the lever 28, is pivoted to said base at 52 and includes an offset lateral arm 53 extending behind the link 24a into engagement with which said link is biased by the weight of the grill 8a so that moving the lever 51 away from the position in which it is indicated, allows the grill to move to a lower level. Motion of the lever 51 in the opposite direction, of course, moves the grill upward by swinging link 24a in the opposite direction.

In a third embodiment of the invention (Fig. 6), wherein links 23b and 24b space a grill 8b from a base 7b, a lever 56, corresponding to the lever 28, is coupled to the link 24b by a scotch yoke connection which comprises an ear 57 on the link 24b extending parallel to the course which said link is swung in. The lever 56 extends past the ear 57 from a pivot 58 at some suitable support in fixed relation to the base 7b. Furthermore, the lever 56 carries a pin 59, extending laterally therefrom, which is received in a slot 61 in ear 57. Although moving the lever 56 about its axis 58 slides the pin axially of the slot 61, it also moves the pin against parallel opposed walls of the slot to swing the link in either direction depending on the direction the lever 56 is moved about its fulcrum to lower or elevate the grill 8b.

While we have shown our invention in three embodiments thereof, we are aware that numerous and extensive departures may be made therefrom without departing from the spirit or scope of our invention.

We claim:

1. An adjustable oven rack comprising a base having spaced co-planar side rails and front and back rails, said back rail extending co-planar with the side rails, said front rail having its ends connected to the side rails and co-planar therewith and having its mid-portion disposed below the plane of said side rails, said base having a cross-piece extending between the side rails toward the back of the base, said cross-piece having its ends connected to the side rails and co-planar therewith and having its mid-portion disposed below the plane of said side rails, a grill having front and back rails and side rails positioned to overlie said ends of the front rail and the cross-piece on the base which are co-planar with the side rails on the base, said grill having a cross-piece extending between its side rails toward the front of the grill, a first set of rigid links hinged at their lower ends to the front rail on the base and hinged at their upper ends to the cross-piece on the grill, a second set of rigid links hinged at the lower ends to the cross-piece on the base and hinged at their upper ends to the back rail on the grill, an operating lever pivotally mounted on the cross-piece

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on the base and having a free end projecting forward beyond the front of the base which is adjustable from side to side on the base, means coupling the lever laterally to one of the links of said second set for positioning the grill vertically above the base in accordance with the lateral position of the free end of the lever, and a selector plate mounted on said front rail on the base and presenting a plurality of slots located in succession laterally of the base for receiving the free end of the lever.

2. An adjustable oven rack comprising a base having spaced co-planar side rails and front and back rails, said back rail extending co-planar with the side rails, said front rail having its ends connected to the side rails and co-planar therewith and having its mid-portion disposed below the plane of said side rails, said base having a cross piece extending between the side rails toward the back of the base, said cross-piece having its ends connected to the side rails and co-planar therewith and having its mid-portion disposed below the plane of said side rails, a grill having front and back rails and side rails positioned to overlie said ends of the front rail and the cross-piece on the base which are co-planar with the side rails on the base, said grill having a cross-piece extending between its side rails toward the front of the grill, a first set of rigid links hinged at their lower ends to the front rail on the base and hinged at their upper ends to the cross-piece on the grill, a second set of rigid links hinged at the lower ends to the cross-piece on the base and hinged at their upper ends to the back rail on the grill, an operating lever pivotally mounted on the cross-piece on the base and having a free end projecting forward beyond the front of the base which is adjustable from side to side on the base, means coupling the lever laterally to one of the links of said second set for positioning the grill vertically above the base in accordance with the lateral position of the free end of the lever, and a selector plate mounted on said front rail on the base and presenting a plurality of slots which are open at their lower ends and closed at their upper ends for receiving the free end of the lever, said slots toward their upper ends including laterally in the direction in which the weight of the grill tends to move the lever.

3. The oven rack of claim 2, wherein said coupling means comprises a rod pivotally connected at one end to the lever in spaced relation to the pivotal mounting of the lever on the base, said rod at its opposite end being pivotally connected to said one link of the second set above the pivotal mounting of the lever on the base.

4. The oven rack of claim 2, wherein said coupling means comprising an arm connected to the lever and offset above the pivotal mounting of the lever on the base and engaging the back of said one link of the second set.

5. The oven rack of claim 2, wherein said coupling means comprises an ear projecting forward from said one link of the second set and having a curved slot, and a transverse pin carried by the lever and received in said slot.

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