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SWITCH MOUNTING FOR ELECTRIC RANGES

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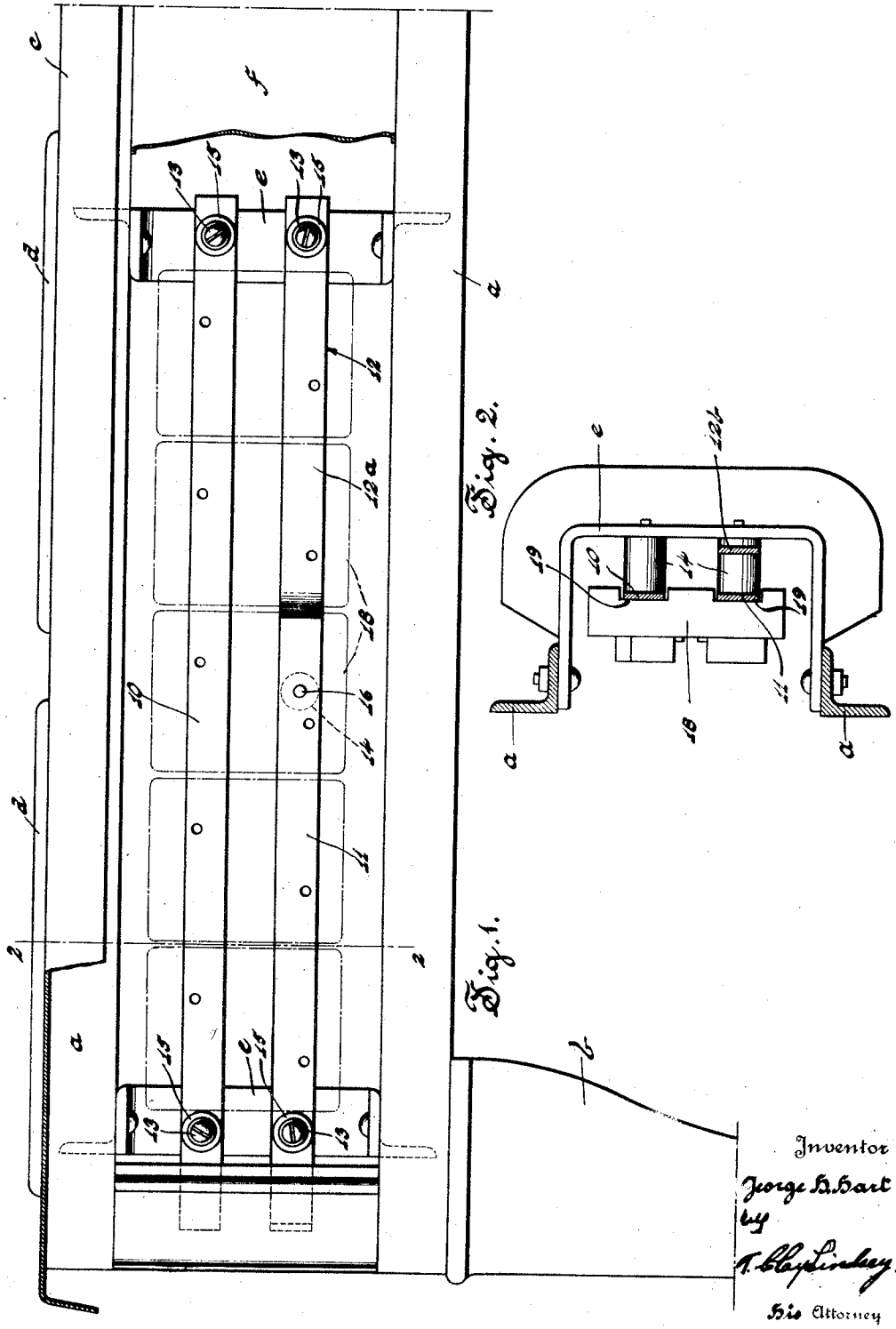


Fig. 1.

Fig. 2.

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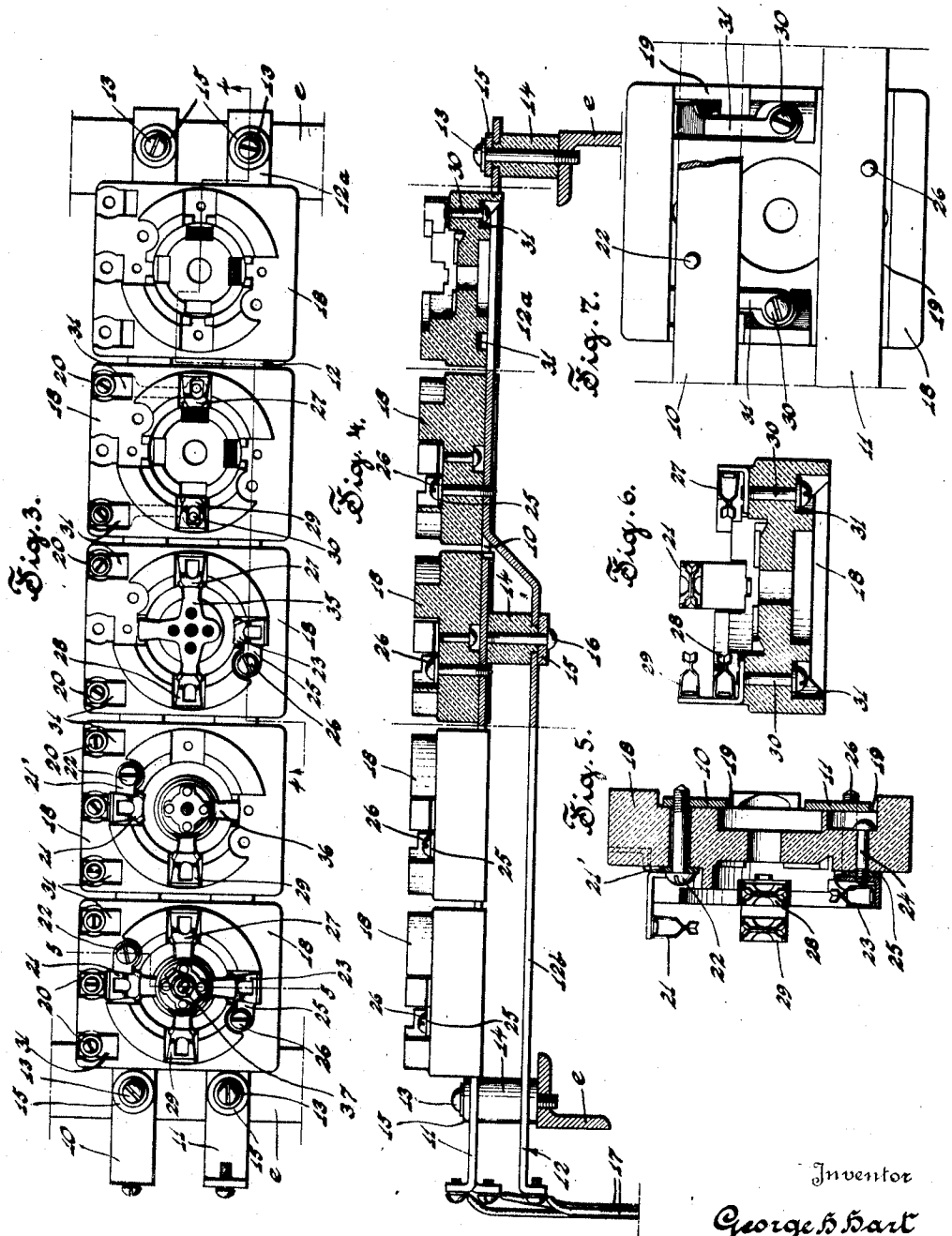


Fig. 3.

Fig. 4.

Fig. 7.

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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SWITCH MOUNTING FOR ELECTRIC RANGES.

Application filed June 11, 1924. Serial No. 719,455.

This invention relates to electric ranges of the sort having electrical heating elements disposed in suitable hot plates and in the oven, and switches for controlling the current to the respective elements.

The present invention relates, more particularly, to the manner of mounting the electric switches on the range, and has as its object to provide an improved mounting which has various features of novelty and advantage and which is especially characterized by its extreme simplicity and economy in construction, and the ease and facility with which the parts may be assembled and disassembled.

In accordance with the present invention, the switches are directly mounted upon the bus bars which are connected, through the switches, to the respective heating elements and, by preference, each switch is secured to the bus bars in such manner that they may be assembled and disassembled therefrom without affecting any of the other switches and, also, the bus bars, together with the switches carried thereby, may, as a unit, be readily attached to and detached from the range.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings, wherein I have shown, for illustrative purposes, one embodiment which the present invention may take, it being understood that this showing is by way of exemplification only and is not to be taken as restrictive of my conception:

Figure 1 is a front view of a portion of an electric range with the front panel removed or broken away to show the bus bar arrangement, and the switches being shown in dotted lines;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a front view of the switches mounted upon bus bars, the left hand switch being completely shown and the other switches having some of their parts removed in order to more clearly disclose the construction;

Fig. 4 is a bottom edge view of what is shown in Fig. 3 with parts in section along the line 4—4 of Fig. 3;

Fig. 5 is a sectional view taken on line 5—5 of Fig. 3;

Fig. 6 is a view similar to Fig. 5, but taken at right angles thereto; and

Fig. 7 is a rear view of one of the switches and the bus bars.

Referring to the drawings in detail, the range is illustrated more or less diagrammatically and only partially in Fig. 1, as the construction thereof forms no particular part of the present invention, it being understood that my improvements may be incorporated in electric ranges of a construction other than that here shown. In this figure, the frame of the body portion of the range is shown as being formed of two pieces of angle iron *a* spaced vertically, one above the other, and between these angle irons my improved switch mounting is located. *b* designates a leg of the range, and *c*, a top plate carrying suitable hot plates *d* each of which is provided with one or more heating elements or coils adapted to be electrically connected to the bus bars through the switches. In the present instance, I have shown, for illustrative purposes, a pair of angle iron brackets *e* positioned between the angle irons *a*, as shown most clearly in Figs. 1 and 2, and to these brackets the bus bars are adapted to be secured. *f* designates a panel which constitutes a cover for the switches, it being understood that the stems of the switches extend through this cover and are provided with suitable handles (not shown) by means of which the switches may be operated.

In the present illustrative disclosure, I have shown three bus bars, one of which, for instance, that designated by the numeral 10, is neutral, and the other two, designated by the numerals 11 and 12, being positive or negative. Each of these bus bars may be in the form of a strip of metal, for instance, copper, of such thickness that they will have the required strength and rigidity to properly support the weight of the switches. The bus bar 10, in the present instance, is

connected, adjacent its opposite ends, to the respective brackets *e*. The bus bar 12 has a portion 12^a in the plane of the bus bar 10 and an offset portion 12^b. The bus bar 11, which is relatively shorter than the other two, is in front of the offset portion 12^b and is in the plane of the bus bar 10 and the portion 12^a of the bus bar 12. In the present instance, the bus bar is of such length as to accommodate three switches, and the portion 12^a to support two switches, but it is, of course, understood that this showing is by way of exemplification only and the length of the bars will depend upon the number of switches and, if desired, instead of having three bus bars, only two bus bars may be provided. The bus bars are connected to the brackets *e* by means of screws 13, there being interposed between the bus bars and the brackets suitable insulating bushings or sleeves 14. Insulating washers 15 may be positioned beneath the heads of the screws. The inner end of the bus bar 11 may be supported by the bus bar 12, as by means of the screw 16, which is insulated by a washer 15 and a sleeve 14. The numeral 17 designates wires leading from a suitable source of electricity and connected to the ends of the bus bars.

Each of the switches comprises a base 18 of insulating material, for instance, porcelain, fixed terminals connected to the heating elements, and plates or blades adapted to bridge the terminals in various combinations depending on the type of switch. In the present instance, the switches are of the three-way type, that is, of a construction which will permit a low, medium and high degree of heat in each of the hot plates. It is, of course, understood that the switches here shown, and which are of an old and well-known construction, are disclosed by way of illustration only, and the invention is not limited to this particular type of switch.

The bases 18 are provided on their rear faces with grooves 19 for accommodating the bus bars. Adjacent the upper end of each base are fixed terminal posts 20 which are respectively connected to the heating elements of the respective hot plates. The numeral 21 designates a switch terminal electrically connected to a connector strip 21′ leading to the central post 20. The strip 21′ is electrically connected to the bus bar 10 by a screw 22. Diametrically opposite the switch terminal 21, and in the plane behind the same, is a terminal 23 secured in place on the base 18 by a screw 24 This terminal 23 overlies and is in contact with a strip 25 which is electrically connected to the bus bar 11 or 12, as the case may be, by a screw 26. Disposed at right angles to the terminals 21 and 22 is a terminal 27 and a pair of terminals 28, 29, the latter being positioned one in front of the other. The terminals 28, 29, and the terminal 27, are respectively connected, as by screws 30, to strips 31 positioned in vertical grooves in the rear faces of the bases, and the upper ends of these strips are connected to the outside terminal posts 20, as shown most clearly in Fig. 3. The grooves in which the strips 31 are positioned are deeper than the grooves 19 so that the strips 31 will clear the bus bars, as is most clearly shown at the right hand side of Fig. 4. The switch has a switch plate or blade 35 having three contact arms adapted to engage the terminals 23, 27 and 28. The switch, further, has a blade 36 provided with two contact arms adapted to be thrown into and out of engagement with the terminals 21 and 29. The blades 35 and 36 rotate in unison and may be thrown by turning a stem 37 between which and the blades there is preferably provided the usual mechanism for giving the blades a snap movement when the spindle or stem is rotated.

It will be seen from the foregoing description, taken in connection with the drawings, that, since the switches are directly supported on and carried solely by the bus bars, the construction of the range may be greatly simplified, and, more especially, means for supporting the switches, aside from the bus bars, are entirely dispensed with. The bus bars themselves are cheap in construction and may be mounted for ready attachment to and detachment from the range in a very simple and economical manner. The means for securing the switches to the bus bars, in the present instance these means being in the form of the screws 22, also serve the purpose of electrically connecting the switch terminals to the bus bars. Separate wires leading from the bus bars to the respective switches, are entirely eliminated, thus making for compactness and facilitating the assembly and disassembly of the parts. Each of the switches may be readily assembled on and disassembled from the bus bars without disturbing the remaining switches and, if desired, all of the switches may be assembled on the bus bars and then the bus bars, with the switches thereon, as a unit, may be inserted in the range.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described

and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. In an electric range, bus bars, a plurality of switches mounted on and carried solely by said bars, means for detachably securing said switches on said bars, and means for detachably securing said bars in said range, whereby said bars and switches may be attached to and detached from said range as a unit.

2. In an electric range, bus bars positioned one above the other in said range, a plurality of switches entirely supported by said bus bars and positioned side by side thereon, each of said switches having a base provided with terminals on its front face and grooves on its rear face adapted to receive said bus bars, each switch also having terminal posts and connecting strips between certain of said terminals and said posts, said strips being mounted in grooves in the rear face of the base, said last mentioned grooves being deeper than said bus bar receiving grooves, and screws for securing said switches to said bars and electrically connecting certain of said terminals to said bars.

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