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SEPARABLE ELECTRIC CONNECTER

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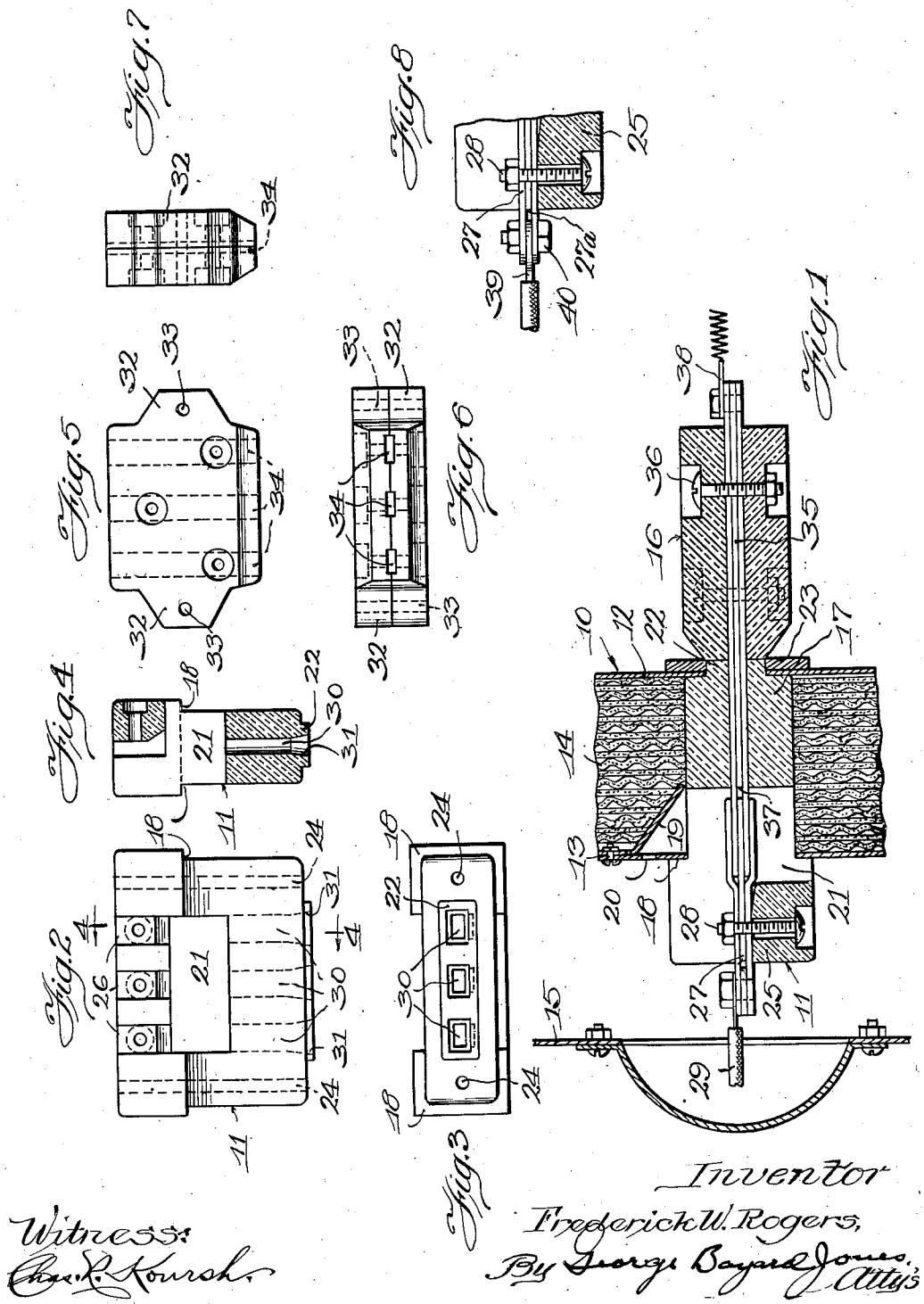

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SEPARABLE ELECTRIC CONNECTER

Application filed June 24, 1929. Serial No. 373,275.

This invention relates to improvements in separable electric connecters.

The principal object of the invention is to provide a connecter of improved construction which is particularly adapted for use in the circuits of heating elements of baking appliances, although not restricted to such use.

Another object of the invention is to provide a connecter, the separable portions of which have interleaving terminals which provide adequate contacting surfaces and which also permit the separation of the members without excessive pulling forces being exerted on the members.

A further object of the invention is to provide a connecter receptacle having a transverse passage therethrough, within which passage the terminals of the receptacle interleave with the terminals of the plug-in member, the receptacle having longitudinal openings for guiding the terminals of the plug and seats in alignment with said opening for holding the receptacle terminals against lateral displacement.

Other objects relate to various features of construction and arrangement of parts which will be apparent from a consideration of the specification and the accompanying drawings, wherein:

Fig. 1 is a vertical section showing the plug members in position in an opening in the insulating wall of the oven;

Fig. 2 is a plan view of the receptacle or stationary portion of the contact plug;

Fig. 3 is an end view thereof;

Fig. 4 is a sectional view of the receptacle taken on line 4—4 of Fig. 2;

Fig. 5 is a plan view of a removable plug member;

Fig. 6 is a front elevation thereof;

Fig. 7 is a side elevation of the plug; and

Fig. 8 is a broken view illustrating the preferred method of connecting the conductors to the terminals of the receptacle.

This application is a continuation in part of my co-pending application Serial No. 296,304, filed July 30, 1928, now Patent No. 1,784,753, for electric oven construction.

In the drawings 10 indicates a mounting for the receptacle indicated generally by the numeral 11. The mounting in this case is shown as a rear wall of an oven, the wall comprising an inner casing 12, sub-back 13 and interposed heat-insulating material 14. The wall is provided with a recess therethrough within which the receptacle 11 is positioned. An outer casing 15 of the oven structure provides a dead air space and encloses and shields the rear end of the receptacle. The plug-in portion of the receptacle is indicated by the number 16.

The connecter members, that is the receptacle 11 and plug 16, are of electrical insulating material such as porcelain. The receptacle 11, which is preferably of one piece construction, has a reduced portion 17 of a size adapted to be inserted in the opening through the rear wall of the oven, the shoulder 18 limiting the inward movement of the same. The opening through the oven walls and insulation has an inclined portion covered by a lining portion or shield 19. This arrangement provides greater air space above the contact members, the adjacent portion of the wall 20 being perforated to permit of free air circulation upwardly through opening 21 as will be apparent. The portion 17 has a reduced forward extension 22 which projects into the oven chamber when the receptacle is in position. A gasket or plate 23, having an opening to receive the extension 22, overlies the surrounding portion of the back wall 12 and forms a steam tight joint which prevents the escape of steam or heated air through the opening. The receptacle 11 is provided with longitudinal passages 24 for the reception of bolts which pass through corresponding holes in the gasket 23 for clamping the gasket and shoulder 18 against the respective walls 12 and 20. The rear enlarged portion of the receptacle 11 is provided with a transverse support 25, which is provided with seats 26 for holding the terminals 27 against lateral movement.

In the opening 21 are disposed the inner ends of the contact members 27. The terminals or contact members 27 each comprises in the modification shown, three strips of conducting material which are held in position in the seats 26 of the support 25 by bolt 28.

The outer strips of the members 27 are bent in a direction to space the ends of the same from the intermediate strip, as clearly shown in Fig. 1. Conductors 29 carry current from a suitable source to the contact members 27. Recesses or passageways 30 are provided through the forward portion of the receptacle, as shown, there being as many passages as there are contact members 27, three such passages being shown in Figs. 2 and 3. The mouth of the passages 30 are preferably flared somewhat, as at 31, for facilitating the entering of the terminals of the plug member 16. The plug member is preferably formed of two complemental sections having ears 32, by means of which the sections can be secured together by bolts passing through the openings 33. The sections are provided with channels 34 which form passages through the assembled plug for the terminal members 35. A screw 36 passes through each of said terminals to hold the same in the passages against longitudinal movement. Each of the terminals 35 comprises in the modification shown, three strips, the intermediate strip terminating as at 37, whereby the spaced ends of the other two strips will interleave with the three spaced strips forming each of the terminal members 25. This arrangement is clearly shown in Fig. 1 of the drawings. The terminals 35, as will be seen in Fig. 1, are arranged to make electrical connection with the terminals 25 in the opening 21 of the member 11. The interleaved portions of the contact members are thus not exposed to the intense heat of the oven but are in communication with the dead air space of the oven through the opening 21. The terminals 35 are connected by conductors 38 to heating elements in the oven. Should it be desired to remove a heating element, the plug 16 can readily be removed from contact with the receptacle 11, and as readily reattached, the contacting surfaces of the terminal members 25 and 35 being relatively large and while affording large surface contact, are not so tightly engaged as to render their separation difficult.

The modification shown in Fig. 8 is similar to the form illustrated in Fig 1 except that in the former the intermediate leaf of the terminal 27 terminates at 27ª and the conductor 39 has its end formed in a loop and inserted between the ends of the outer leaves and held in place by tightening the bolt 40. The bolt thus is not required to carry current as both outer leaves of the terminals are compressed into firm contact with the conductor.

Although I have shown and described my improvements in conjunction with an oven for the purpose of illustration, it will be apparent that it may be used in other relations and that various modifications may be made therein without departing from the spirit of the invention as defined by the appended claims.

What I claim is:

1. A plug receptacle comprising an insulating body having an enlarged rear end forming abutment shoulders, a portion of said end intermediate said shoulders being removed to provide a transverse support, said receptacle having a vertical opening therethrough, the forward portion of said receptacle having a horizontal passage extending rearwardly from the forward end and terminating at said vertical opening in alignment with a stationary contact, and a removable plug member having an extended contact adapted to be passed through said passage into said opening for connection with said stationary contact member.

2. A plug receptacle comprising an insulating body having an enlarged rear end, an intermediate portion of said end being removed to provide a transverse support, a stationary contact member secured to said support, said receptacle having a vertical opening therethrough, the forward portion of said receptacle having a horizontal passage extending rearwardly from the forward end and terminating at said vertical opening, and a removable plug member having an extended contact adapted to be passed through said passage into said opening for connection with said stationary contact member, said contact members each being formed of a plurality of conducting strips having their contacting ends arranged for inter-leaved engagement within said vertical opening.

3. A separable connecter for electric conductors comprising a removable plug and a stationary receptacle member, said plug comprising complemental sections provided with registering longitudinal grooves for receiving a multiple-strip contact, a screw passing through said sections and strips for retaining said strips in said grooves against longitudinal movement, said contact being connected to a conductor adjacent one end and extending beyond the opposite end of said plug, said receptacle having a vertical opening therein, a multiple strip contact secured to the receptacle adjacent the rear end thereof and having its forward end disposed within said opening, the forward portion of said receptacle having a longitudinal passage through which the contact member of said plug can be inserted, the free ends of said contact strips being arranged for inter-leaving engagement within said opening in said receptacle.

4. A separable connecter for electric conductors comprising a stationary insulating receptacle member and an insulating separable plug member, one of said members having an opening therein intermediate the ends thereof and a passage extending from said opening to one end of said member, said member having a multiple-strip contact secured adjacent its opposite end and terminat-

ing in said opening in alignment with said passage, said other insulating member having a multiple-strip contact secured therein and extending from one end thereof, said extending portion of said last named contact being adapted to be inserted through said passage in the other insulating member and into said opening for inter-leaving engagement with said other contact.

5. A plug-in receptacle of insulating material having a vertical recess therethrough, a transverse terminal support at the rear of said receptacle and having its upper surface provided with a longitudinal channel, and a multiple leaf terminal secured in said channel having its forward end disposed in said recess, the forward portion of said receptacle having a longitudinal passage therein for the reception of a terminal of a plug-in member adapted for interleaving engagement with said stationary contact within said vertical recess, said passage being aligned with the forward end of said terminal.

6. A device of the class described comprising an insulating receptacle having a vertical recess therethrough, a transverse terminal support at the rear of said receptacle, said support having a longitudinal channel, a terminal secured in said channel with its forward end extending into said recess, said terminal comprising an intermediate and upper and lower conducting strips, said latter strips having their forward ends spaced from the corresponding end of said intermediate strip, the forward portion of said receptacle having a longitudinal passage therethrough alined with the forward ends of said terminal and an insulating plug-in member having a terminal comprising an intermediate and upper and lower conducting strips, the latter two of said strips being of a length adapted to extend through said passage of said receptacle into inter-leaving engagement with said receptacle terminal.

7. A device of the class described comprising an insulating receptacle having a vertical recess therethrough, a transverse terminal support at the rear of said receptacle, said support having a longitudinal channel, a terminal secured in said channel with its forward end extending into said recess, said terminal comprising an intermediate and upper and lower conducting strips, said latter strips having their forward ends spaced from the corresponding end of said intermediate strip, the forward portion of said receptacle having a longitudinal passage therethrough alined with the forward end of said terminal and an insulating plug-in member having a terminal comprising an intermediate and upper and lower conducting strips, the latter two of said strips being of a length adapted to extend through said passage of said receptacle into inter-leaving engagement with said receptacle terminal both of said terminals having their outer ends extended beyond the corresponding ends of the respective insulating members and provided with conductor attaching means.

8. A device of the class described comprising an insulating receptacle body having a vertical opening therethrough, one end of said body forming a transverse support, a stationary contact member secured to said support with its inner end disposed within said opening, the opposite end of said body having a longitudinal passage therein terminating at said opening in alignment with the inner end of said contact, and a removable plug member having a contact, one end of which is adapted to be passed through said passage into said opening for connection with said stationary contact member.

In testimony whereof, I have subscribed my name.

FREDERICK W. ROGERS.