June 27, 1967 J. J. JASIONOWSKI 3,327,966

SUPPORT FOR A COILED ELECTRIC HEATING ELEMENT

Filed Aug. 19, 1965

Fig. 1.

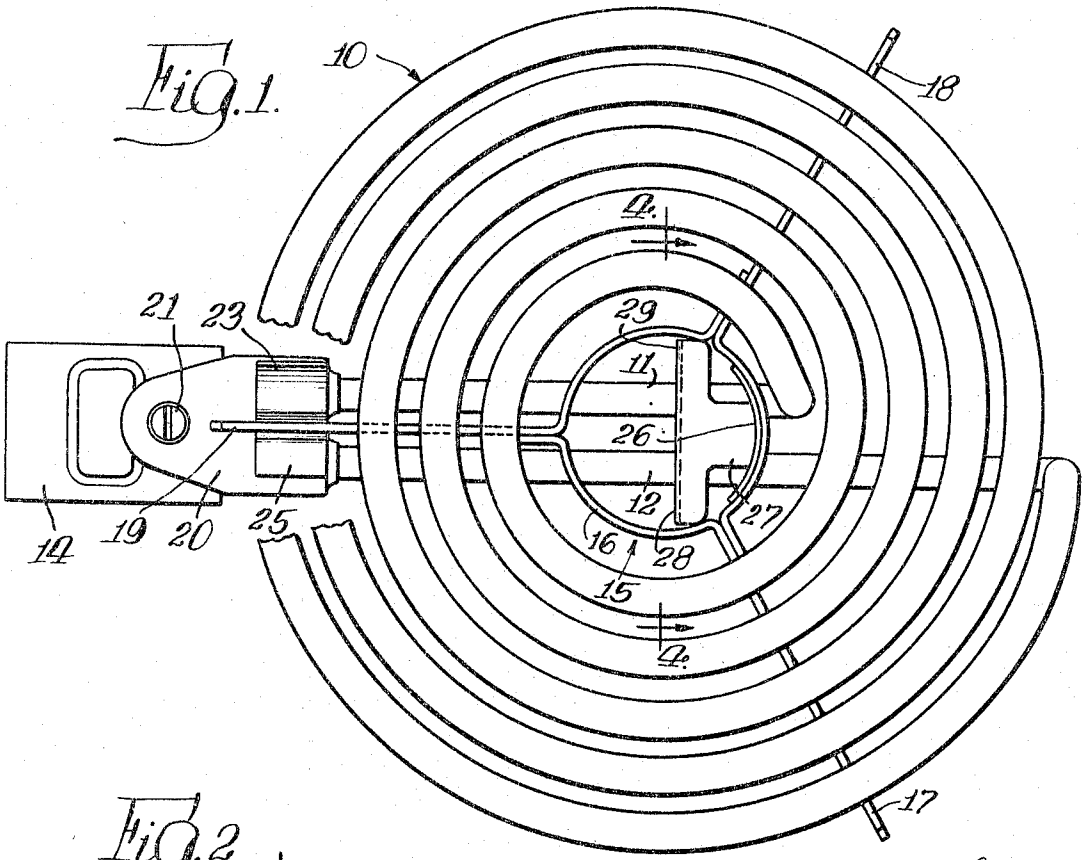


Fig. 2

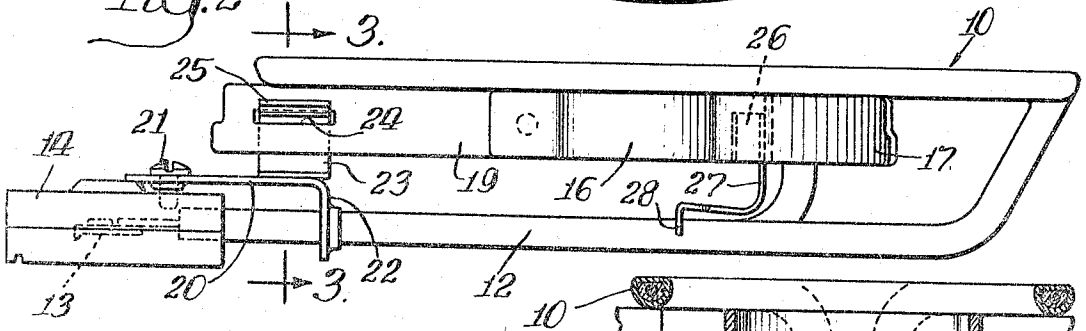
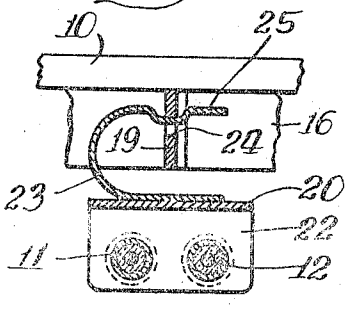


Fig. 3.



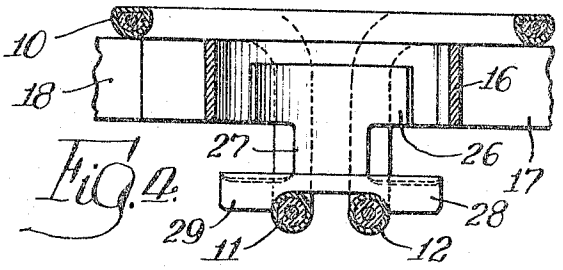


Fig. 4.

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SUPPORT FOR A COILED ELECTRIC HEATING ELEMENT

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3 Claims. (Cl. 248—205)

This invention relates to a support and more particularly to a support for a coiled electric heating element.

It is the general object of the present invention to produce a new and improved support of the character described.

It is a more particular object of the invention to produce a support designed to be utilized to support a coiled electric heating element together with a cooking utensil placed thereon with the support being connected to the heating element in a new and novel fashion.

The use of supports, often referred to as "spiders," for supporting coiled electric heating elements has been prevalent for a substantial period of time. In the usual construction, the spider is permanently affixed to the heating element in a manner normally prohibiting the separation of the two. This latter fact has given rise to some dissatisfaction in that replacement of the heating element also requires replacement of the supporting spider. Furthermore, where the spider is crimped or staked to the hot portions of the heating element, a number of disadvantages result. For example, the differential expansion of the parts may cause a change in the shape of the heating element resulting in a crack in the magnesium oxide insulation normally contained therein, and thereby cause a dielectric breakdown. If the spider is staked to the hot portion of the sheath, the staking operation may cause a tear or rupture in the sheath permitting water to enter. Furthermore, oxidation of the staked parts at high temperature may cause loosening of the connection between the spider and the heating element. Differential expansion between the spider and electric sheath may be permitted where the two are secured together by means of tie-bars welded to the elements, but the welding operation is a difficult one requiring careful surface preparation, proper setting of the welding controls, etc.

All of the foregoing disadvantages have been eliminated by the structure of the present invention, wherein means in the form of spring clips are provided for securing the spider to the heating element with the spring clips being readily disengageable to permit separation of the spider from the heating element. Because of the construction of the spring clips, differential expansion may occur without damage to the parts, no welding, staking, or crimping is necessary at the heated area, and the heating element alone may be replaced without the necessity of replacing the spider.

Other and further objects and advantages of the present invention will be readily apparent from the following description and drawings, in which:

FIG. 1 is a top plan view of a heating element and spider embodying the engaging means of the present invention;

FIG. 2 is a side elevational view of the apparatus shown in FIG. 1;

FIG. 3 is a vertical sectional view along line 3—3 of FIG. 2; and

FIG. 4 is a vertical sectional view along line 4—4 of FIG. 1.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a specific embodiment, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

Referring now to the drawings, there is shown a coiled heating element **10** provided with a pair of parallel terminal portions **11** and **12** extending radially from one side of the center of the coil across the center and outwardly to be on the other side of the center. As is common in such construction, the terminal portions **11** and **12** are not heated during operation of the heating element. The ends of the terminal portions are secured to contacts **13** positioned within a block **14** of insulating material which, in turn, contains suitable terminals so that it may be plugged into a source of electrical energy.

Underlying the electric heating element **10** is a supporting spider **15** having a circular central portion **16** and a plurality of legs **17**, **18** and **19** extending radially outwardly from the central portion. The extremities of the legs are adapted to rest upon a suitable lip or shelf (not shown) provided on a cook top, and thus support the heating element and a cooking utensil placed thereon.

An insulating block **14** is secured by means of a screw **21** to the bracket **20** with the bracket being provided with a downwardly turned portion **22** having suitable apertures therein through which the terminal portions **11** and **12** extend, the edges of the apertures being in fixed engagement with said terminal portions. Secured to the upper surface of the bracket **20** is a U-shaped spring clip **23** engageable in a slot **24** formed near the outer end of the leg **19**. The spring clip **23** is readily disengageable from the slot by depressing the portion **25** of the clip thereby permitting withdrawal of the clip from the slot with rotational movement of the spider.

A second spring clip **26** is secured to the central portion **16** of the spider and is provided with a narrow neck portion **27** integrally connected to enlarged downwardly extending portions **28** and **29** positioned to engage the outer edges of the terminal portions **11** and **12** as shown in FIG. 4.

It will be clear from the foregoing description that with the U-shaped clip **23** engaged in the slot **24** and the downwardly extending portions **28** and **29** of the second spring clip engaging the terminal portions as shown, the spider is firmly secured to the heating element and thus is disposed to support the same during normal use. To remove the spider it is simply rotated relative to the heating element to disengage the clip **23** from the slot **24**. When this has been accomplished, outward movement of the spider relative to the heating element will disengage the second spring clip thus separating the two parts. It will be noted that although the parts are readily separable the heating element and spider are firmly retained in engagement with each other when the spring clips are engaged but the engagement is such as to not only permit relative expansion between the spider and the heating element, but also to provide a firm engagement without the necessity of staking, crimping, or welding, and thus without danger of damage to the sheathed heating element.

I claim:

1. A support for a coiled electric heating element having a linearly extending terminal portion comprising a spider having a central portion to underlie the center of the element, a plurality of legs extending radially outwardly from said central portion, a first supporting means for the spider securable to said terminal portion and being constructed and arranged to be readily engageable with and disengageable from one of said legs, a second supporting means secured to said central portion and being constructed and arranged to be readily engageable with and disengageable from the terminal portion, whereby said spider may be readily secured to the heating element in

supporting relationship therewith or removed therefrom.

2. A support for a coiled electric heating element having a pair of parallel terminal portions extending radially from one side of the center of the element to beyond the opposite side thereof, said support comprising a spider having a central portion and a plurality of legs extending radially outwardly of the central portion, a bracket securable to the terminal portions adjacent their outer ends, a spring clip carried by the bracket and engageable with the outer end of a leg, a second spring clip on the central portion of the spider and engageable with the terminal portions on said one side of the center of the heating element, said spring clips being readily disengageable to permit separation of the spider from the heating element.

3. A support for a coiled electric heating element having a pair of parallel terminal portions extending radially from one side of the center of the element to beyond the opposite side thereof, said support comprising a spider having a central portion and a plurality of legs extending radially outwardly of the central portion, a bracket securable to the terminal portions adjacent their outer ends, a slot in the outer end of one of the legs, a U-shaped spring clip secured to the bracket and engageable in the slot, a second spring clip on the central portion of the spider and having spaced downwardly extending portions engageable with the terminal portions on said one side of the center of the heating element, said spring clips being readily disengageable to permit separation of the spider from the heating element.

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