Oct. 20, 1959 G. W. OAKES 2,908,968

ELECTRICAL PLUG DETACHER

Filed Oct. 28, 1955

Fig. 1.

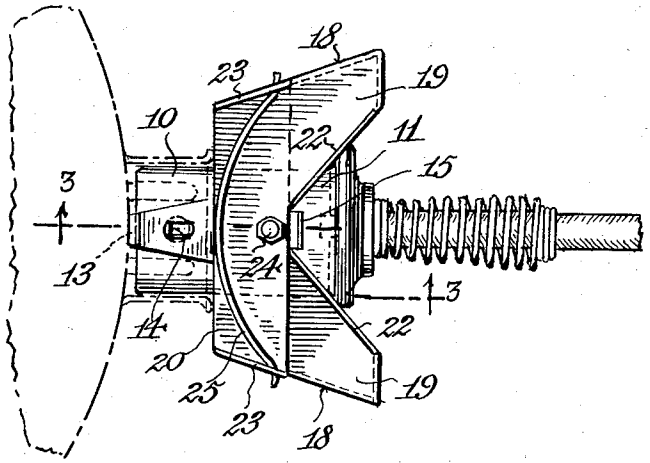


Fig. 2.

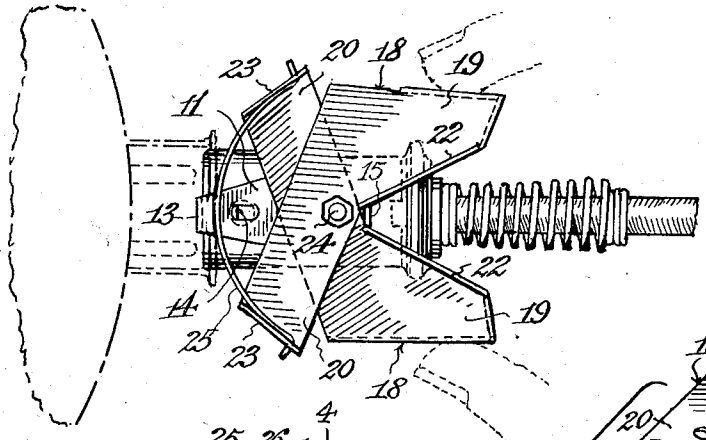


Fig. 3.

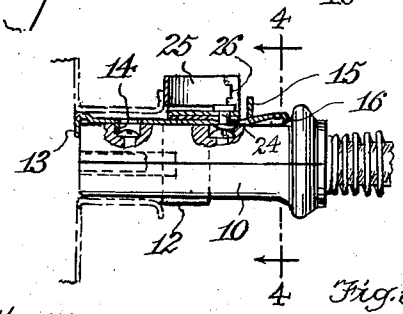


Fig. 4.

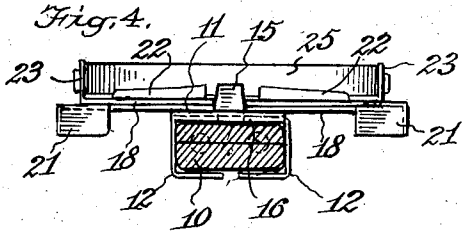
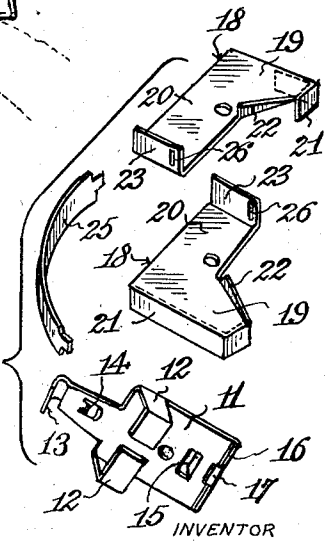


Fig. 5.



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United States Patent Office 2,908,968 Patented Oct. 20, 1959

2,908,968

ELECTRICAL PLUG DETACHER

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Application October 28, 1955, Serial No. 543,520

6 Claims. (Cl. 29—268)

This invention relates to a device which is useful with detachably connectable cooperative elements, such as conventional electrical plugs, receptacles, sockets, connectors and the like, for the purpose of detaching or separating one of the elements from another element.

The present invention contemplates a device of the indicated character which is designed to facilitate the release of an electrical plug or analogous connector on the end of an extension cord, from various household heat evolving appliances, such as flat irons, percolators, skillets and other analogous electrical utensils, by a person using one hand instead of two hands, so as not to be burned by contact with the hot appliance or utensil; and also to discourage the detrimental use of the extension cord for effecting the mentioned detachment.

An object of this invention is the provision of a device of the indicated character in the form of an attachment which is readily applicable to conventional electrical plugs and the like without alteration of the latter.

A further object of the invention is the provision of a device which improves the efficiency and convenience in safely handling an electrical plug and the like for the intended purposes.

A further object is to provide a device of the character mentioned which is of simple and practical construction, reliable in operation, and comparatively inexpensive to manufacture.

Other objects and advantages of this invention will appear when the following description is read in conjunction with the accompanying drawing, in which,

Fig. 1 is a plan view showing an electrical plug selected to illustrate the device of the present invention which is attached to the plug, the plug being engaged with the electrodes of an appliance, a portion of which is shown in dot and dash lines.

Fig. 2 is a view similar to Fig. 1, but illustrates the manner in which the plug is detached from the appliance.

Fig. 3 is a side view of the plug, portions of the plug being broken away, the detacher being shown in longitudinal section, the section being taken approximately on the line 3—3 of Fig. 1 and looking in the direction indicated by the arrows.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3 and looking in the direction indicated by the arrows.

Fig. 5 is an explode showing the main parts of the device in perspective.

It is to be understood that the device of the present invention is applicable to electrical plugs and the like which are used for establishing an electrical circuit through the heating means of a household appliance such as a pressing iron, percolator, skillet and analogous utensils and appliances for obvious purposes. The electrical plug or the like is on one end of an extension cord and is engageable with the terminals or electrodes on the utensil or appliance to be heated; and the plug or the like is detachable from said terminals or electrodes by overcoming the frictional grip of the spring contact members of the plug or the like with the terminals or electrodes. According to this invention the detachment or release of the plug or the like may be accomplished by a person without touching the utensil or appliance.

In the drawing the device is shown applied to an electrical plug or plug receptacle which has an oblong casing **10** made in sections of insulating material, said sections being secured in mating relation to each other by screw bolts extending through holes in the sections. The main parts of the device are economically made of steel sheet metal blanks. One of the blanks provides a plate **11** having means for attaching the device in an operative position on the casing **10** of the plug. The attaching means in the present instance comprises L-shaped clamping members **12** respectively on opposite sides of the plate **11**, a down bent lug **13** on the front end edge of the plate, and a down bent projection **14** intermediate the ends of the plate. The clamping members **12** embrace the casing at opposite sides as well as the under surface of the casing **10**; the lug **13** engages the front end surface of the casing **10**; and the projection **14** enters into one of the holes in the casing which accommodates one of the screw bolts aforesaid. The plate **11** is prevented from moving with respect to the casing **10** but may be detached therefrom by flexing the front end of the plate **11** upwardly to disengage the lug **13** and the projection **14**, and then by sliding the plate **11** and parts carried thereby off the casing **10**.

The plate **11** also has an up bent lug **15** and a down bent flange **16** with a lug **17** extending forwardly at a right angle with respect to said flange. The lug **15** serves as a stop for a purpose to be described hereinafter. The flange **16** serves as a stiffener for the rear portion of the plate **11**.

The device includes two levers **18**, there being a left lever and a right lever. Each of said levers is made of one of the blanks mentioned hereinabove. Each of the levers is a two-arm or bell-crank lever providing a manipulator arm **19** and a manipulated arm **20**. Each arm **19** has a down bent flange **21** and an up bent flange **22** formed integral therewith. Each arm **20** has an up bent flange **23** formed integral therewith. These flanges stiffen the levers **18**. The levers are laid together one on top of the other in a cooperative relation and are fulcrumed on the plate **11** by means of a pivot **24** for scissors movement and action.

A thrust or pusher member **25** is arranged between the flanges **23** of the lever arms **20** and is engaged or connected therewith disposed crosswise with respect to the plate **11** and the casing **10**. In the present instance the member **25** is in the form of a strip of steel sheet material and is therefore resilient and flexible constituting a bow spring whose opposite shouldered ends are engaged in slots **26** respectively in the flanges **23**. If desired the member **25** may be made integral with the flanges **23**, or the member **25** may be made of steel wire. The member **25** in normal condition is bowed and is therefore under some tension when idle. Consequently the member **25** serves to cause a return or reverse movement of the levers **18** when pressure on the arms **19** is withdrawn; and the member **25** also serves as a means to impart a thrust or pushing force when flexed abnormally in response to the manual operation of the arms **19**. The flanges **22** encounter the stop lug **15** in the manipulation of the levers **18** and thereby limit the amount of movement of the arms **19** toward each other. Likewise the arms **20** have a limited amount of movement toward each other. The arms **19** are supported by the rear portion of the plate **11** and are kept from bending downwardly as the arms **19** are manipulated toward each other to attain the abnormal flexure of the member **25**. As the member **25** is flexed it is done so with respect to the plug and that

part of the appliance surrounding its electrodes which are engaged by the plug.

It will now be understood that a person using one hand may manipulate the levers 18 and cause the pusher member 25 to exert a thrusting or pushing force against an adjacent appliance with the result that the plug will be quickly and conveniently detached from engagement with the electrical terminals or electrodes of the appliance to cut off the current thereto. The result is accomplished safely because a person does not have to use one hand to hold the heated appliance while using the other hand to grip and detach the plug.

In order that the device of the present invention meets variations in the construction of electrical plugs, plug receptacles, sockets, connectors and the like, it is to be understood that details may be modified and rearranged in accordance with the invention as expressed in the appended claims.

I claim:

1. An electrical plug detaching device for separating an electrical plug from a cooperable electrical fitting, said device comprising a plate having means for attaching the plate in an operative position on said plug, levers fulcrumed on said plate in cooperative relation to each other for scissors movement and action, and a pusher bow spring member arranged crosswise of said levers and at its end portions engaging working ends of the levers, said bow spring member exerting a pushing force on the said cooperable electrical fitting in response to the operation of said levers, to thereby separate the plug from the fittings.

2. The invention set forth in claim 1, wherein the levers have handles on opposite sides of the fulcrum from the said working ends, and wherein said pusher member resiliently holds the levers with the handles thereof separated.

3. The invention as set forth in claim 2 wherein said pusher member comprises a leaf spring disposed at one side of the fulcrum for the levers, said spring bowing away from the fulcrum as it is flexed and as it exerts said pushing force.

4. An electrical plug detaching device comprising a plate having means for attaching the device in an operative position on said plug, levers fulcrumed on said plate in cooperative relation to each other for scissors movement and action, and a pusher member in the form of a bow spring arranged between cooperative arms of said levers and whose opposite ends are engaged in slots respectively in said arms whereby said pusher member exerts a pushing force in response to the operation of said levers.

5. An electrical plug detaching device as set forth in claim 4 wherein said attaching means are integral with said plate to embrace various surfaces of the plug with the plate resting on the plug.

6. An electrical plug detaching device comprising a plate having means for attaching the device in an operative position on said plug, a pair of bell-crank levers fulcrumed on said plate providing cooperative manipulator arms and cooperative manipulated arms, and a resilient and flexible pusher member arranged between said manipulated arms in engagement therewith which exerts a pushing force in response to the operation of said manipulator arms.

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