

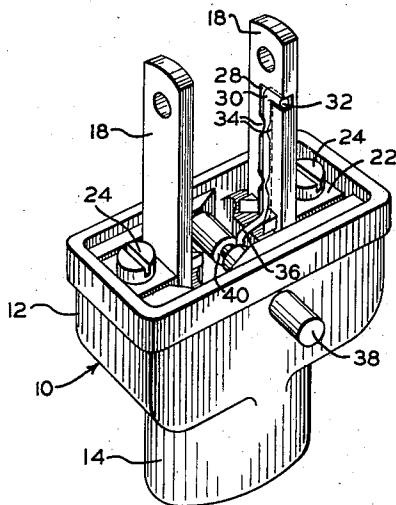
May 5, 1959

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LOCKABLE ELECTRIC PLUG

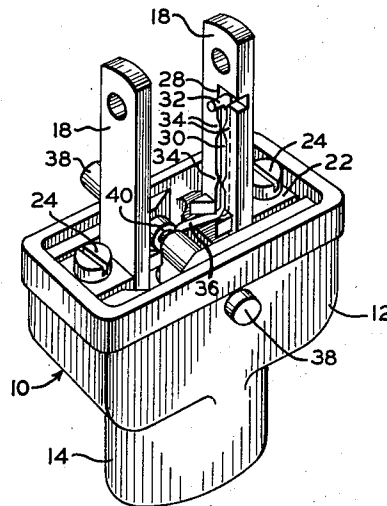
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Filed July 30, 1956

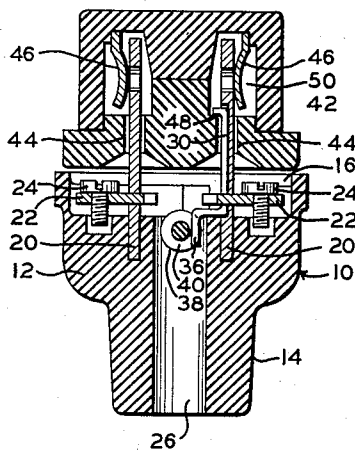
*Fig. 1*



*Fig. 2*



*Fig. 3*



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## LOCKABLE ELECTRIC PLUG

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Application July 30, 1956, Serial No. 600,772

2 Claims. (Cl. 339—91)

The invention relates to electrical connectors or plugs used to connect electrical appliances or the like to a source of electrical potential such as a wall socket, extension cord or other like outlets. More particularly the invention relates to a "male" plug adapted to fit within a "female" outlet so as to be lockable therewith.

Our invention has for its object the provision of a "male" electric plug having lockable engaging means for engagement with a "female" socket, or outlet, whereby accidental uncoupling of the plug from the socket is prevented. A further object of our invention is to construct said engaging means on the plug so as not to require any modification in the structure of the socket. Still another object of the invention is to provide lockable engaging means on an electric plug which will be secure, positive and easily actuated.

Preferably, and in general, our invention comprises an electric plug body provided with a pair of blade-like electrical contacts, or connectors, adapted to be inserted into a pair of correspondingly-shaped openings in the "female" outlet. A suitable opening is provided in the plug body to accommodate the electrical wires which are to be connected to the contacts. One blade, or contact, is provided with a recess generally disposed in a longitudinal direction and formed in the shape of the letter L, the bottom portion of the L being transverse to the longitudinal axis of the blade. A correspondingly-shaped locking member, preferably formed from wire stock, is mounted within the recess with sufficient clearance to permit the locking member to rotate therewithin. Rotation of the locking member is effected through the reciprocal motion of a plunger extending through and outwardly of the plug body, and having a section of reduced diameter forming a recess therein. One end of the rotatable locking member, which is in the form of a crank and which is angularly offset from the L-shaped bend at the other end, rests within the recess formed in the plunger so as to be movable therewith. As the plunger is pushed from one side of the plug body to the other the crank is moved so as to rotate the L-shaped hook portion of the member out of its retracted position in the recess in the blade to a position in which it may engage the "female" outlet.

Further objects and 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.

The invention consists in the novel parts, construction, arrangements, and improvements herein shown and described.

Of the drawings:

Fig. 1 is a perspective view of a "male" electric plug made in accordance with the preferred teachings of our invention and showing the locking means in non-operative position;

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Fig. 2 is a perspective view similar to that of Fig. 1 showing the locking means in operable position; and

Fig. 3 is a transverse sectional view showing the "male" plug coupled and locked to the "female" outlet.

Referring now to the drawings for a detailed description of a preferred embodiment of our invention there is shown an electric plug 10 comprising a plug body 12 adapted to be secured to the end of an electric cord. As is usual, the plug body 12 is generally rectangular in cross-section except for its end portion 14 which may be circular or elliptical in shape. It will be understood, however, that the shape of the plug is not important as our invention may be applied to any plug body whatever its shape.

A recess 16 is formed within one end of the plug body 12 and a pair of electrical connectors in the form of blades 18 are secured therein to the plug body 12; the ends 20 of the blades 18 being embedded within the plug body 12. The blades 18 are provided with flanges 22 having threaded screws 24 mounted thereon by means of which the wires in an electric cord (not shown) may be secured to the connectors. An opening 26 is also provided in the plug body 12 to provide access for these wires between the electric cord and the screws 24.

One of the blades 18 is provided with an L-shaped recess 28 extending in the longitudinal direction of the blade, the bottom leg of the L being transverse to the longitudinal axis of the blade. Disposed within the recess 28, with sufficient clearance for rotational movement, is a locking member 30, comprising a wire member bent at one end 32 so as to correspond to the L-shape of the recess 28 and to form a hook portion thereon. The wire locking member 30 is held within the recess 28 by portions 34 of the blade which are peened over to close off the recess at these points. At its opposite end, the wire locking member 30 is bent to form a crank arm 36 at an angle with respect to the portion of the wire in the recess 28 so that the crank arm extends outwardly of the recess. Movement of the crank arm 36 causes rotational movement of the wire 30 in recess 28 and pivots the hook portion 32 out of a retracted position in the recess to a position for engagement with the outlet. For this purpose, the plug body 12 is provided with a slidable plunger 38 formed with a reduced portion 40 intermediate its ends. Crank arm 36 nestles within the reduced portion 40 of the plunger 38 and moves therewith whenever the plunger is manually moved in the plug body 12.

The engagement of the plug body 12 with an electric outlet 42 is shown in Fig. 3. Blades 18 are inserted in the openings 44 and engage the spring contacts 46 to make the electrical connection. When the blades 18 are being inserted the locking member 30 is in the position shown in Fig. 1, that is, fully retracted within the recess 28. After the plug body 12 has been plugged into the outlet 42 the plunger 38 is manually pushed to its opposite position. Movement of the plunger moves the crank arm 36 nestled in reduced portion 40 thereby rotating hook portion 32 of the wire locking member 30 out of recess 28 where it engages the inner surface 48 of a recess 50 in the outlet. In this position the wire locking member 30 prevents any accidental uncoupling of the plug 12 from the outlet 42.

The invention in its broader aspect is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What is claimed is:

1. A lockable electric plug comprising a male body having a pair of electrical connector blades adapted to

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be inserted within a female receptacle body, one of said connector blades being provided with a recess therein, a wire locking member having one end bent into the form of a hook and its opposite end bent into the form of a crank, said locking member being normally disposed in the recess with the hook flat against the connector blade whereby the locking member may be inserted within a female receptacle body with the connector blades, and means on the male body for rotating the crank on the end of the wire locking member so as to rotate the hook end of the locking member out of the recess in the connector blade to a position substantially at right angles to the blade.

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2. A lockable electric plug as set forth in claim 1 wherein the said rotating means comprise a reciprocatory plunger extending transversely through the male body, said plunger being engageable with the crank end of the wire locking member.

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