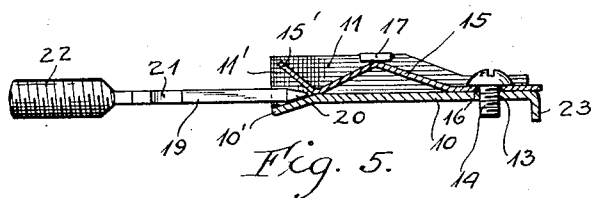
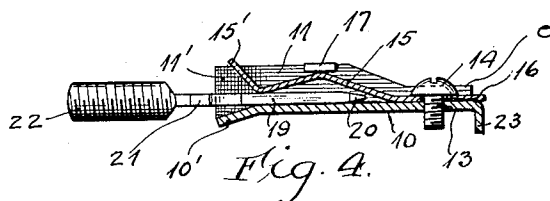
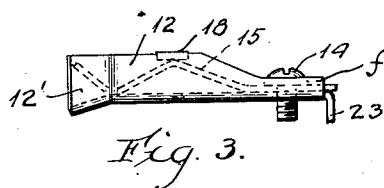
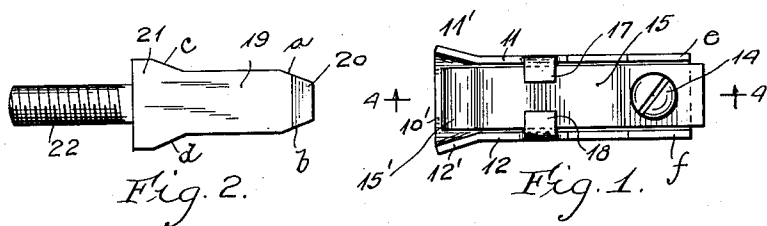


March 31, 1925.

1,531,816

T. C. RUSSELL
ELECTRICAL CONNECTER
Filed Aug. 30, 1923



INVENTOR.
Thomas C. Russell
BY Charles J. Schmidt.
ATTORNEYS.

Patented Mar. 31, 1925.

1,531,816

UNITED STATES PATENT OFFICE.

THOMAS C. RUSSELL, OF CHICAGO, ILLINOIS.

ELECTRICAL CONNECTER.

Application filed August 30, 1923. Serial No. 680,090.

To all whom it may concern:

Be it known that I, THOMAS C. RUSSELL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electrical Connecters, of which the following is a specification.

My invention relates to electrical connectors in the form of spring jaws or sockets which may be used generally for making connections with terminal pins or blades but which are particularly adaptable for insertion in terminal sockets to receive the terminal pins or blades of electrical heat devices for connecting such devices with a source of current.

Electric heat devices such as flat irons, percolators, hot plates, toasters, etc. have terminals in the form of pins or blades extending therefrom which receive the connector jaws within the socket members at the end of an extension cord, and my invention applies particularly to such connector jaws. An important object of my invention is to so construct these connector jaws that they may be readily slipped on to the terminal blades and will then maintain good electrical contact therewith. Another important object is to so construct the connector jaws that any arcing which may occur when the jaws are separated from the blades will not cause pitting or roughening of the contact surfaces of the jaws which engage with the body of the blades, thus insuring at all times good, clean, direct and ample contact between the connector jaws and the blades.

The terminal jaw of my invention comprises a body part and a spring cooperating therewith to receive and clamp a terminal blade, and a binding screw is provided for the body part for electrically securing thereto the end of the cord conductor. Another important object of my invention is to utilize such screw only for keeping the spring aligned within the body part, and to control the spring entirely independently of the screw to maintain full clamping engagement with the terminal blades even if the screw should become loosened. This is a decided advantage over prior structures in which loosening of the binding screw will cause disturbance of the spring and will destroy its secure clamping engagement with the terminal blades.

The above and other features of my in-

vention are illustrated in the structure shown on the accompanying drawing, in which—

Fig. 1 is a plan view of my improved connector jaw,

Fig. 2 is a plan view of a terminal blade,

Fig. 3 is a side elevational view of the connector jaw,

Fig. 4 is a sectional view on plane 4—4, Fig. 1 showing the jaw applied to the terminal blade, and

Fig. 5 is a similar sectional view showing the jaw about to be finally separated from the terminal blade and showing how arcing is prevented from roughening the contact making surfaces of the jaw body and the spring.

The connector jaw shown has a body part of U-shape cross section comprising the base 10 and the sides 11 and 12. The base at the rear end has the threaded opening 13 for receiving the terminal or binding screw 14 by means of which the jaw may be electrically connected with a current supply conductor. Extending longitudinally through the body part is the leaf spring 15 which at its rear end has the opening 16 through which the binding screw 14 extends. The intermediate section of the spring is arched, its crown engaging against the under side of the inwardly extending abutment wings 17 and 18 on the side walls 11 and 12. The spring thus engages at the ends of its arched section against the base 10 and with its crown against the abutments 17 and 18, and the binding screw serves merely to hold the spring against longitudinal displacement within the connector body. The front end 15' of the spring is deflected diagonally upwardly, and with the laterally deflected ends 11', 12' and the downwardly deflected end 10' of the side and base walls of the body the spring end forms a flared inlet opening for accurately guiding the connector into engagement with terminal pins or blades. I have shown a terminal in the form of a flat blade 19 having the beveled end 20 and having the enlarged base 21 from which extends the threaded shank 22 by means of which the terminal may be secured to a support on an electric heat device. Although I have not shown it, it is well understood in the art that two terminal blades are usually provided on each device and two connector jaws are confined within the extension cord fitting which is applied to the

terminals when it is desired to connect the electric heating device with a current supply circuit.

The spring although held between the base and abutment of the connector body is primarily not under compression so that the connector can be readily slipped over the beveled end of the terminal 19, but when the body of the terminal is engaged between the spring and the connector base the spring will be raised and compressed and the terminal blade will then be rigidly clamped by the spring against the connector base to make extended and good electrical contact with such base. The side edges *a* and *b* at the front end of the terminal blade are beveled as well as the front edges as clearly shown in Fig. 2 so that the connector will be accurately guided into position on the terminal blade. The terminal blade shown has the front edges *c* and *d* of its base 21 beveled and the side walls 11' and 12' are deflected to the same angle so that when the connector is fully applied to the terminal these side walls will abut against these edges and will guide the connector into proper position on the blade and will also stop further movement of the connector to prevent the end of the blade from abutting against the inner end of the spring, as shown in Fig. 4.

The current supply conductor is not shown but it is fully understood that the end thereof is received under the head of the binding screw 14. This screw, although extending through the hole 16 in the rear end of the spring, serves merely to hold the spring against longitudinal displacement within the connector body and in no wise influences or interferes with the clamping action of the spring against the terminal blade. It may happen that the binding screw will become loosened but with my construction and arrangement this would not in the least interfere with the proper functioning of the spring, for as soon as the terminal blade is received the front end of the spring is raised, and the spring will fulcrum at its crown against the abutments 17 and 18 which will cause the rear end of the spring to be pressed down against the base 10 of the connector body and its clamping action against the blade will be maintained no matter how loose the binding screw may become, and so long as the screw remains within the threaded opening 13 the spring will be longitudinally held in place within the connector body. As the spring securely clamps the base of the connector against the terminal blade along an extended area the greater part of the current flow will be through the connector body and overheating of the spring will be prevented so that it will always retain its proper temper.

The flared end of the spring will cooper-

ate with the flared end 10' of the base 10 to prevent arcing from marring or destroying the smooth contact surfaces of the spring, the base, and the terminal blade when the connector is withdrawn from the blade. This is illustrated in Fig. 5. While the connector jaw is being withdrawn the spring will keep the base 10 firmly against the terminal blade, and when the contact end of the spring engages with the beveled end 20 of the blade it will force the beveled end 10' of the base against such beveled end of the blade before the connector body is disconnected from the blade. Any arcing which might result when separation takes place will then have to be between the flared end 10' and the beveled end 20 and even though these ends were marred by the arcing the contact surfaces of the connector and the blade which engage when the connector is fully applied to the blade will never be marred or roughened, and smooth, clean and extended contact will therefore at all times be assured.

The side walls 11 and 12 at the inner end of the connector body are preferably cut down to leave only the short sections *e* and *f* adjacent the binding screw so that the screw can be readily turned by means of a screw driver. The inner end 23 of the base may also be deflected downwardly a distance shown to assist in properly aligning the connector jaw within its supporting fitting.

I do not desire to be limited to the exact construction and arrangement shown and described as modifications are possible which would come within the scope of the invention.

I claim as follows:

1. In a terminal jaw of the class described, the combination of a contact wall, an abutment over said wall, a clamping spring arched intermediate its ends and engaging with its ends against said wall and with its crown against said abutment, a conductor securing member at the inner end of said wall engaging with said spring to prevent longitudinal displacement thereof, the front ends of said wall and spring respectively being deflected in opposite directions to form a flared entrance opening for terminal to be received between said spring and wall.

2. In a terminal jaw structure of the class described, the combination of a contact wall, a clamping spring having an arched intermediate section engaging at its ends on said wall, an abutment above said wall engaged by the crown of said arched spring section, and means for holding said spring in longitudinal alignment, the front end of said spring being deflected away from said wall to form a flared entrance opening therewith for the guidance of terminal between said spring and wall.

3. In a connector jaw structure of the

class described, the combination of a body part of U-shape cross section, a clamping spring having an intermediate arched section, lateral abutments on the side walls of said body part overhanging said spring to engage with the crown of the arch section thereof, and a binding screw threading in the inner end of the base of said body part and extending through the inner end of said spring to hold said spring against longitudinal displacement in said body part, the outer end of said spring being deflected upwardly to form a flared inlet with the outer end of said base for the reception of terminal between said spring and base.

4. In a connector jaw structure of the class described, the combination of a body part of U-shape cross section, a spring extending longitudinally within said body part and having its intermediate section arched upwardly, lateral extensions on the side walls of said body part overhanging said arched section and engaging with the crown thereof, and a binding screw threading through the inner end of the base of said body part and engaging with the inner end of said spring to hold said spring against longitudinal displacement within said body part, the outer ends of said body part base and the spring being deflected in opposite direction to form a guide entrance for receiving a terminal member to be clamped by said spring against the base of said body part.

5. In a connector jaw structure of the class described, the combination of a body of U-shape cross section, a clamping spring extending longitudinally within said body

part, said spring being upwardly arched, lateral extensions from the side walls of said body part overhanging said spring and forming abutments for the crown thereof, and a binding screw threading through the rear end of the base of said body part and said spring having a hole through which said screw extends whereby said spring will be held within said body part against longitudinal displacement, the base and side walls of said body part being flared at their outer ends and the outer end of said spring being deflected upwardly whereby a flared entrance is provided for receiving a terminal blade and guiding it into position within said body part between said spring and base.

6. In a connector jaw structure of the class described, the combination of a body part of U-shape cross section, a leaf spring extending longitudinally within said body part and arched upwardly intermediate its ends, an upper wall for said body part forming an abutment for the crown of said spring, a conductor securing member at the inner end of said body part, and means for holding said spring against longitudinal displacement within said body part, the front end of said body part being flared and the outer end of said spring being deflected upwardly whereby to form a guide entrance for guiding a terminal member into said body part between said spring and base.

In witness whereof, I hereunto subscribe my name this 25th day of August, A. D., 1923.

THOMAS C. RUSSELL.