(No Model.)

T. GRUTTING.

ELECTRICAL CONNECTION.

No. 561,951. Patented June 9, 1896.

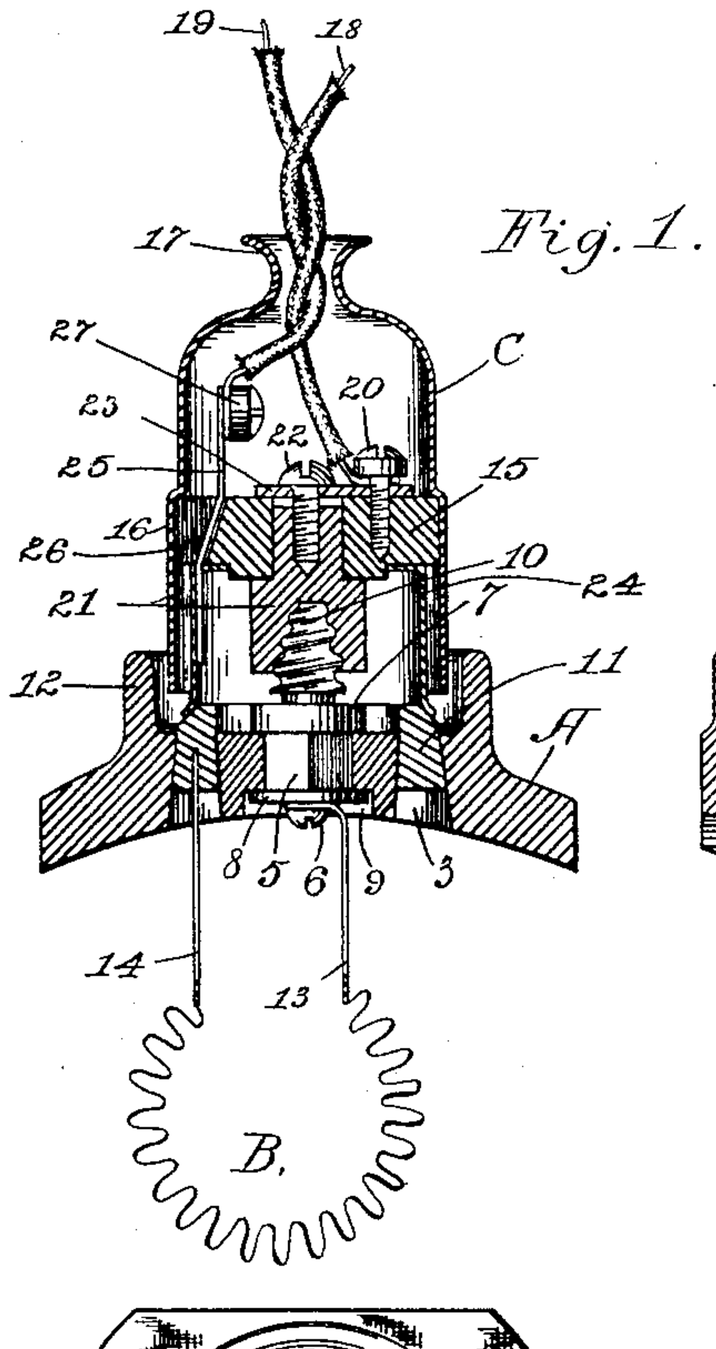

Fig. 1.

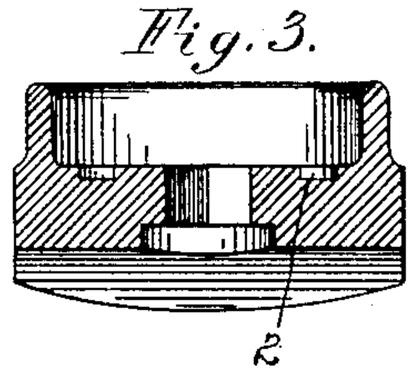

Fig. 3.

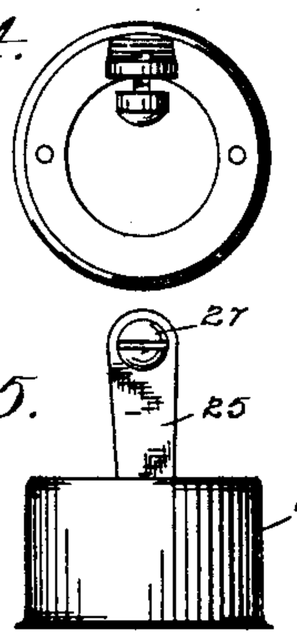

Fig. 4.

Fig. 5.

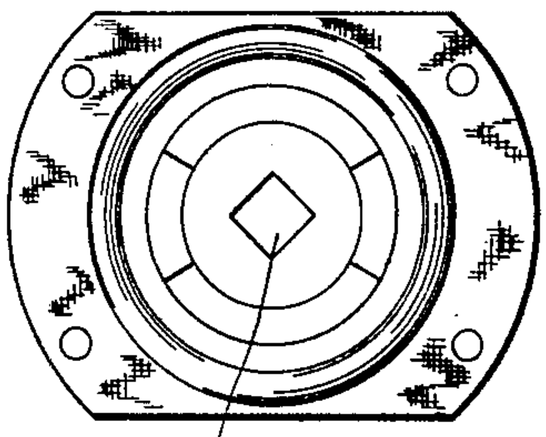

Fig. 2.

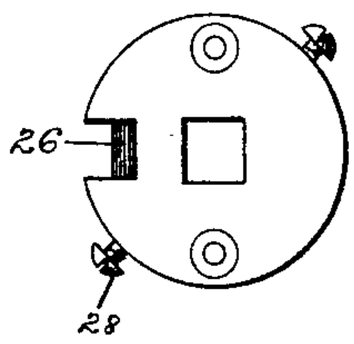

Fig. 6.

Fig. 7.

Witnesses:

F. G. Bradbury.

H. S. Johnson.

Inventor:

Theodore Grutting.

per: T. D. Merwin

Attorney.

UNITED STATES PATENT OFFICE.

THEODORE GRUTTING, OF ST. PAUL, MINNESOTA.

ELECTRICAL CONNECTION.

SPECIFICATION forming part of Letters Patent No. 561,951, dated June 9, 1896.

Application filed August 19, 1892. Serial No. 443,544. (No model.)

To all whom it may concern:

Be it known that I, THEODORE GRUTTING, a citizen of the United States, residing in St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Electrical Connection, of which the following is a specification.

My invention relates to improvements in electric connections in which a detachable socket connects and closes the circuit, and the object of my invention is to provide for a waterproof joint of the connecting terminals on one side of the circuit and inclosing the other contacts in the circuit, thereby preventing the short-circuiting of the connection, which is designed more particularly for electro-heated cooking utensils where the incidental overflow of water causes destruction to the connection. I attain this object by the arrangement of parts shown in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of my invention. Fig. 2 is a plan view of the base. Fig. 3 is a central vertical section of the same. Figs. 4 and 5 are detail plan view and side elevation of the cylindrical female contact-ring. Fig. 6 is a detail plan view of the insulating-plate in the socket, and Fig. 7 is a detail of the conducting-plate between one of the binding-screws and the stud leading to one of the base terminals.

In the drawings the non-conducting base or receptacle A is provided preferably with an annular groove 2 in its upper face and with holes or gates 3, extending from the bottom of the groove through the base, for the inlet of molten metal, preferably lead or other soft and equally fusible metal, when poured into the groove to form the contact-ring, as hereinafter described. Centrally arranged in the base is the square hole 4, in which is arranged the square stud 5, carrying the binding-screw 6 and provided with an annular rib or shoulder 7, bearing against the top face of the base and, together with the washer 8, resting in the socket 9 in the under side of the receptacle, firmly securing the stud in place. At the inner or upper end of the stud is arranged the coarsely-threaded tapering screw 10, by means of which the socket is secured upon the base, as hereinafter described.

Arranged in the groove 2 is the annular contact-ring 11, preferably of soft metal, such as lead, slightly chamfered or beveled on its edge, as shown, and anchored firmly in place by the projecting parts, which extend into the holes or gates 3, these gates being enlarged or flared downward, so as to prevent loosening of the ring from the groove. Surrounding this ring and with a slight intermediate space is the annular guard or rib 12, which serves as a protection for the parts within the same.

B represents the resistance-wires 13 and 14, one of which is connected to the binding-screw 5 and the other through one of the gates or holes 3 to the conducting-ring 11.

C represents the socket, consisting of the following parts: the insulating plate or disk 15, secured within the cylindrical shell 16 by means of the screws 28, the shell being spun to a narrow neck 17 to admit the wires 18 and 19. The insulating-disk carries a binding-screw 20, to which the wire 19 is adapted to be connected, and a stud 21, threaded to receive the screw 10 and secured in place in the insulating-plate by means of the screw 22, the screws 20 and 22 being connected to the conducting-plate 23.

Secured to the under side of the insulating-disk is the cylindrically-seated ring 24, having its lower edge outturned to form a valve-seated connection to bear upon the contact-ring 11, as shown best in Fig. 1, thus forming a water-tight contact. This ring carries an upwardly-projecting rim 25, passing through a notch 26 in the insulating-disk and carrying a binding-screw 27, to which the wire 18 is connected.

From the construction above described and shown in the drawings it will be seen that the terminals are thoroughly insulated from each other and that when the socket is secured down upon the base the two contact-rings are closely fitted and are practically water-tight, so as to prevent moisture passing through to come in contact with the stud 5 or its screw 10 and thus short-circuit the connection. The rib 12 serves a further exterior protec-

tion to the parts both from injury and from moisture.

It is further to be noted as a valuable although incidental feature of my invention that the soft and easily-fusible metal preferably used for the annular ring of the base serves not only to furnish a tight joint with the abutting ring, but also on account of its fusibility at a relatively low temperature, if the utensil to which the connection is applied is allowed to become empty, or for any other reason becomes overheated by the current, the heat is conducted to the connection and fuses the soft-metal ring, and thus breaks the circuit before a destructive temperature has been reached. Thus I secure a thermal fuse connection, which is a perfect protection to the heating apparatus.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in an electrical connection, of a base or receptacle having an annular groove with gates, a contact-ring therein, and the connecting-screw secured in the center, and provided with an annular rib or guard, substantially as described.

2. The combination, in an electrical connection, of a socket having a circular plate with the connecting stud-nut and washer and a cylindrical contact-ring and the jacket secured thereto, all substantially as set forth.

3. The combination in an electrical connection of a base having an annular groove, a contact-ring therein, a connecting-screw secured in the center of such ring, with a detachable socket held in place by said screw.

4. The combination in an electrical connection of a base having an annular groove, a contact-ring therein, a connecting-screw secured in the center of such ring, with a socket having a circular plate, a connecting stud-nut and washer and a cylindrical contact-ring.

5. The combination in an electrical connection of a socket having a circular plate, a connecting stud-nut and washer, a cylindrical contact-ring and a jacket secured thereto with a base having an annular rib or guard, substantially as described.

6. In an electric connection, the combination with the socket and the base, of the annular, male, terminal, contact-ring carried by one, the cylindrical, female, terminal, contact-ring carried by the other, and the included screw-terminal connection between said base and socket for securing perfect contact between said rings.

7. In an electrical connection for heating apparatus, the combination of the base adapted to be secured directly to the heater and subject to its thermal influence, the fusible annular contact-ring secured thereon, the socket, the annular contact-ring carried thereby and adapted to make a valve-seated connection with said first ring, and the independent screw connection for securing perfect contact between said rings.

8. In an electrical connection, the combination with the socket and base, of the annular male contact-ring carried by one, the annular female contact-ring carried by the other, said rings having a valve-seated connection with each other, and means for securing bearing contact between said rings to make a waterproof joint thereof.

9. In an electrical connection, the combination with the socket and base, of the valve-seated male and female terminal contact-rings carried by said parts respectively, and the independent screw connection between said socket and base constituting the other terminal.

10. In an electrical connection for cooking utensils, the combination of the base adapted to be so connected to the utensil as to be subject to its heat, the socket fitted to said base, the annular flaring contact-ring carried by the socket, the annular chamfered contact-ring carried by the base, said contact-ring upon the base being of softer metal than said other contact-ring and fusible at a relatively low temperature, and means for frictionally seating said first-named ring upon the other, so as to cause the second to conform to the shape of the first and constitute a tight joint.

11. In an electrical connection for heaters, in combination, the annular contact-rings adapted to be seated upon each other to form a tight joint, one of said rings being of fusible and softer metal than the other, and means for securing said rings upon each other.

THEODORE GRUTTING.

Witnesses:
DILWORTH RICHARDSON,
W. H. SWINTON.