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A. E. GRANT

1,961,484

ELECTRIC PLUG CONSTRUCTION

Filed April 30, 1932

Fig. 1.

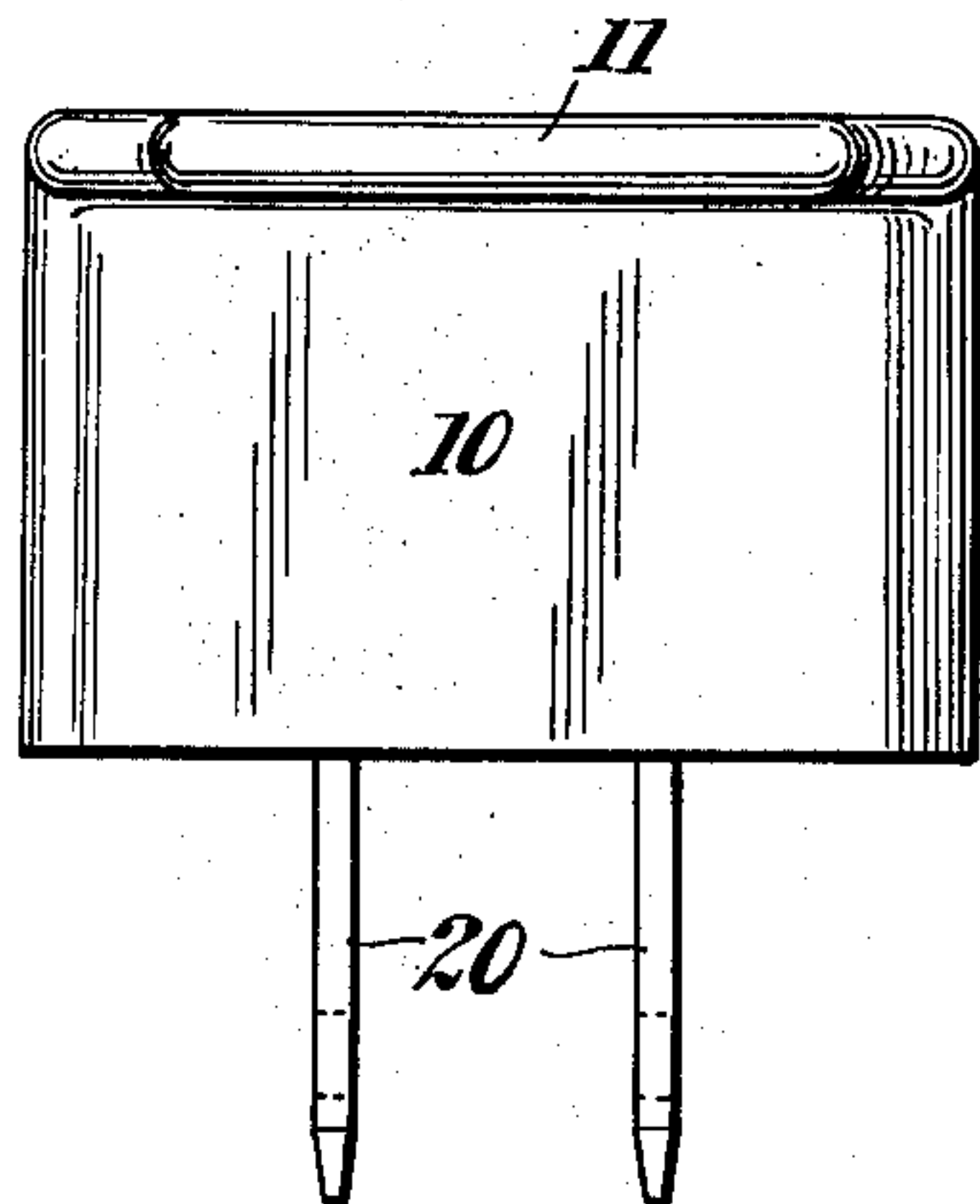


Fig. 2.

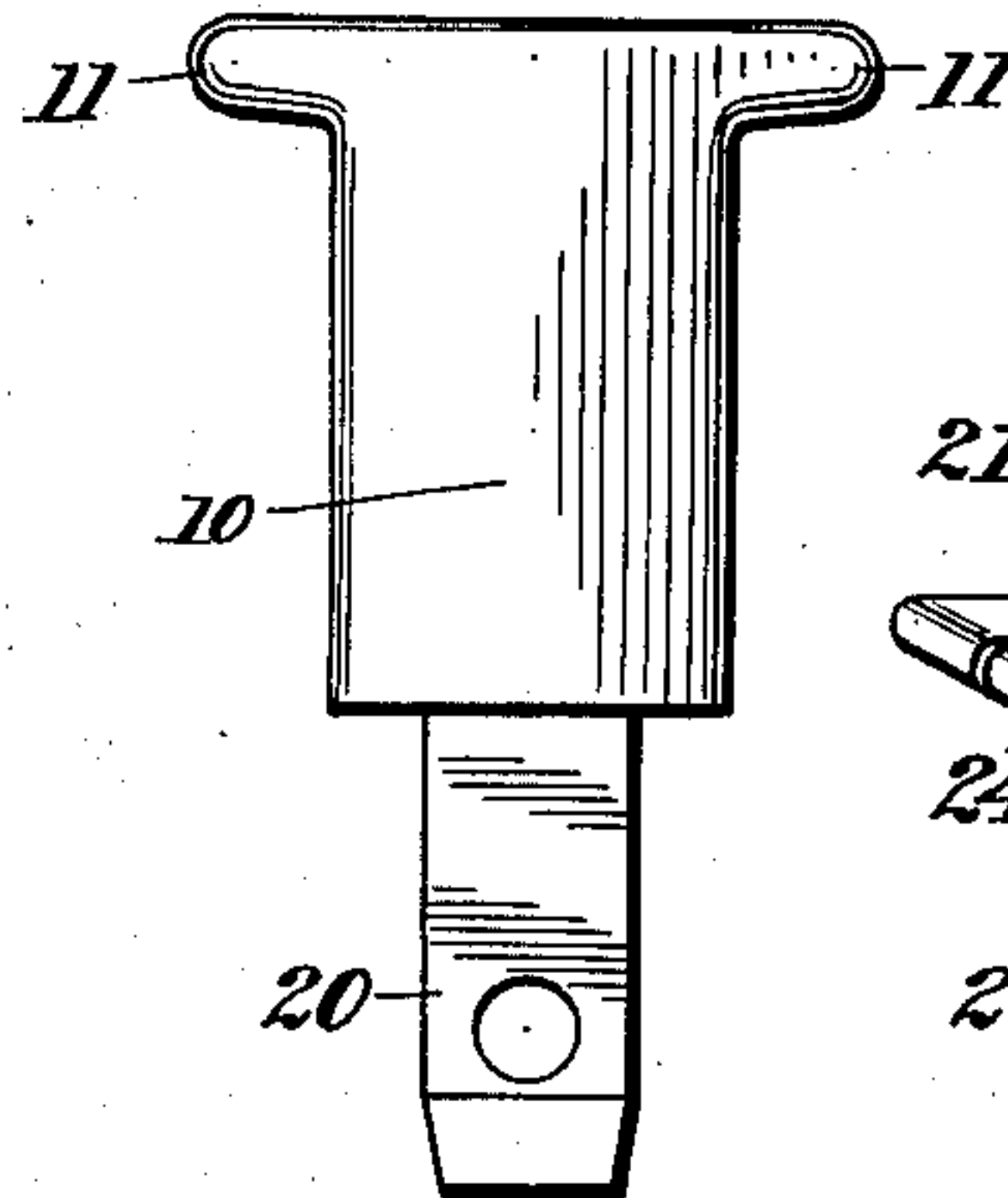


Fig. 9.

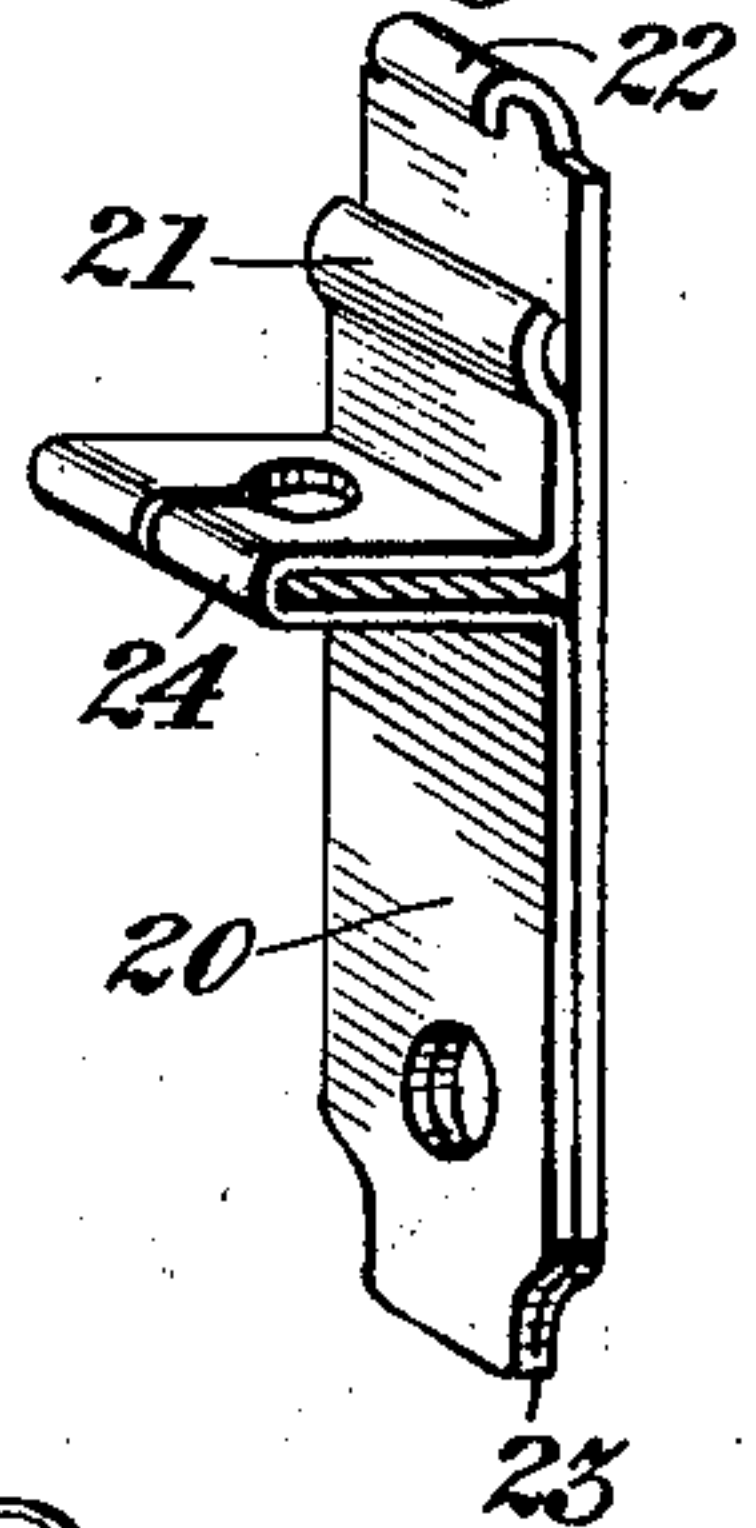


Fig. 4.

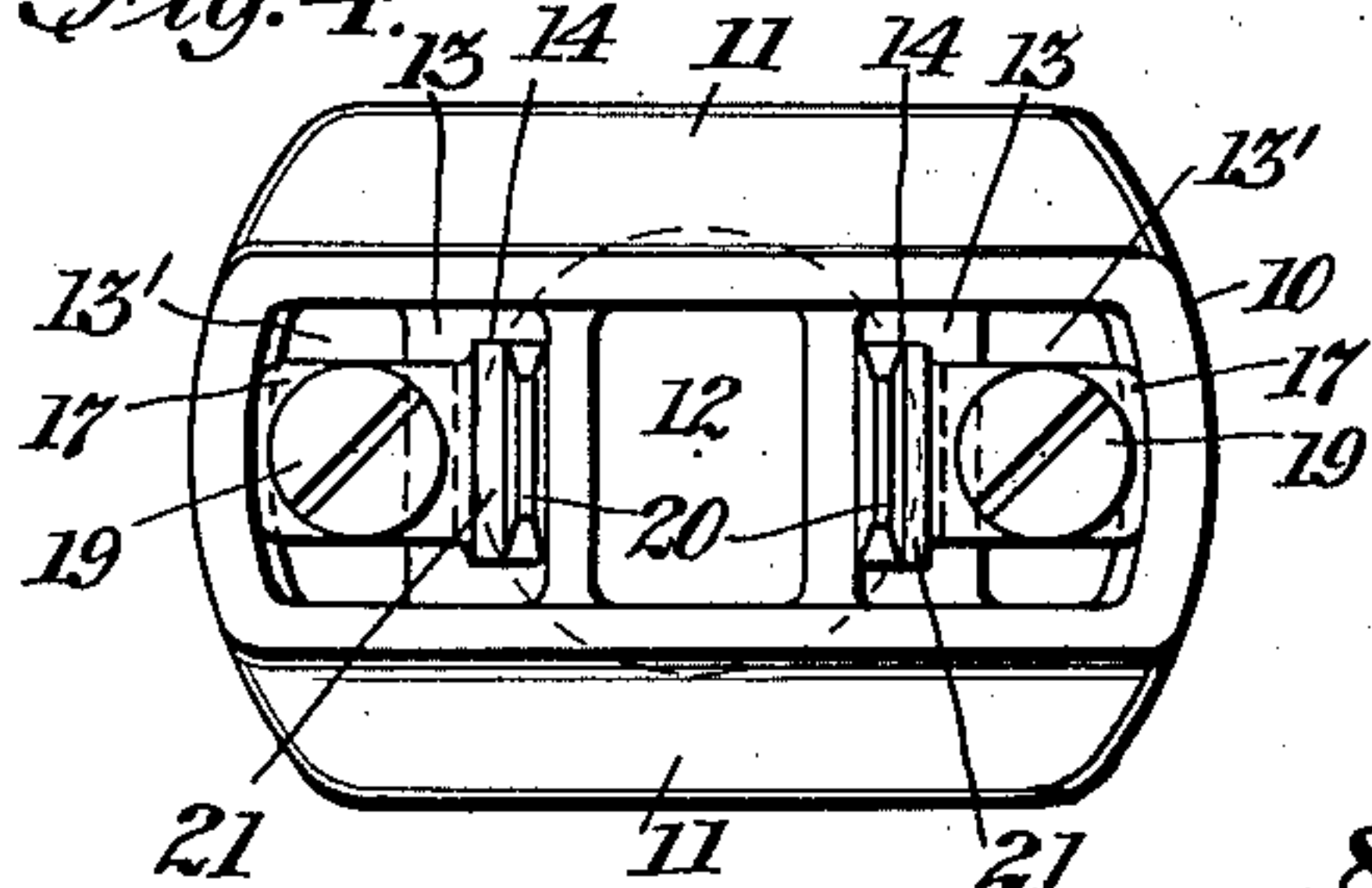


Fig. 5.

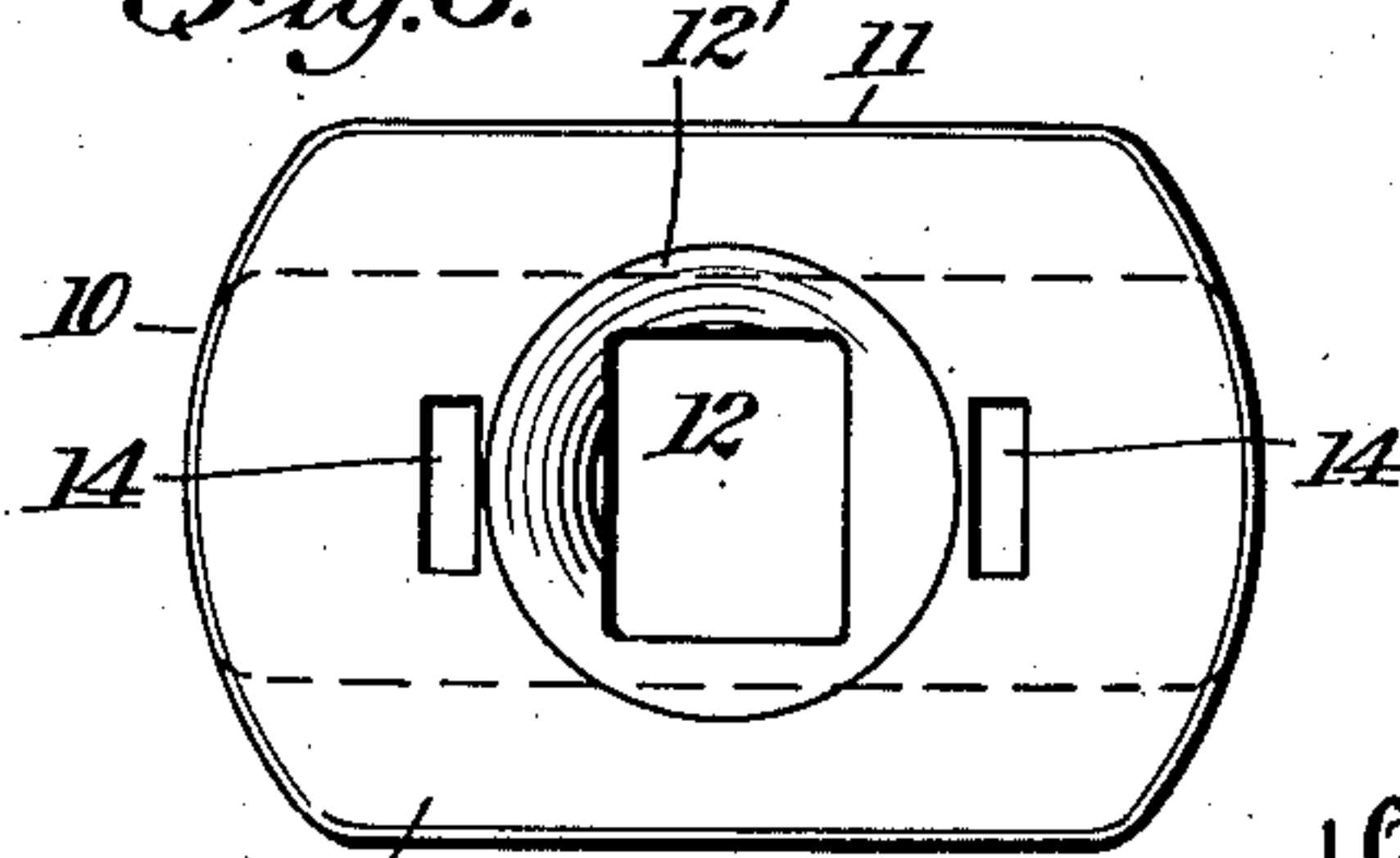


Fig. 7.

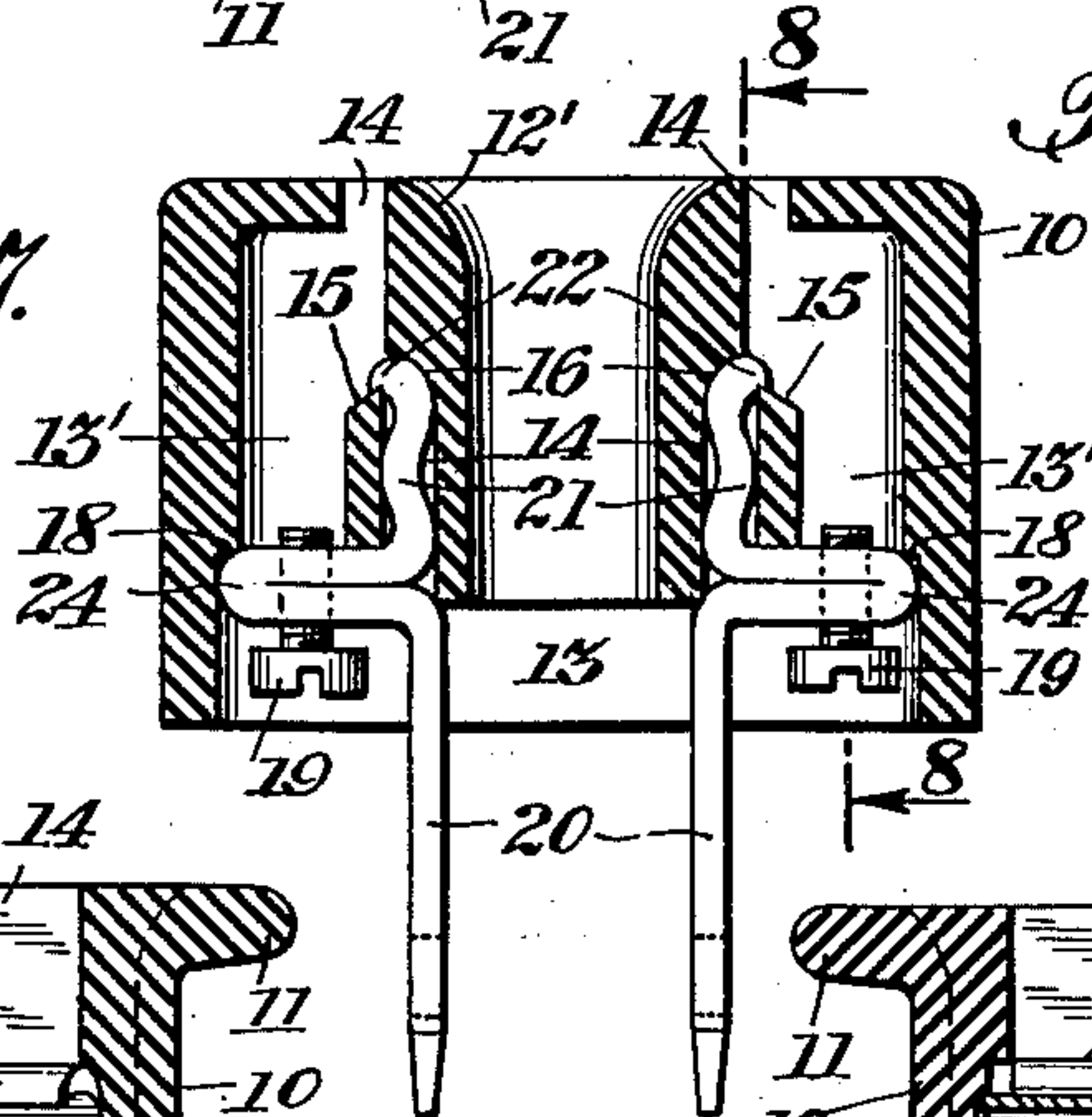


Fig. 5.

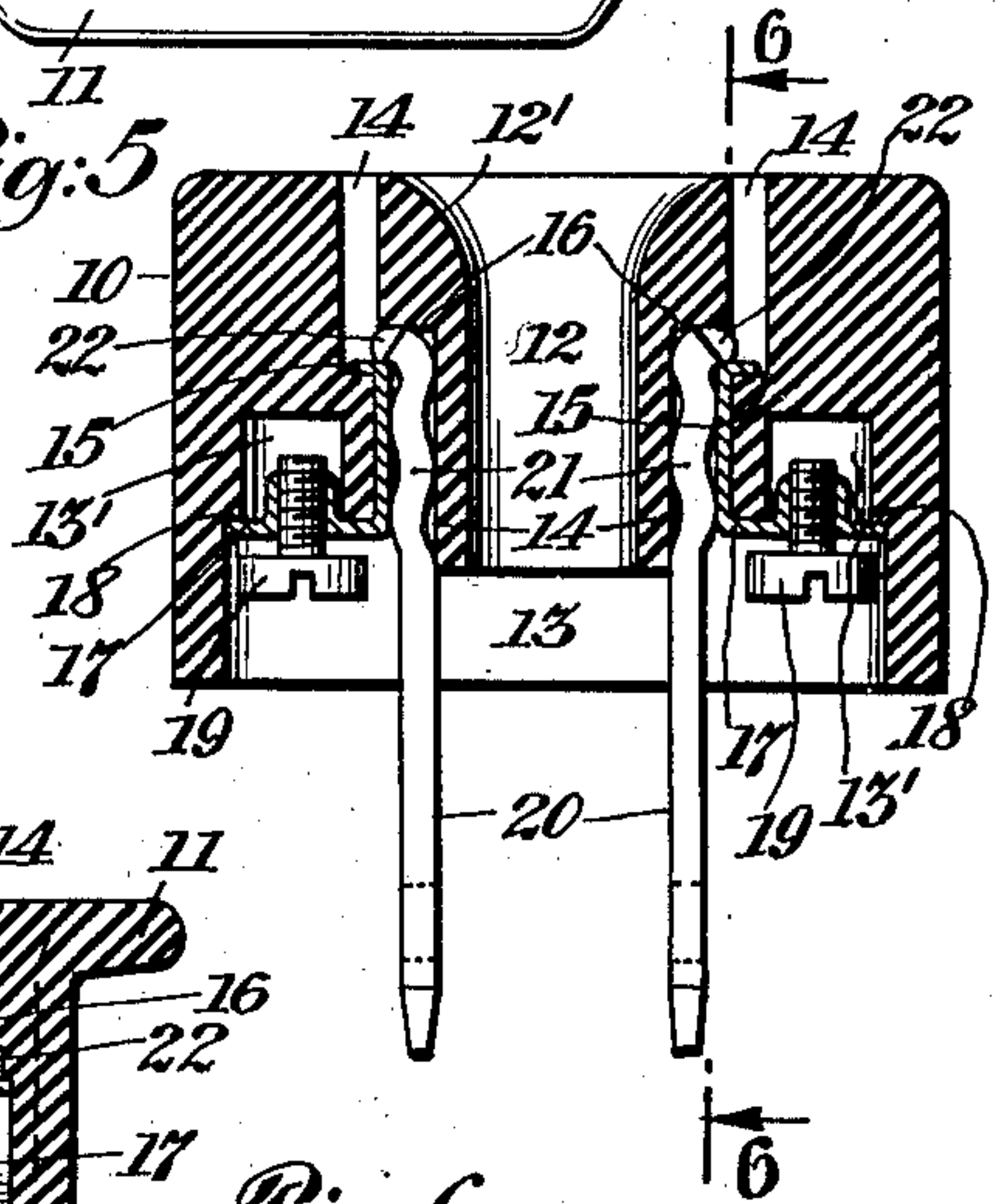


Fig. 8.

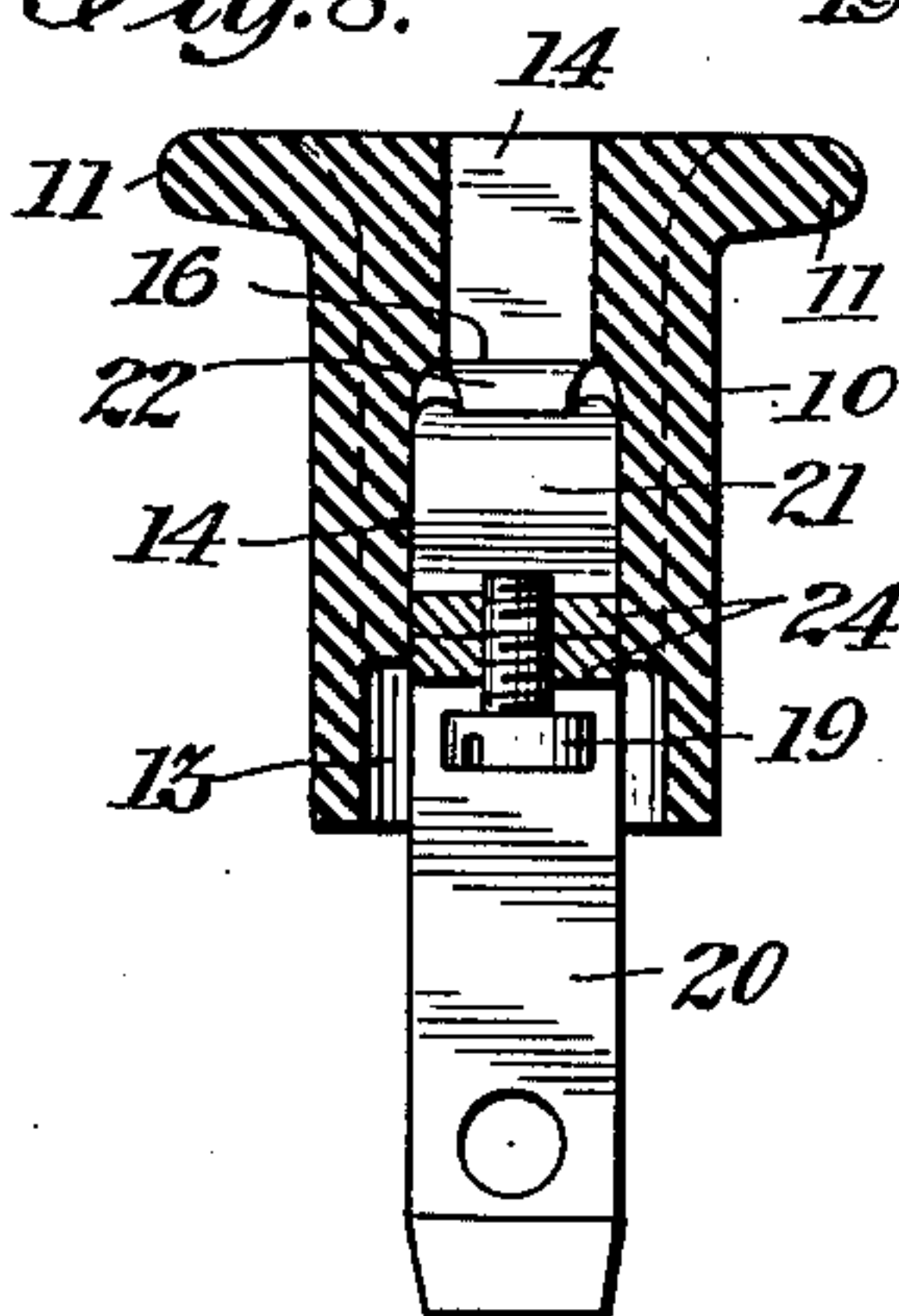
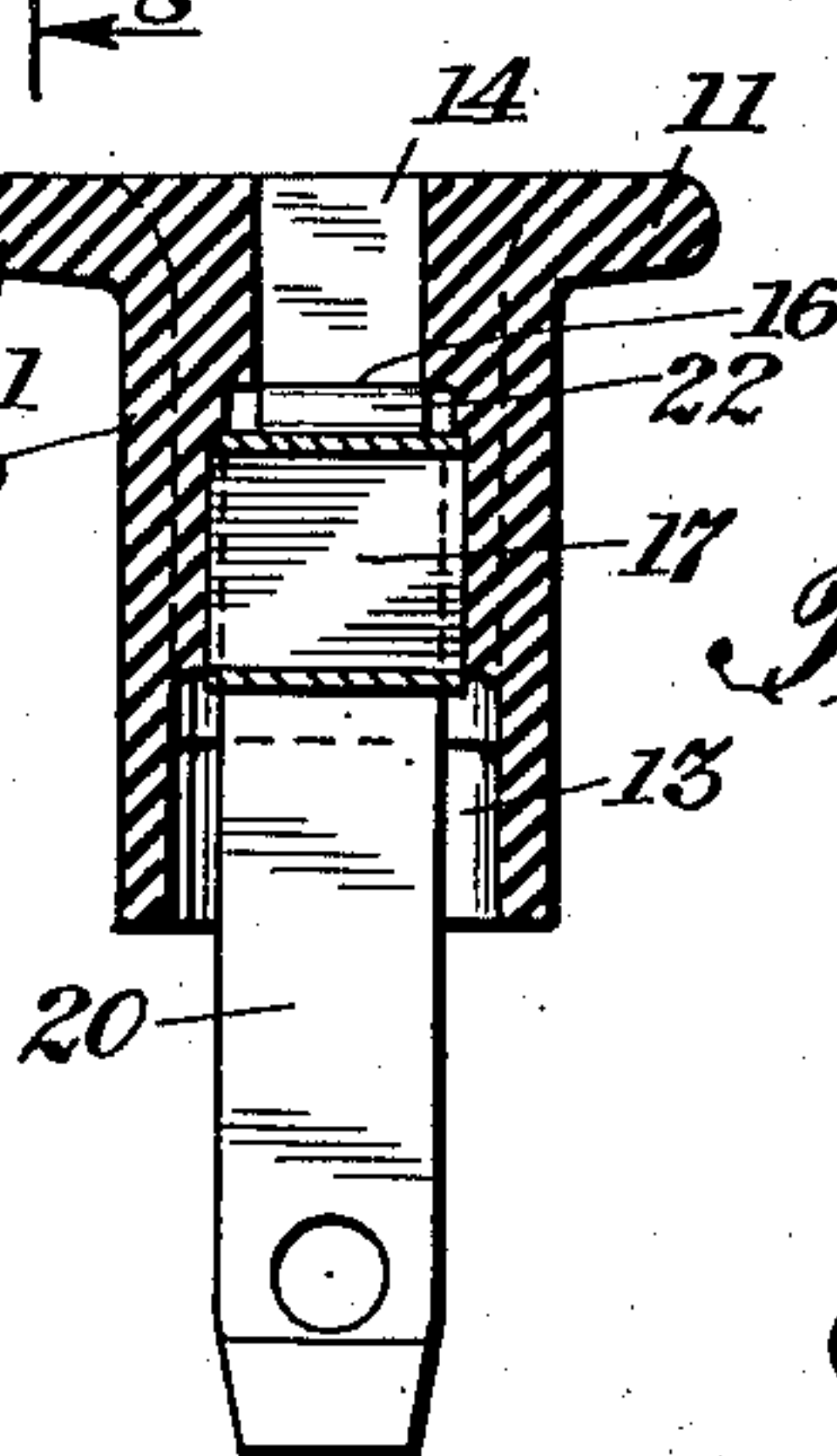


Fig. 6.



INVENTOR
Albert E. Grant
BY
Ashley + Ashley
ATTORNEY

UNITED STATES PATENT OFFICE

1,961,484

ELECTRIC PLUG CONSTRUCTION

Albert E. Grant, New York, N. Y.

Application April 30, 1932, Serial No. 608,418

4 Claims. (Cl. 173—361)

My invention relates to electric plug constructions and a principal object of my invention is to provide an attachment plug of the "leg" or "prong" type, the several parts of which may be rapidly and permanently assembled without the employment of rivets, screws, or other such fittings.

A further principal object is to provide an attachment plug having a body portion of economically small size adapted to be firmly and comfortably grasped by the user when the legs or prongs are being connected or disconnected in relation to a standard receptacle plug or socket.

Referring to the drawing, in which my invention is illustrated on an enlarged scale:

Fig. 1 is a side elevation of an attachment plug embodying my invention and

Fig. 2 is an end view thereof.

Fig. 3 is a plan view.

Fig. 4 is a view of the face of the plug.

Fig. 5 is a longitudinal cross section.

Fig. 6 is a section taken on lines 6—6 of Fig. 5.

Fig. 7 is a longitudinal cross section showing another embodiment of my invention.

Fig. 8 is a section taken on lines 8—8 of Fig. 7.

Fig. 9 is a perspective view of a modified leg member.

The body portion 10 comprises an oblongish block formed in one piece so designed that it may be readily moulded of hard rubber or other insulating plastic material. The breadth of the plug at its top is substantially less than its length so that where a plurality of them are employed in close adjacency, as in ganged sockets, the fingers of the user may grasp both sides of the body portion when connecting or disconnecting the plug. Below the top, the breadth is reduced to provide side flanges 11—11, conveniently useful as finger grips in withdrawing the plug from a socket. It will also be noted that the height or altitude of the body portion is substantially less than its length.

This handy exterior form is made possible by an extremely compact internal construction now to be described.

A passage 12 extends centrally thru the body portion from its top to its base and is formed bell-shaped and circular at its top, as indicated at 12', to eliminate sharp edges which might abrade insulation on the lead-in wires to be admitted therethru.

The base of the body portion, which is the face of the plug, is recessed at 13 over the greater portion of its area to provide a shell for housing the wire terminals etc. This recess is most shallow

around the lower end of the passage 12 and is greatly increased in depth adjacent the ends of the plug to form chambers 13'—13'.

On each of two opposite sides of the passage 12, (Fig. 5) a slot 14 is provided in the body portion. These slots are offset intermediate their lengths to form shoulders 15—15 and 16—16 respectively, and extend vertically thru the plug from its face to its top. Each slot 14 is reduced in size above its offset, as shown, and is moulded in the one-piece body portion by a pair of opposed overlapping cores.

Lining each shoulder 15 and the outer wall of each slot 14, below the shoulder is an angular conducting strip 17 which is extended across the lower end of the adjacent chamber 13' and abuts a shoulder 18 formed between the chamber and a wall of the recess 13. Each strip 17 is provided with a drifted hole, threaded to receive a binding screw 19, by means of which the ends of the lead-in wires are secured to the plug.

The conducting strips 17 are assembled in the body portion by simple insertion and are held in fixed position by the corrugated portions 21 of legs 20 which face them in firm contacting relation. The inner end of each of the legs 20 is reduced in width and sharply bent to provide a hook 22 which extends into the offset portion of slot 14, anchors over shoulder 15 and abuts shoulder 16.

The legs 20 are made of resilient metal and the corrugations formed in them are normally deeper than appears in the drawing. Each leg is assembled by straightening up the hook 22 in the lower end of slot 14 and then forcing the leg thru the slot until its inner hooked end abuts the shoulder 16 and the hook 22 snaps over the shoulder 15. This assembly operation causes the corrugations 21 to be compressed and to flatten out considerably. Because of the resilient qualities of the metal in which they are formed, they tend to resume their original normal curvature and thus firmly hold the leg 20 and strip 17 in assembled position and in firm electrical contacting relation to each other.

In the embodiment of my invention shown in Figures 7 and 8, the chambers 13' are extended to near the top of the plug and are in open communication with the slots 14 above their offsets. This accomplishes a saving in material and provides a somewhat lighter construction. Here the strips 17 are dispensed with and each leg 20 is bent out and back to provide an integral angular lug which bridges the chamber

13' and is provided with a threaded hole to receive the binding screws 19.

The leg shown in Fig. 9 is formed of lighter spring metal than the legs shown in the other figures and is bent back upon itself at its extreme outer end 23, as shown, to provide a laminated structure for a considerable portion of its length. The lug 24 is bent integral with the outer lamination of the leg and is formed in accordance with the principles taught in my co-pending application for improvements in nuts filed March 15, 1932 and identified by Serial No. 598,935. Above the nut, a single corrugation is formed in the outer lamination immediately adjacent its end. The inner lamination is provided with the hook 22 and overextends the outer one so that when the hook is anchored in assembled position, the corrugation will be compressed centrally in one of the slots 14.

The legs in each of the attachment plugs shown are properly spaced, proportioned and adapted for insertion into standard receptacle plugs and are therefore provided with the usual perforations adjacent their outer chamfered ends.

Having thus described my invention, I claim:

1. A male plug member of the character described comprising an oblong body portion of moulded plastic insulating material, a pair of conducting metal legs held spaced apart by the body portion and extending outwardly from the base thereof, said legs being spaced and proportioned to engage a standard receptacle, and said body portion being proportioned less in height and breadth than in length and of reduced breadth adjacent its top to provide side flanges adapted to serve as finger grips.

2. A male plug member of the character described comprising a body portion of insulating material, said body portion having a slot therein extending inwardly from its base and an angular offset formed in said slot, a resilient metal conducting prong partly extending into said slot and having a hook formed on the inner end thereof in engagement with one of the walls of said angular offset and in abutment with the other wall thereof.

3. A male plug member of the character described comprising a body portion of insulating material, said body portion having a slot therein extending inwardly from its base and an angular offset formed in the slot, a resilient metal conducting prong partly extending into said slot, said prong having a hook formed on the inner end thereof in engagement with one of the walls of said angular offset and in abutment with the other wall thereof, and a corrugation there- adjacent compressed between walls of said slot.

4. An attachment plug of the character described comprising a body portion of insulating material proportioned greater in length than in height and of reduced breadth below its top; said body portion having a central passage extending therethru from its top to its base, a slot extending inwardly from its base on each of two opposite sides of said passage, and an angular offset formed in each slot; a pair of resilient metal conducting legs each having a hook formed near one end thereof in engagement with the walls of one of said angular offsets, and a corrugation thereadjacent compressed between the walls of the slot.

ALBERT E. GRANT.

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