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C. L. HALL

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SNAP FASTENER ATTACHED LAMP SOCKET INSTALLATION AND SOCKET FOR THE SAME

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Fig. 1.

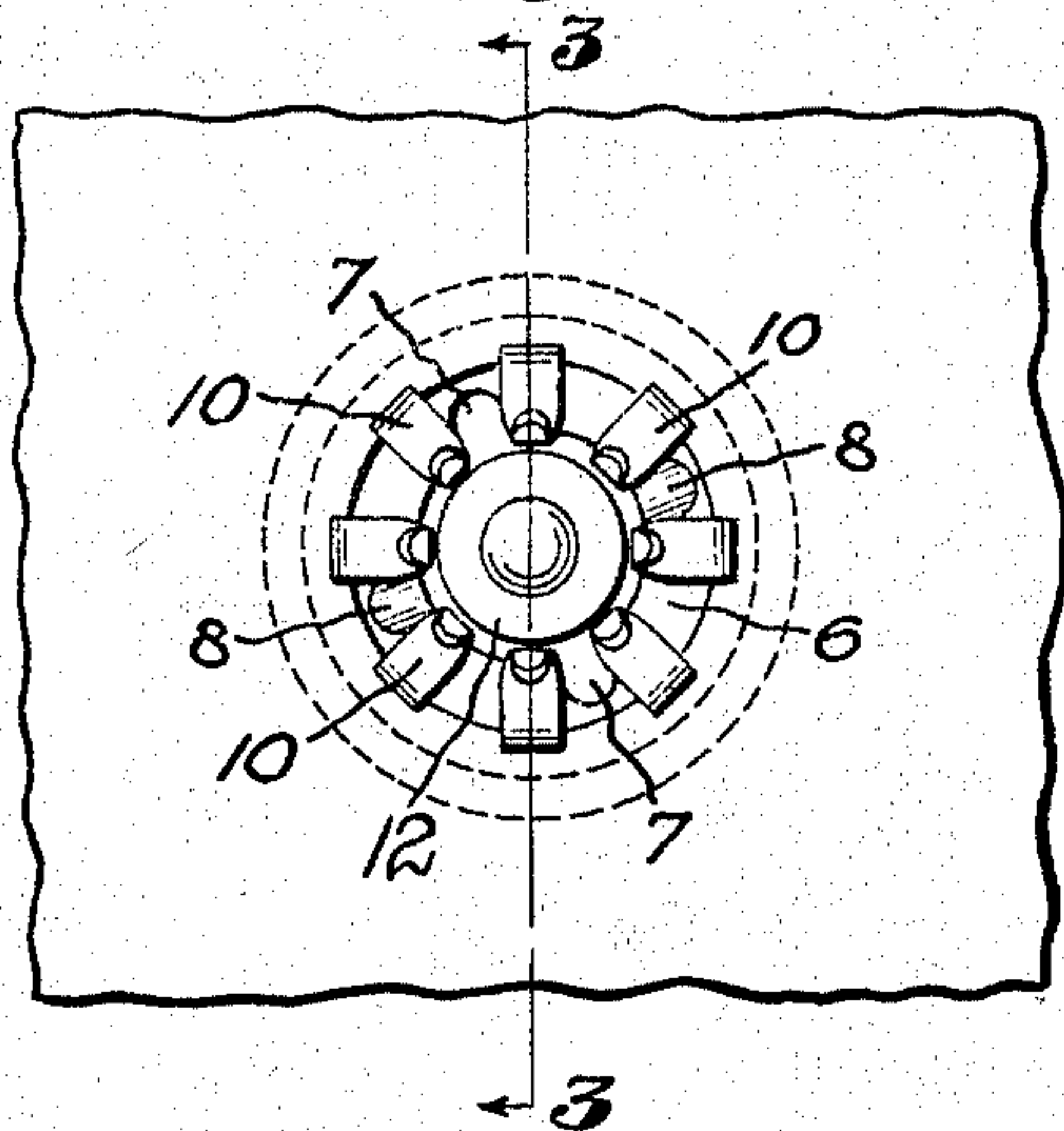


Fig. 2.

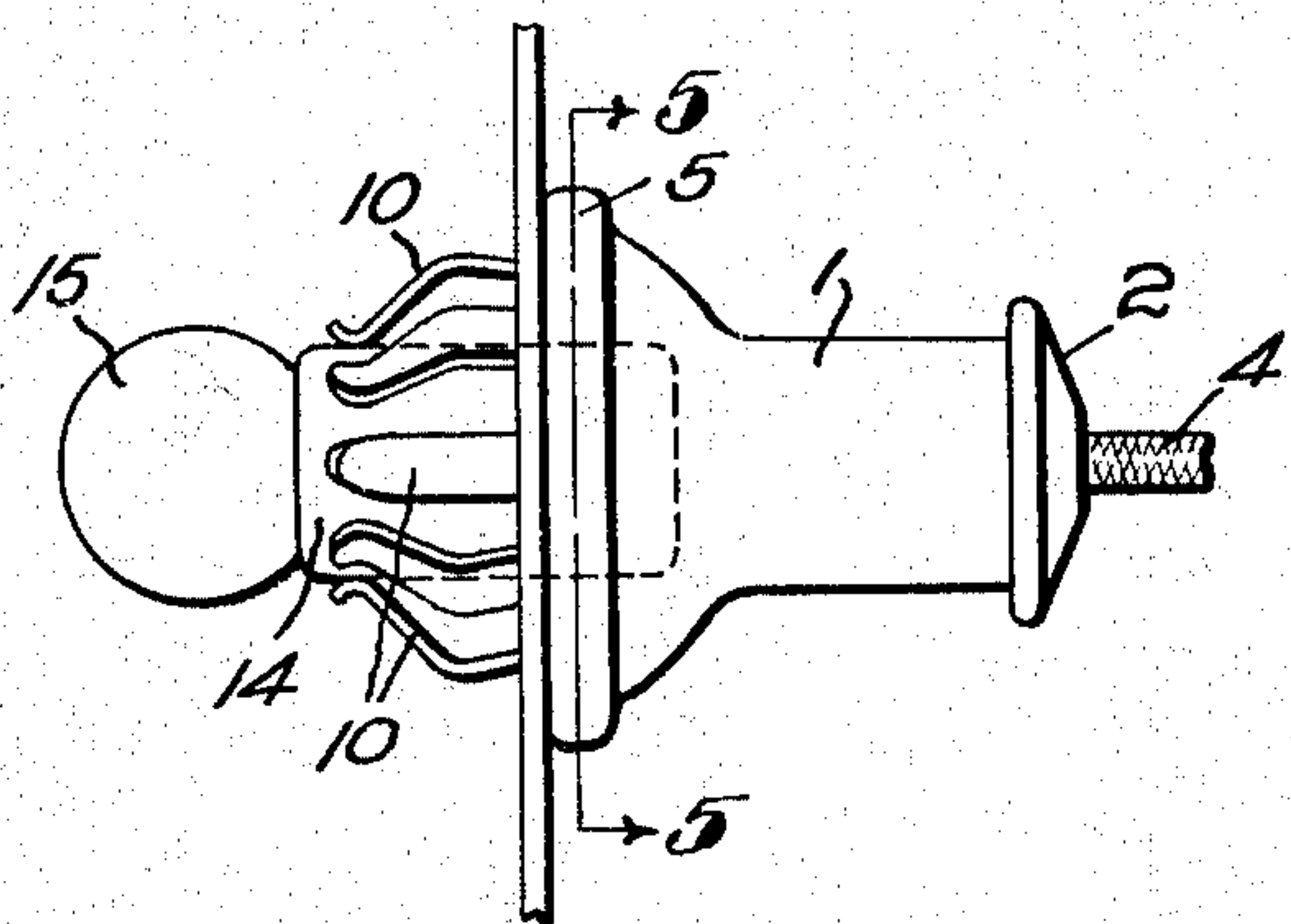


Fig. 3.

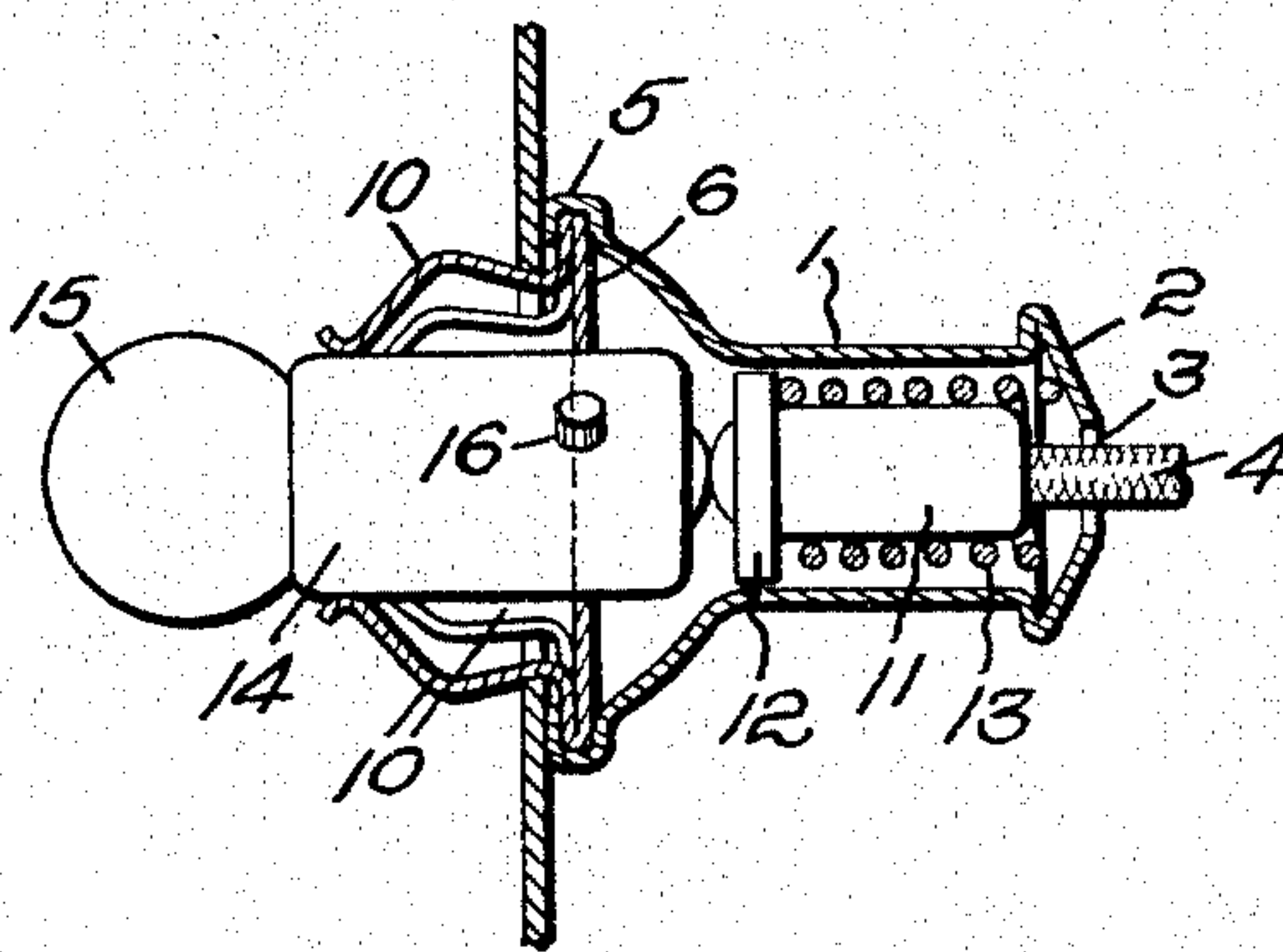


Fig. 4.

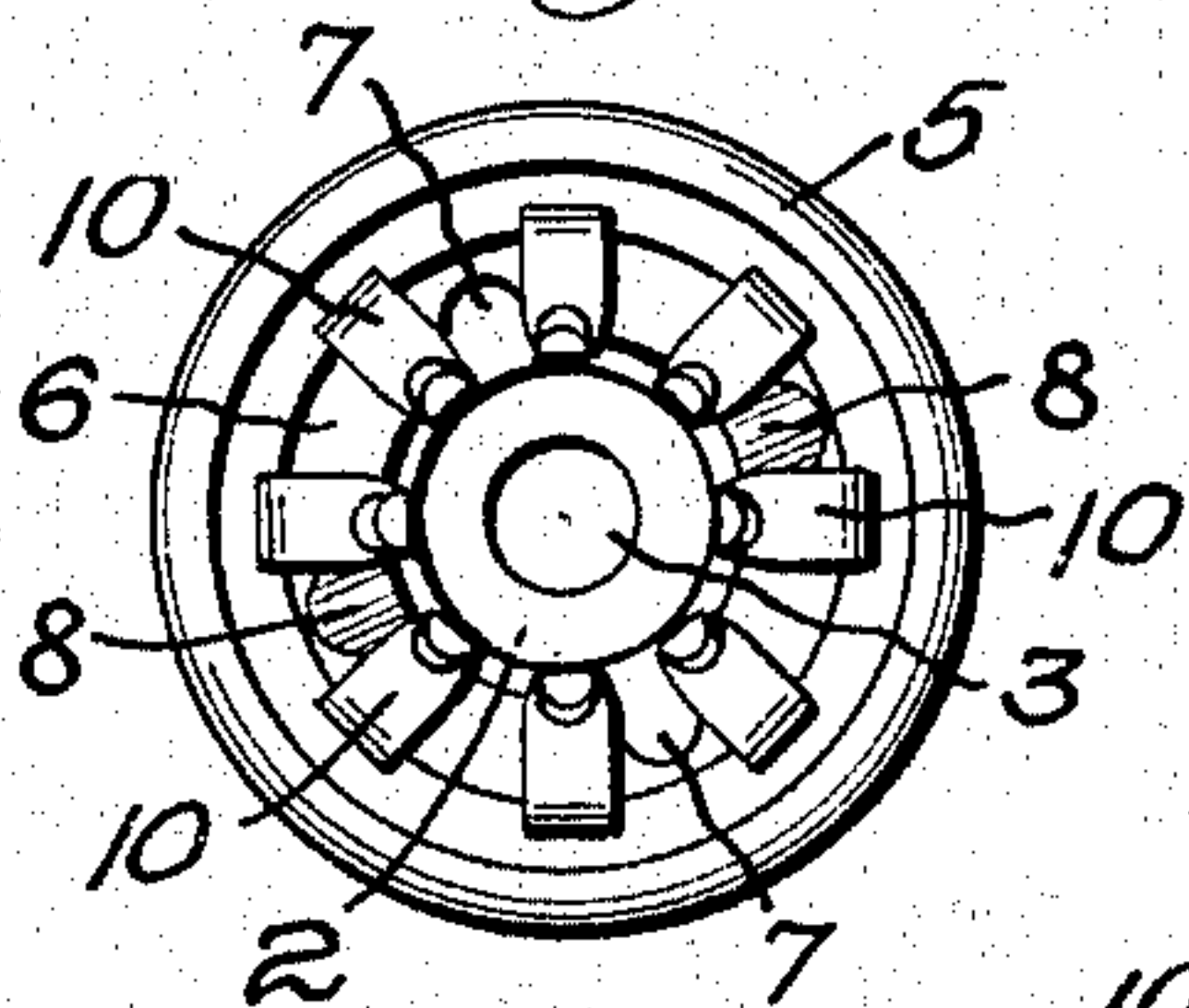


Fig. 5.

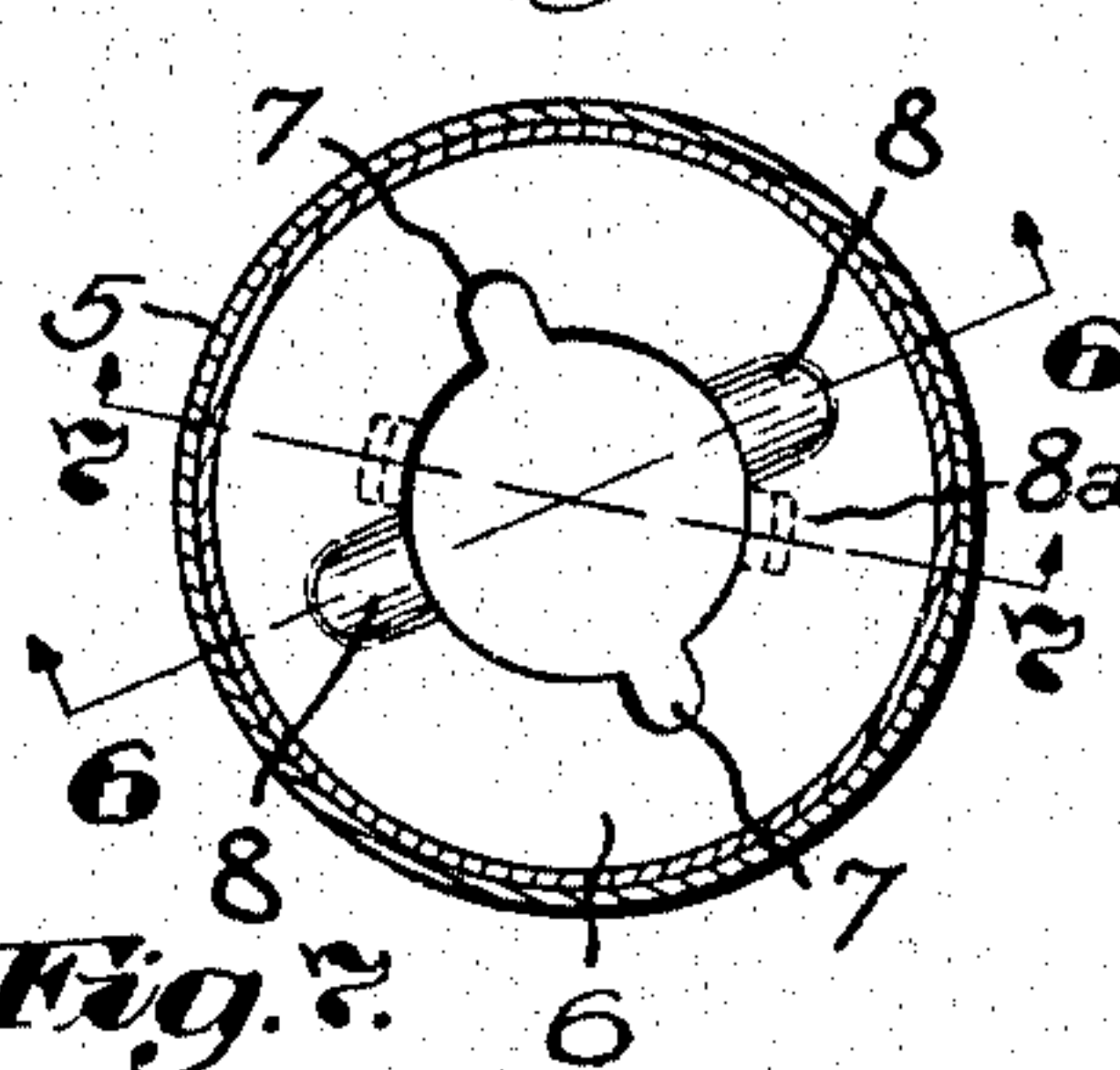


Fig. 8.

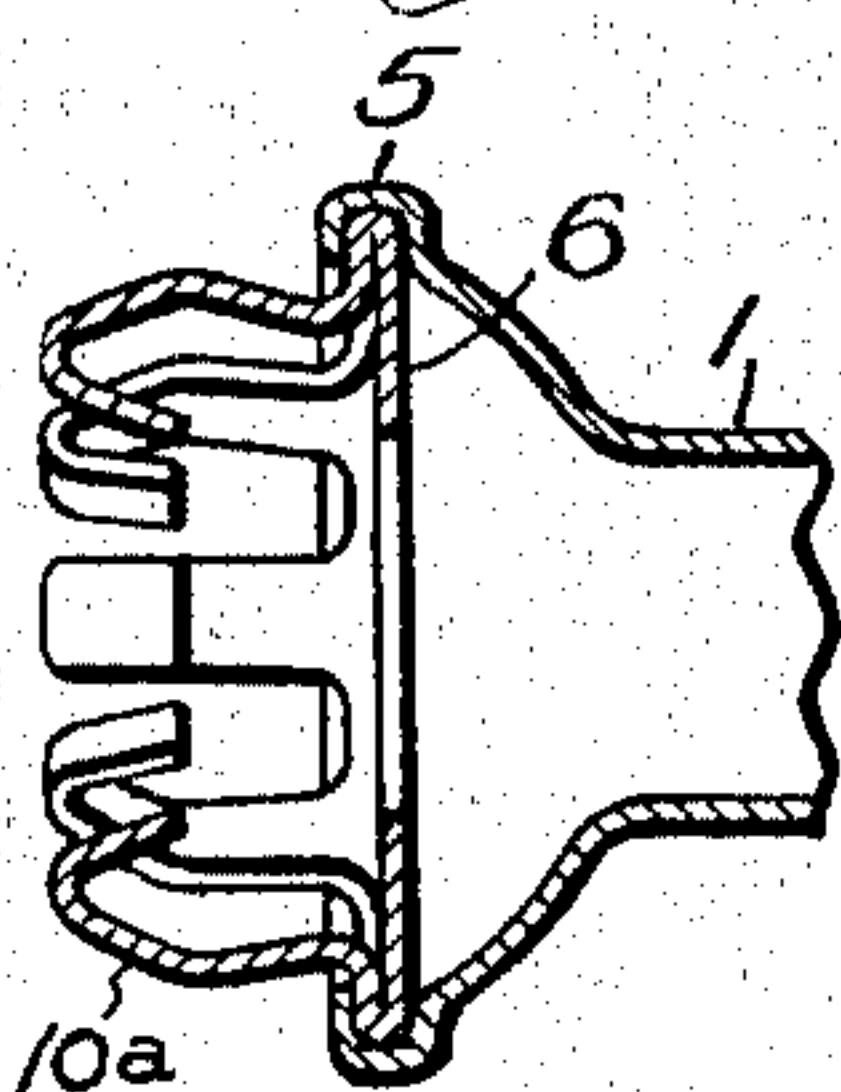


Fig. 6.

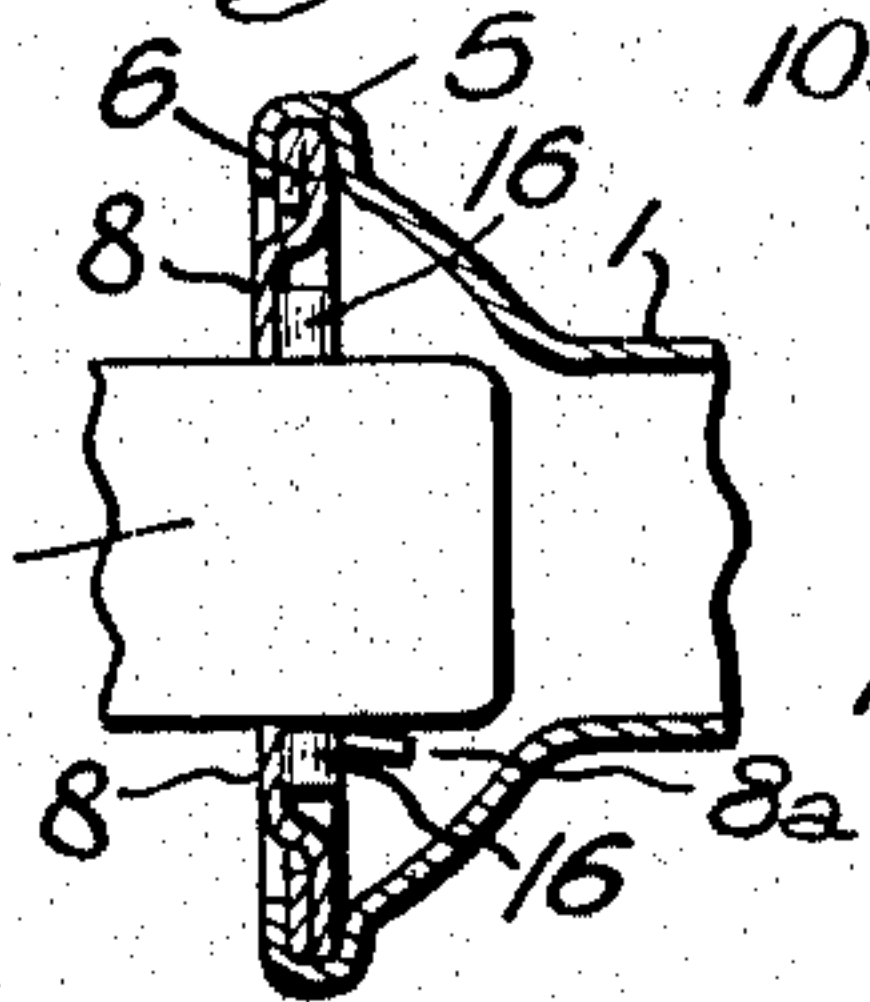
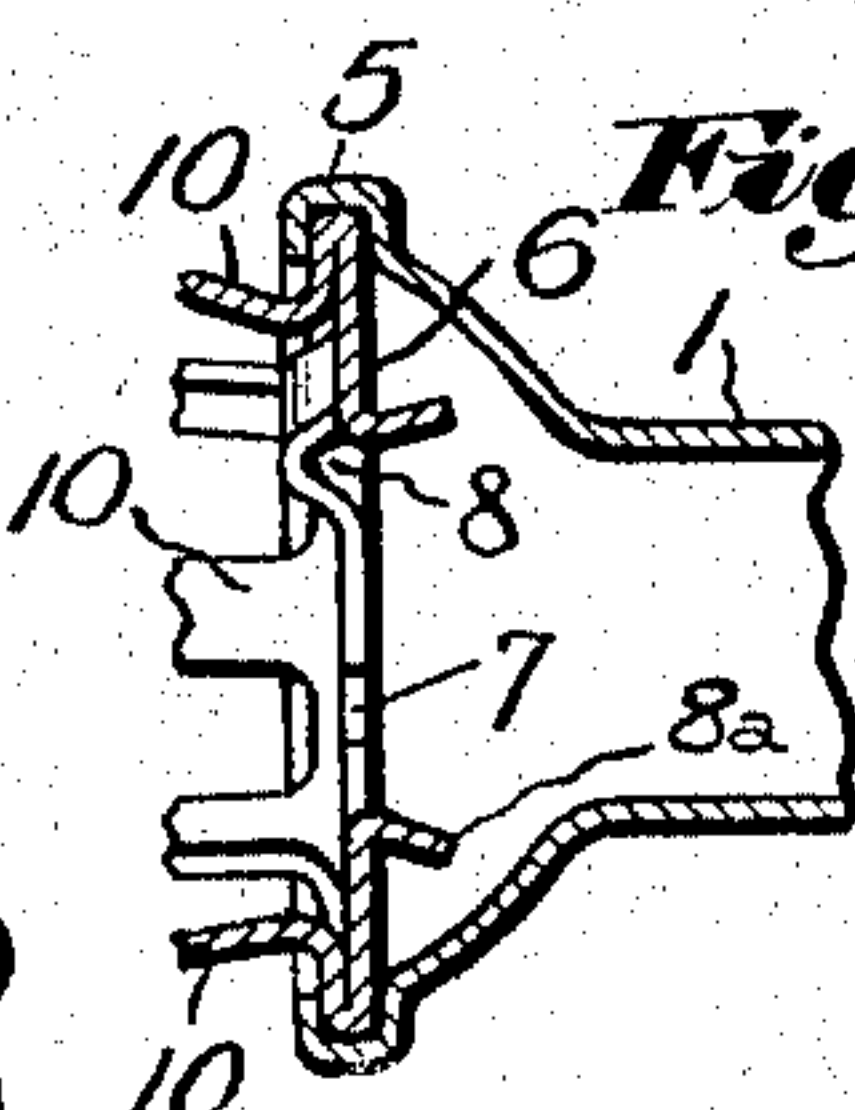


Fig. 7.



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UNITED STATES PATENT OFFICE

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SNAP FASTENER ATTACHED LAMP SOCKET
INSTALLATION AND SOCKET FOR THE
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Application September 6, 1934, Serial No. 742,950

12 Claims. (Cl. 173—339)

My invention relates to a novel lamp socket having snap fastener means for attaching it to a supporting structure.

In the drawing which illustrates a preferred form of my invention:—

Figure 1 is an end view of the socket installed in a panel;

Fig. 2 is a side view of a complete assembly including my novel socket;

Fig. 3 is a section taken on the line 3—3 of Figure 1 with the addition of a light bulb;

Fig. 4 is an end view of the socket per se;

Fig. 5 is a section on the line 5—5 of Fig. 2;

Fig. 6 is a section on the line 6—6 of Fig. 5 showing the base of a lamp in position;

Fig. 7 is a section on the line 7—7 of Fig. 5; and

Fig. 8 is a side view of the socket showing a modification of the prong structure.

An object of my invention is to provide a lamp socket which may be easily and detachably secured to a panel or other supporting structure without the use of rivets or fasteners other than the snap fastener means provided by the socket itself.

A further object of my invention is to provide a lamp socket for the installation of lamps in comparatively inaccessible locations such as behind an instrument panel. Also a feature of my invention is the fact that the lamp may be inserted in the socket before the socket is attached to the supporting structure. Thus a lamp that is to be used behind a panel may be inserted from the front.

Referring first to the socket per se, I have shown for purposes of description one which is adapted particularly for use with a single contact lamp of the type now almost universally used in automobile installations. It should be remembered, however, that my invention is not limited to this particular type of socket and that changes may be made to accommodate different types of lamps without departing from the spirit and intent of my invention.

The main part of the socket as illustrated consists of a tube-like shell 1 which serves as a means for manipulating the installation as well as being a base for the fastening and lamp-engaging parts. This shell 1 is cylindrical in shape for the greater part of its length and is provided with a cap 2 at one end (Figs. 2 and 3). Through this cap I have pierced the aperture 3 to permit passage of the conductor wire 4. At the opposite end, the cylinder flares outwardly into a cone-shaped portion and terminates in a flange 5. Secured to the shell 1 by the flange 5 is a collar 6, as best

shown in Fig. 3. This collar is in the form of a flat ring and has a pair of diametrically opposed notches 7 and a pair of detents 8. These detents are formed by making dents in the ring adapted to engage the lugs on the base of a lamp. Beside each of the detents is an ear 8^a bent down in such a position that it does not interfere with the passage through the collar of the base of a lamp but acts as a positive stop for the lug on each side of the lamp base when the lamp is rotated during the process of installation, as will be more fully explained.

The outer edge of the ring 6 is folded over flat against the main part of the ring to form a common base for the fingers 10. Thus the fingers 10 actually extend from the ring 6 and I prefer to make them all in one piece as is best shown in Fig. 3. The prongs are preferably made of spring steel and are shaped so that they diverge from the base and then converge towards a common point. In a modification of the above form of prong, I have bent the ends of the prongs back towards the socket, as is shown in Fig. 8.

Assembled in the cylindrical part of the shell 1 is an electrical contact member for the purpose of transmitting current to the lamp. I have shown (Fig. 3) a conventional contact member 11 soldered or otherwise permanently fastened to the end of the wire 4 and having a collar 12. The spring 13 urges the member 11 toward the lamp by pressing against the collar 12 and the cap 2, thus assuring a good electrical contact.

One method of operating the socket is as follows: The base 14 of the lamp 15 is pushed between the free ends of the fingers 10 which normally lie on a circle considerably smaller than the base of the lamp. Thus they exert a spring gripping action on the base when it is pushed between them. The base is pushed in until the lugs 16 on the base of the lamp pass through the notches 7. The inside diameter of the ring is such that it fits snugly around the base of the lamp to prevent any undesirable lateral motion of the two parts relative to one another.

When the lugs on the base of the lamp have been passed through the notches 7 the lamp is rotated clockwise until the lugs are stopped by the ears 8^a, at which point they automatically snap into the detents 8 where they are held by the action of the fingers 10 and the spring 13, which has been compressed by the base of the lamp during the assembly.

The next and final step is to insert the lamp and fingers in the aperture which has been prepared in the supporting structure 17 and is larger

than the diameter of the lamp but smaller in diameter than the circle in which lie the outside edges of the fingers 10 at the tips of the bends 10^a. The pressure, of course, is exerted on the shell 1 which acts as a handle for the assembly and the socket is pushed flush against the support where it is held by the spring action of the fingers 10. The lamp and socket may be removed as a unit or the lamp may be removed from the reverse side of the panel as with an ordinary socket.

Another method of assembly is to insert the socket in the aperture before inserting the lamp in the socket and then insert the lamp between the fingers 10. Thus my improved device may be used whether or not the device to which it is attached is accessible from both sides.

While I have illustrated and described a preferred form of my invention I do not wish to be limited thereby as the scope of my invention is best defined by the following claims.

I claim:

1. A snap fastener lamp socket installation comprising, in combination, an apertured support member of relatively thin material, a substantially tubular metal shell constituting a socket member having a conductor-receiving opening at one end and a light bulb-receiving opening at the opposite end, a light bulb assembled in the bulb-receiving end of said socket and secured therein, said socket member being provided with a plurality of resilient fingers extending forwardly of the bulb-receiving portion and adapted for snap fastening engagement with the edges of the support surrounding the aperture whereby said socket may be securely mounted on and fastened to the support and detached therefrom solely by force applied substantially axially of the socket member.

2. A snap fastener lamp socket installation comprising, in combination, an apertured support member of relatively thin material, a substantially tubular metal shell constituting a socket member having a conductor-receiving opening at one end and a light bulb-receiving opening at the opposite end, a light bulb assembled in the bulb-receiving end of said socket and secured therein, a plurality of resilient fingers attached to said socket member and extending forwardly of the bulb-receiving end for engaging the inner edge of the support surrounding said aperture with a springlike snap fastener action, whereby said socket may be installed on or removed from said support solely by substantial axial force applied to said socket member as a handle.

3. A snap fastener lamp socket installation comprising, in combination, an apertured support member of relatively thin material, a substantially tubular socket member having a conductor-receiving opening at one end and a light bulb-receiving opening at the opposite end, a light bulb assembled in the bulb-receiving end of said socket and secured therein, said socket member being formed with an outwardly flanged portion spaced from the conductor-receiving end for abutting engagement with a face of said support, a collar secured within the flanged portion of said socket, a plurality of resilient fingers formed on said collar for snap fastener engagement with the edges of the support surrounding the aperture of said support, whereby said socket member may be attached to and removed from the support solely by force applied to the conductor-receiving end thereof.

4. A snap fastener lamp socket installation comprising, in combination, an apertured support member of relatively thin material, a substantially tubular metal shell constituting a socket member having a conductor-receiving opening at one end and a light bulb-receiving opening at the opposite end, a light bulb assembled in the bulb-receiving end of said socket and secured therein, a collar attached to said socket member, a plurality of resilient spring fingers formed on said collar and extending forwardly of the bulb-receiving end for attachable and detachable snap fastener connection with the edge portions of the apertured support, the conductor-receiving end of said socket member constituting a handle by means of which socket members may be mounted on and removed from the support by a force applied substantially axially thereof.

5. A lamp socket installation comprising, in combination, a relatively thin electrically conductive supporting member having a substantially circular aperture therethrough, a lamp socket having a relatively cylindrical shell of sheet metal, one end of said shell terminating in an inwardly disposed peripheral flange of slightly greater diameter than said aperture and bearing on said supporting structure around said aperture, a collar secured to said socket by said peripheral flange and having an aperture therethrough adapted to receive the base of a lamp, a lamp located on the opposite side of said supporting structure and having its base extending through the aperture therein and through the aperture in said collar, a plurality of spring fingers integral with said collar and extending therefrom directly through said aperture in the supporting structure and surrounding the base of said lamp, said fingers bearing outwardly against said supporting structure at the edges of said aperture and inwardly against the base of said lamp at points beyond the supporting structure thereby securing said socket to said supporting structure and securing said lamp in said socket, and said lamp and socket being detachable as a unit from said supporting structure.

6. A lamp socket installation comprising, in combination, a supporting structure having an aperture therethrough, a lamp socket of substantially tubular construction having one end open to receive the base of a lamp, the walls of said socket terminating in an inwardly disposed peripheral flange adjacent said open end, said flange bearing against the supporting structure adjacent to the aperture therein, an annular ring secured to said socket by said flange, the outer edge of said ring being folded toward the center thereof under said flange and extending inwardly therefrom, a plurality of spring fingers extending from the inner edges of said fold directly through the aperture in said supporting structure and exerting a spring tension outwardly thereon for the purpose of detachably securing said socket to the supporting member, a lamp assembled in said socket and having its globe on the opposite side of said supporting structure, the base of said lamp extending through the annular ring of the socket, and means on the base of said lamp co-acting with said ring to retain said lamp in said socket.

7. A lamp socket of the class described having a substantially tubular rigid casing portion open at one end, a peripheral flange forming a groove in the casing adjacent said open end, a

flat ring secured in said groove in the casing by said flange and having an aperture therein to allow the passage of the base of a lamp, the outer edge of said ring being folded back on the ring itself, and a plurality of spring projections integral with said ring extending therefrom at the inner edge of said folded portion directly away from said ring and longitudinally of said tubular casing, said prongs being adapted to engage the base of a bulb in a spring grip and to act as a snap fastener unit for attaching said socket to a supporting member.

8. A lamp socket of the class described having a relatively cylindrical hollow casing part provided with an apertured cap at one end, the walls of said casing flaring outwardly adjacent to the other end and terminating in an inwardly disposed flange, a flat ring having an interior diameter adapted to receive the base of a lamp and having a pair of oppositely disposed notches at its inner edge adapted to allow the passage of the lugs on a lamp base, said ring having a pair of detents formed to co-act with lugs and prevent rotation of the lamp relative to the ring, the peripheral portion of said ring being folded inwardly flat against the ring, and a plurality of similarly shaped spring prongs integral with and extending from the inner edge of said folded portion directly away from said ring, and the folded portion of said ring being secured within the open end of said casing by said flange, said prongs extending away therefrom and their free ends lying in a plane spaced from said ring and substantially parallel thereto.

9. A lamp socket of the class described having a casing portion, and means for receiving and holding a lamp, said means comprising a flat ring secured within said casing and yieldable projections integral with said flat ring and adapted to secure said socket to a supporting member, said ring having an aperture therein adapted to receive the base of a lamp, and said ring having a pair of oppositely disposed notches and a pair of oppositely disposed detents to prevent rotation of the base of an installed lamp, and an ear formed from the material of said ring adjacent one of said detents and extending away from said ring at substantially a right angle to the plane thereof for the purpose of preventing excessive rotation of the base of a lamp during installation and aligning the lugs on the base of a lamp with said detents.

10. A lamp socket of the class described having a relatively cylindrical hollow casing part provided with an apertured cap at one end, the walls of said casing flaring outwardly adjacent to the other end and terminating in an inwardly disposed flange, a flat ring having an interior diameter adapted to receive the base of a lamp and having a pair of oppositely disposed notches at

its inner edge adapted to allow the passage of the lugs on a lamp base, said ring having a pair of detents formed to co-act with lugs and prevent rotation of the lamp relative to the ring, a pair of oppositely disposed ears formed from the material of said ring adjacent to said detents and extending from the inner edge of said ring towards the narrow end of said casing, the peripheral portion of said ring being folded inwardly flat against the ring, and a plurality of similarly shaped spring prongs integral with and extending from the inner edge of said folded portion directly away from said ring, and the folded portion of said ring being secured within the open end of said casing by said flange, said prongs extending away therefrom and their free ends lying in a plane spaced from said ring and substantially parallel thereto.

11. A lamp socket of the class described having a substantially tubular rigid casing portion open at one end, a peripheral flange forming a groove in the casing adjacent said open end, a flat ring secured in said groove in the casing by said flange and having an aperture therein to allow the passage of the base of a lamp, the outer edge of said ring being folded back on the ring itself, and a plurality of spring projections integral with said ring extending therefrom at the inner edge of said folded portion directly away from said ring and longitudinally of said tubular casing, said prongs diverging and then converging to form outwardly disposed shoulders for the purpose of engaging the sides of an aperture in a supporting structure, and the free ends of said prongs being bent inwardly and toward said ring for the purpose of engaging the base of a lamp.

12. A lamp socket of the class described having a relatively cylindrical hollow casing part provided with an apertured cap at one end, the walls of said casing flaring outwardly adjacent to the other end and terminating in an inwardly disposed flange, a flat ring having an interior diameter adapted to receive the base of a lamp and having a pair of oppositely disposed notches at its inner edge, said ring having a pair of detents formed to co-act with lugs on a lamp base and prevent rotation of the lamp relative to the ring, integral stop means on said ring for the purpose of positioning lugs for engagement with said detents, the peripheral portion of said ring being folded inwardly flat against the ring, and a plurality of similarly shaped spring prongs integral with and extending from the inner edge of said folded portion directly away from said ring, and the folded portion of said ring being secured within the open end of said casing by said flange, said prongs extending away therefrom and their free ends lying in a plane spaced from said ring and substantially parallel thereto.

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