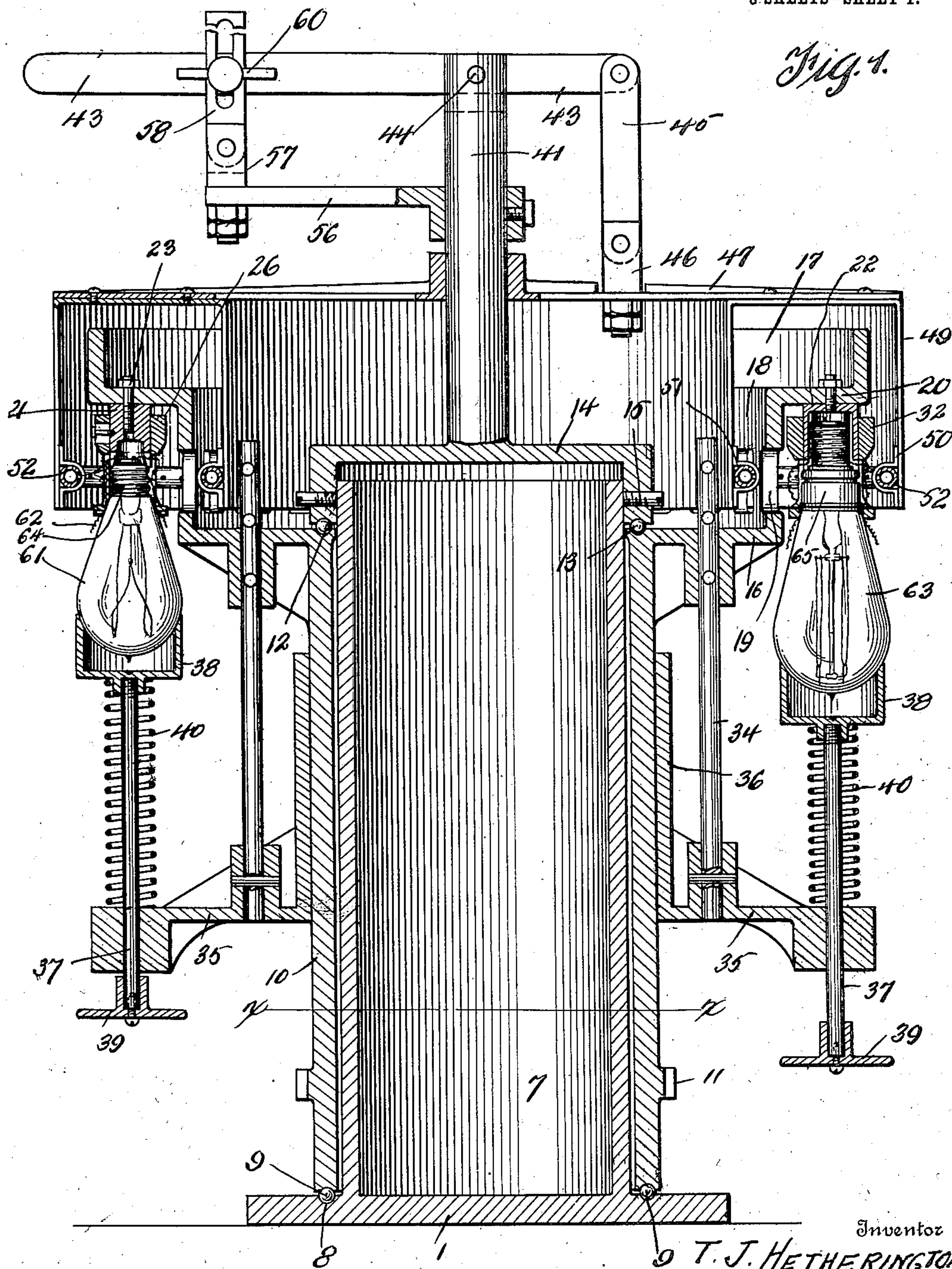


T. J. HETHERINGTON.
CAPPING MACHINE FOR INCANDESCENT BULBS.
APPLICATION FILED FEB. 27, 1909.

935,503.

Patented Sept. 28, 1909.

3 SHEETS—SHEET 1.



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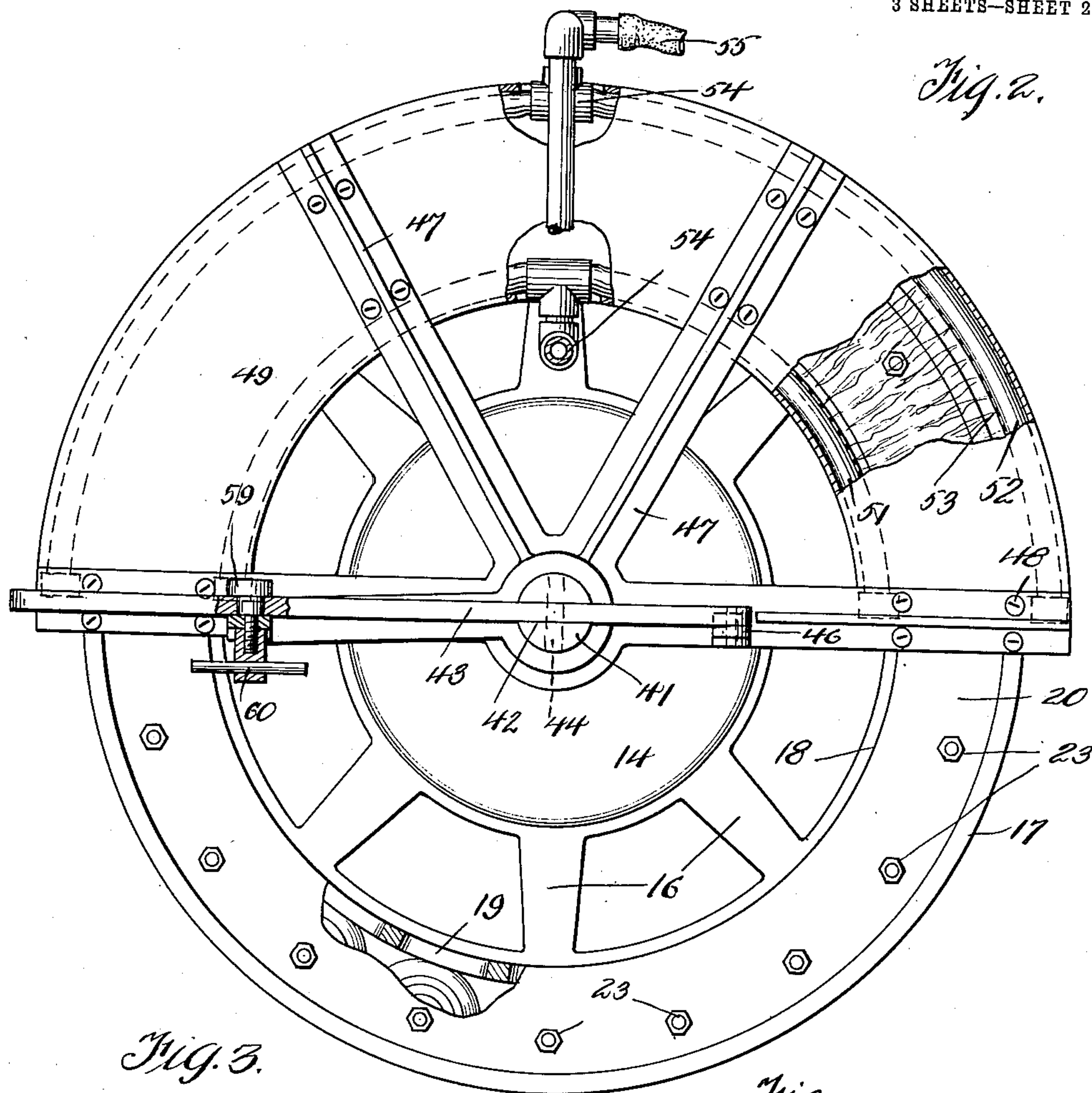


Fig. 2.

Fig. 3.

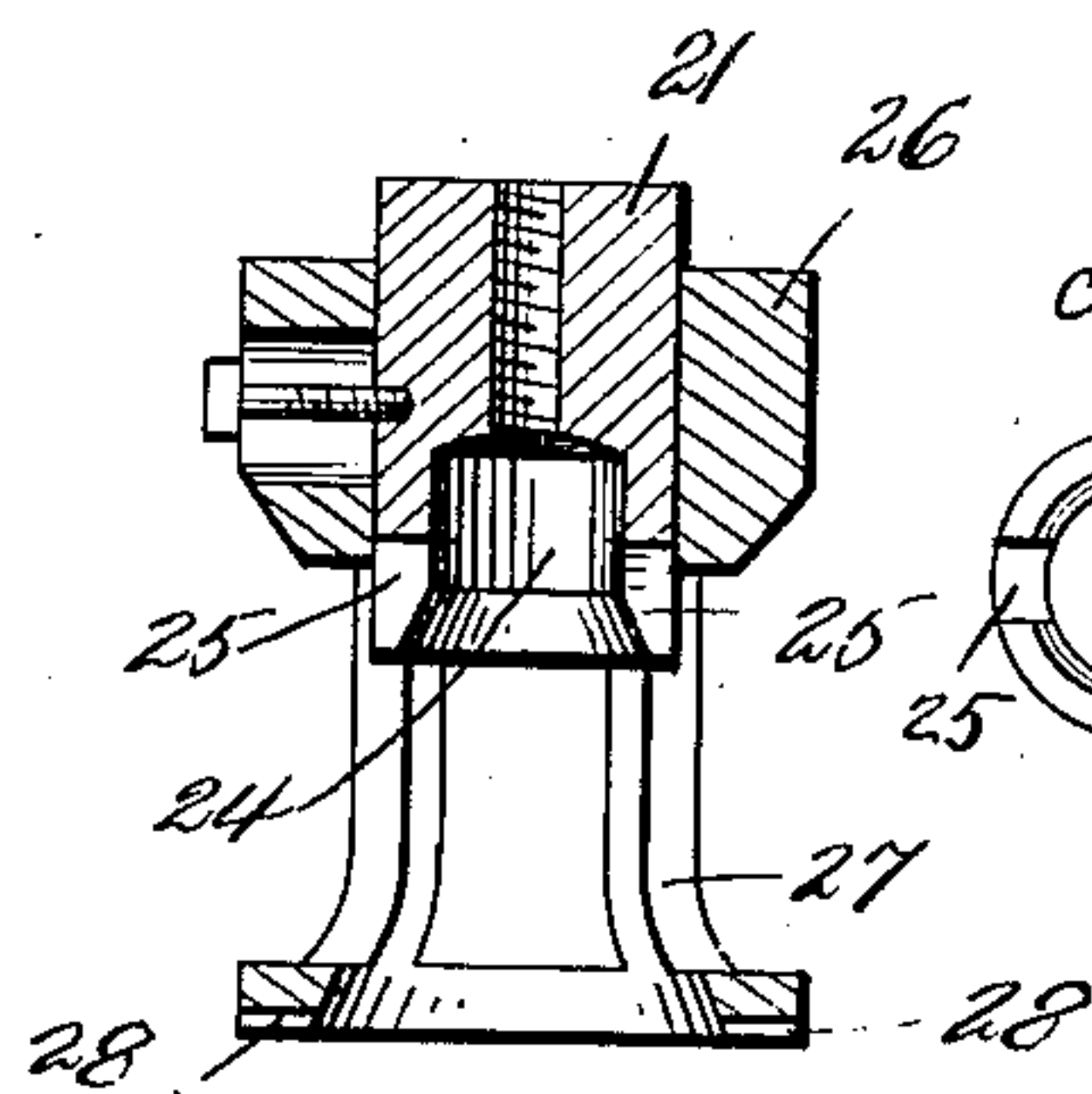


Fig. 5.

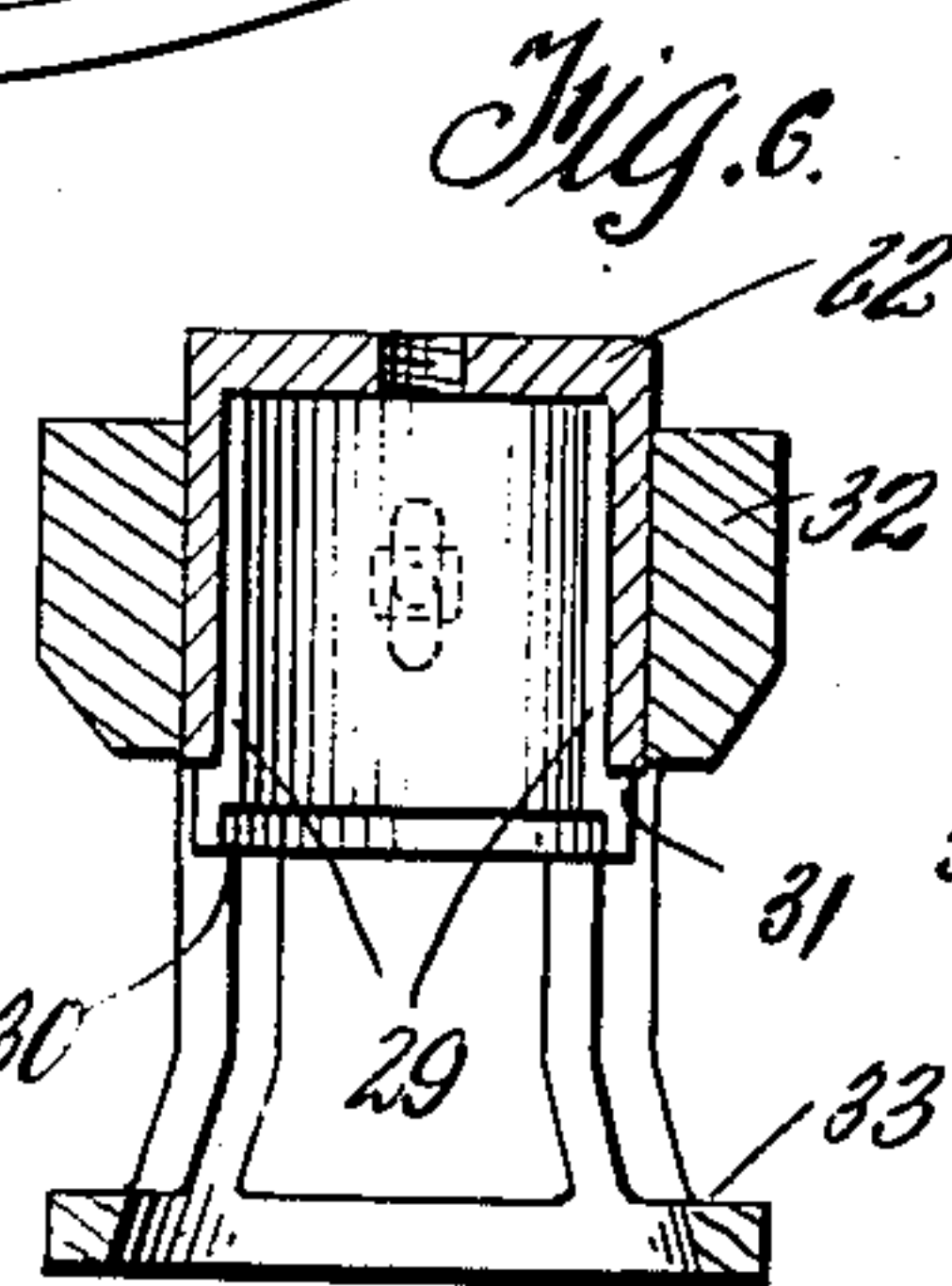


Fig. 6.

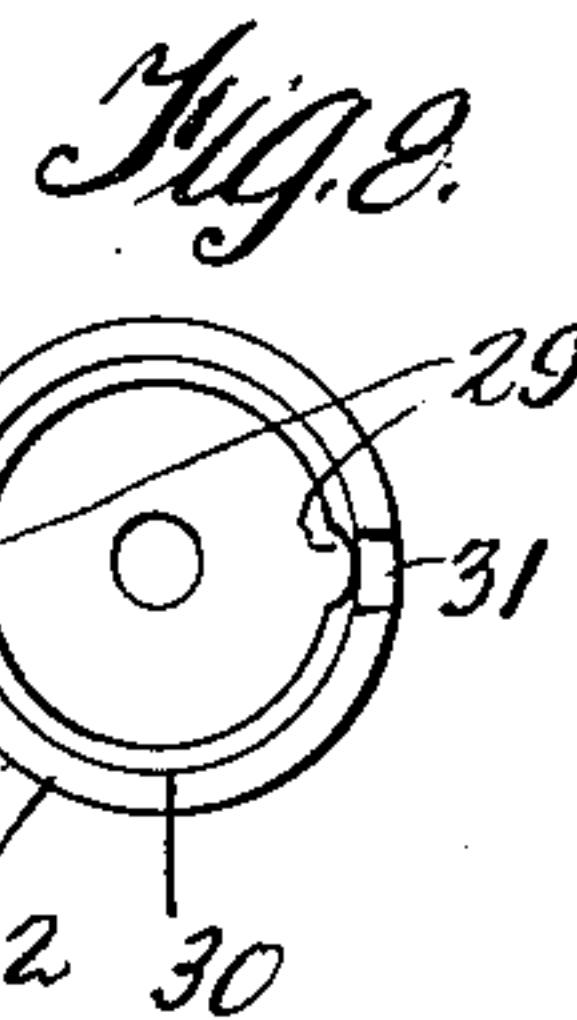


Fig. 8.

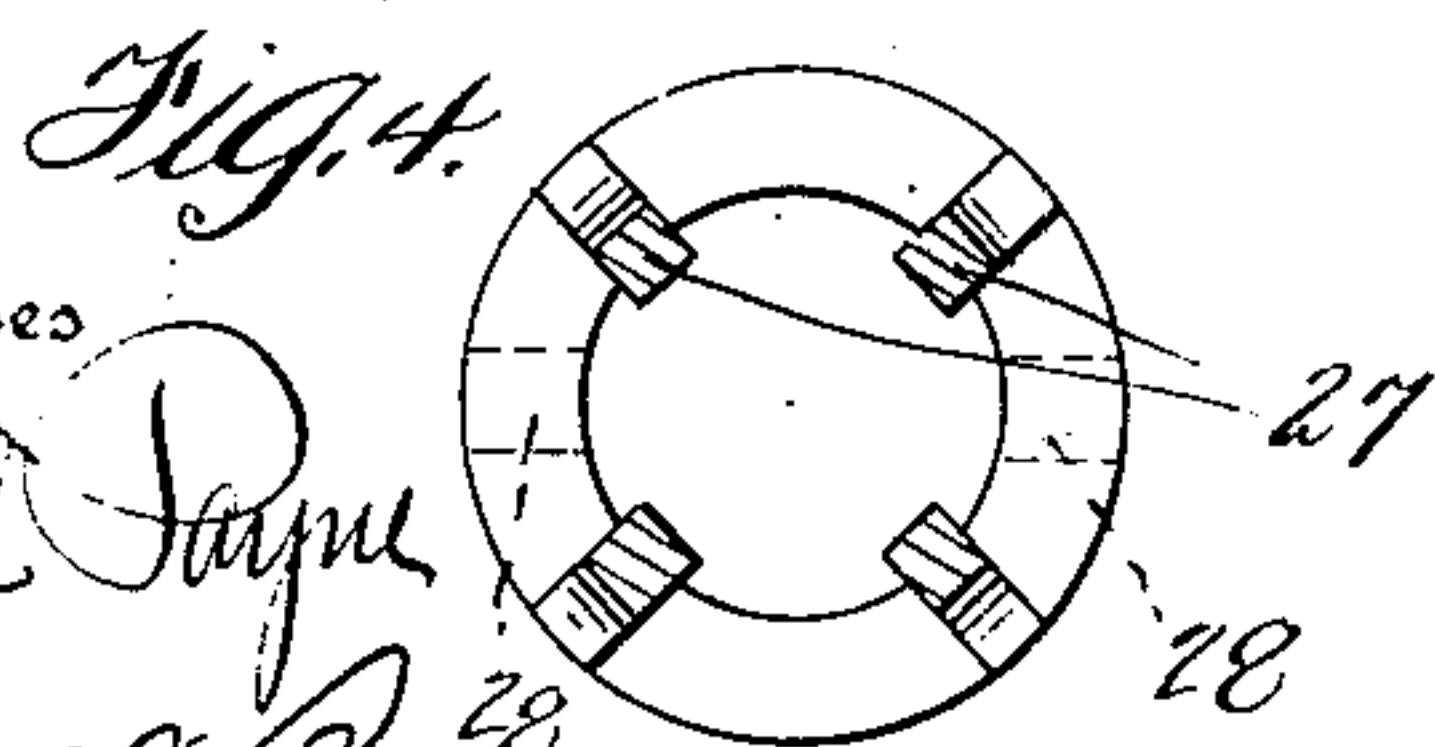


Fig. 4.

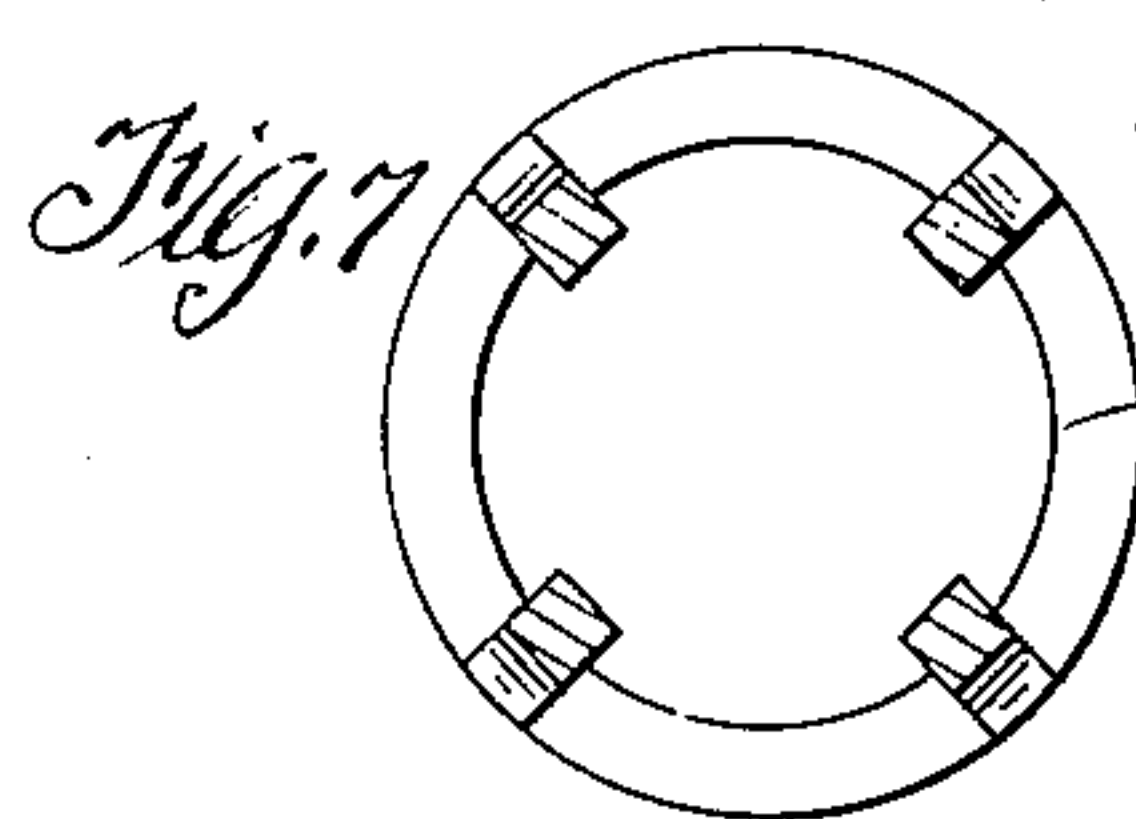


Fig. 7.

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3 SHEETS—SHEET 3.

Fig. 9.

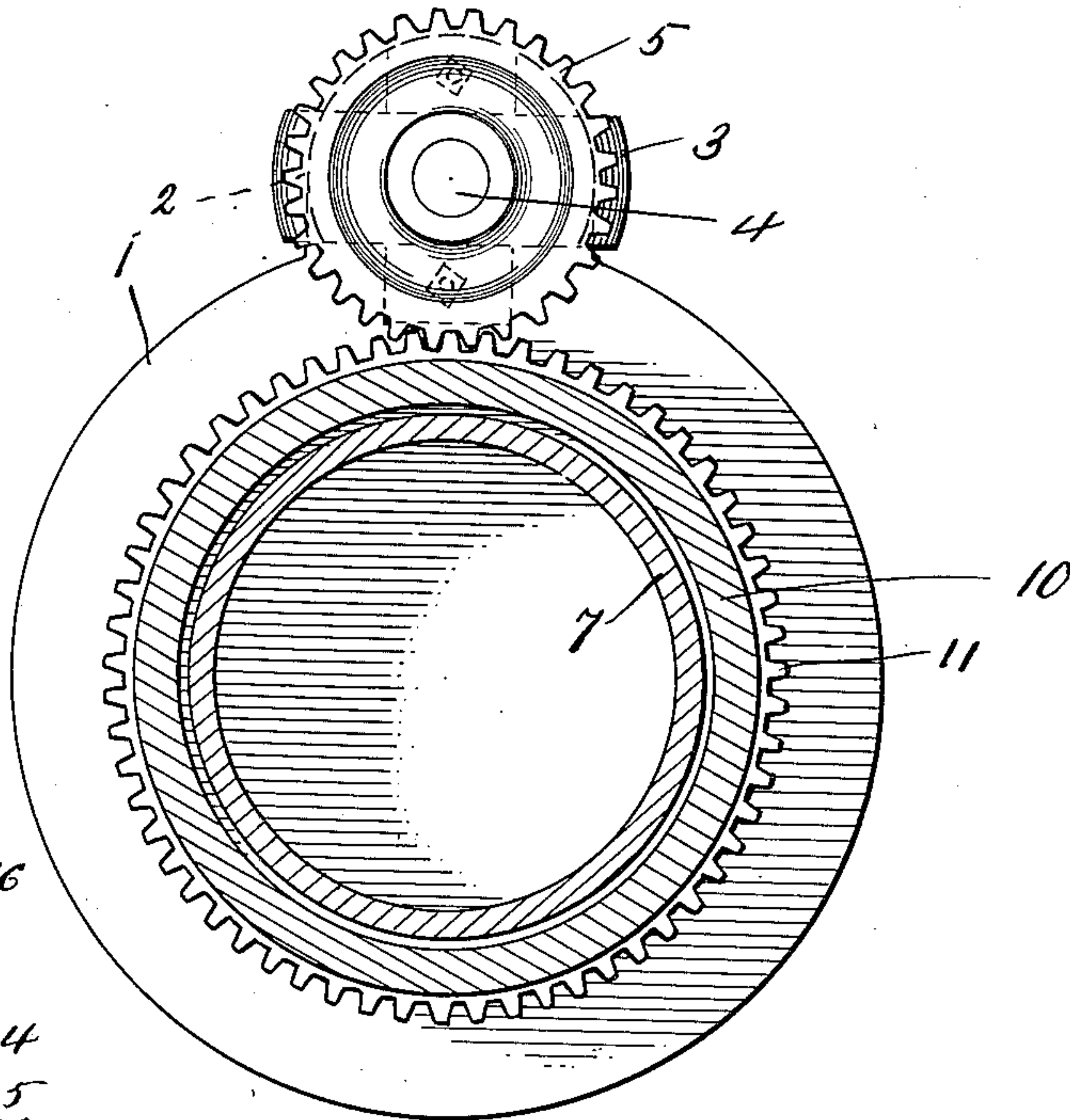


Fig. 10.

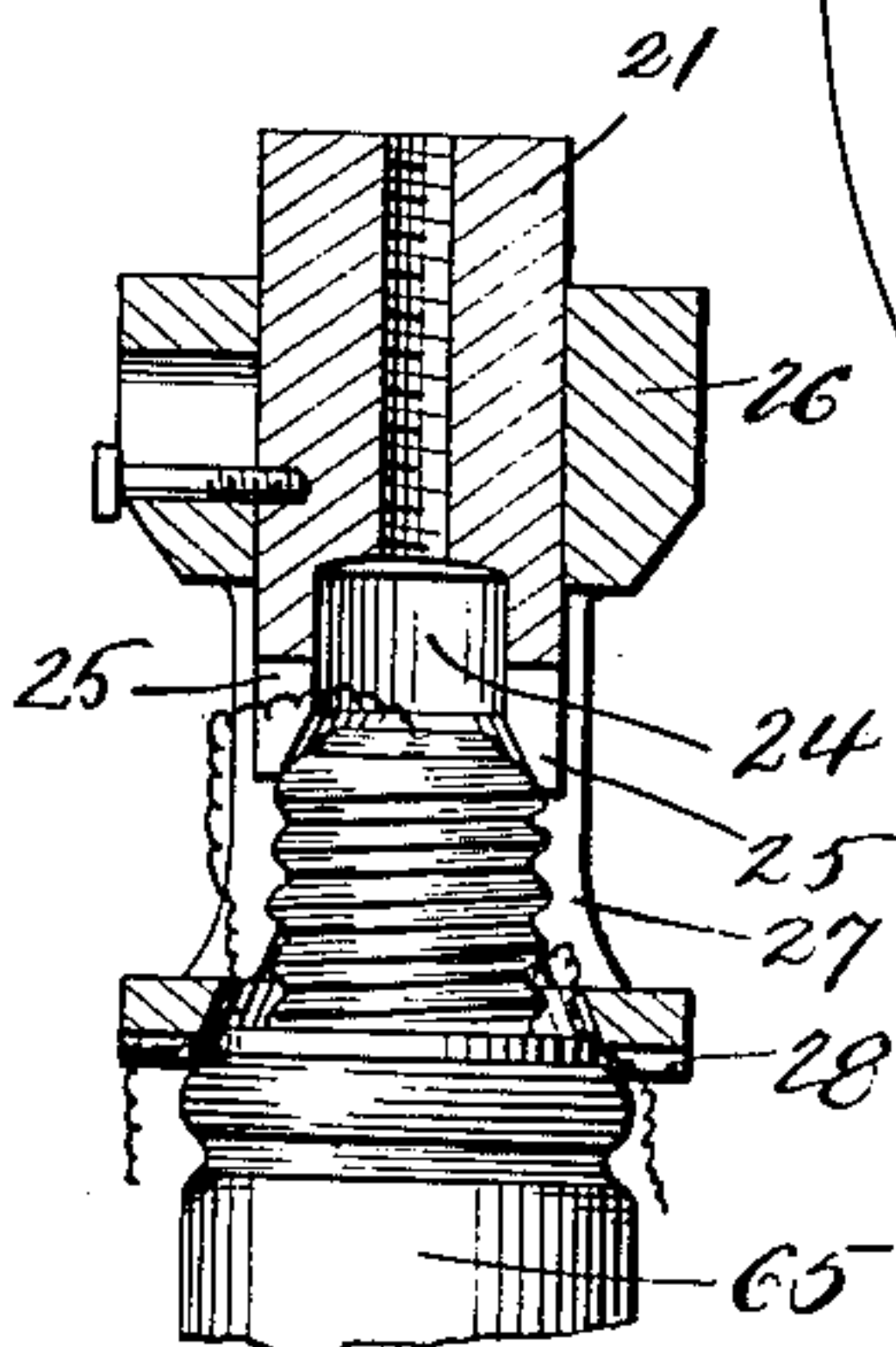


Fig. 11.

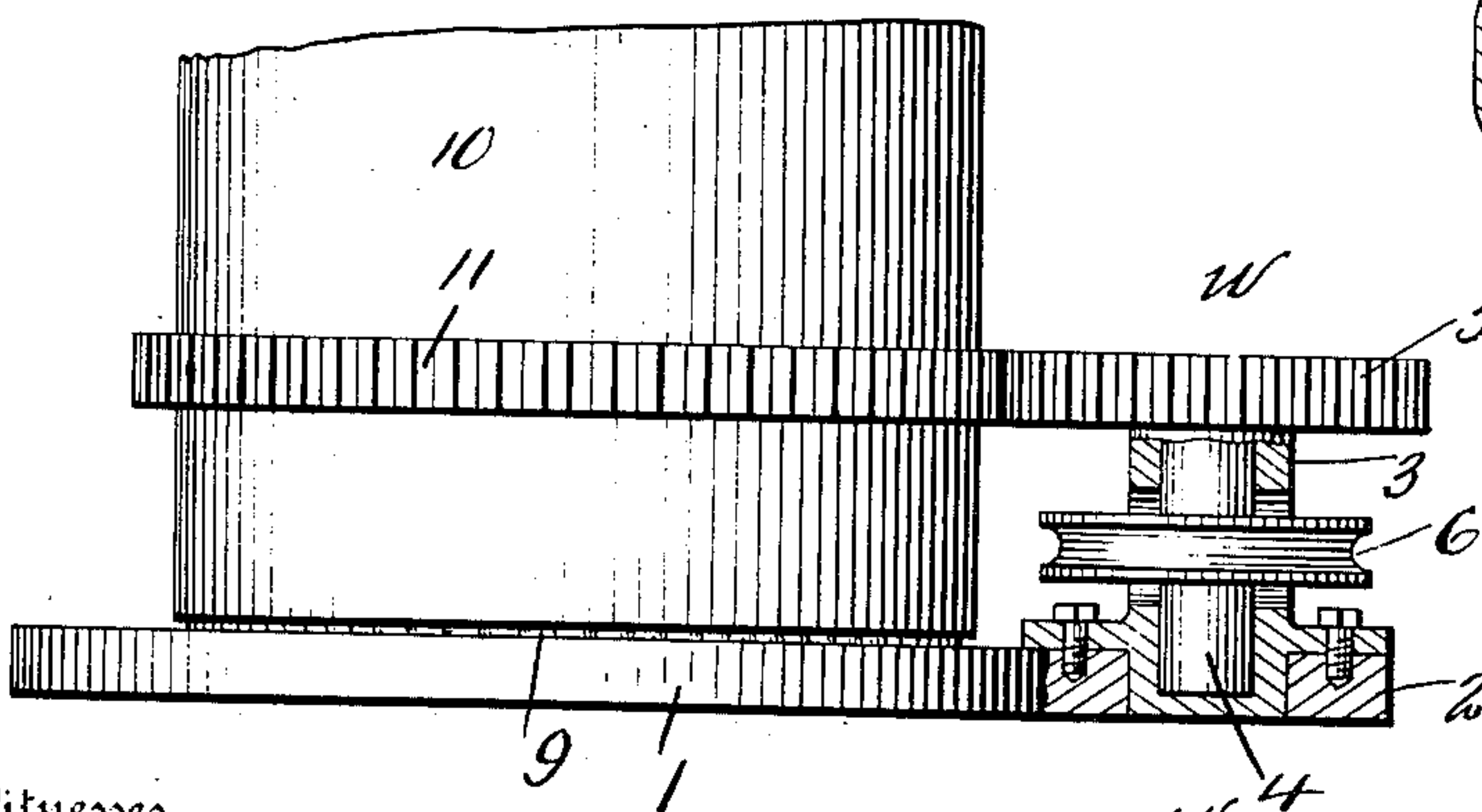
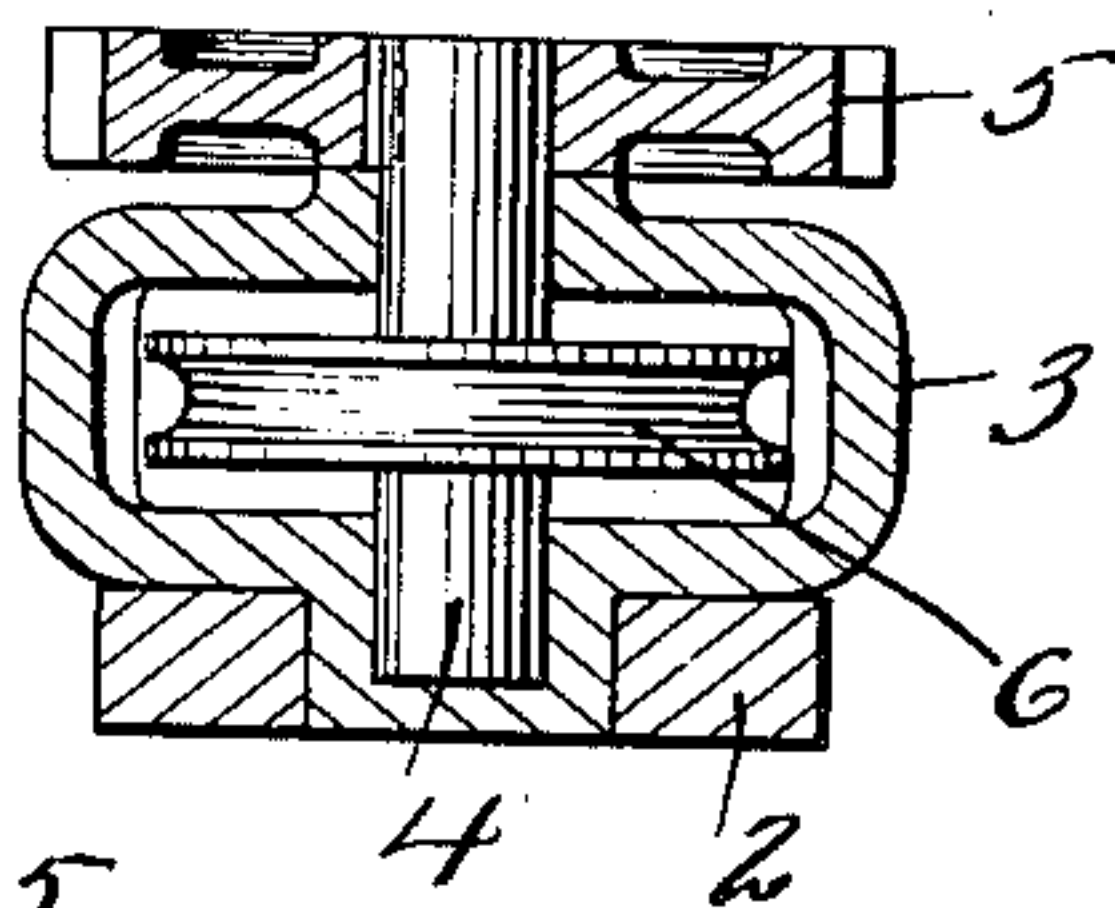


Fig. 12.



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CAPPING-MACHINE FOR INCANDESCENT BULBS.

935,503.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed February 27, 1909. Serial No. 480,351.

To all whom it may concern:

Be it known that I, THOMAS J. HETHERINGTON, a citizen of the United States of America, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Capping-Machines for Incandescent Bulbs, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a capping machine for incandescent bulbs, and the object of the invention is to provide a novel machine for expeditiously and economically sealing caps upon incandescent bulbs of various sizes.

A further object of the invention is to provide a machine for simultaneously capping a plurality of bulbs, the machine being adjustable for various sizes and types of bulbs.

With the above and other objects in view, which will more readily appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts to be presently described and then claimed.

In the drawings, Figure 1 is a vertical sectional view of a machine constructed in accordance with my invention, Fig. 2 is a plan of the same, partly broken away and partly in section, Fig. 3 is a vertical sectional view of a socket forming part of the machine, the socket being designed for small bulbs, Fig. 4 is a horizontal sectional view of the socket, Fig. 5 is a bottom plan of a portion of the socket, Fig. 6 is a vertical sectional view of a socket designed particularly for large bulbs, Fig. 7 is a horizontal sectional view of the same, Fig. 8 is a bottom plan of a portion of the socket, Fig. 9 is a horizontal sectional view taken on the line X—X of Fig. 1, Fig. 10 is a vertical sectional view of a small socket illustrating a large bulb projecting into said socket, Fig. 11 is a side elevation of a portion of the machine illustrating the driving mechanism, Fig. 12 is a transverse sectional view taken on the line W—W of Fig. 11.

In the drawings, 1 designates a base plate having an extension 2, provided with a fixed yoke 3 for a vertical shaft 4. Upon said shaft are mounted a pinion 5 and a grooved pulley 6, the latter being driven by a belt or cable from a suitable source of power, (not shown).

7 designates a central tubular standard

carried by the base plate 1, and surrounding said standard is a ball-race 8, which is formed in the base plate 1, for a plurality of anti-frictional bearings 9. These bearings revolubly support a cylindrical casing 10, and said casing is provided adjacent to the lower end thereof with a circular rack 11 meshing with the horizontal pinion 5.

12 designates an annular ball-race formed in the upper end of the casing 10, for anti-frictional bearings 13, which are retained within said ball race by a circular cover plate 14 fixed upon the upper end of the standard 7 by set screws 15.

16 designates a plurality of radially disposed brackets carried by the upper end of the casing 10 said brackets supporting a circular socket holder 17, the lower vertical wall 18 of which is provided with a plurality of openings 19.

Secured to the horizontal portion 20 of the circular holder 17 are a plurality of sockets 21 and 22, these sockets being designed for various sizes of incandescent bulbs, but it is in this connection that I desire it to be understood that the sockets 21 can be used throughout the machine or sockets 22. The sockets 21 are secured in place by screws 23 and the lower end of each socket is recessed, as at 24, and provided with oppositely disposed slots 25. Embracing the sockets 21 are adjustable collars 26 supporting depending cages 27, the lower ends of which are provided with oppositely disposed grooves 28. The sockets 22 conform in shape to inverted cups, and the inner sides of said sockets are provided with diametrically opposed vertical grooves 29 while the lower ends of said sockets are recessed as at 30, and slotted as at 31. In connection with the sockets 22 collars 32 are used, each collar supporting a depending cage 33.

Suspended from two oppositely disposed brackets 16, by adjustable hangers 34, is a circular platform 35 having a central sleeve 36 surrounding the casing 10. In the platform 35 are mounted a plurality of circumferentially arranged vertical stems 37 having the upper ends thereof provided with detachable cups 38, while the lower ends thereof are provided with heads or handles 39. Interposed between cups 38 and the platform 35 and encircling the vertical rods 37 are coil springs 40 for normally maintaining the cups 38 in an elevated position.

41 designates a central post carried by the

cover 14, the upper end of said post being bifurcated as at 42, for a pivot lever 43, retained in the bifurcation of said post by a pivot pin 44. One end of said lever 43 is connected by a link 45 to a post 46 secured to a spider frame 47. The spider frame 47 comprises four arms extending into the plane of a semi-circle and connected to the arms of said spider frame by screws 48 is a burner casing 49 conforming in cross section to an inverted channel. The inner side of the burner casing 49 is provided with brackets 50 supporting inner and outer gas burners 51 and 52, said burners having the confronting sides thereof perforated, as at 53, to project a flame centrally of the burner casing 49. The gas burners 51 and 52 are connected by pipes 54 to a hose or flexible connection 55 adapted to supply gas to the burners from a suitable source.

56 designates an arm fixed to the post 41 above the spider frame 47, and the outer end of this arm is provided with a post 57 to which is pivotally connected a slotted link 58. The slotted link 58 is connected by a screw 59 and a nut 60 to the lever 43. The arm 56, post 57, link 58, screw 59 and nut 60 constitute means for holding the lever 43 and the burner casing 49 in an adjusted position, it being possible through the medium of this means to shift the burner casing relative to the socket holder, consequently the flame of the burners can be made to play upon any part of the sockets desired.

Referring now to Figs. 1, 3, 4 and 5, showing the socket designed for small incandescent bulbs, it will be observed that the bulb 61 is supported in the cup 38 and extends upwardly into the cage 27 and the recess 24 of the socket 21. As the wires on a small incandescent bulb generally protrude from the end of said bulb, the slots 25 provide clearance for these wires, which I have designated 62, and said wires are adapted to extend downwardly through the cage 27 and through the grooves 28 thereof, the wires being held to prevent interference while the bulbs are carried around in the burner casing, as will hereinafter appear.

Referring now to Fig. 1 in connection with Figs. 6, 7 and 8, it will be observed that the socket 32 provides greater clearance for the cap of the large bulb 63, and that the wires are arranged slightly different owing to the fact that only one wire leaves the end of the cap, while the other wire leaves the side of the cap.

The bulbs 61 and 63 are provided with caps 64 and 65 respectively, and those portions of the caps exposed within the cages 27 and 33 are subjected to the flame action of the burners 51 and 52 as the socket holder is revolved through the burner casing 49. The caps 64 and 65 are secured to the bulbs 61 and 63 by cement and in order that the

cement can be quickly dried, I have devised my machine. Any suitable cement can be employed, but preferably the cement used consists of two parts whiting, three parts marble dust, and sufficient shellac to make an adhesive material. The same is applied to the caps manually by the use of a knife or brush and the bulb is set in position prior to passing the same to the machine.

Assuming that the cap has been placed in position upon the bulb 61, the attendant of the machine grips the handle 39 and lowers the cup 38, said cup assisting in properly centering the cap 64 to enter into the socket 26. As the handle 39 is gradually released, the spring 40 raises the bulb and retains the same in engagement with the cage 27, while the cap extends into the recess 24 of the socket 21. Assuming further that the burner casing 49 has been properly positioned whereby the flames of the burners 51 and 52 will impinge the caps at the proper point to dry the cement, the machine is placed in operation. As the casing 10 is revolved, the sockets are carried through the burner casing 49; the platform 35 being movable with the brackets 16 through the medium of the adjustable rods 34.

By simply using a semi-cylindrical or annular burner casing, it is possible for the attendant of the machine to easily load one half of the sockets, and by using two different sizes or types of sockets in connection with one machine, it is easy for the attendant to determine which set has been properly treated within the burner casing 49, but as heretofore stated, the machine can be provided with sockets of one size.

In some instances, a large bulb can be placed in a small cage by simply using a long socket as shown in Fig. 1 of the drawings.

It is thought that the operation and utility of my machine will be apparent without further description, and while in the drawings forming a part of this application there is illustrated the preferred embodiments of the invention, it is to be understood that the detail construction thereof can be varied or changed as to shape, proportion and manner of assemblage without departing from the spirit of the invention.

Having now described my invention what I claim as new, is:—

1. In an incandescent bulb capping machine, the combination of a standard, a revoluble casing surrounding said standard, a plurality of radially disposed brackets carried by said casing, an annular socket holder supported by said brackets, a plurality of depending sockets carried by said holder, a cage carried by each socket, diametrically opposed hangers carried by two of said brackets, a platform supported by said hangers and surrounding said casing, a plurality

of spring supported cups carried by the platform for holding said bulbs in the cages of said sockets, a post supported by the upper end of said standard, a lever pivotally mounted in said post, a semi-cylindrical burner casing supported by said lever and inclosing a portion of said socket holder, inner and outer semi-cylindrical gas burners arranged in said burner casing for projecting a flame against the cages of said sockets, means carried by said post and connecting with said lever for holding said burner casing in an adjusted position, and means located at the base of said standard for revolving said casing.

2. In an incandescent bulb capping machine, the combination of a standard, a revoluble casing surrounding said standard, brackets carried by said standard, an annular socket holder supported by said brackets, a plurality of depending sockets carried by said holder, a cage carried by each socket, a platform suspended from said brackets and surrounding said casing, a plurality of spring supported cups carried by said platform for holding incandescent bulbs in engagement with said cages, a post supported by the upper end of said standard, a lever carried by said post, a semi-cylindrical burner casing suspended from said lever and guided by said post, gas burners arranged within said gas burner casing for projecting a flame against the cages of said sockets, means carried by said post for locking said lever in an adjusted position, and means arranged at the base of said standard for revolving said casing.

3. In an incandescent bulb capping machine, the combination of a standard, a revoluble casing surrounding said standard, an annular socket holder supported from said casing, a plurality of circumferentially arranged sockets carried by said holder, a cage carried by each socket, a platform suspended beneath said holder, circumferentially arranged movable cups carried by said platform for holding the bulbs in the sockets of said holder, a post carried by the upper end of said standard, a lever pivotally mounted in said post, a burner casing suspended from said lever, gas burners arranged in said casing for projecting a flame against the cages of said sockets, means carried by said post for holding said lever and burner casing in an adjusted position, and means arranged at the base of said standard for revolving said casing.

4. In an incandescent capping machine, the combination of a standard, a revoluble casing surrounding said standard, an annular socket holder supported from said casing, a plurality of circumferentially arranged sockets carried by said holder, a cage carried by each socket, a platform suspended beneath said holder, circumferentially ar-

ranged movable cups carried by said platform for holding said bulbs in the sockets of said holder, a post carried by the upper end of the standard, a lever pivotally mounted in said post, a burner casing suspended from said lever, gas burners arranged in said casing for projecting a flame against the cages of said sockets, and means carried by said post for holding said lever and burner casing in an adjusted position.

5. In an incandescent bulb capping machine, the combination of a standard, a revoluble casing surrounding said standard, an annular socket holder supported from said casing, a plurality of circumferentially arranged sockets carried by said holder, a cage carried by each socket, a platform suspended beneath said holder, circumferentially arranged movable cups carried by said platform for holding the bulbs in the sockets of said holder, a post carried by the upper end of said standard, a lever pivotally mounted in said post, a burner casing suspended from said lever, and gas burners arranged in said casing for projecting a flame against the cages of said sockets.

6. In an incandescent bulb capping machine, the combination of a standard, a revoluble casing surrounding said standard, an annular socket holder supported by the upper end of said casing, sockets carried by said holder, a cage carried by each socket, a platform suspended beneath said holder, movable cups carried by said platform for holding the bulbs in engagement with the cages of said sockets, a semi-cylindrical burner casing inclosing a portion of said holder, gas burners arranged within said casing for projecting a flame against the cages of said sockets, means arranged at the upper end of said standard for adjusting said burner casing, and means arranged at the lower end of said casing for revolving said casing.

7. In an incandescent bulb capping machine, the combination of a standard, a revoluble casing surrounding said standard, an annular socket holder supported by the upper end of said casing, sockets carried by said holder, a cage carried by each socket, a platform suspended beneath said holder, movable cups carried by said platform for holding the bulbs in engagement with the cages of said sockets, a semi-cylindrical burner casing inclosing a portion of said holder, gas burners arranged within said casing for projecting a flame against the cages of said sockets, and means arranged at the upper end of said standard for adjusting said burner casing.

In testimony whereof I affix my signature in the presence of two witnesses.

THOMAS J. HETHERINGTON.

Witnesses:

MAX H. SROLOVITZ,
A. J. TRIGG.