

No. 714,951.

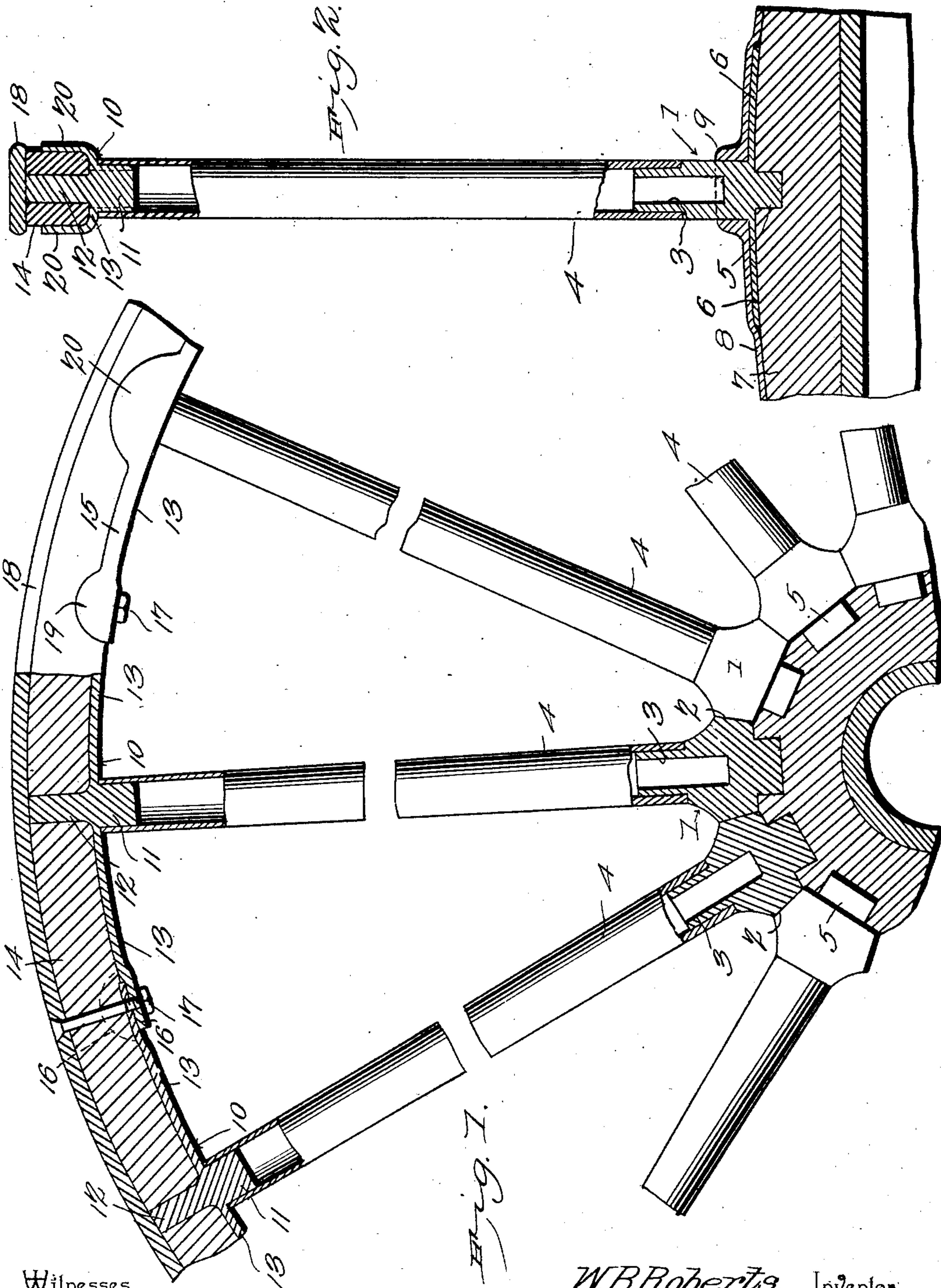
Patented Dec. 2, 1902.

W. B. ROBERTS.
SPOKE SOCKET.

(Application filed Apr. 25, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
E. F. Stewart
J. H. Riley

Fig. 1.
by *W. B. Roberts*, Inventor.
C. A. Snow
Attorneys

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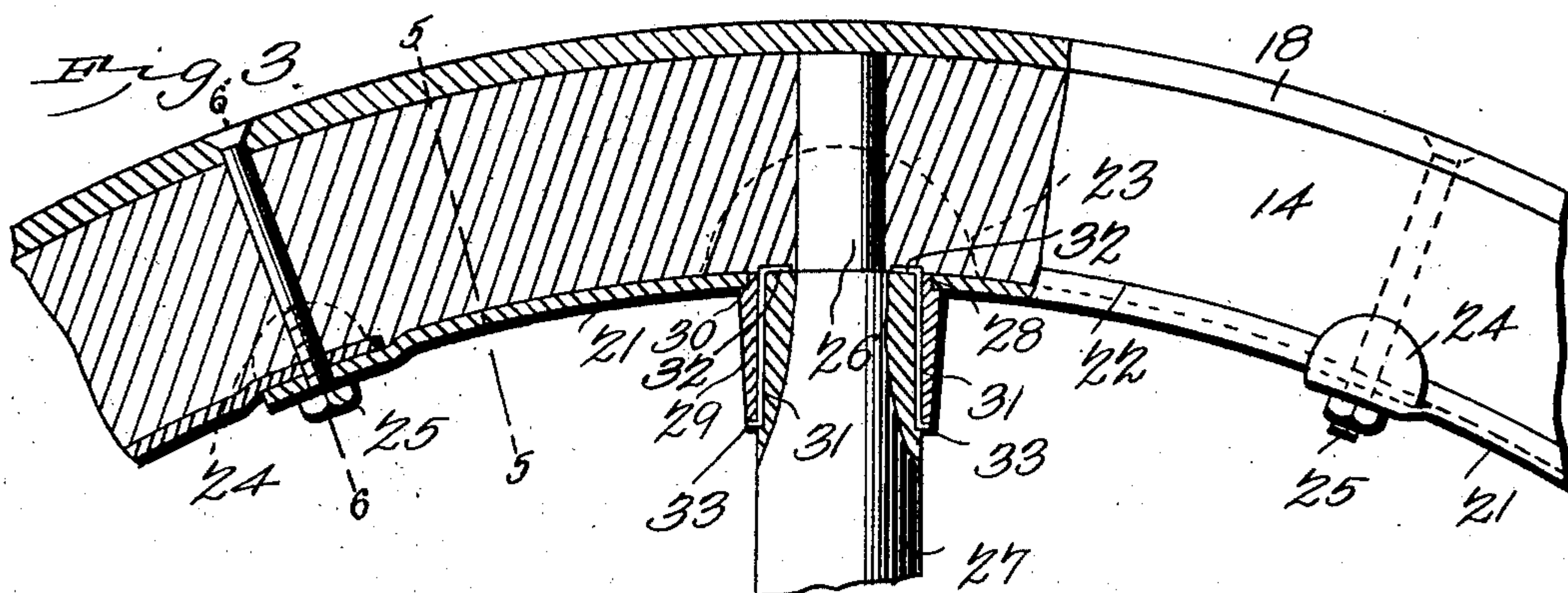


Fig. 6.

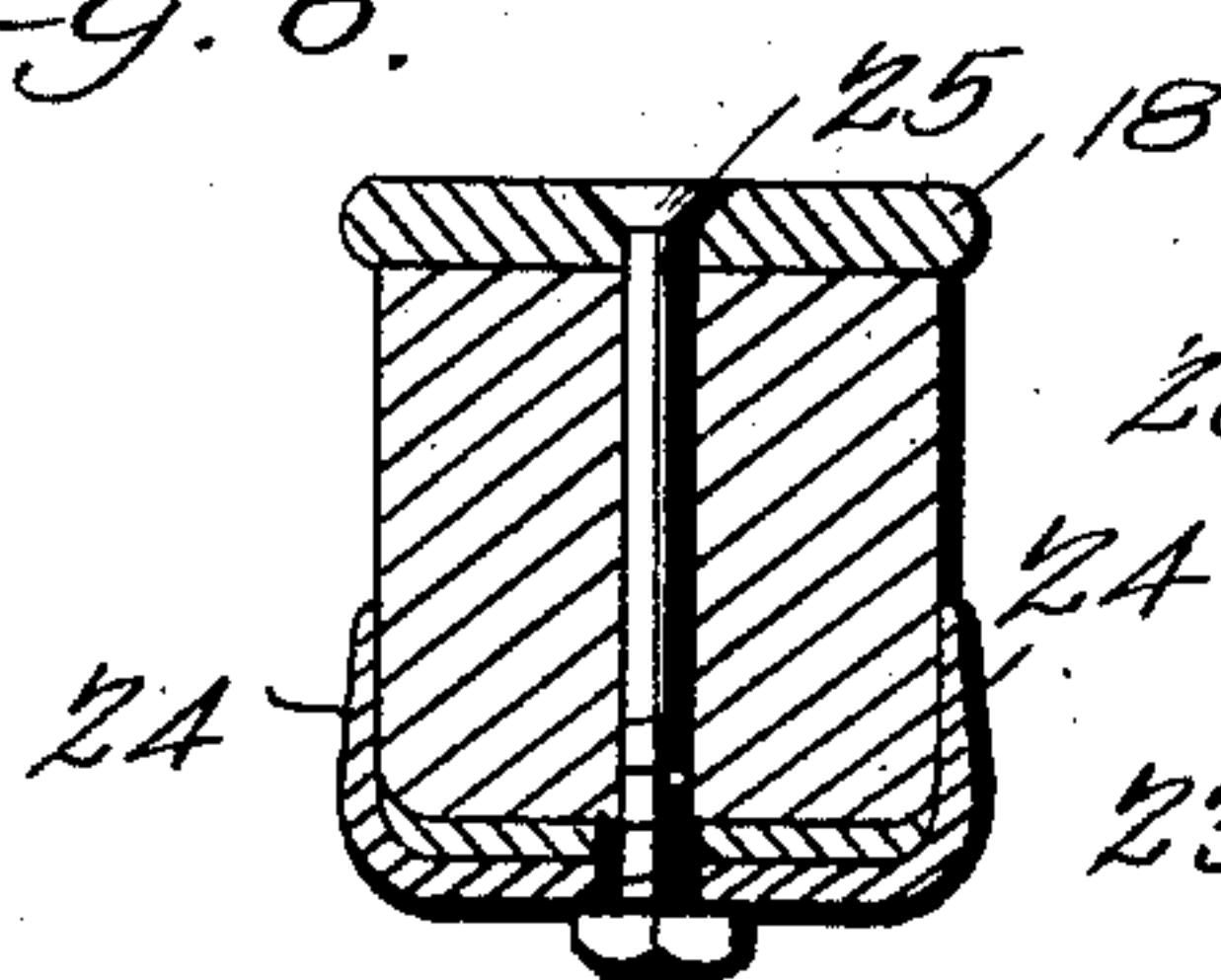


Fig. 4.

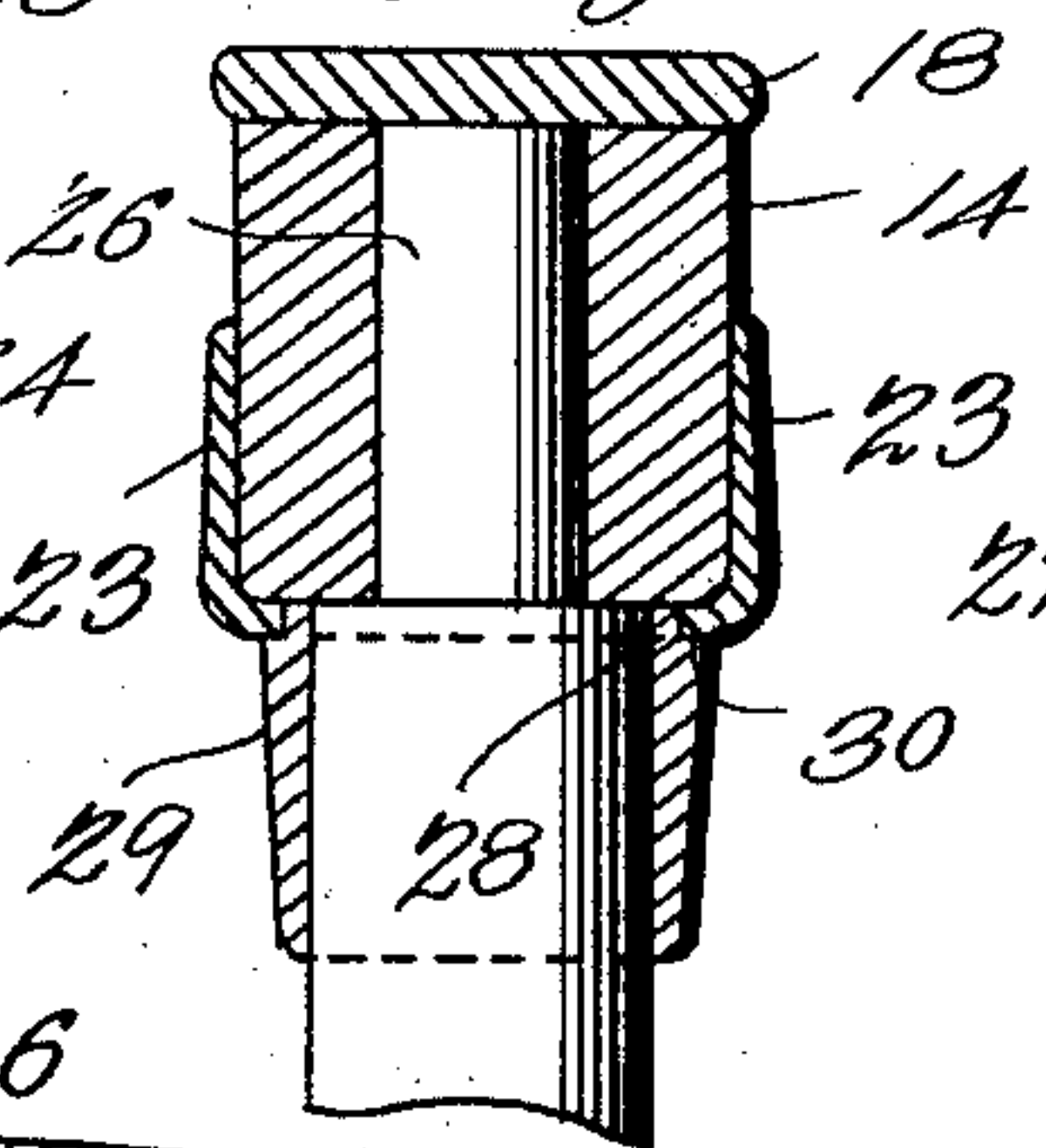


Fig. 5.

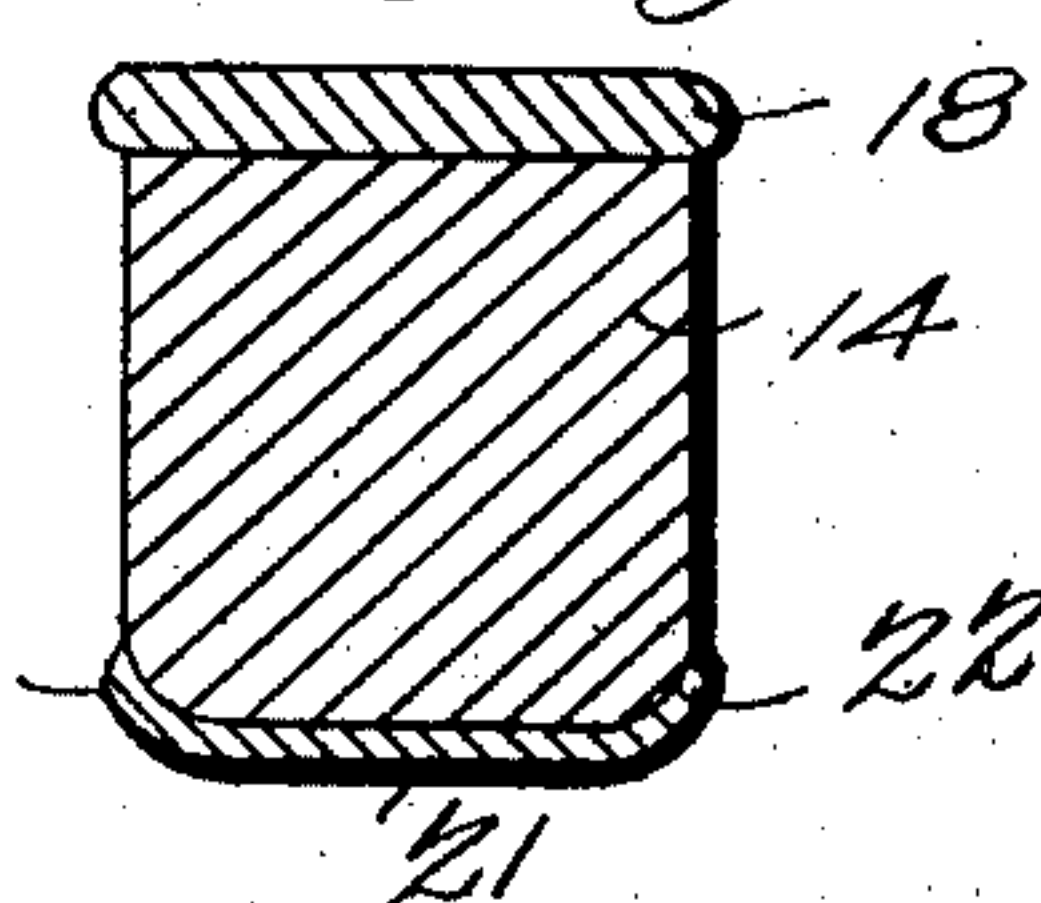


Fig. 7.

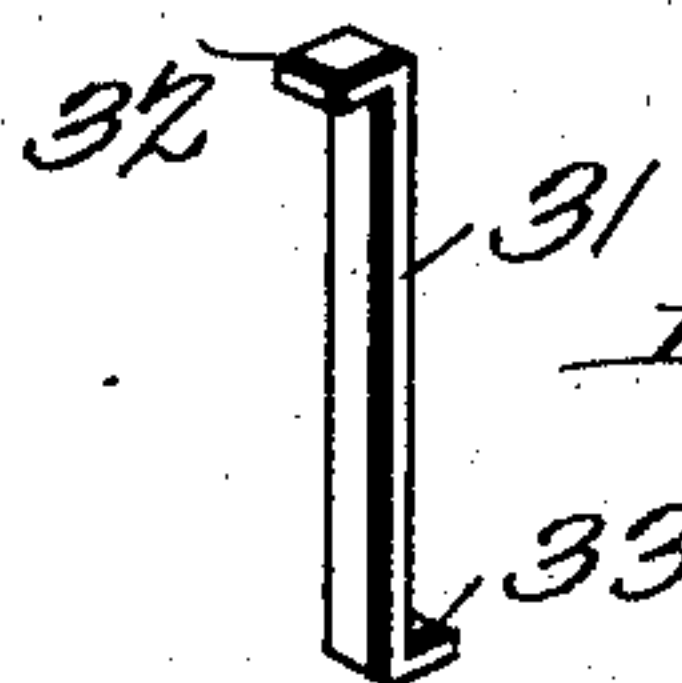
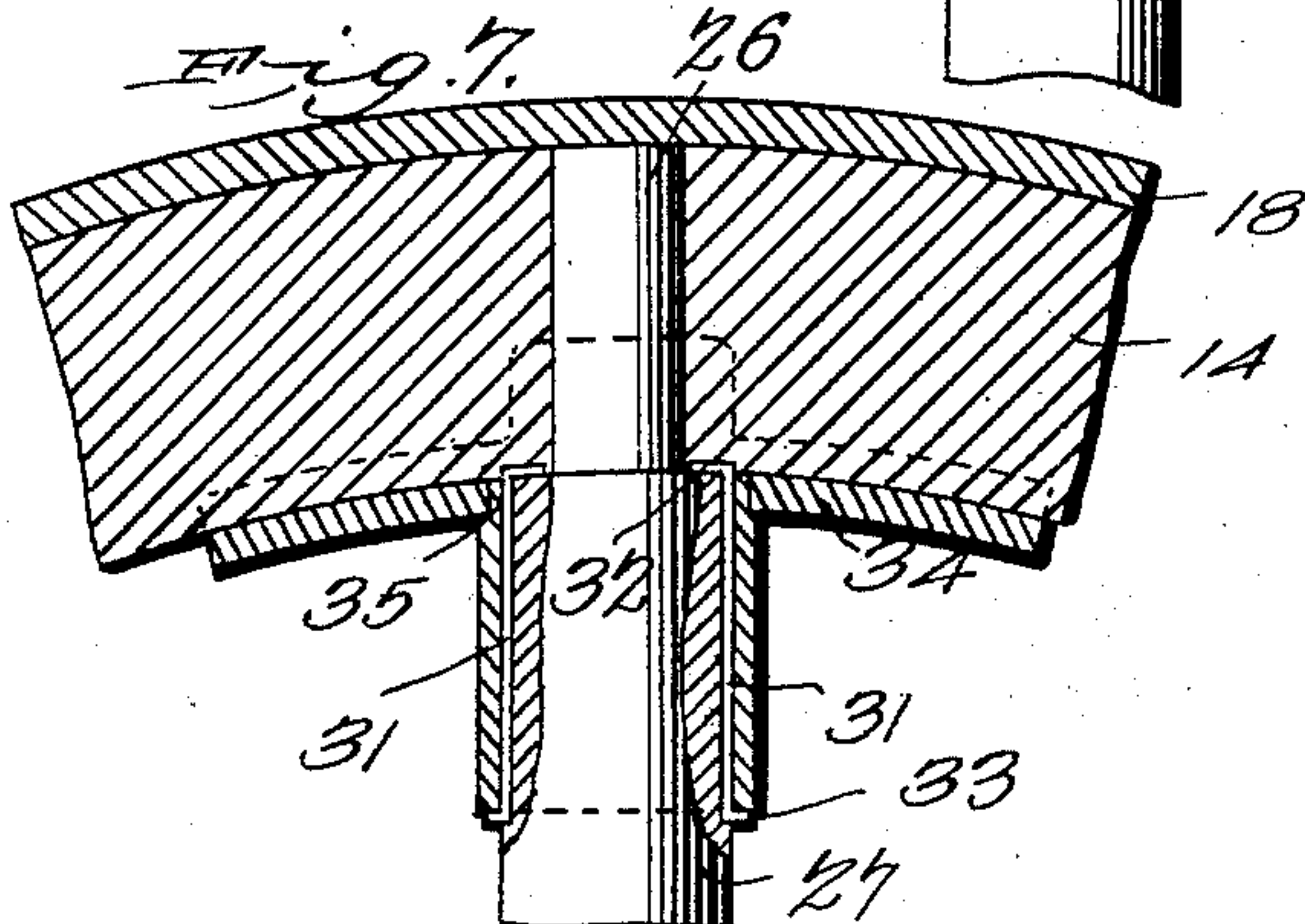


Fig. 8.

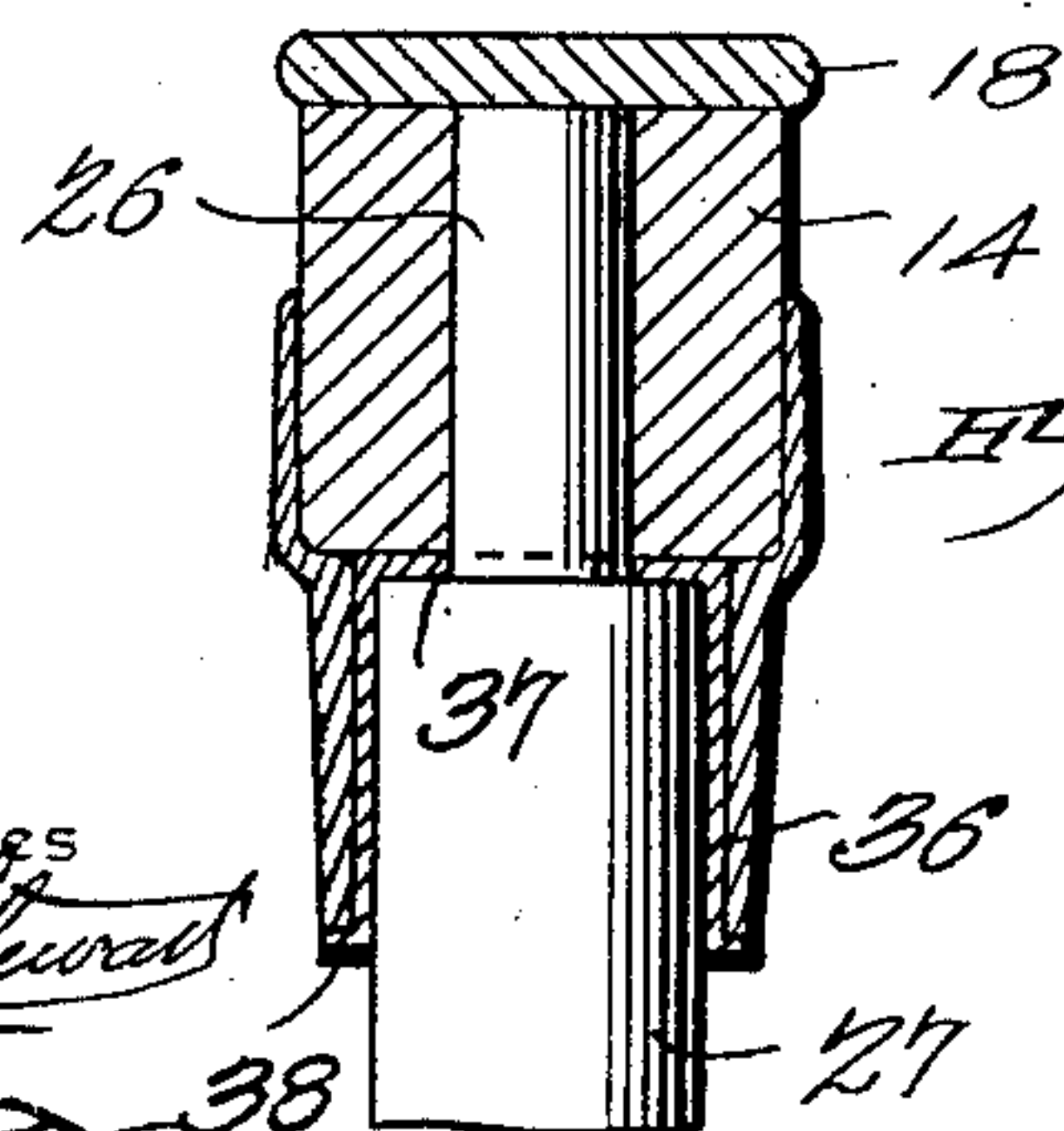
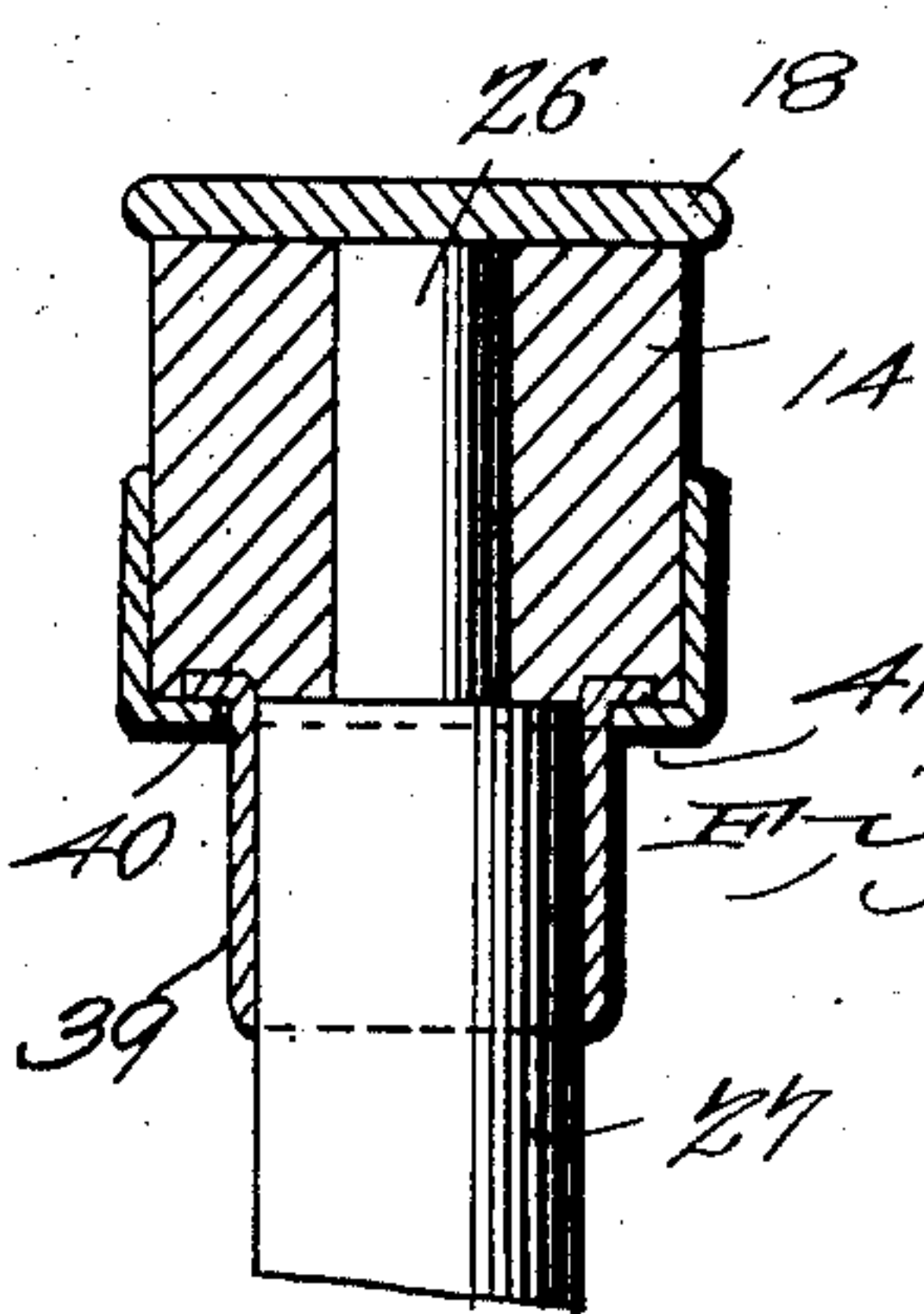


Fig. 9.

Fig. 10.

Witnesses
C. H. Stewart
J. F. Riley

W. B. Roberts, Inventor.
by C. H. Snow & Co. Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM B. ROBERTS, OF WASHINGTON, DISTRICT OF COLUMBIA.

SPOKE-SOCKET.

SPECIFICATION forming part of Letters Patent No. 714,951, dated December 2, 1902.

Application filed April 25, 1902. Serial No. 104,699. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. ROBERTS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Spoke-Socket, of which the following is a specification.

The invention relates to improvements in spoke-sockets.

The object of the present invention is to improve the construction of wheels, more especially the means for connecting the outer ends of the spokes to the felly, and to provide a simple and comparatively inexpensive spoke-and-felly connection adapted to increase the strength of a wheel at that point and capable of protecting the felly and of supporting and stiffening the same, whereby the felly may be constructed of wood, paper, or other material.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a side elevation, partly in section, of a portion of a wheel constructed in accordance with this invention. Fig. 2 is a sectional view of the same. Fig. 3 is a sectional view of a portion of a wheel, illustrating another form of the spoke-and-felly connection. Fig. 4 is a sectional view of the same, taken longitudinally of the spoke. Fig. 5 is a detail sectional view on the line 5 5 of Fig. 3. Fig. 6 is a similar view on the line 6 6 of Fig. 3. Fig. 7 is a sectional view illustrating a slight modification of the form of spoke-socket illustrated in Fig. 3. Fig. 8 is a detail view of one of the brackets for supporting the sleeve of the spoke-socket from the shoulder at the outer end of the spoke. Fig. 9 is a detail sectional view illustrating another form of bracket for supporting a sleeve or band. Fig. 10 is a similar view illustrating another construction of band or sleeve.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates an inner spoke-socket having a tapering body portion 2 and provided with an outer portion 3, adapted to fit in the inner end of a tubular spoke 4, which is welded

or brazed to the spoke-socket. The inner spoke-socket, which has a tenon 5 at its inner end, is provided at opposite sides with flanges or ears 6, designed to be arranged in recesses of a hub 7 and to be engaged by bands 8, shrunk or otherwise mounted on and secured to the hub, as clearly shown in Fig. 2 of the drawings. The tenons 5 are received in suitable recesses or mortises of the hub, and the bands 8 are preferably flanged at their inner edges at 9 to fit against the tapering portions 2 of the sockets. These tapered portions fit together and form a continuous brace extending entirely around the hub of the wheel; but instead of employing sockets, as shown in Figs. 1 and 2, any other suitable form of socket may be provided for the inner end of the tubular spoke. The outer end of the tubular spoke is connected with the rim of the wheel by means of an outer spoke-socket element 10, consisting of an inwardly-extending spoke-supporting portion 11, an outwardly-extending tenon 12, and arms 13, extending in opposite directions from the spoke-socket element and arranged on the outer face of the felly 14 and provided with outturned side edges forming narrow flanges 15, which embrace the side faces of the felly adjacent to the inner face thereof. These narrow side flanges protect the inner face of the felly and prevent the same from being chipped or otherwise injured at that point, and they also stiffen and strengthen the arms. The arms extend slightly beyond the center of the space between two spokes and are provided at their ends with overlapping perforated portions or ears 16, through which pass tire-bolts 17, extending through the said ends, the felly-section, and the tire 18. The outer ends of the arms are engaged by nuts of the bolts 17, which have their heads countersunk in the tire, and the felly is supported at this point by ears or flanges 19, arranged in pairs and preferably formed integral with one of the overlapped ends of the arms; but they may be arranged in any other suitable manner.

The spoke-supporting portion 11, which extends inward from the rim of the wheel, is received within the outer end of the tubular spoke, which is brazed, welded, or otherwise secured to the same, and the tenon 12 is arranged within a suitable mortise or opening

of the felly, which is supported at this point by means of side flanges or ears 20, formed integral with the socket element and embracing the felly, as clearly shown in Fig. 2.

5 In Figs. 3 to 6, inclusive, of the accompanying drawings is illustrated another form of spoke-socket, in which the arms for supporting the felly are formed by a separate plate 21, provided with narrow side flanges 22 and having
10 central and end ears or flanges 23 and 24 for supporting the felly at the points where the same is perforated for the reception of the tire-bolts 25 and the tenon 26 of the spoke 27. The ends of the plate are perforated to receive the tire-bolts, and they overlap similar
15 to the ends of the arms heretofore described. The plate, which forms a pair of arms, is provided with a central opening 28 to receive a reduced end of a sleeve 29, which fits around
20 the outer end of the spoke and forms a socket for the same and which fits into the opening 28. The reduced end forms an annular groove or seat 30 for the reception of the plate 21, which is engaged by the shoulder of
25 the seat, and the sleeve 29 is supported from the shoulder of the outer end of the spoke by means of a bracket 31. The bracket 31 consists of a straight body portion and oppositely-disposed arms 32 and 33, the body portion being arranged within the sleeve between
30 the same and the spoke. The spoke 27 is constructed of wood and is reduced at its outer end in the usual manner to form the tenon 26, the shoulder formed by the reduction being engaged by the arm 32, which is
35 longer than the arm 33, and the latter engages the inner edge of the sleeve. The brackets 31 are designed to be located at opposite sides of the sleeve, and they connect
40 the latter with the spoke without perforating the same. The brackets 31 may be constructed of any suitable material, and when the parts are assembled they are firmly interlocked and a construction of great strength
45 and durability is provided.

Instead of extending the plate which forms the arms to the center of the space between the spokes a short plate 34 may be employed, as illustrated in Fig. 7 of the accompanying
50 drawings. This plate is provided with an opening 35, similar to the opening 28 of the plate 21, and it is interlocked with a sleeve and is connected with the spoke by brackets constructed as before described. The plate
55 34 is provided at opposite sides of the opening 35 with flanges or ears for embracing the sides of the felly and for supporting the latter at the point where the same is perforated for the reception of the tenon of the spoke.
60 If desired, the arms of the socket element (illustrated in Fig. 1 of the drawings) may be shortened, as shown in Fig. 7, instead of extending them to the center of the spaces between the spokes and connecting them to
65 form a continuous support or brace for the felly.

In Fig. 9 of the drawings is illustrated an-

other form of bracket for supporting the sleeve or band, and this bracket 36 consists
70 of two side portions and a connecting transverse portion 37, having an opening for the tenon of the spoke and interposed between the shoulder of the spoke and the felly. The sides of the bracket 36 are provided with outwardly-extending arms 38 for engaging the
75 band or sleeve, which is formed integral with the plate. The double bracket operates to hold the plate and the integral sleeve or band to the felly, and it obviates the necessity of otherwise securing the plate to the wheel.
80 The sleeve or band 39 (shown in Fig. 10) is supported by means of an annular flange 40, arranged at the inner face of the plate 41. The sleeve or band is passed through the opening of the plate 41, and the flange 40 is
85 interposed between the plate and the felly, whereby the sleeve or band is securely interlocked with the plate.

Instead of forming the tenon 12 integral with the spoke-supporting portion 11 it may
90 be made of a separate piece, as indicated in dotted lines in Fig. 2 of the drawings, and be welded or brazed to the same.

What I claim is—

1. In a device of the class described, the
95 combination with a felly, of a spoke-socket element provided with an inwardly-extending spoke-supporting portion arranged to receive the outer end of a spoke, and arms extending in opposite directions from the spoke-
100 supporting portion to the center of the spaces between the spokes, whereby the arms are adapted to be overlapped and secured to the felly, substantially as described.

2. In a device of the class described, the
105 combination with a felly, and spokes, of spoke-socket elements provided with inwardly-extending spoke-supporting portions receiving the outer ends of the spokes, arms extending in opposite directions from the spoke-
110 supporting portions to the center of the spaces between the spokes and having overlapped perforated portions, and fastening devices passing through the perforations of the overlapped ends of the arms and securing the
115 same to the felly, substantially as described.

3. In a device of the class described, the combination with a felly, and spokes, of spoke-socket elements having inwardly-extending
120 spoke-supporting portions receiving the outer ends of the spokes, arms extending in opposite directions from the spoke-supporting portions to the center of the spaces between the spokes and having overlapped perforated portions, fastening devices passing through
125 the perforations of the overlapped ends of the arms and securing the same to the felly, and the outer side ears or flanges carried by the outer ends of the arms and supporting the felly at the perforated portions thereof,
130 substantially as described.

4. In a device of the class described, the combination with a felly, and a spoke having
a tenon extending into the felly, of a spoke-

socket element comprising a plate arranged at the inner face of the felly and extending in opposite directions from the spoke to form arms, and a sleeve mounted on the spoke and detachably interlocked with the plate, and provided with means for holding it in engagement with the plate, said means being provided adjacent to the inner end of the tenon with a projecting engaging portion arranged at right angles to the sleeve, substantially as described.

5. In a device of the class described, the combination with a felly, and a spoke having a tenon extending into the felly, of a spoke-socket element comprising a plate having a central opening and arranged at the inner face of the felly and forming arms, a sleeve mounted on the spoke, and fitted against the plate, and a bracket extending through the sleeve and engaging the same and the shoulder of the spoke, substantially as described.

6. In a device of the class described, the combination with a felly, and a spoke, of a spoke-socket element comprising a plate having an opening and forming opposite arms, a sleeve arranged on the spoke and fitted in the opening of the plate and engaging the latter, and a bracket extending through the sleeve and provided with arms engaging the same and the spoke, substantially as described.

7. In a device of the class described, the combination with a felly, and a spoke, of a plate having an opening and provided with

perforated ends, said plate being adapted to extend to the center of the spaces between the spokes and provided with inner and outer side ears or flanges, and a sleeve mounted on the spoke and engaging the plate at the opening thereof, substantially as described.

8. In a device of the class described, the combination with a felly, and a spoke provided with a tenon and having a shoulder, of a plate having an opening and forming arms, a sleeve fitted on the spoke and engaging the plate at the opening thereof, and a bracket extending through the sleeve and provided with oppositely-disposed arms engaging the sleeve and the shoulder of the spoke, substantially as described.

9. In a device of the class described, the combination with a felly, of a spoke-socket element provided with an inwardly-extending spoke-supporting portion and having arms extending longitudinally of the felly and provided with end ears, said spoke-socket element being also provided with centrally-arranged ears located at opposite sides of the felly and embracing the same, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM B. ROBERTS.

Witnesses:

C. E. DOYLE,

FRANK S. APPLEMAN.