

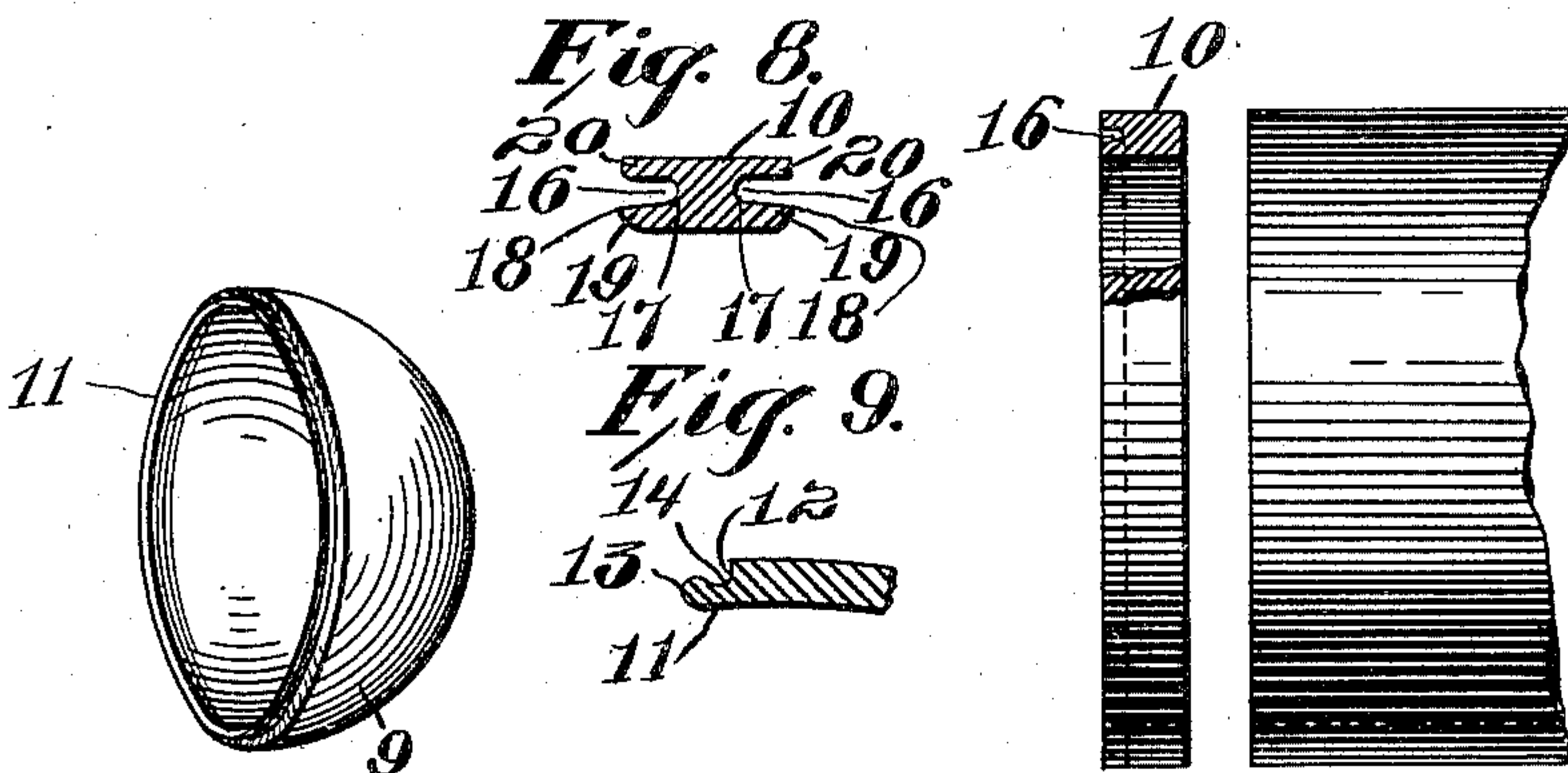
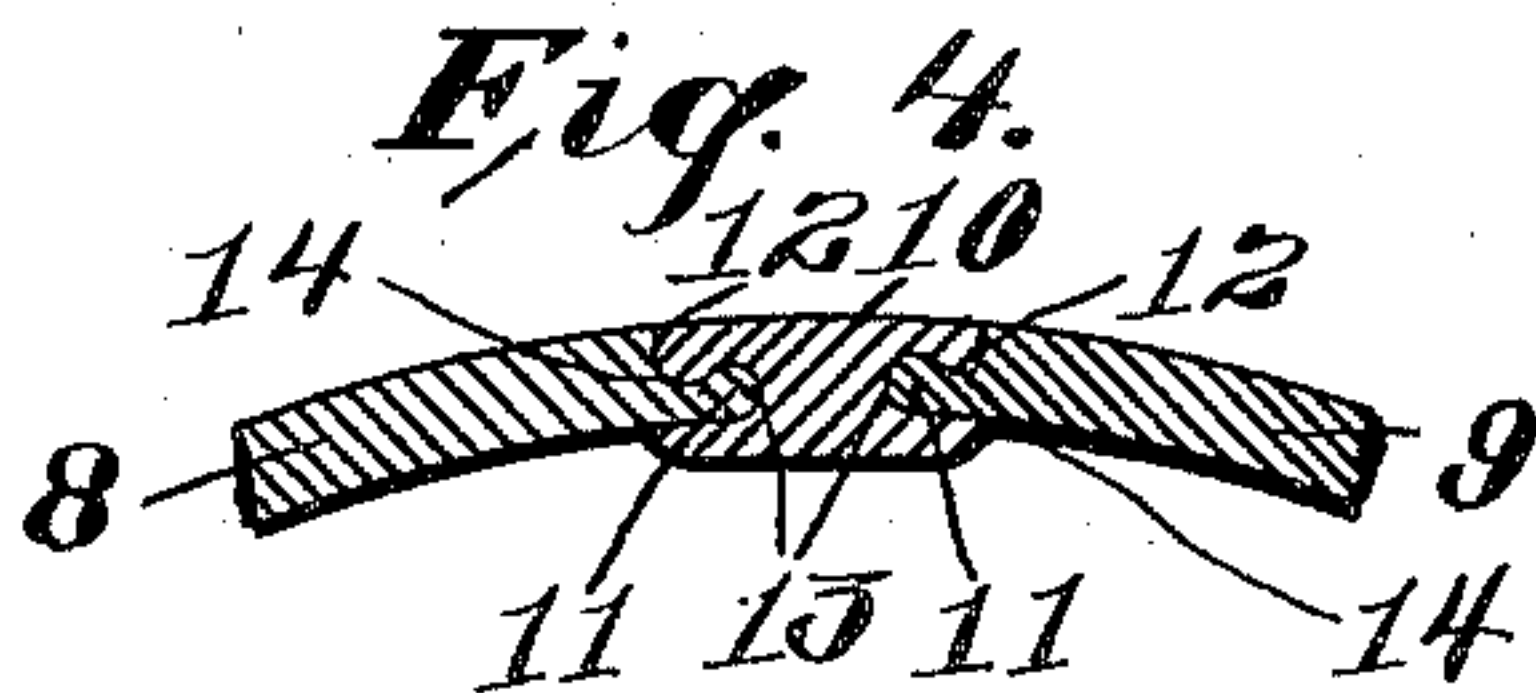
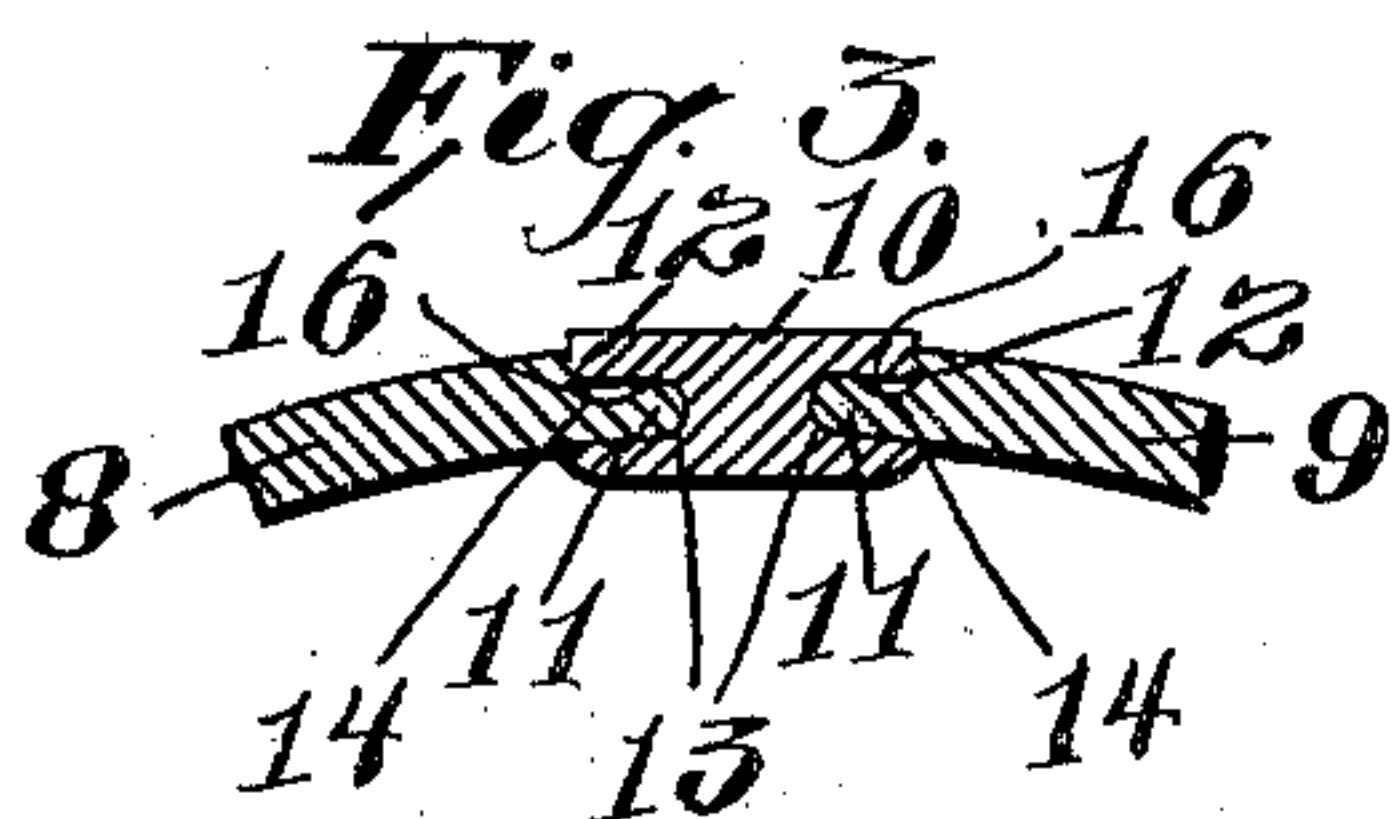
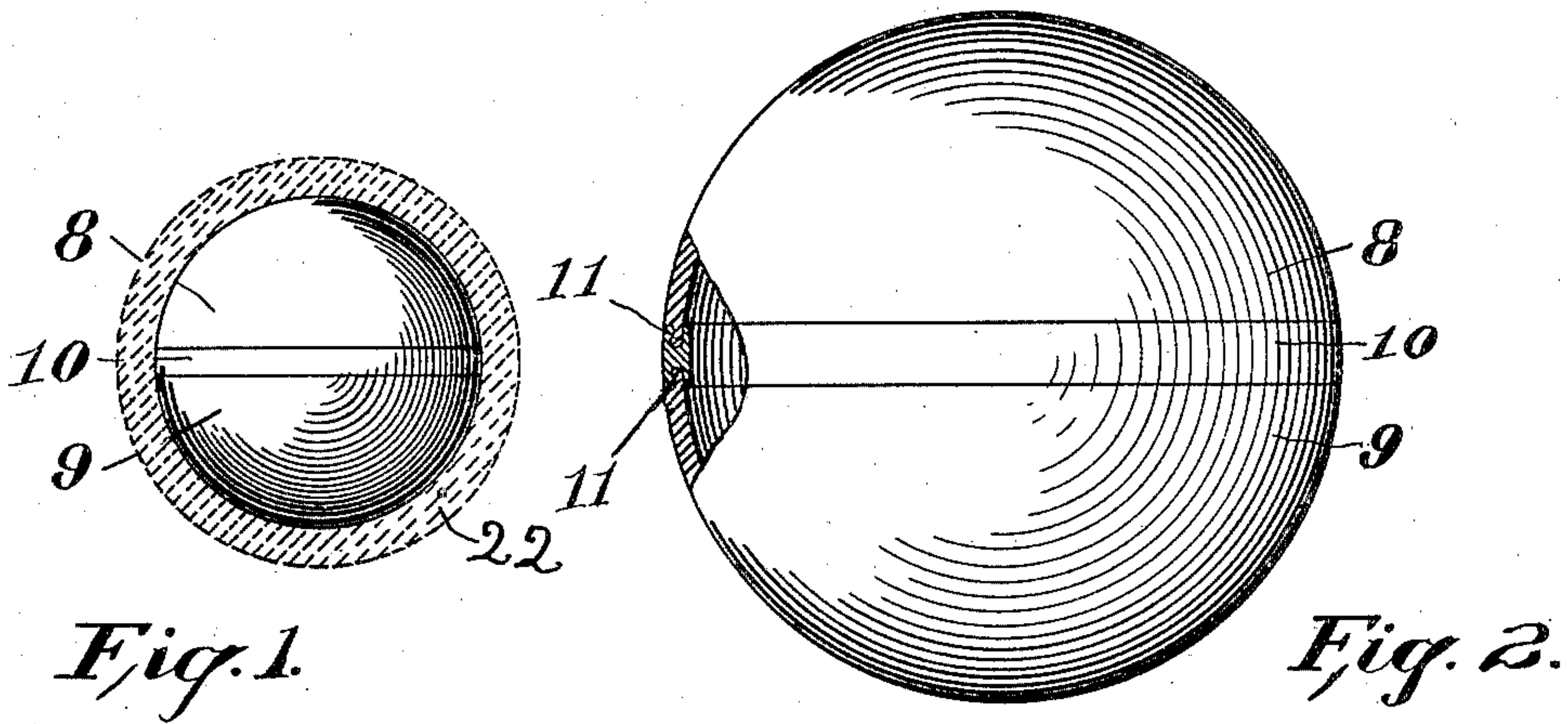
No. 725,011.

PATENTED APR. 7, 1903.

F. H. RICHARDS.
PLAYING BALL.

APPLICATION FILED JAN. 23, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT.

PLAYING-BALL.

SPECIFICATION forming part of Letters Patent No. 725,011, dated April 7, 1903.

Application filed January 23, 1903. Serial No. 140,214. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Playing-Balls, of which the following is a specification.

This invention relates to hemispherical shells useful for the cores of playing-balls and for other purposes; and its object is to improve the structure of the shell, so as to avoid weakness at the joint or joints of the shell-sections, while reducing the cost of manufacture. I aim also at the production of a ball perfectly balanced and of uniform quality throughout, making it especially valuable for many games in which accuracy of play is the desideratum.

In the drawings forming part of this specification, Figure 1 shows a metal ball made in accordance with my improvements and used as a core for a golf-ball, this figure being shown upon a smaller scale than the other figures. Fig. 2 is a view of my improved shell, a part being broken away to illustrate the construction. Fig. 3 is a sectional detail illustrating the manner of assembling shell-segments with an intermediate hoop. Fig. 4 is a view similar to Fig. 3, but showing the outer lips upon the grooved hoop as bent into chines formed upon rabbeted edges of the shell-segments and showing the outer side of the hoop as being flush with the segments and forming a part of the periphery of the ball. Fig. 5 shows in perspective one of the undersized hemispherical segments used in forming the shell. Fig. 6 shows, partly broken away, a partly-formed hoop, such as used in connecting the shell-segments, and also a tube from the end of which said hoop may be cut, although the hoop may be otherwise formed within the scope of my improvements. Fig. 7 is a view similar to Fig. 4, but showing the preferred cross-section of the hoop, the inner side whereof is wider than the outer side, so as to compensate for the weakness occasioned by rabbeting the segments and to impart the requisite strength to the ball of the joint. Fig. 8 is a section

of the hoop shown in Fig. 3, and Fig. 9 is a sectional detail showing the rabbeted and grooved or chined edge of one of the shell-segments.

In the several views like parts are indicated by like signs.

In forming the ball I employ two segments 8 and 9, which are nearly but not quite hemispherical, and between these segments I place a hoop 10, which forms a part of the periphery of the finished ball and interlocks with each segment, thereby fastening them together. Each segment at its edge is preferably formed with a tongue or rabbeted portion 11, these tongues being inserted in grooves 16, formed in the top and bottom edges of the hoop. The outer lips 20 of the hoop abut against shoulders 12, formed by rabbeting the segments, and said lips are rolled, spun, or otherwise turned inwardly to occupy chines 14, formed in the rabbeted portions of the segments. The outer lips or flanges 20 and the inner lips or flanges 19 of the hoop hug closely the rabbets or tongues of the segments and interlock therewith, and it will be seen that by cutting the chines 14 in the edges of the segments heads or shoulders 13 are formed, against which the inturned lips of the hoop take, so as to dovetail the parts together, thus forming permanent seams, so that parts of the ball cannot be separated except by some destructive action. The necks formed by the chines are reinforced by the lips or flanges of the hoops, and the weakness of the ball at the joints is compensated by the hoop 10, which, it will be seen, not only embraces the tongues upon the outer and inner sides thereof, but also preferably extends up and down beyond the rabbeted portions, as at 21, Fig. 7, so that the ball at this portion has substantially the same strength and springiness as at other portions, thus making a ball of uniform strength and action throughout.

It will thus be seen that I fasten the two segments together inseparably by means of a ring or hoop 10, which has in its top and bottom edges grooves or channels 16 to fit the rabbeted portions of the segments, and it will also be seen that at the bottom 17 each of the

grooves is larger than at the mouth 18 thereof, thereby forming a dovetail joint or seam. The hoop has a body portion, which is thicker than the walls of the segments, and also a
 5 grooved portion at top and bottom, the hoop at said grooved portions consisting of lips or flanges 19 and 20, the lips 19 bearing against the inside of the tongues on the segments and
 10 the lips 20 bearing on the outside of said tongues and being turned into the chines, so as to complete the contour or periphery of the ball, as at Figs. 1, 2, and 4.

It will be understood that the shells are adapted to be formed from sheet metal either
 15 by drawing, spinning, stamping, or otherwise. The increased thickness diametrically of the hoop gives to the ball the suitable degree of stability and also provides for forming the grooves 16, while leaving lips of substantial
 20 thickness. As the segments are alike, the hoop is positioned at the middle portion of the ball, and hence the center of gravity is made to coincide with the center of the ball, so that the true action thereof is insured,
 25 while the segments being alike may be formed from the same dies, so that uniform and accurate manufacture is assured. The metallic sphere thus formed may serve as a core for a playing-ball, and for this purpose may
 30 be inclosed within a shell 22, as indicated by dotted lines at Fig. 1, of gutta-percha or rubber, or both.

The improved shell furnishes a reliable and efficient ball for use also in bearings and in
 35 other mechanical devices. Variations may be resorted to within the scope of the improvement.

Having thus described my invention, I claim—

40 1. A playing-ball comprising a pair of metal segments, each provided with a tongue around its edge, a ring provided with oppositely-disposed channels and flanges, said channels receiving said tongues, said flanges hugging on
 45 opposite sides of said tongues, and the interior flange of the ring being of greater length than the outer one.

2. A ball comprising two metal shell-segments and an intermediate metal hoop having at its top and bottom edges grooves in
 50 which the edges of said segments are inserted, the width of said hoop within said segments being greater than its width without said segments.

55 3. A playing-ball comprising a pair of metal shells, each provided with a tongue around its edge having an interlocking recess, and a metal hoop provided with oppositely-disposed channels and flanges, said channels being adapted to receive said tongues and said
 60 flanges hugging on opposite sides of said tongues, one flange upon each of the top and bottom edges of the hoop being adapted to lock with said recess.

4. The improved ball herein described, it
 65 comprising two metal segments combined with a centrally-located connecting-hoop bent into interlocking engagement with said segments.

5. The herein-described ball, it comprising
 70 two metal segments combined with a centrally-located connecting-hoop bent into interlocking engagement with said segments, tongues being formed on said segments, each tongue having a recessed portion, and grooves
 75 being formed in the top and bottom edges of said hoop and having enlarged portions so that the tongues and grooves interlock.

6. The improved ball herein described, it
 80 comprising two metal shells, a tongue formed on each shell and having a recess, and a hoop surrounding the tongues and having projecting portions taking into said recesses so as to interlock said shells with said ring.

7. The improved ball herein described, it
 85 comprising two metal shells each provided with a tongue having an enlarged portion and a recess, and a metal hoop whose top and bottom edges are provided with channels and also with portions adapted to enter said re-
 90 cesses whereby to interlock said hoop and said shells.

8. The improved ball herein described, it
 95 comprising a pair of metal shells each provided with a tongue having a depressed neck portion and a head, a centrally-located ring provided with flanges, one of which comprises a neck and a head portion and adapted to register with the neck and head portion of
 100 said tongues, whereby to interlock said ring with said segments.

9. A metallic spherical shell comprising two segments having exterior chines and an intermediate hoop which is thicker than the
 105 segment-walls, so as to form a strengthening-rib for the shell, and which has bent-in lips filling the chines and fastening the segments together; the outer surface of said hoop being flush with the segments and forming a portion of the periphery of the spherical shell.
 110

10. A metallic spherical shell comprising two segments having rabbeted edges provided within the rabbets with exterior chines, and an intermediate hoop having in its edges
 115 grooves, which are occupied by said rabbeted edges, the outer lips of the hoop being bent into said chines and fastening the segments together.

11. A metallic spherical shell comprising two segments rabbeted and having chines at
 120 the rabbeted portions, and an intermediate hoop having in its edges grooves within which the rabbeted portions of the segments fit, the outer lips of the hoop being turned into said chines to fasten the segments together, and
 125 the inner lips of the hoops extending beyond the rabbeted portions of the segments.

12. A metallic spherical shell comprising

segments each of whose edges is rabbeted and provided with a shoulder, and an intermediate hoop having in its edges grooves occupied by the rabbeted portions of the segments, at
5 least one of the inner and outer sets of lips upon said hoops being bent over the shoulders for fastening the segments together, and the outer side of said hoop being flush with the

segments and forming part of the periphery of the shell. 10

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 22d day of January, 1903.

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Witnesses:

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