

No. 751,145.

PATENTED FEB. 2, 1904.

A. L. BURT.
GAME BALL DYEING APPARATUS.

APPLICATION FILED OCT. 13, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.

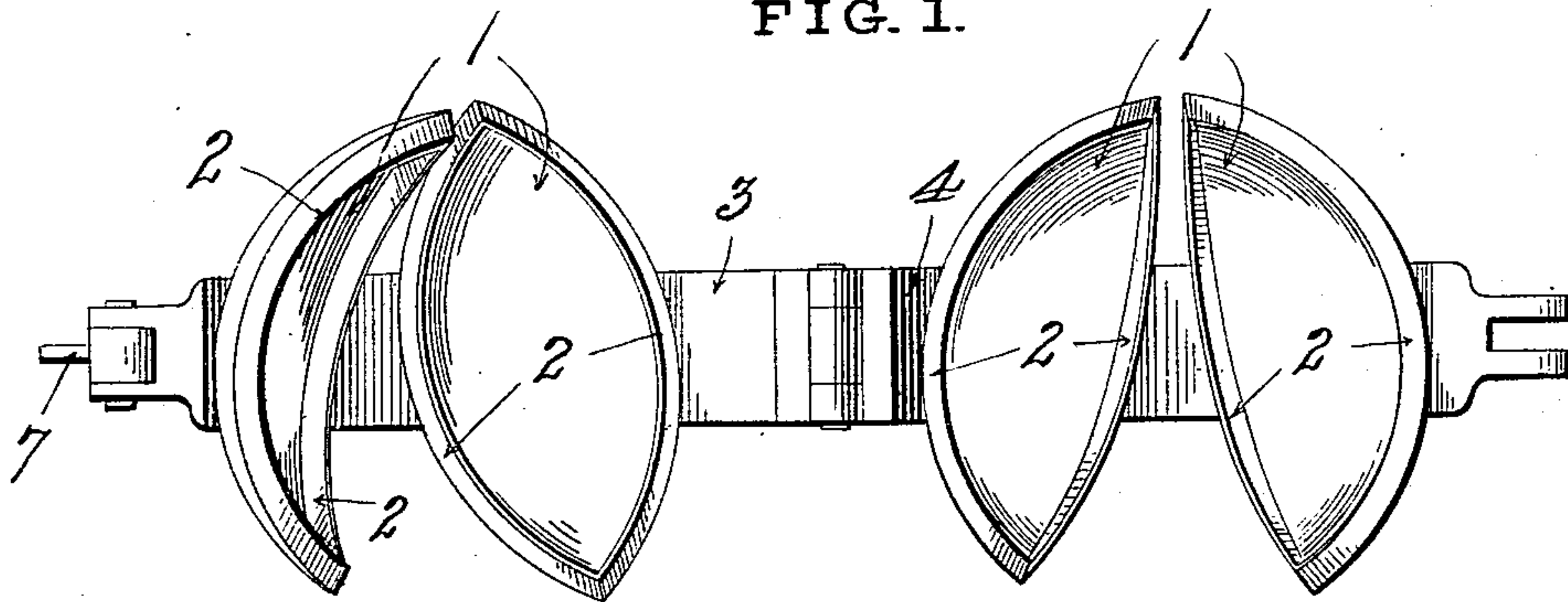


FIG. 3.

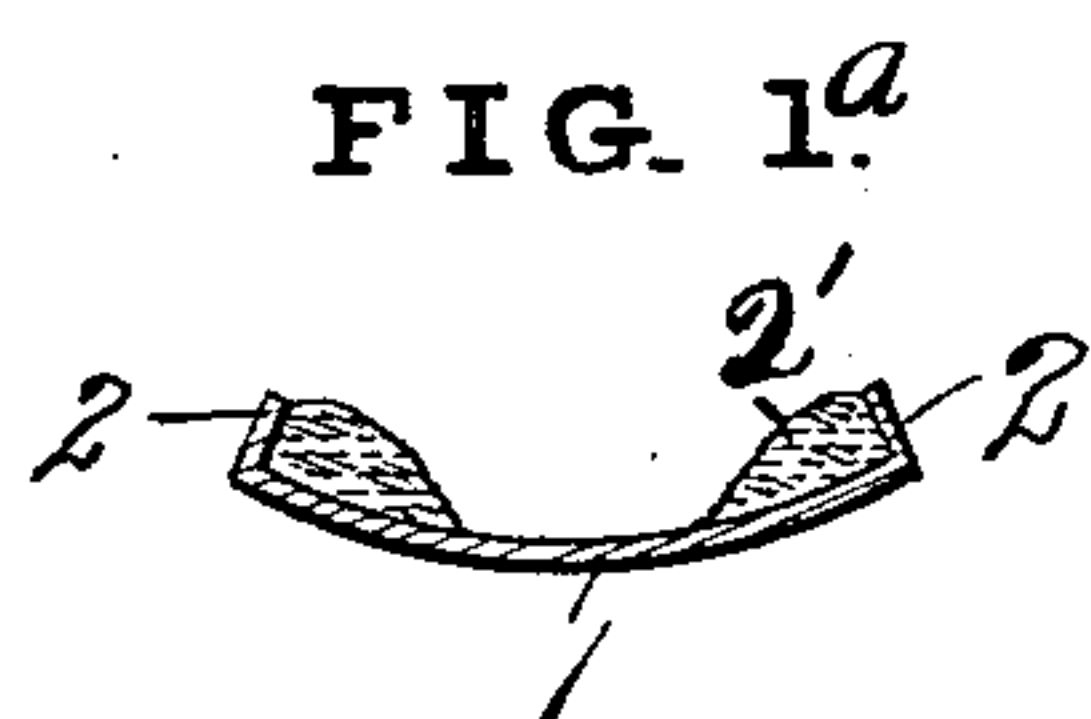
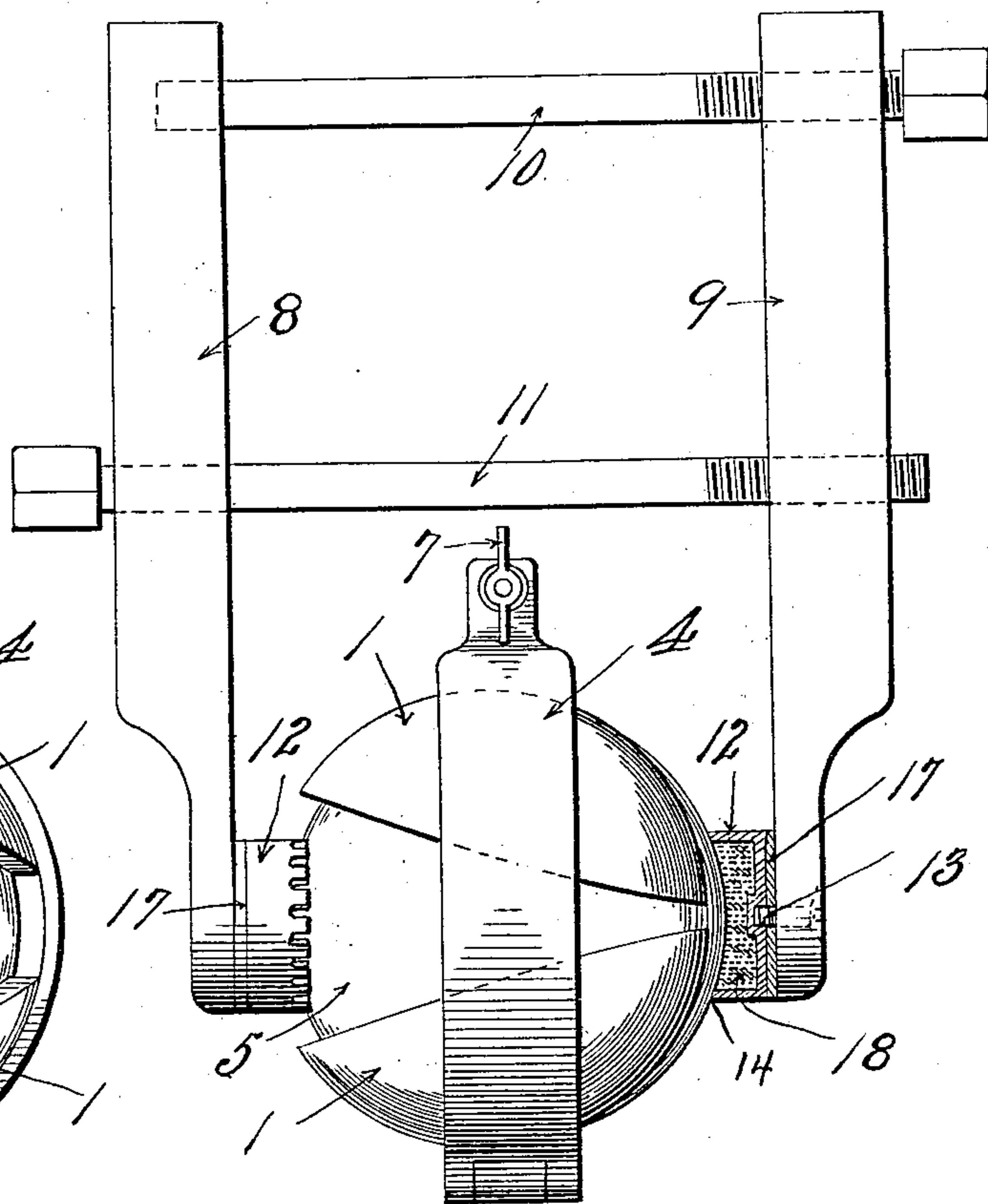
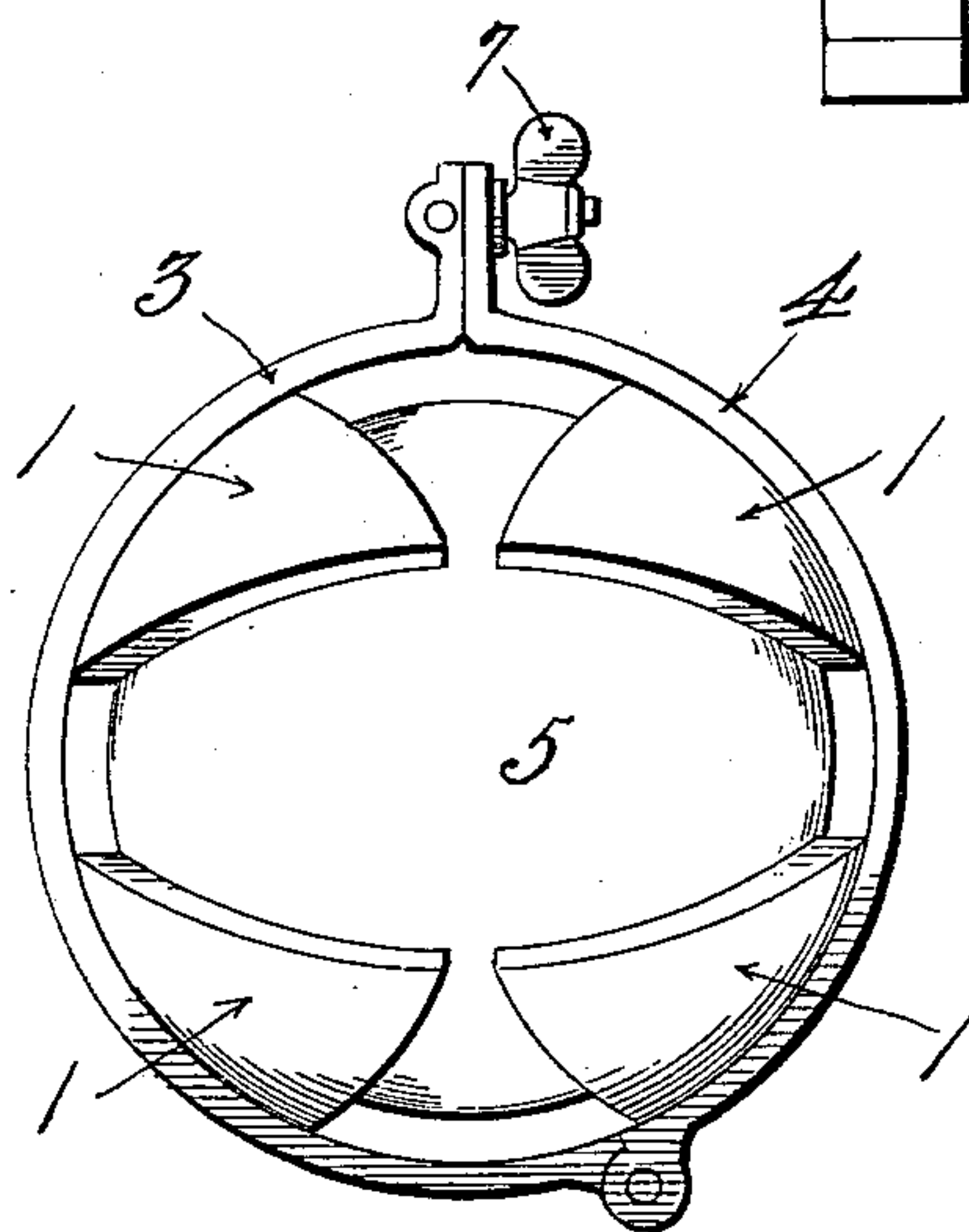


FIG. 2.



Witnesses

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2 SHEETS—SHEET 2.

FIG. 4.

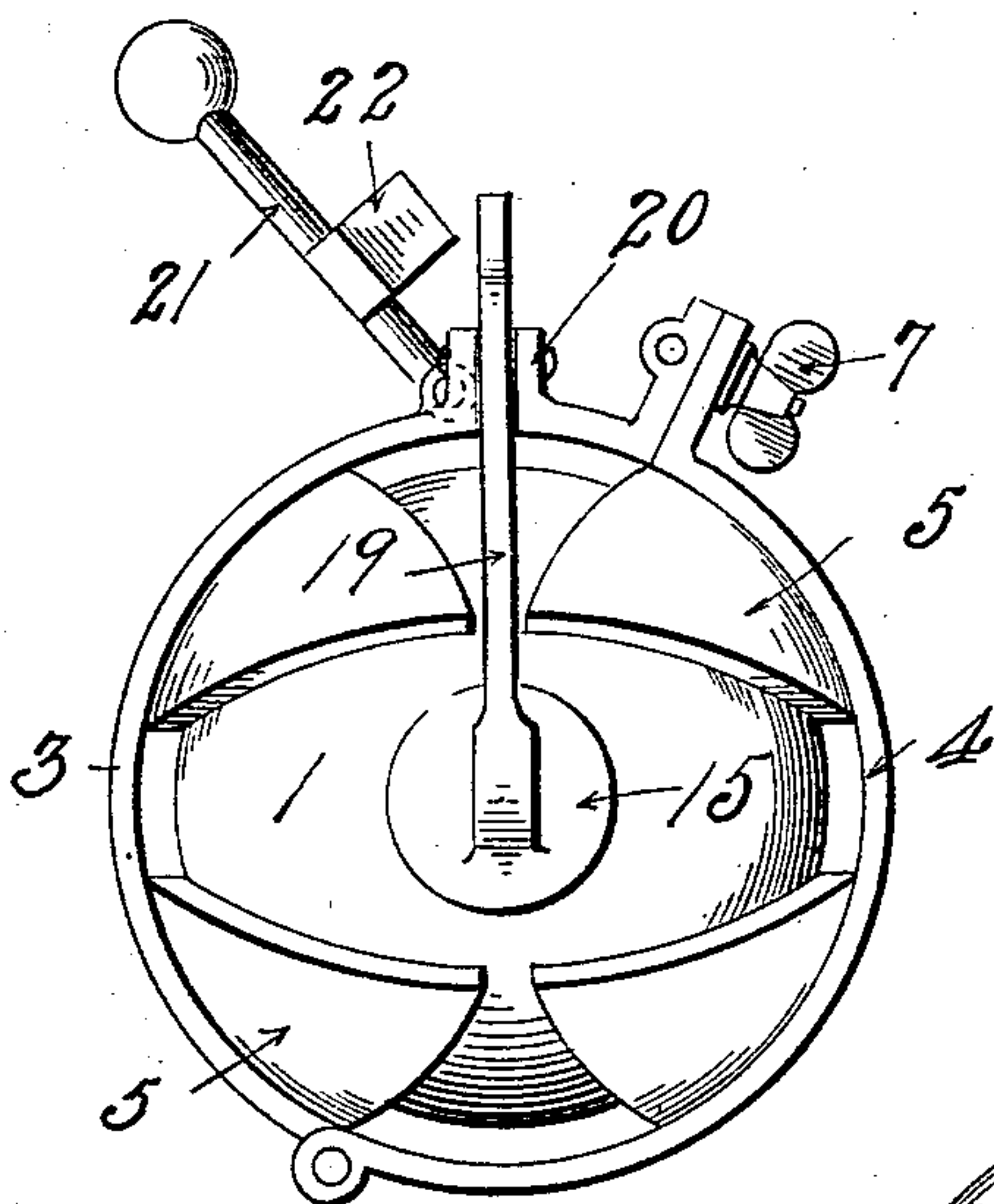
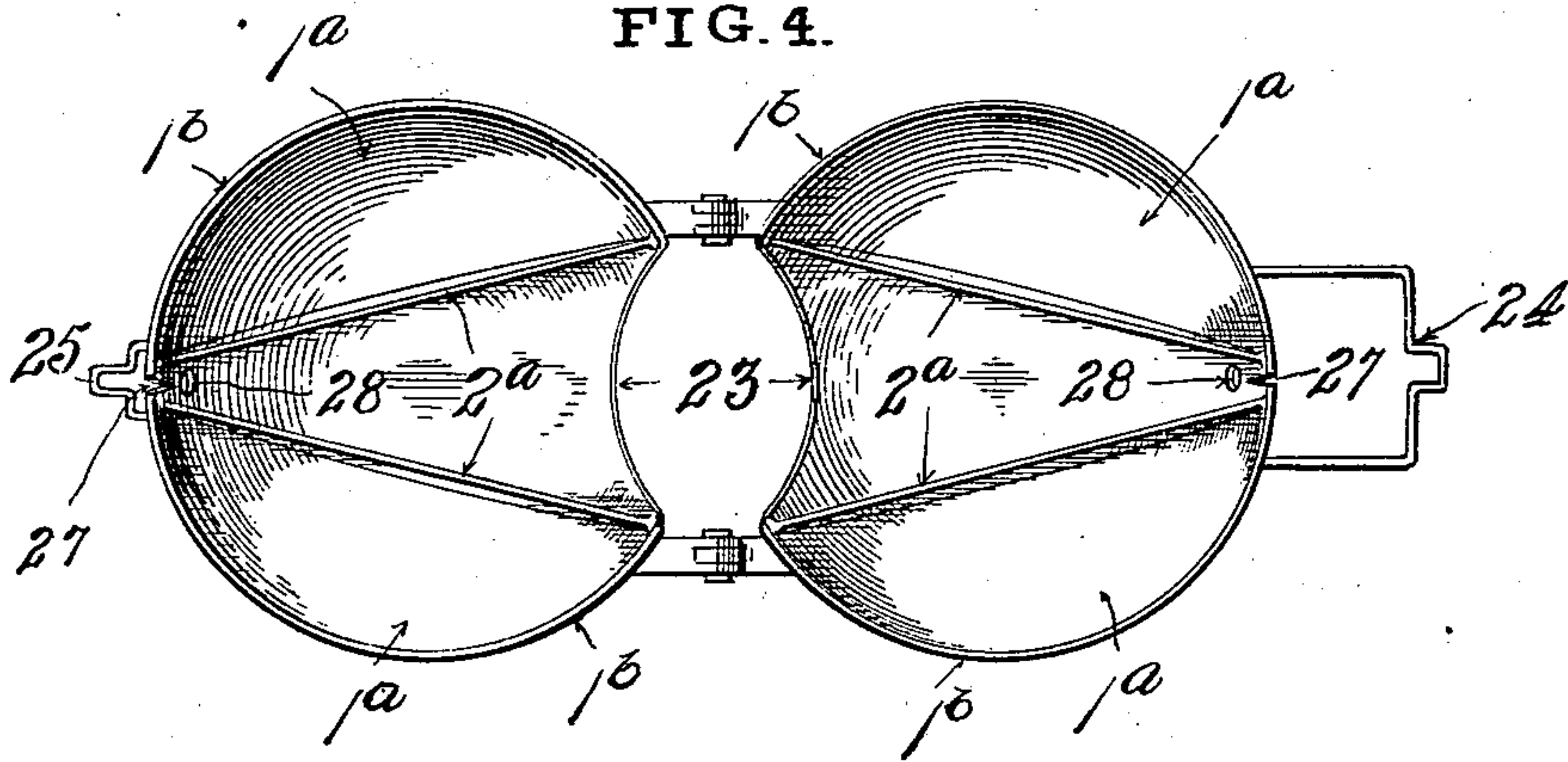


FIG. 6.

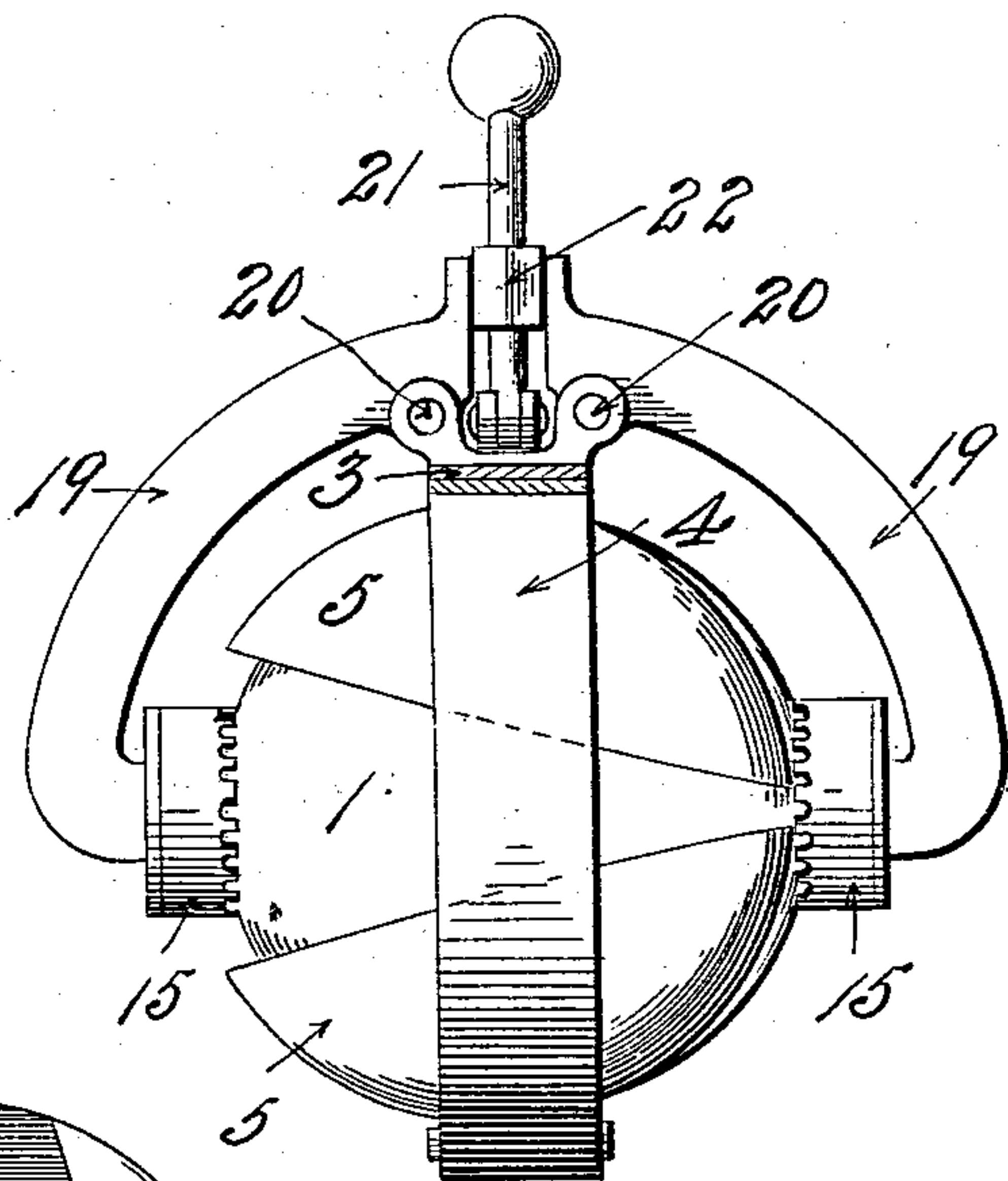


FIG. 7.

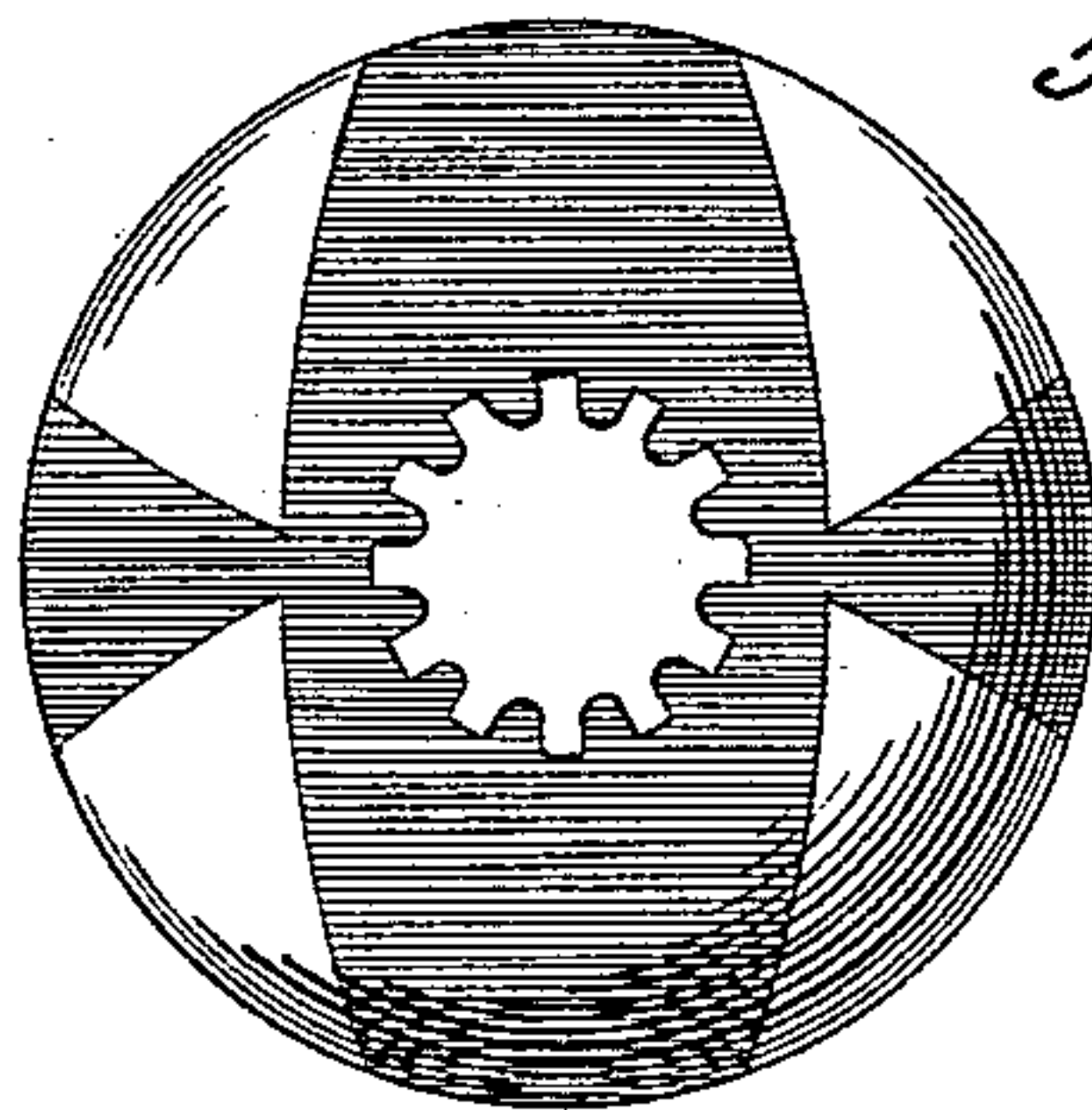


FIG. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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GAME-BALL-DYEING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 751,145, dated February 2, 1904.

Application filed October 13, 1903. Serial No. 176,904. (No model.)

To all whom it may concern:

Be it known that I, ALONZO L. BURT, of Bridgeport, Connecticut, have invented a new and useful Game-Ball-Dyeing Apparatus, 5 which invention is fully set forth in the following specification.

This invention relates to the art of coloring or dyeing game-balls, such as pool-balls and the like. Balls of this kind are generally 10 made of composite material, and in some grades the entire body of the ball is first made of a uniform or solid color, usually white, and the ball subsequently colored in any desired pattern by dyeing. For example, a white 15 ball may have stripes of red or other desired color dyed on its surface, and these stripes may be of uniform or of varied width. In some instances, as in pool-balls, the several balls of a set are numbered, and the number 20 is preferably black in a circular "spot" of white or other suitably contrasting color. In dyeing the stripes or other desired pattern on the ball it is necessary to protect the number spots and other parts of the ball's surface 25 from the action of the dye, and for many years prior to this invention this has been accomplished by pasting a disk of tin-foil or other dye-proof material over the portion of the ball's surface constituting the spot and then 30 clamping to the ball two thin metal hemispheres of less diameter than the ball and provided with a rubber packing to exclude the dye, which thus leave a portion of the surface exposed to the dye, whereby a single 35 stripe was dyed. By then removing the hemispheres and applying them again in a position substantially at right angles to the first position another stripe was dyed, after which the protecting-disk of tin-foil was scraped off 40 and the number engraved in the spot. The rubber packing was usually in the form of a rubber diaphragm stretched across the same to assist in excluding the dye from that portion of the ball's surface protected by the 45 hemisphere. This process required four steps, one for dyeing each of the two stripes, one for placing the tin-foil disk in position, and one for removing said disk.

The object of the present invention is to provide apparatus for striping or coloring in 50 any desired pattern and spotting the balls at a single operation and for doing the work better and with more precision than heretofore.

With this object in view the invention consists in an apparatus comprising a set of pro- 55 tecting members which are so clamped to the ball as to exclude the dye from the spots and all other parts of the ball's surface which are not to be colored, while leaving the surface 60 for a single or a plurality of stripes or other pattern exposed to the dye, so that the dyeing may be completed at a single operation. The stripes or dyed portions may be of any de- 65 sired pattern, and the outline of the spots may be circular or otherwise, as desired.

The invention may receive a great variety of mechanical expressions, one of which for the purpose of illustration is shown in the accompanying drawings.

In said drawings, Figure 1 is a plan view 70 of a set of protecting elements suitably united and designed for dyeing a ball with two stripes of constantly-varying width and lying at right angles to each other, and Fig. 1^a is a sectional detail. Fig. 2 is a side elevation showing said 75 protecting members clamped to a ball, leaving the portions which are to constitute the stripes exposed. Fig. 3 is a view at right angles to Fig. 2 with spotting or spot members 80 clamped at substantially diametrically opposite points of and at the widest portions of the exposed surface. Fig. 4 is a plan view of a modified form of the apparatus shown in Fig. 1, and Fig. 5 is a plan view of a ball 85 striped and spotted with the apparatus shown in Fig. 3. Figs. 6 and 7 are elevations of one form of the apparatus in which the spotting devices are mounted on or connected to the other members.

Referring to the drawings, 1 1 indicate con- 90 cave protecting members, preferably composed of metal, each of which has a raised rib or ridge 2 surrounding its concave portion, the lines of said ribs or ridges in every case conforming to the contour of a sphere 95 when traced along the outline of any continu-

ous portion of the ball's surface which is not to be colored. As here shown, these ribs or ridges are formed by cutting away the concave surface of the members 1 1 and then grinding the ribs or ridges 2 until they conform to or closely fit the surface of a spherical ball when applied thereto. As thus constructed the members 1 1 are connected together in any suitable manner. As shown in Fig. 1, they are mounted in pairs on pivotally-connected curved bars 3 4, their arrangement on said bars being such that when the bars 3 4 are turned from the position of Fig. 1 to that of Fig. 2 the protecting members 1 1 will be arranged so as to leave exposed that portion of the ball 5 which it is intended to stripe or dye.

The ball having been placed in position, the bars 3 4 are clamped together, as by a clamping-screw 7, so as to cause the ribs or ridges 2 of the members 1 1 to closely fit the surface of the ball and prevent any of the dye from passing said ribs or ridges. For the purpose of insuring the exclusion of the dye along the edges 2 of the members 1 any suitable packing material 2', Fig. 1^a, may be employed. Preferably a plastic material, as soap, is used as this packing and is placed within the ribs or ridges 2, so as to effectually prevent the passage of any dye beyond or within said ribs, while at the same time permitting the dye to be effective clear up to the rib, and thereby insure a clear clean-cut boundary line between the dyed and undyed surfaces of the ball. (See Fig. 1^a.)

Turning now to Fig. 3, 8 and 9 indicate a pair of clamp-bars connected together by clamp-screws 10 and 11 and each having a cup 12, composed of metal, rubber, or other desirable material secured on its lower end, as by a screw 13. The general outline of the cups 12 may be of any desired pattern, the only essential being that the edges of the cup be caused to closely conform to or fit the spherical surface of the ball, so as to effectively exclude the dye from that portion of the ball's surface lying within the perimeter of the spotting-cup. In the present instance this is accomplished by grinding or otherwise forming the contacting edge 14 of the cup 12, as shown in Fig. 3, so that it makes a perfect fit on the spherical surface of the ball, as shown in Fig. 3. Instead of using the cup 12 with raised edge 14 (shown in Fig. 3) the spotting member may be a simple block 15, Fig. 7, of suitable material, as rubber or metal, having a spherical concavity 16, which makes a close and perfect fit at its perimeter with the spherical surface of the ball. Where the cup 12 is employed and attached to the clamps by a screw, it is generally desirable to supply a packing 17, of any suitable material, interposed between the bottom of the cup 12 and the arms 8 and 9 of the clamp. This serves as a yielding foundation for the cup, to the

end that it may readily adjust itself to the proper position on the ball. If desired, additional packing 18, such as soap, Fig. 3, may be inserted within the cup 12; but this is not at all necessary.

It will be observed that the cup 12 and the concave block 15 are (like the members 1 1) protecting or dye-excluding members and that they function by being held in liquid-tight contact with the convex surface of the ball. It will therefore be observed that the apparatus as a whole consists of a plurality of protecting or dye-excluding members, some of which are for excluding the dye from the spots and others for excluding it from the other portions of the ball which are not to be dyed and that the entire apparatus is so designed that it may all be applied at once and the ball dyed at a single operation. If desired, the spotting members, as 12 or 15, may be mounted or connected with the members for forming the stripes or other pattern. This construction is shown in Figs. 6 and 7, in which 19 19 represent the supportings-arms pivoted at 20 20 to the bar 3 and provided with a lever 21, carrying a wedge 22, whereby the members 15 15 may be forced into tight contact with the ball.

In Fig. 4 is shown a modification of the construction shown in Fig. 1. In this form of the device instead of the protecting members 1 1, mounted on the pivoted bars 3 and 4, the protecting members 1^a 1^a are arranged in pairs united in any suitable way, and these pairs are then hinged together and provided with means, as a bail-piece or clamp, to hold them firmly in position on the ball. As shown in Fig. 4, each pair of protecting members 1^a 1^a is formed by taking metallic hemispherical shells of slightly less diameter than the ball to be colored, and within these shells are formed ribs 2^a, having edges of such concavity that they closely fit the surface of the ball to be dyed and form one part of the boundary or outline of the protecting members 1^a, the rest of the outline of said members being formed by a portion, as 1^b, of the periphery of the hemispherical shell. It will thus be seen that that portion of each hemisphere between the ribs 2^a 2^a serves as a means for connecting the protecting members 1^a 1^a of each pair together. The pairs of protecting members having been thus formed, the hemispheres are partly cut away, as at 23, and hinged together in any suitable manner, care being taken that the hinges shall not contact with the ball when the device is in use. Any suitable device, as a bail 24 and cam-catch 25, is employed to hold the boundary edges 1^b and 2^a of the protecting members 1^a 1^a in such firm contact with the surface of the ball as to effectually exclude the dye from the protected surface, suitable packing, as soap, being employed, if desired. Preferably the hemispheres are notched or cut away, as at 27 27, or have other openings, as 28 28, be-

tween the ribs 2^a of each hemisphere, so as to freely admit the dye to that portion of the ball's surface lying between said ribs, such admission of the dye being also afforded at the cut-away portions 23 23.

With either the construction of Fig. 1 or that of Fig. 2 suitable packing may, if desired, be used to assist in excluding the dye from the protected surface, as heretofore described; but if the protecting members are properly constructed this is not essential, as they may be caused to fit the surface of the ball so as to be liquid or dye tight when firmly held in position thereon.

It will be understood that a great variety of modifications of the structure herein described may be employed which will fall within the spirit of the invention, and such are intended to be included in the claims forming a part hereof.

Having thus described the invention, what is claimed is—

1. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members connected together, with means holding said members in liquid-tight contact with the ball.

2. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members flexibly connected together, with means holding said members in liquid-tight contact with the ball.

3. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members pivotally connected together, with means holding said members in liquid-tight contact with the ball.

4. In a ball-dyeing apparatus, the combination of a plurality of pairs of similarly-constructed protecting or dye-excluding members, means rigidly connecting the members of each pair, and pivotal connections between the pairs.

5. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members for forming the striping or other pattern, a protecting or dye-excluding member for forming the "spot," and means for holding said members in liquid-tight contact with the ball.

6. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members for forming the striping or other pattern, a plurality of protecting or dye-excluding members for forming the "spots," and means for holding said members in liquid-tight contact with the ball.

7. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-exclud-

ing members for forming the striping or other pattern, said members being pivotally connected together, a plurality of protecting or dye-excluding members for forming the spots, said last-mentioned members being flexibly connected to said first-mentioned members, and means holding all said members in fluid-tight contact with the ball.

8. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding stripe-forming members flexibly connected together, and a plurality of protecting or dye-excluding spot-forming members flexibly connected to said stripe-forming members, means holding the stripe-forming members in liquid-tight contact with the ball, and other means holding the spot-forming members also in liquid-tight contact with the ball.

9. In a ball-dyeing apparatus, the combination of a protecting or dye-excluding member, means holding the member in fluid-tight contact with the ball, and a yielding cushion interposed between said means and said member.

10. In a ball-dyeing apparatus, the combination of a plurality of oppositely-disposed protecting or dye-excluding spot-forming members, and connecting means holding said members in fluid-tight contact with the ball.

11. In a ball-dyeing apparatus, a protecting or dye-excluding member provided with plastic packing.

12. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members provided with a plastic packing material, and means clamping said members in fluid-tight contact with the ball.

13. A striping and spotting device for billiard-balls, comprising a plurality of dye-excluding members having a packing material on their inner surfaces, whereby portions of the surface of the ball are protected from the action of the dye, and a clamping device provided with centering and spot-forming dye-excluding members.

14. The combination of the stripe-forming dye-excluding members hinged together as shown, and provided with a packing on their inner faces, whereby portions of the ball are protected from the action of the dye while suspended therein, and means holding the said members in tight contact with the ball.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALONZO L. BURT.

Witnesses:

WILLIAM H. HOYT,
EDW. E. PRICE.