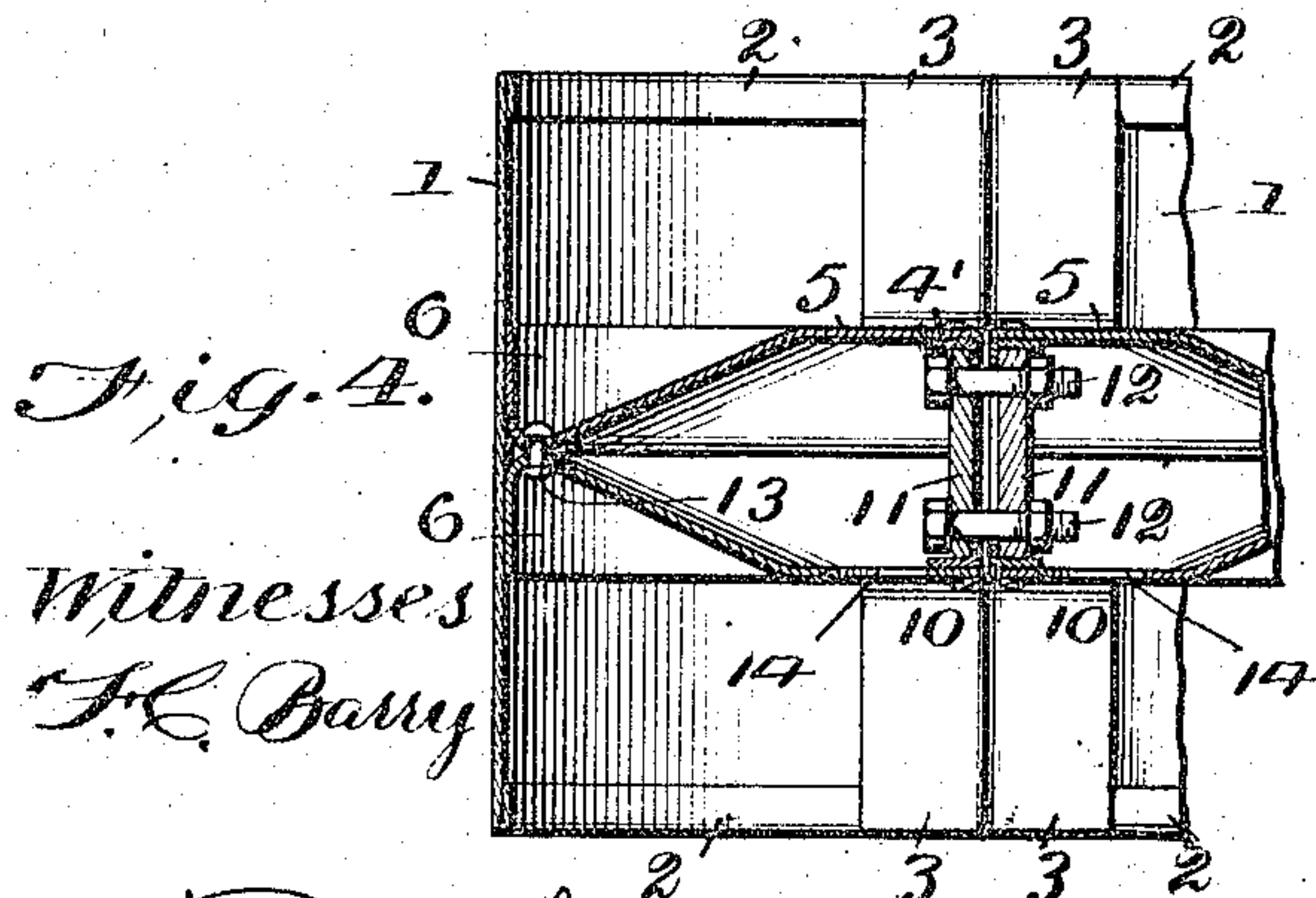
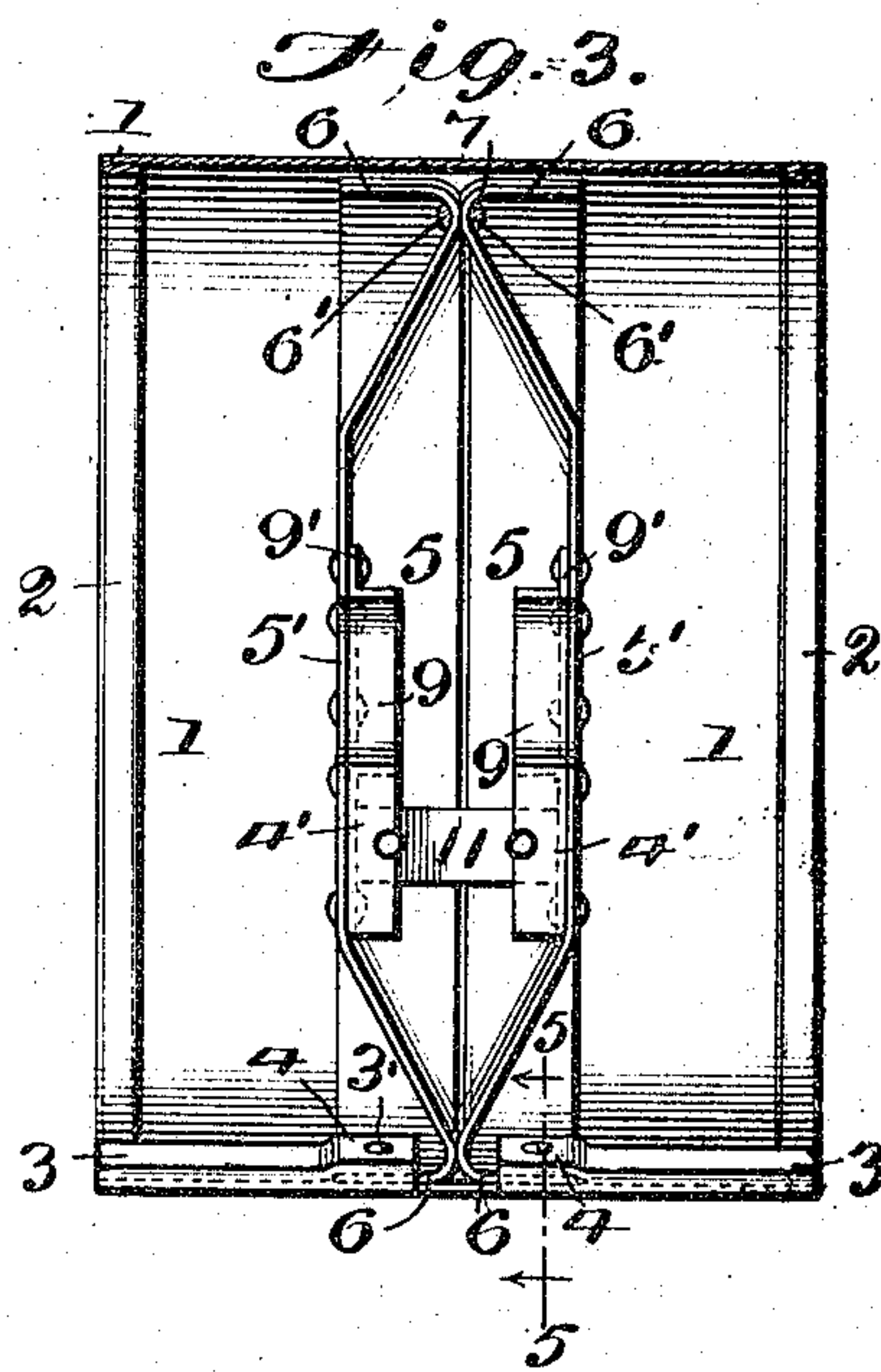
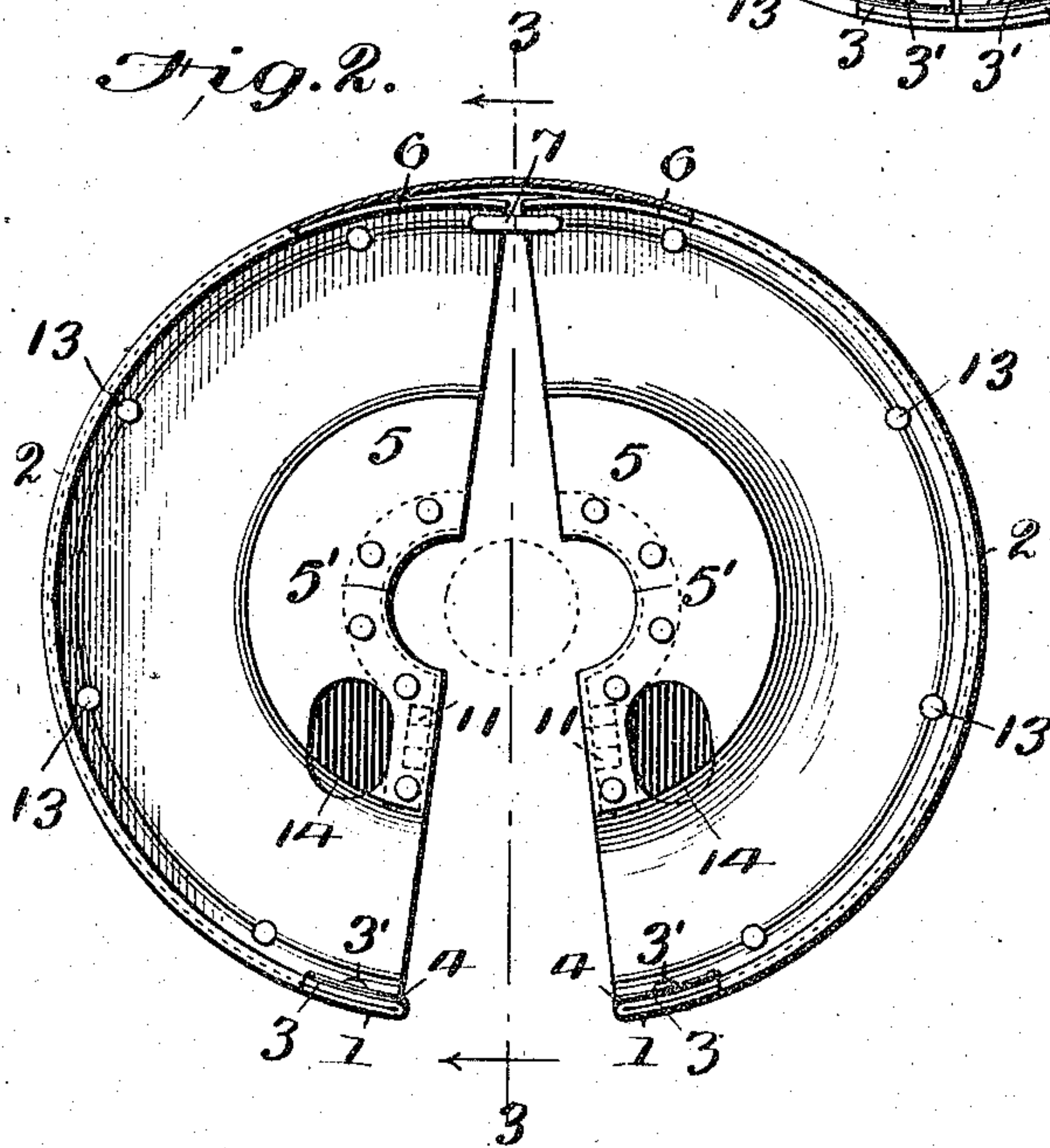
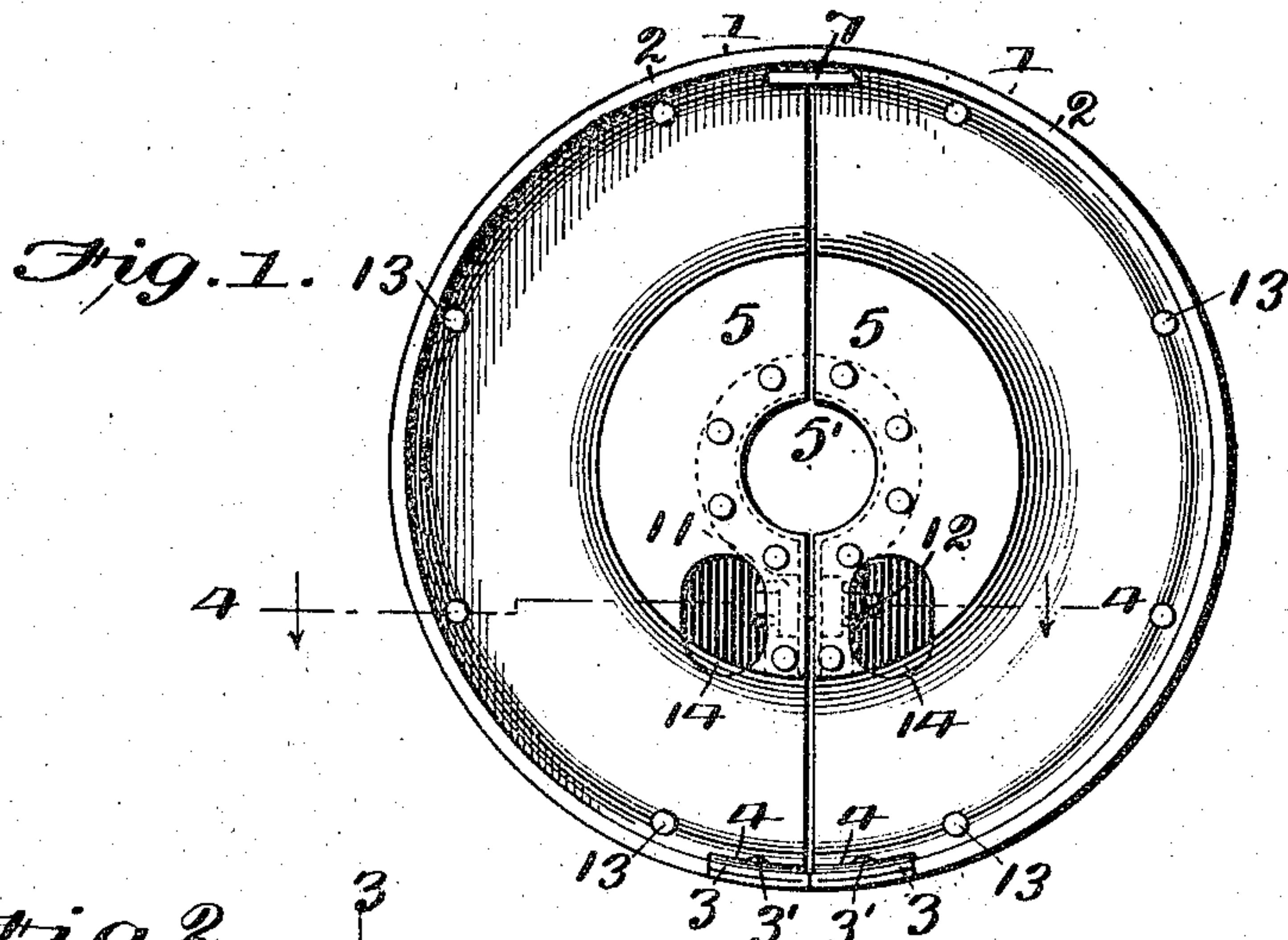


No. 840,658.

PATENTED JAN. 8, 1907.

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SHEET METAL PULLEY.
APPLICATION FILED JAN. 17, 1906.

3 SHEETS—SHEET 1.



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Fig. 5.

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Fig. 6.

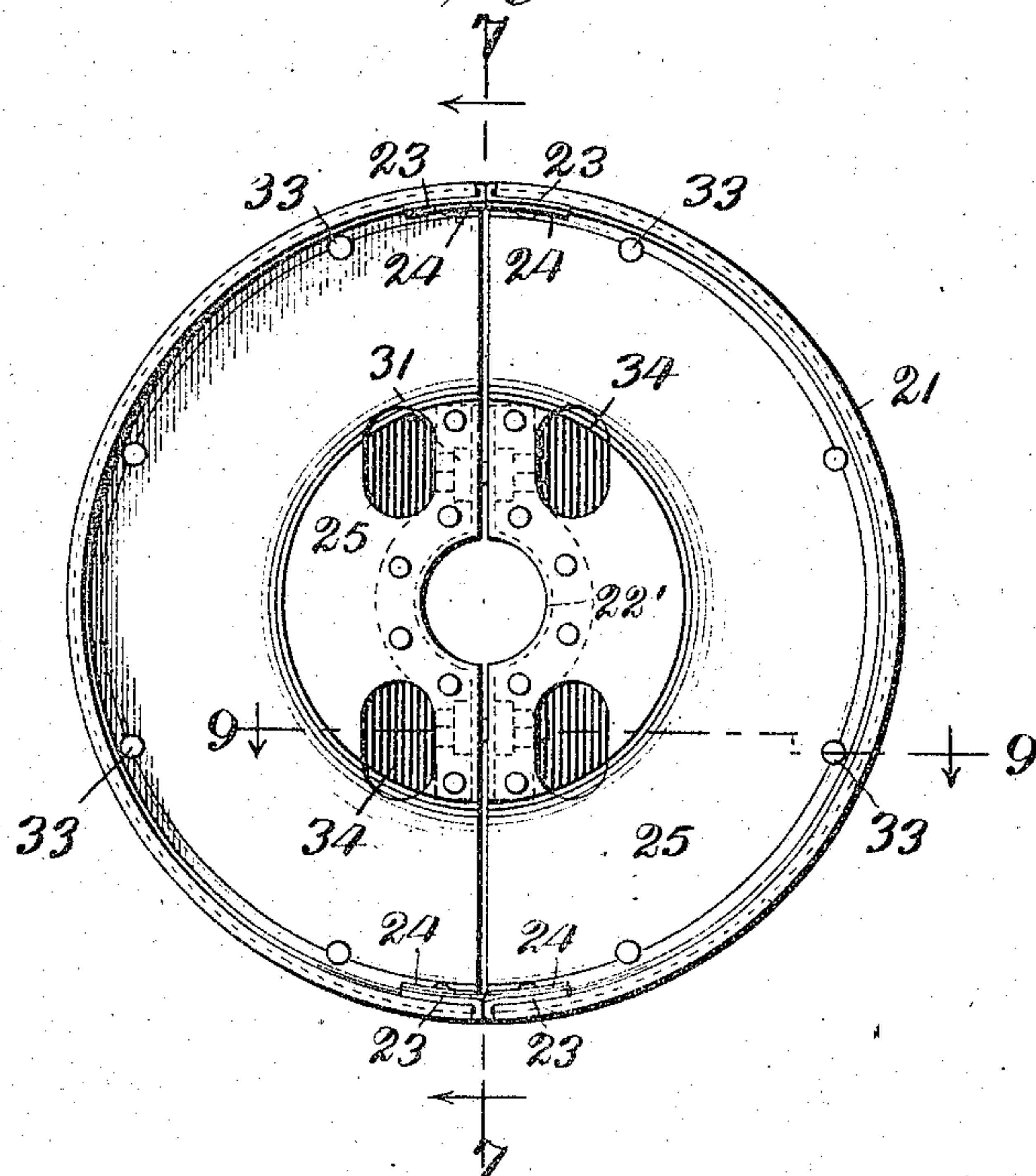


Fig. 7.

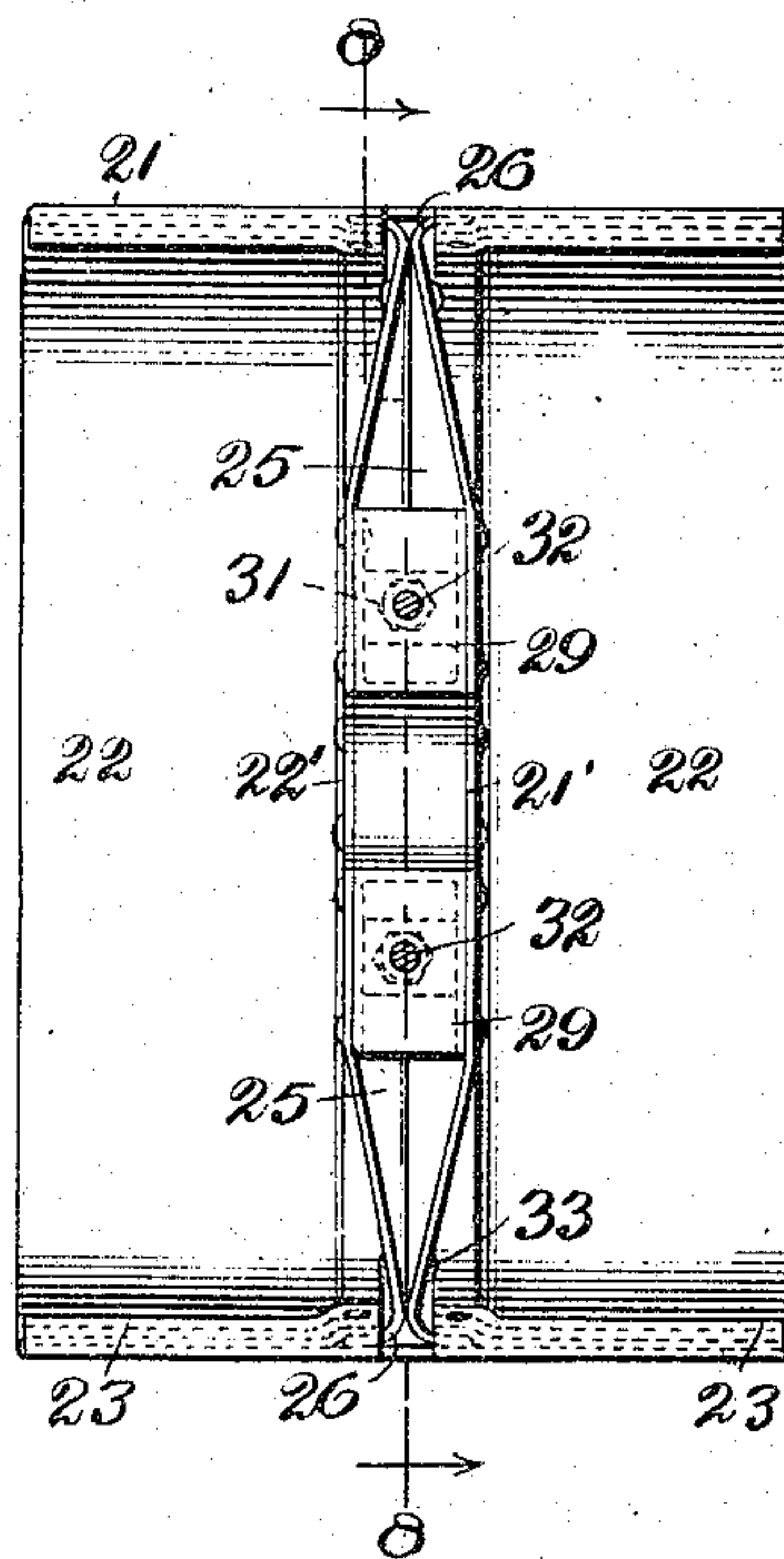


Fig. 8.

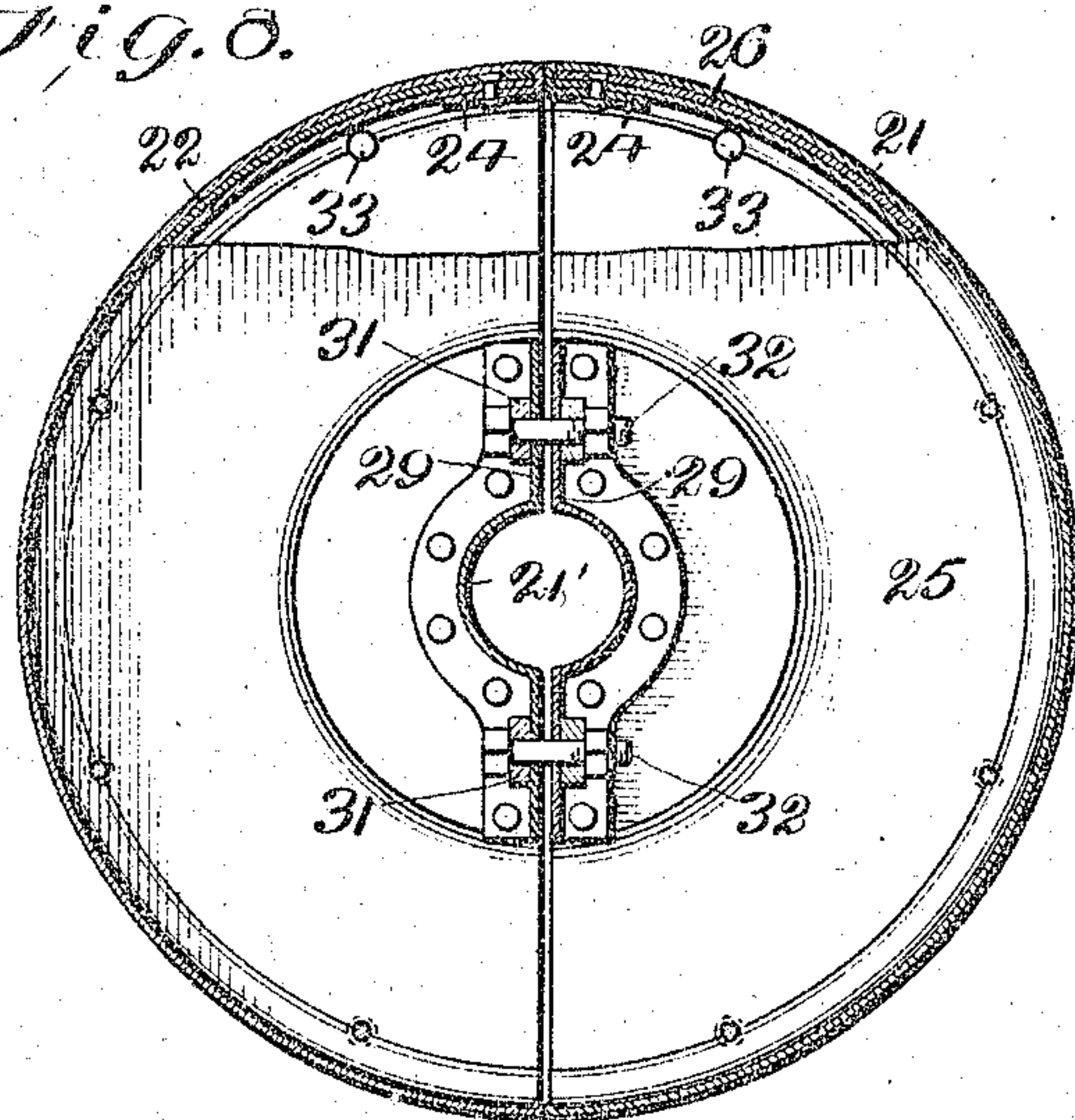
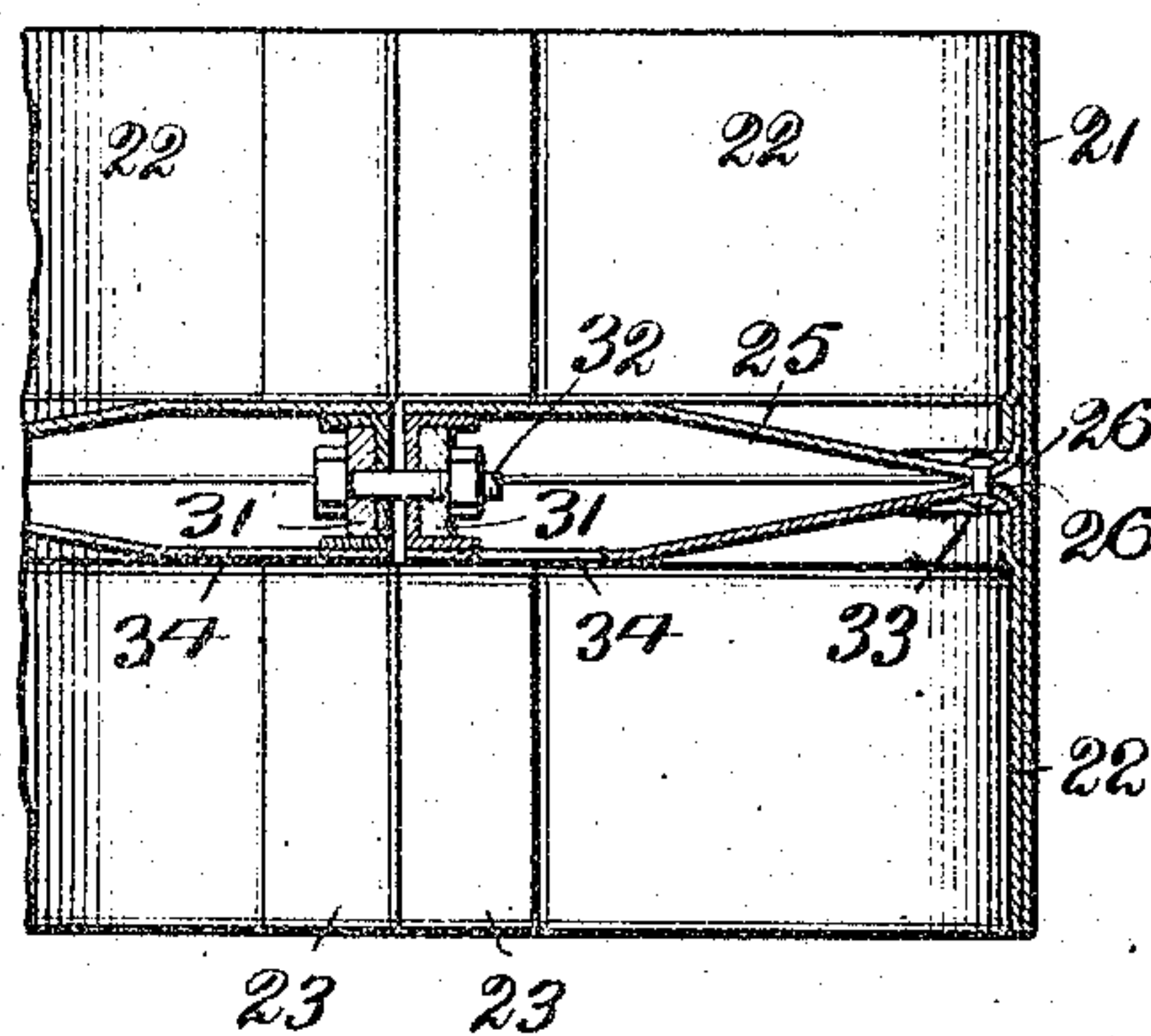


Fig. 9.



Witnesses

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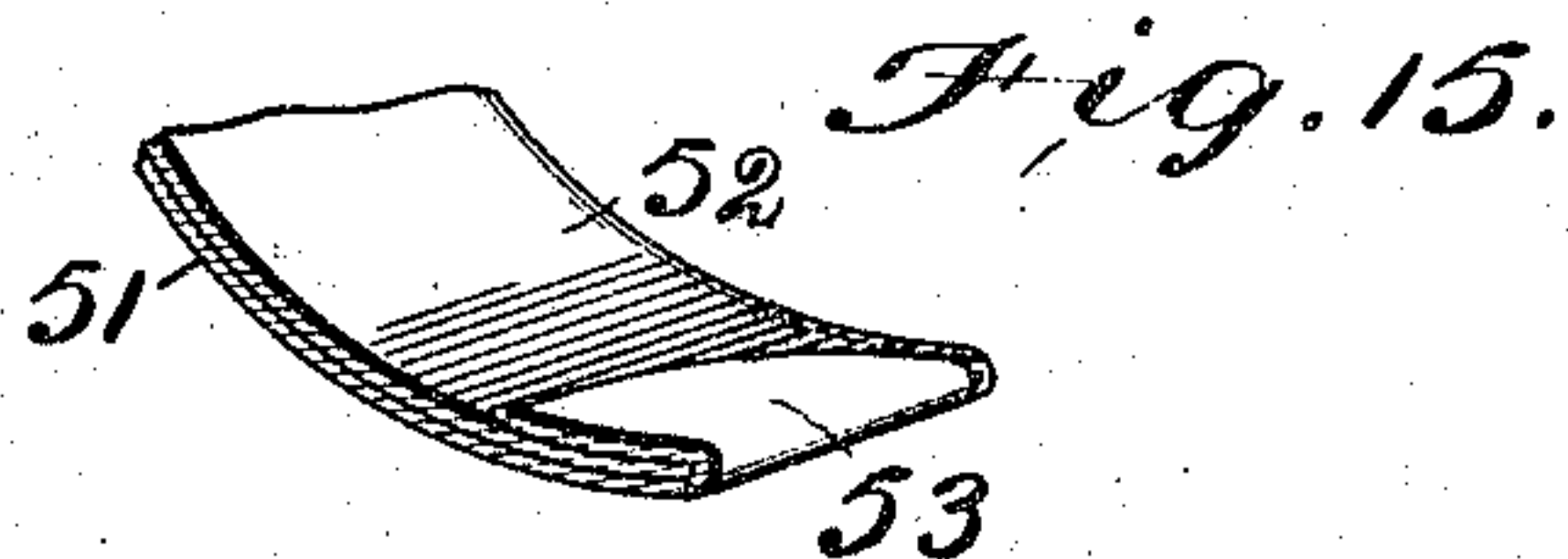
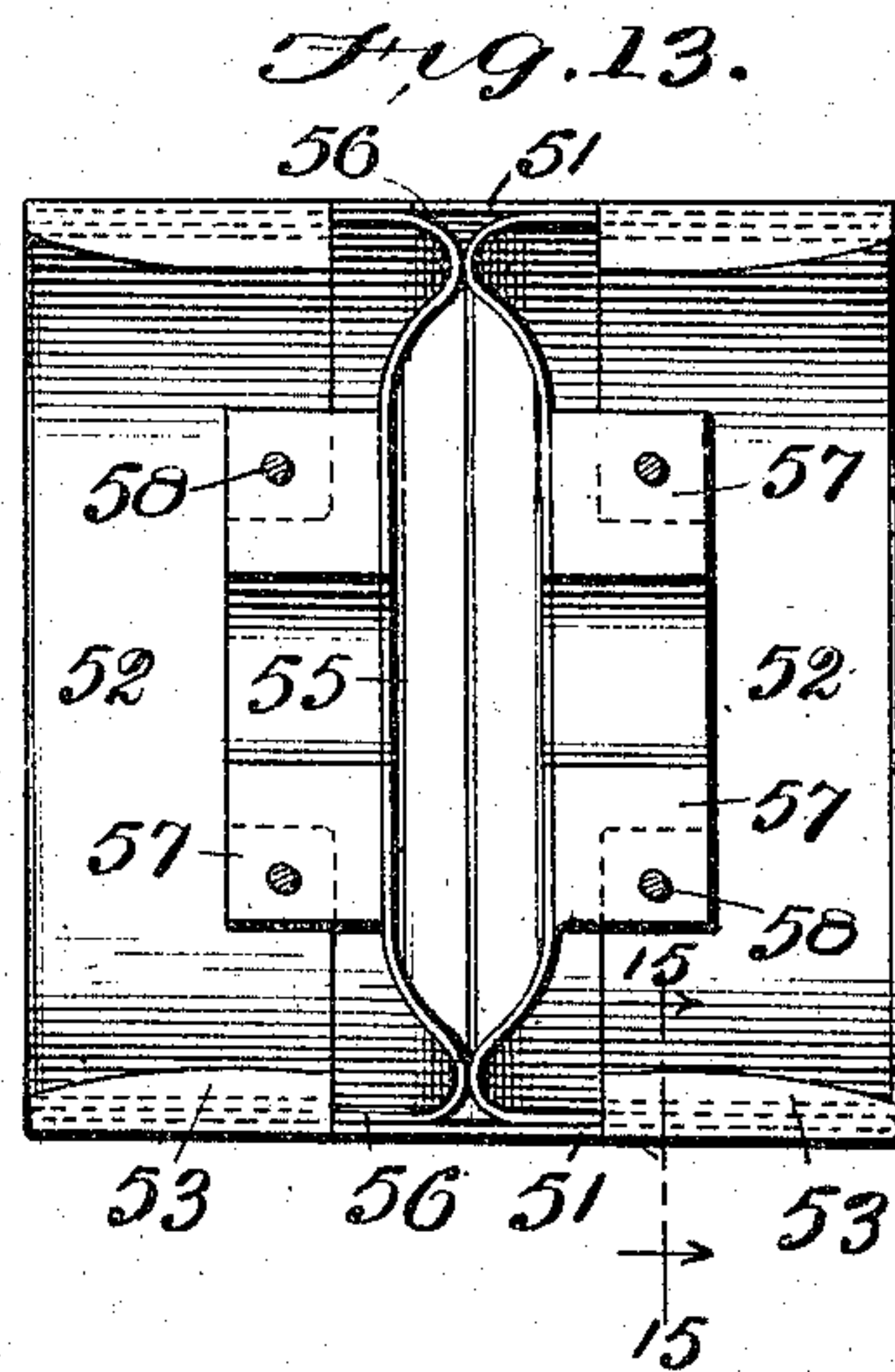
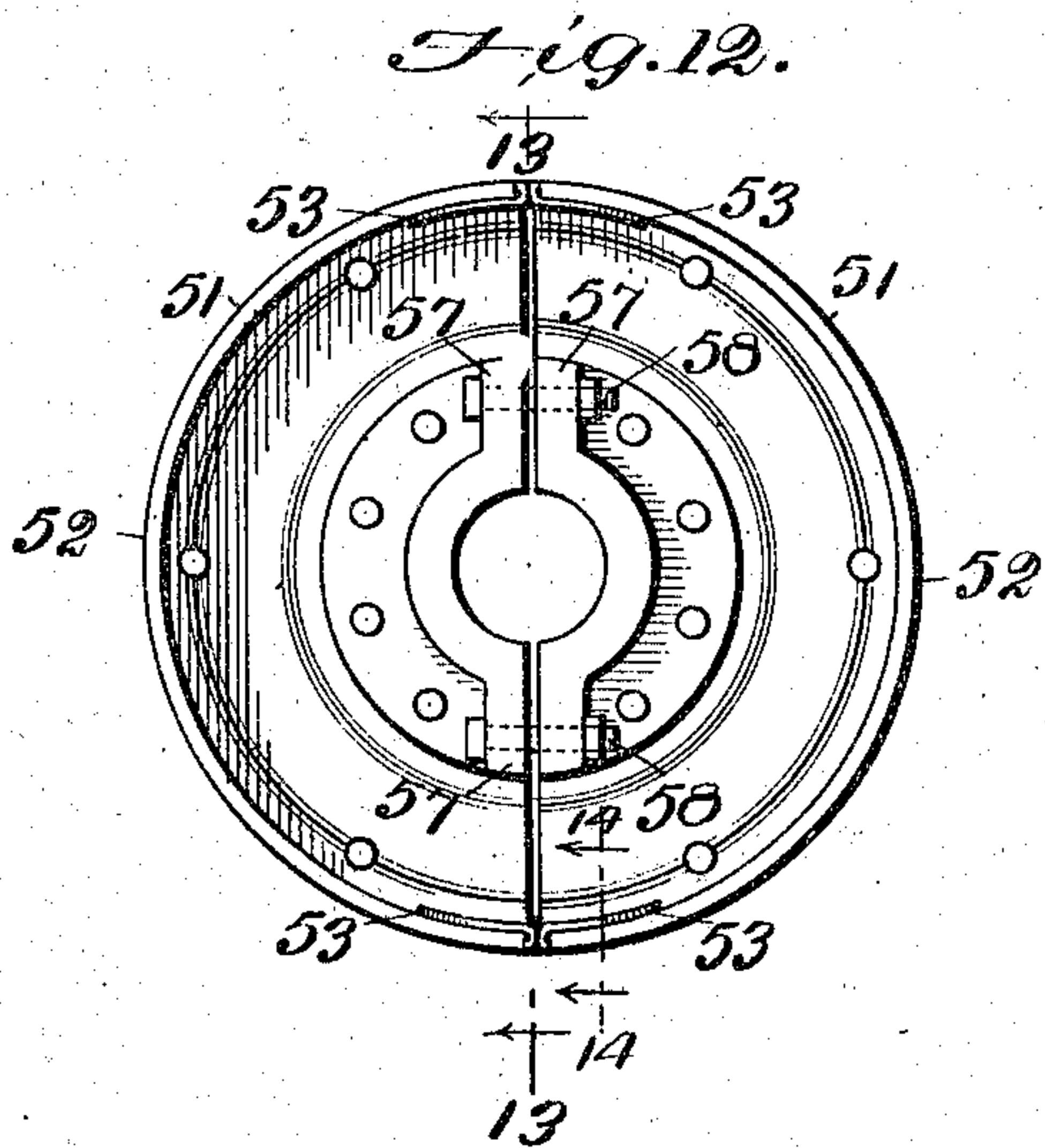
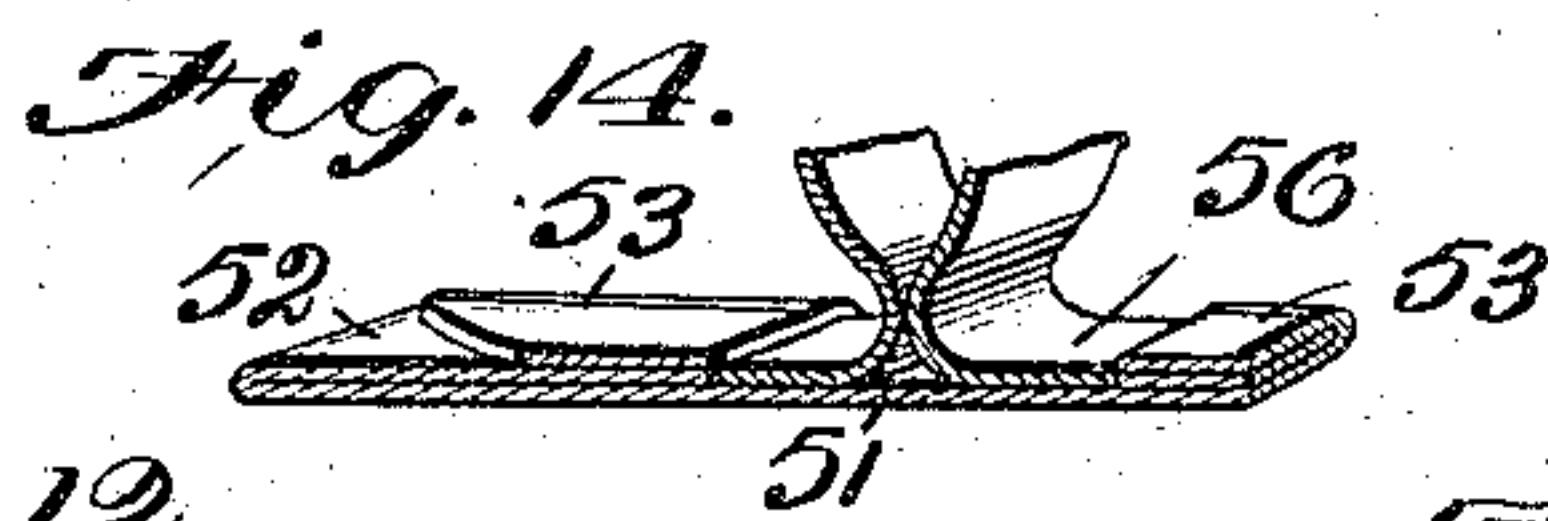
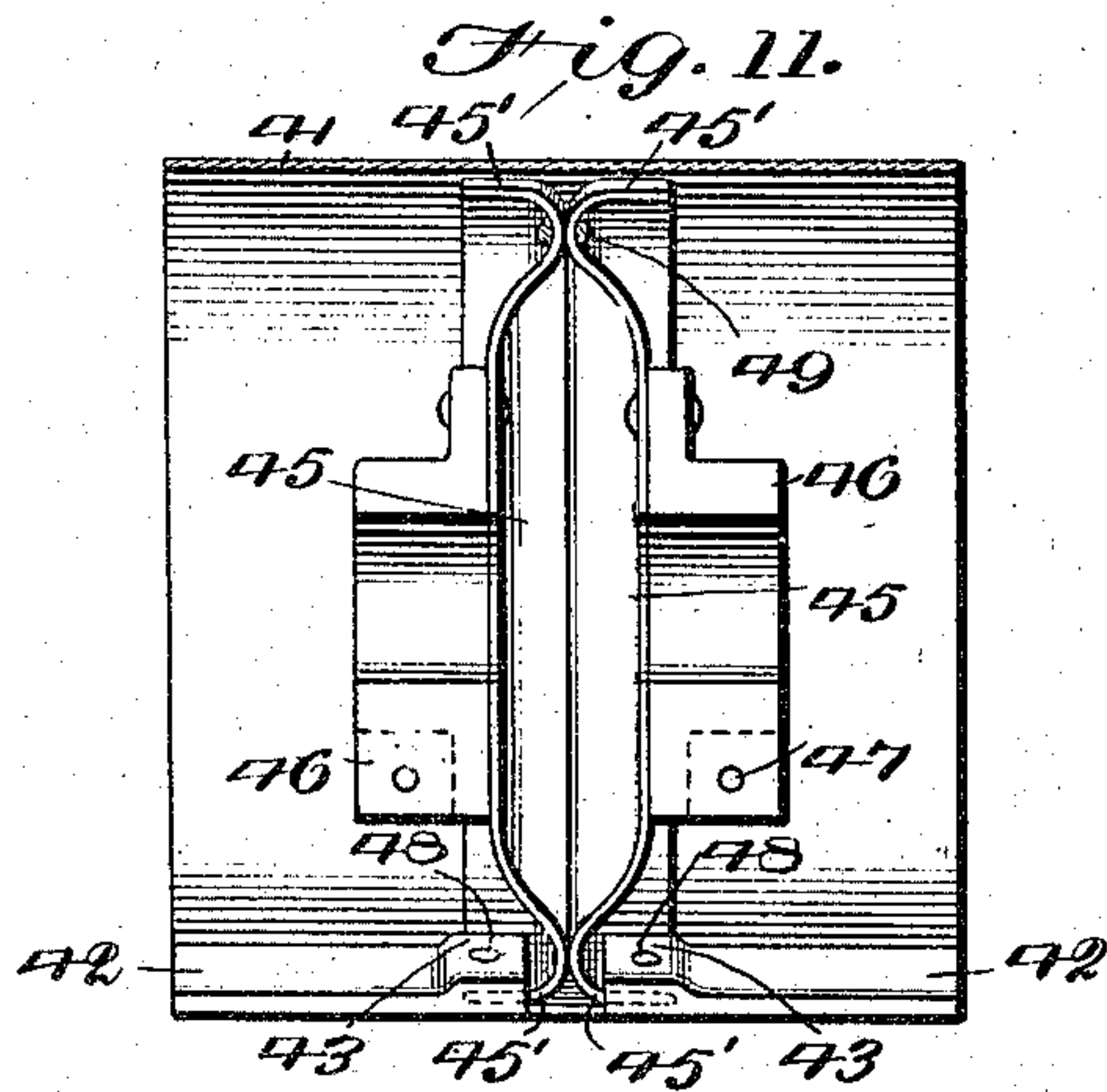
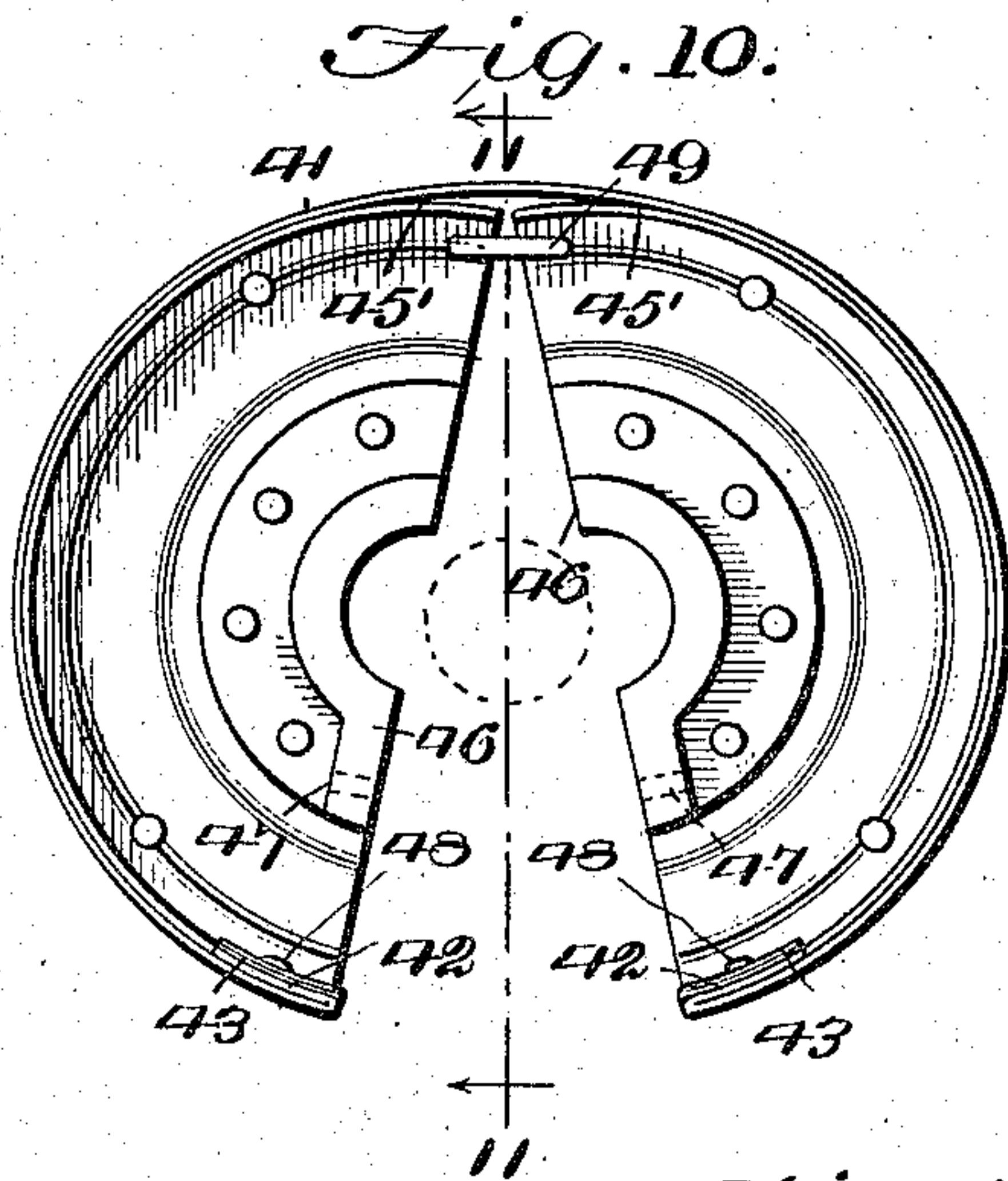
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APPLICATION FILED JAN. 17, 1906.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CONRAD REGER, OF PHILADELPHIA, PENNSYLVANIA.

SHEET-METAL PULLEY.

No. 840,658.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed January 17, 1906. Serial No. 296,471.

To all whom it may concern:

Be it known that I, CONRAD REGER, a subject of the German Emperor, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Sheet-Metal Pulleys, of which the following is a full, clear, and complete disclosure.

My invention relates to pulleys, and more particularly to that class of pulleys which are constructed of sheet-metal material, bent, drawn, or struck up in such a manner as to give the same lightness as well as strength.

The object of my invention is to so construct such a pulley as to enable the same to be attached to the shaft without being passed over the end thereof and at the same time to enable it to have the fewest parts and to possess durability and cheapness of construction.

My invention consists in the details of construction and manner of operation set forth in the following specification and accompanying drawings, in which like reference characters refer to corresponding parts.

In the drawings, Figure 1 is an elevation of one form of my pulley. Fig. 2 is an elevation of the same, showing the parts spread around a shaft, also showing part of the rim in section. Fig. 3 is a transverse section taken on line 3 3 of Fig. 2. Fig. 4 is a plan section taken on line 4 4 of Fig. 1, but showing a part thereof broken away. Fig. 5 is a longitudinal section taken on line 5 5 of Fig. 3. Fig. 6 is an elevation of a modification of my pulley. Fig. 7 is a transverse section thereof, taken on line 7 7 of Fig. 6. Fig. 8 is a longitudinal section taken on line 8 8 of Fig. 7. Fig. 9 is a plan section taken on line 9 9 of Fig. 6, but showing a part thereof broken away. Fig. 10 is an elevation of another modification of my pulley, showing the same spread around a shaft. Fig. 11 is a transverse section thereof, taken on lines 11 11 of Fig. 10. Fig. 12 is an elevation of another modification of my pulley. Fig. 13 is a transverse section thereof, taken on lines 13 13 of Fig. 12. Fig. 14 is a fragmentary longitudinal section taken on line 14 of Fig. 12, and Fig. 15 is a fragmentary transverse section taken on the line 15 of Fig. 13.

Referring to Figs. 1 to 5, inclusive, the rim is represented by 1, which is substantially a hollow cylinder in form, but turned inwardly at 2 to form a bead around the peripheral portions thereof. Within the rim and corre-

sponding to the spokes of the same are the webs 5 5, which are turned outwardly at their peripheral portions to form semicylindrical flanges 6 6, these latter being in close contact with the interior surface of the rim. The circular or body portions of the webs 5 5 are swelled outwardly away from one another, thus forming a space or chamber between them. Within this space or chamber are located the bearing-cylinders 9 9, the same having flanges 9' 9' bolted around the apertures 5' 5' of the web. These apertures are circular and coincide with the interior cross-section of the bearing-cylinders. The peripheries of the webs are bolted together, as shown at 6' 6'. In order to enable the pulley to spread, so that an axle may be passed into its bearings, the two webs are split in a plane passing through one of their diameters and through one of the sides of the rim, as shown in Fig. 2. In order to form a fulcrum pivot-point for each of the swinging webs 5 5, the link 7 is passed therethrough near the rim on its closed side. The edges of the split portion of the rim are extended beyond the edges of the split portions of the web on each side of the same and are turned backwardly upon the inner surface of the rim, as shown at 3, a part of each inturned portion overlapping the edges of the split portions of the flanges 6 6, as shown at 4. The rivets 3' 3' are passed through these overlapping edges and flanges, but not through the exterior surface of the rim, as shown in Fig. 5. The inturned edge 2 of the rim does not pass entirely around the inner surface of the rim, but is cut off to allow the turned-in portion 3 to be pressed down on the interior surface, its inner edge meeting the inturned edge 2, thus making the entire circumference of the overlapping portions flush. The cylindrical bearing portions 9 9 are made up of two semicylindrical parts, and each has one edge thereof extended outwardly in the form of a flat plate 4' in a plane passing through the axis of the pulley. These plates or flat portions 4' 4' thus present a partial face of the split section of the web, as shown in Fig. 3. Across the outside of these plates or the surfaces thereof toward the rim are located the bolt-plates 11, which are bolted together by the bolts 12 12 in the manner shown in Figs. 1 and 4. Adjacent to the bolts in each split portion of the flanges are hand-holes 14 14, through which access may be had to the bolt heads and nuts.

Referring to Figs. 6 to 9, inclusive, which

are all of the views of one of the modifications of my pulley, 21 represents the rim, 25 the webs, the edges of which terminate in semicylindrical flanges 26 26 in the same manner as described in the preceding modification. The webs are spread apart, forming a space or chamber between them, but are riveted together by rivets 33 around their peripheries. The rim 21 is turned back upon itself and its outer edges, forming an interior lining or thickness 22 22, the inturned portions extending directly up to the webs and overlapping the flanges thereof. Between the two webs are the semicylindrical bearing portions 21' 21', having their cross-sections coinciding with circular orifices 22' 22' in the webs. The longitudinal edges of each semicylindrical bearing portion extend upwardly and downwardly to form plates 29 29, which are in a plane parallel with the axis of the cylinder. In this modification the two flanges and the rim are split in a plane passing through the axis of the pulley, the said pulley being separated into two separate parts. On the outside of each of the faces 29 29 are the bolt-plates 31 31, through which are passed the bolts 32 32 when the two sections of the pulley are to be fastened together. The edges of the rim adjacent to their split portions are extended on each side of the webs and bent back upon themselves in a similar manner to that explained in preceding modification. In this modification, however, the extended outside portion of the rim necessarily overlaps the previously-described inturned portion 22, which runs around the interior of the rim to the edge where the extending portion is turned back. This turned-back portion 23 also overlaps the cylindrical flange, as shown at 24, these overlapping portions presenting a quadruple thickness of metal, consisting of the outside rim 21, the web-flange 26, the inturned portion of the rim 22, and the last-described inturned edge 24. This construction is of course duplicated upon the opposite split portion of the pulley. Hand-holes 34 are cut in one side of the webs to give access to the bolts.

Figs. 10 and 11 illustrate another modification of my invention, in which 41 is the rim of the pulley, 45 45 the webs, and 46 the semicylindrical bearings. The webs 45 45 are turned outwardly at their peripheral portions to form semicylindrical flanges 45' 45'. The semicylindrical portions 46 46 are bolted over central orifices in the webs in the same manner as illustrated in the previous modification. The pulley is split in the same manner as that shown in the modification illustrated in Figs. 1 to 5, inclusive—that is, through one side of the rim and through the webs—the latter being held on a fulcrum-link 49, like link 7. (Shown in Fig. 1.) The edges along the split portion of the rim are

turned back on themselves, overlapping the inner surface of the rim, as shown at 42. The said overlapping portions also overlap the semicylindrical flanges 45' 45', as shown at 43 43, and are bolted thereto, as shown at 48 48. The two pair of split portions of the webs may be bolted together over a shaft by passing bolts through the holes 47 47.

In Figs. 12 and 13 I disclose another modification of my invention, in which 51 represents the rim, 55 55 the webs, and 56 56 the semicylindrical flanges thereof. To the central apertures in the cylindrical flanges are bolted semicylindrical bearings 57 57 in a like manner to that of the bearings in the previous modification. The rim 51 is bent upon itself at its outer edges, overlapping its interior surface, as shown at 52; its edges meeting the edges of the flanges 56 56. This pulley is split in a like manner to that shown in Figs. 6 to 9, inclusive, the edges of the rim along the split portions being folded back upon themselves, overlapping its interior surface, as shown at 53, and also the overlapping portions of the rim and first-mentioned inturned edge 52, the overlapping portions being riveted together in the same manner as the overlapping portions in the modifications shown in Figs. 6 to 9, inclusive. In this modification the turned-back portions 52 of the rim extend inwardly until they meet the outer edges of the flanges 56, thus forming a flush surface. The turned-back portions 53 also terminate at the outer edges of the flanges instead of overlapping the same. In these two modifications (illustrated in Figs. 10 to 14, inclusive) the semicylindrical bearing-pieces are made of cast-iron instead of sheet metal, as shown in the other modification, it sometimes being more desirable to have a cast instead of a sheet metal bearing, especially in case of a heavy load on the pulley.

From the above-described constructions it may be seen that I have produced a light, strong, and durable pulley out of sheet metal, using a very few parts. By bending and overlapping the same in the peculiar manner above described, I produce two or more thicknesses in proportion to the strain borne on the various parts. When it is desired to place one or more pulleys in position on an axle, instead of inserting the shaft longitudinally through the central bearing I spread the pulley in the manner already described and bring the two spread portions around the axle and bolt the same together through the adjacent bolt-plates, as hereinabove described. When the pulley is merely split along one side of the rim, I then bring it down astraddle of the shaft until the latter is opposite the bearing, when I pull the two spread parts together against the resiliency of the rim. This has a tendency, on account of the link 49 acting as a fulcrum, to spring

the flange portions adjacent to the fulcrum against the interior of the rim, thus holding the same in tight frictional engagement. I wish it distinctly understood that I may interchange any of the axle-bearing parts of the several modifications shown and that the turned-back portions of the outer periphery of the rim and the split edges thereof may overlap the outwardly-extending flanges of the webs or terminate at the edges thereof, as is shown in Figs. 12 to 15, inclusive, and, further, I do not confine myself to the bearing-sleeves illustrated and described, but reserve the right to utilize any other forms of bearing-sleeves adapted to any of my web constructions.

Although throughout this specification I have used various terms—such as “rim,” “web,” “flange,” “bearing,” &c.—I do not wish to confine myself to the exact construction of the same illustrated or described, but reserve the right to utilize any of the well-known equivalents thereof, provided the same are within the scope of my invention, as pointed out in the following claims.

What I claim, and desire to secure by Letters Patent, is—

1. A sheet-metal pulley comprising a rim, a pair of webs having alined apertures, the said rim and webs being split in a plane passing through the axis of the rim, to permit an axle to be passed therethrough into the said apertures, means for clamping said split portions together, a semicylindrical bearing-sleeve attached to each split portion of each web, each semicylindrical portion terminating in a flat flange parallel with the axis of the rim, and bolt-plates extending across the space between the two webs, the said bolt-plates having their extremities resting on their respective flanges and bolted thereto by bolts and nuts.

2. A sheet-metal pulley comprising a rim, a pair of webs having alined apertures, the said rim and webs being split in a plane passing through the axis of the rim, to permit an axle to be passed therethrough into the apertures, means for clamping said split portions together, a semicylindrical bearing-sleeve attached to each split portion of each web, each semicylindrical portion terminating in a flat flange parallel with the axis of the rim, bolt-

plates extending across the space between the two webs, the said bolt-plates having their extremities resting on their respective flanges and bolted thereto by bolts and nuts, and the said webs having hand-holes therein to give access to the bolt-heads.

3. A sheet-metal pulley comprising a rim, a pair of webs having alined apertures, the said rim and webs being split in a plane passing through the axis of the rim, to permit an axle to be passed therethrough into said apertures, the edges of the rim adjacent to said split portion being turned back upon themselves.

4. A sheet-metal pulley comprising a rim, a pair of apertured webs, having their peripheral portions turned outwardly into flanges in contact with the interior surface of the rim, the said rim and webs being split in a plane passing through the axis of the rim, to permit an axle to be passed therethrough into the apertures, the edges of the rim adjacent to said split portion being extended and turned back upon themselves.

5. A sheet-metal pulley comprising a rim, a pair of apertured webs, having their peripheral portions turned outwardly into flanges in contact with the interior surface of the rim, the said rim and webs being split in a plane passing through the axis of the rim, to permit an axle to be passed therethrough into the apertures, the edges of the rim adjacent to said split portion being extended and turned back upon themselves to overlap the split portion of the flanges of the web.

6. A sheet-metal pulley comprising a resilient rim a pair of apertured webs, the said rim and webs being split in a plane passing through the axis of the rim to permit an axle to be passed therethrough into the said apertures, the peripheral portions of said rim being turned back upon themselves on the interior surface of the rim, and the edges of the rim adjacent to said split portions being turned back upon themselves to overlap the inturned peripheral portions.

In witness whereof I have hereunto set my hand this 13th day of January, A. D. 1906.

CONRAD REGER.

Witnesses:

WITTER HOLDEN,
ALEXANDER PARK.