

H. W. WORTHINGTON.
NUT LOCK.
APPLICATION FILED JULY 8, 1908.

919,993.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

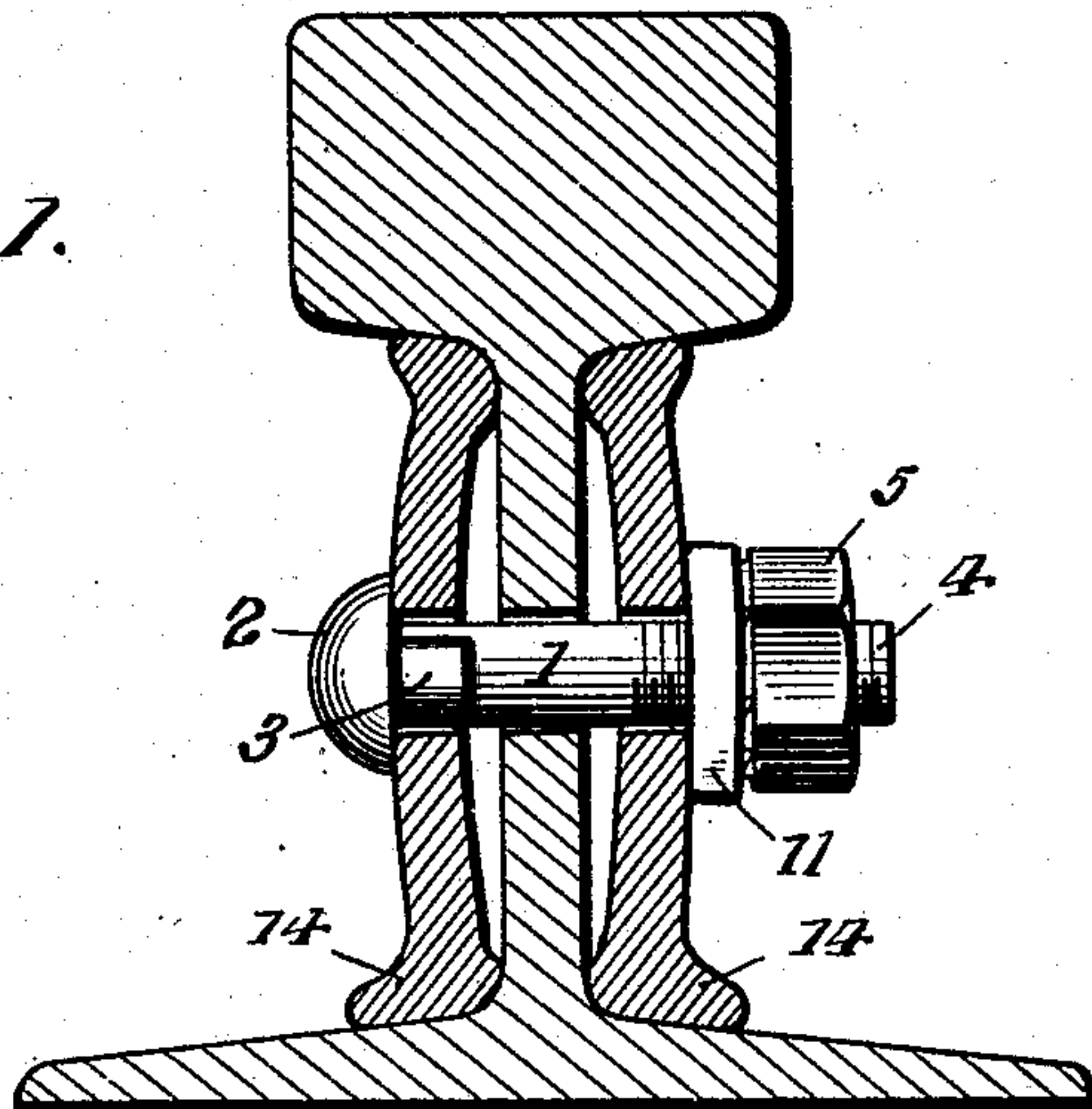


Fig. 2.

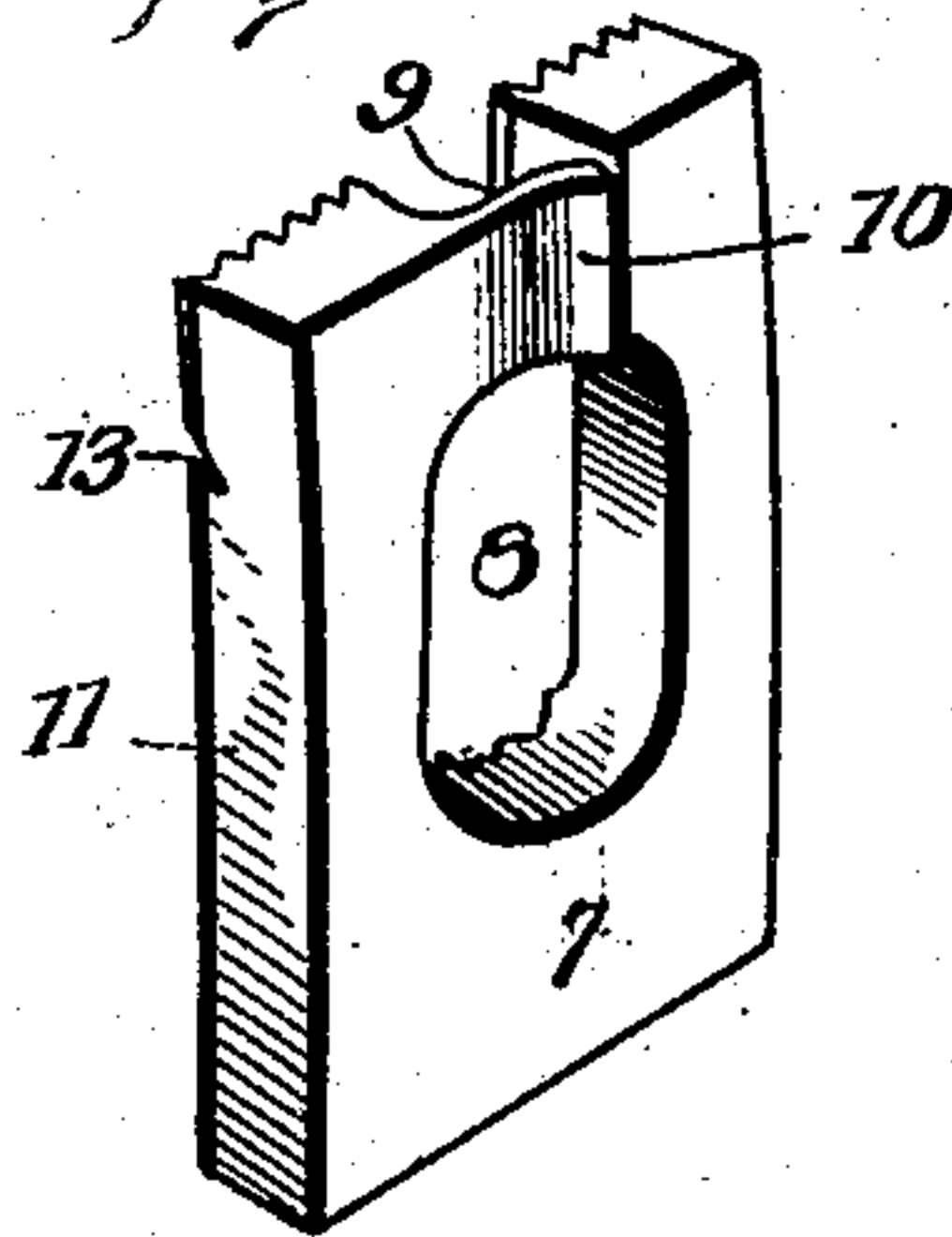


Fig. 3.

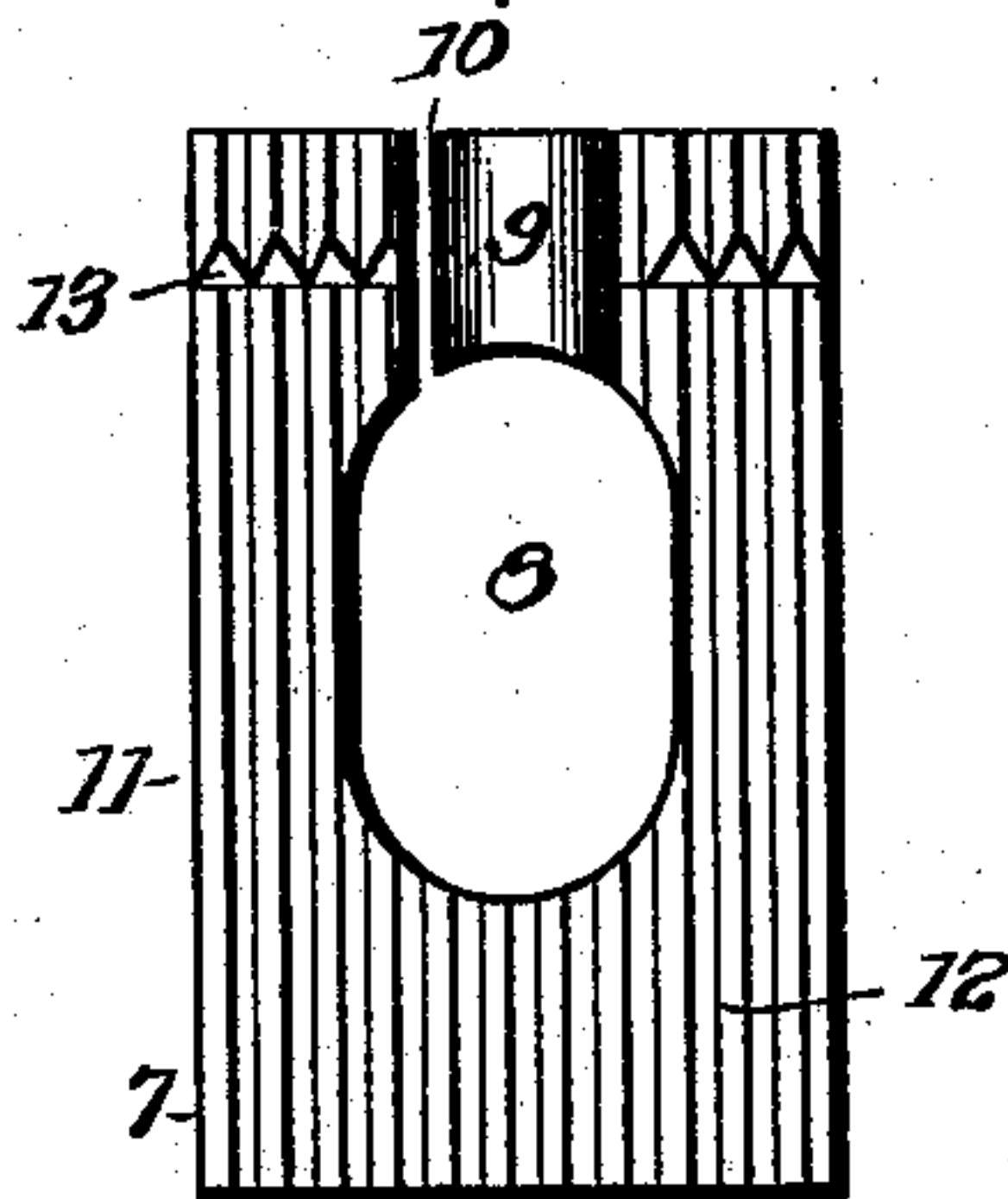


Fig. 4.

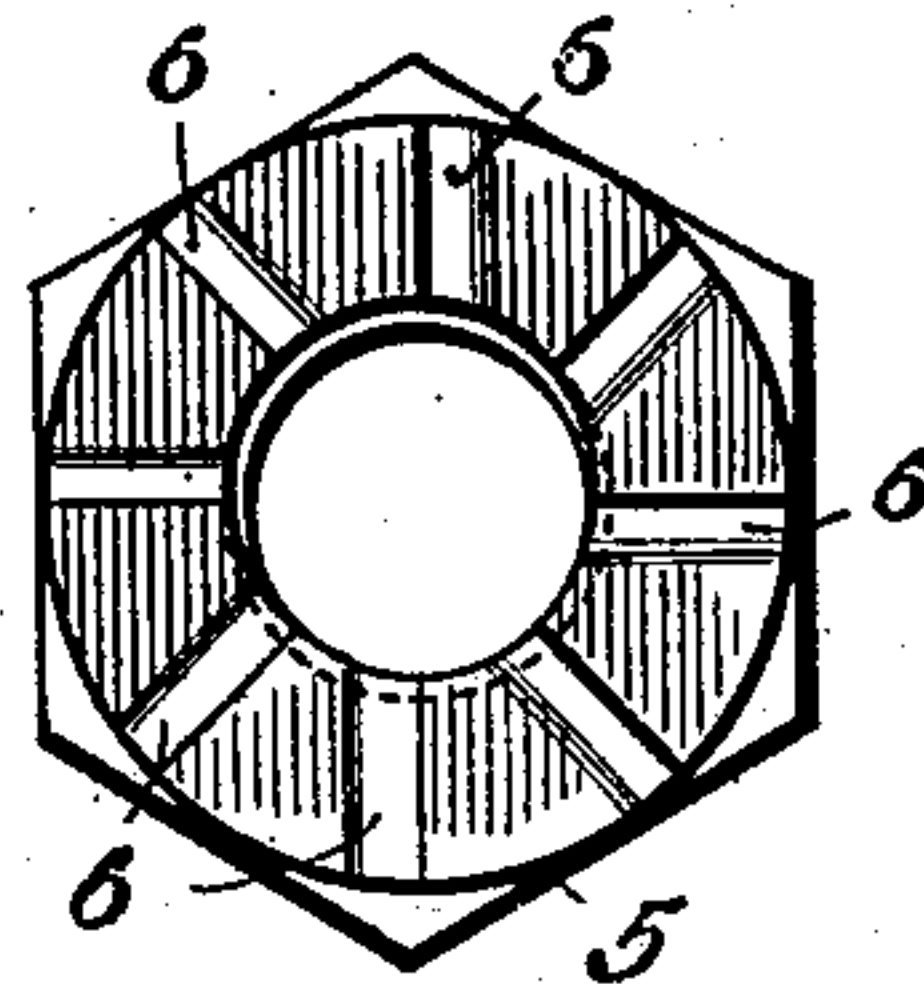


Fig. 5.

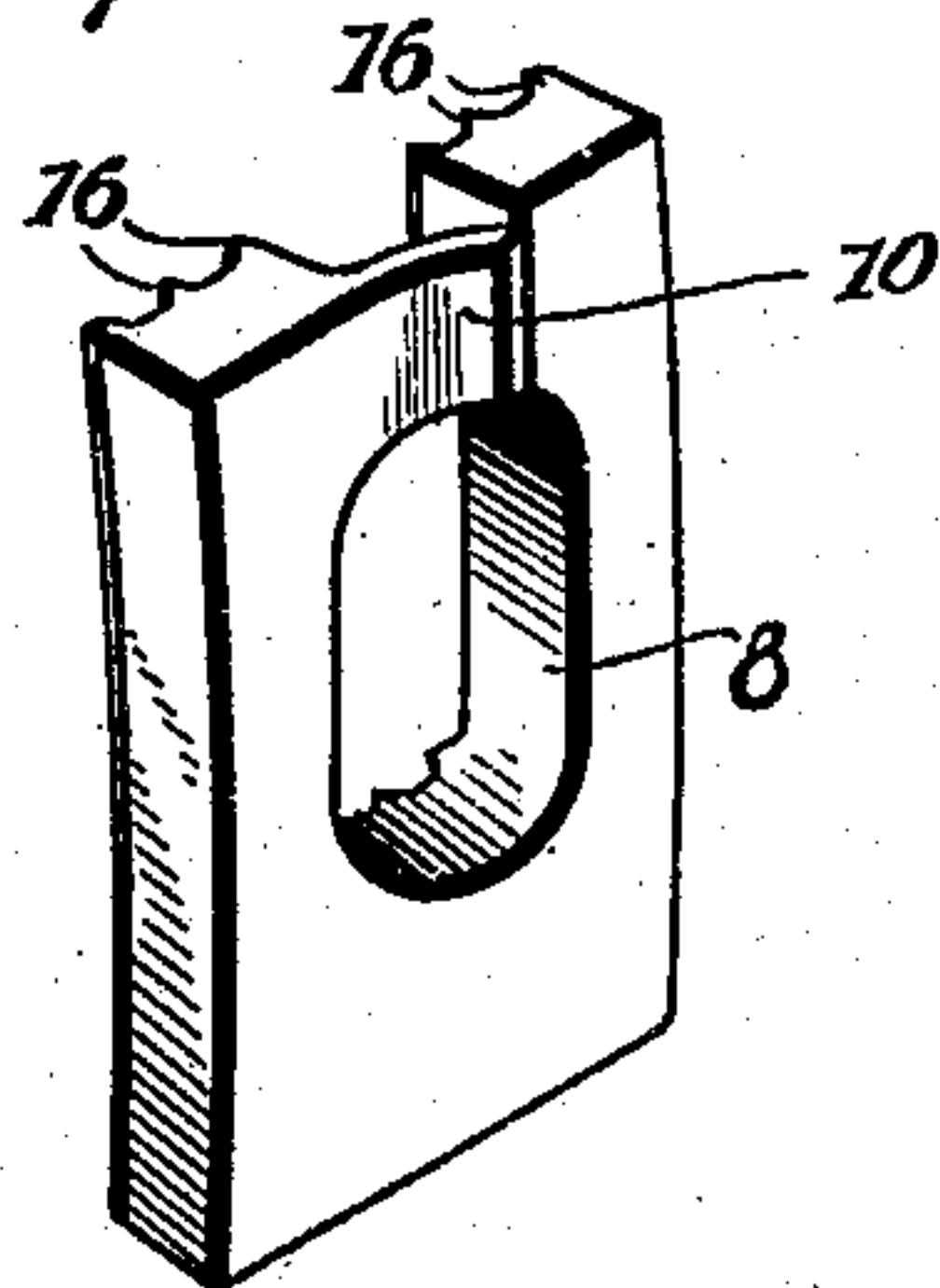
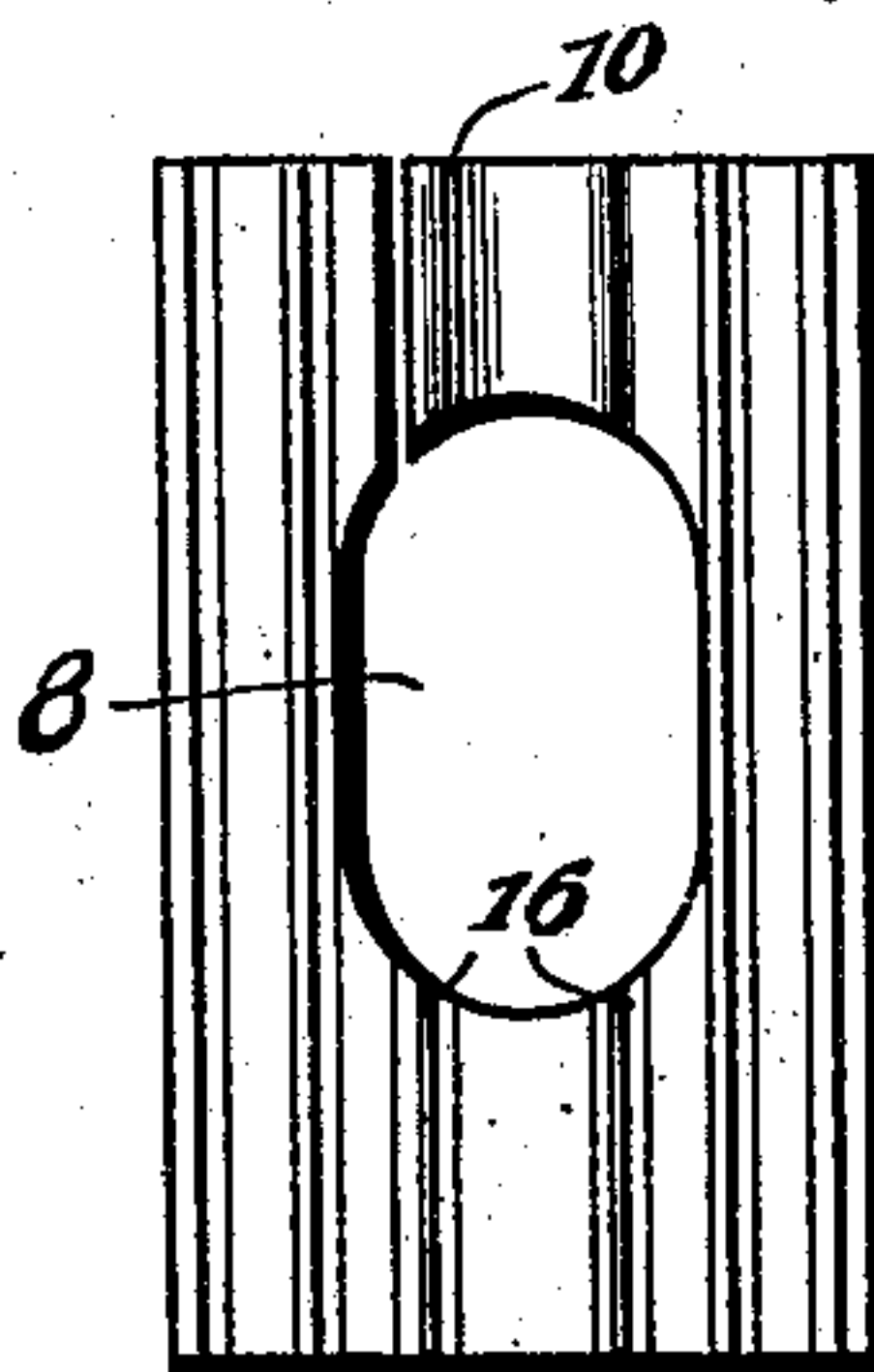


Fig. 6.



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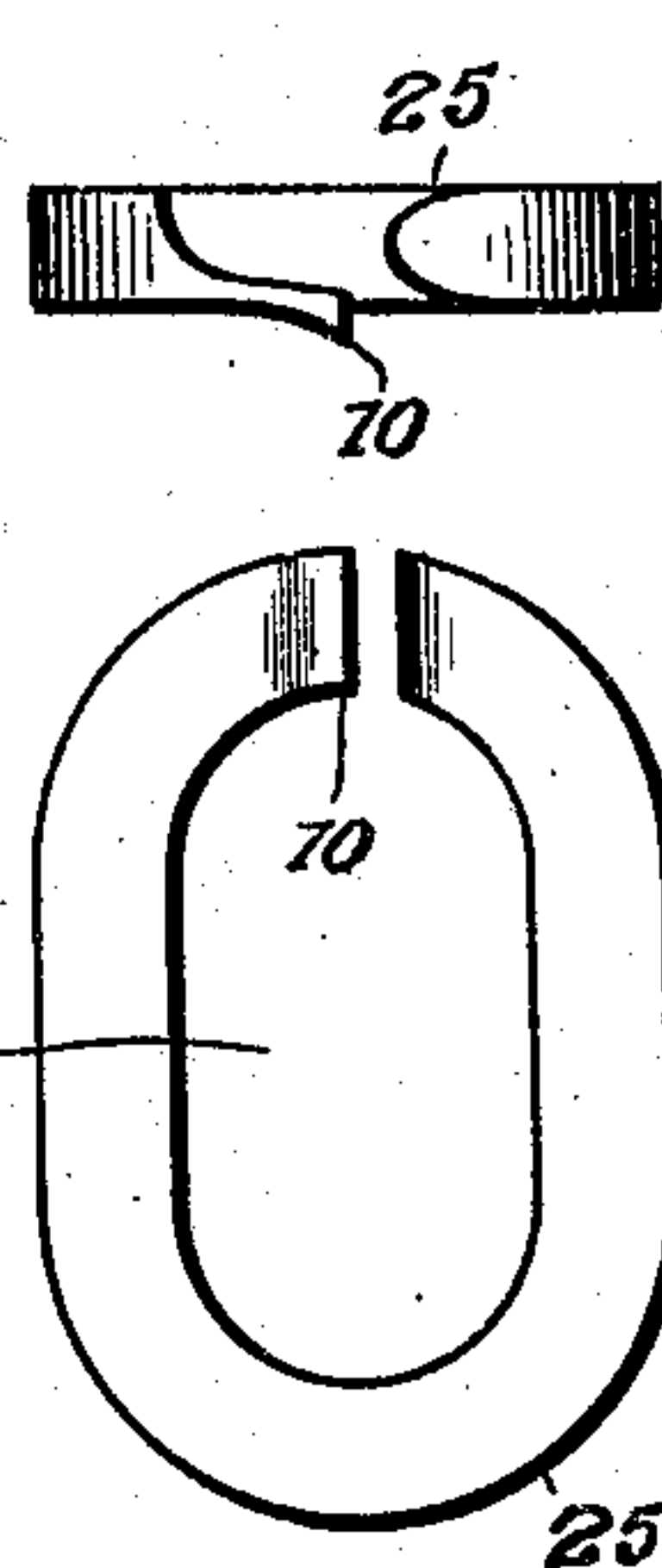
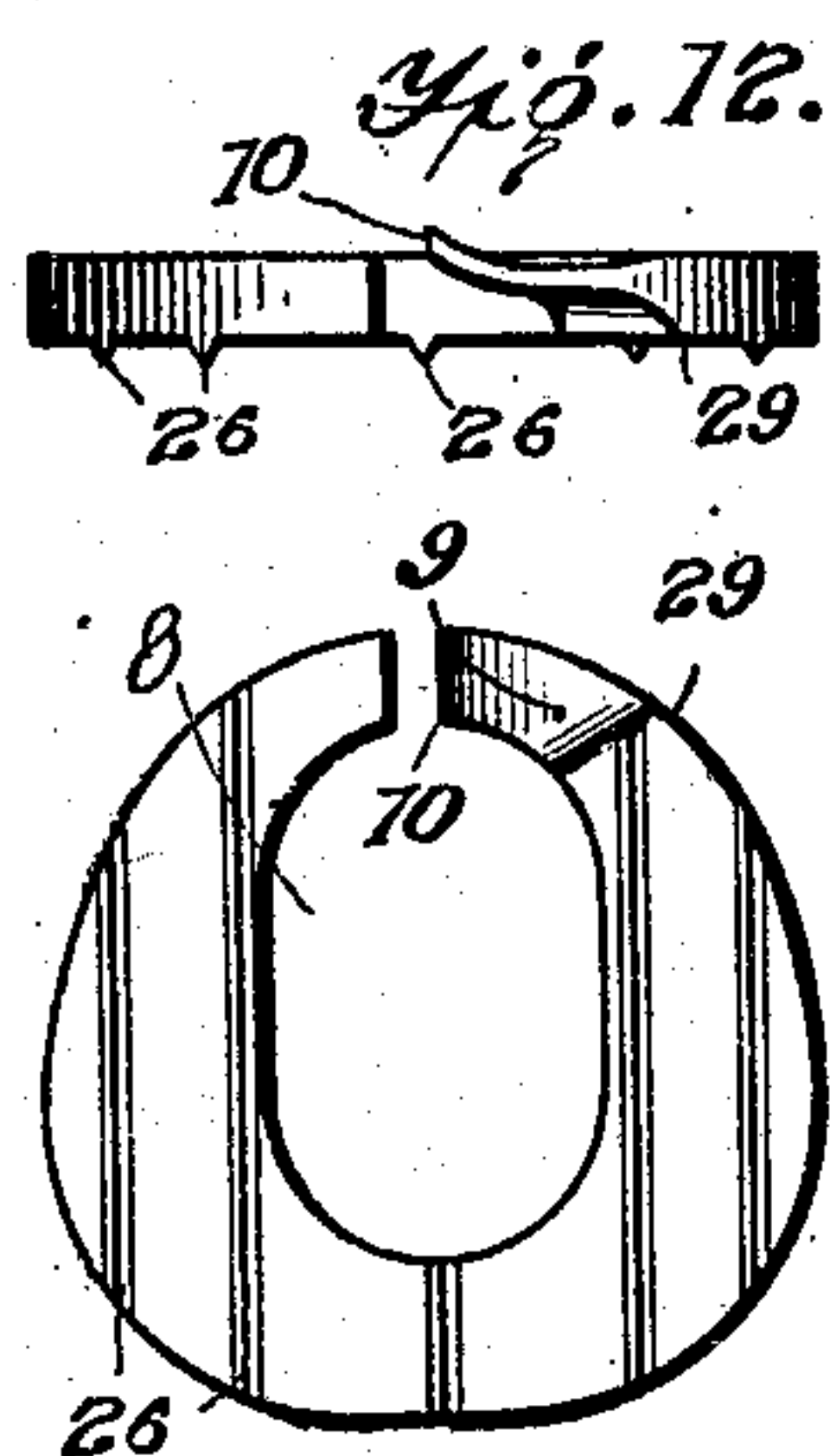
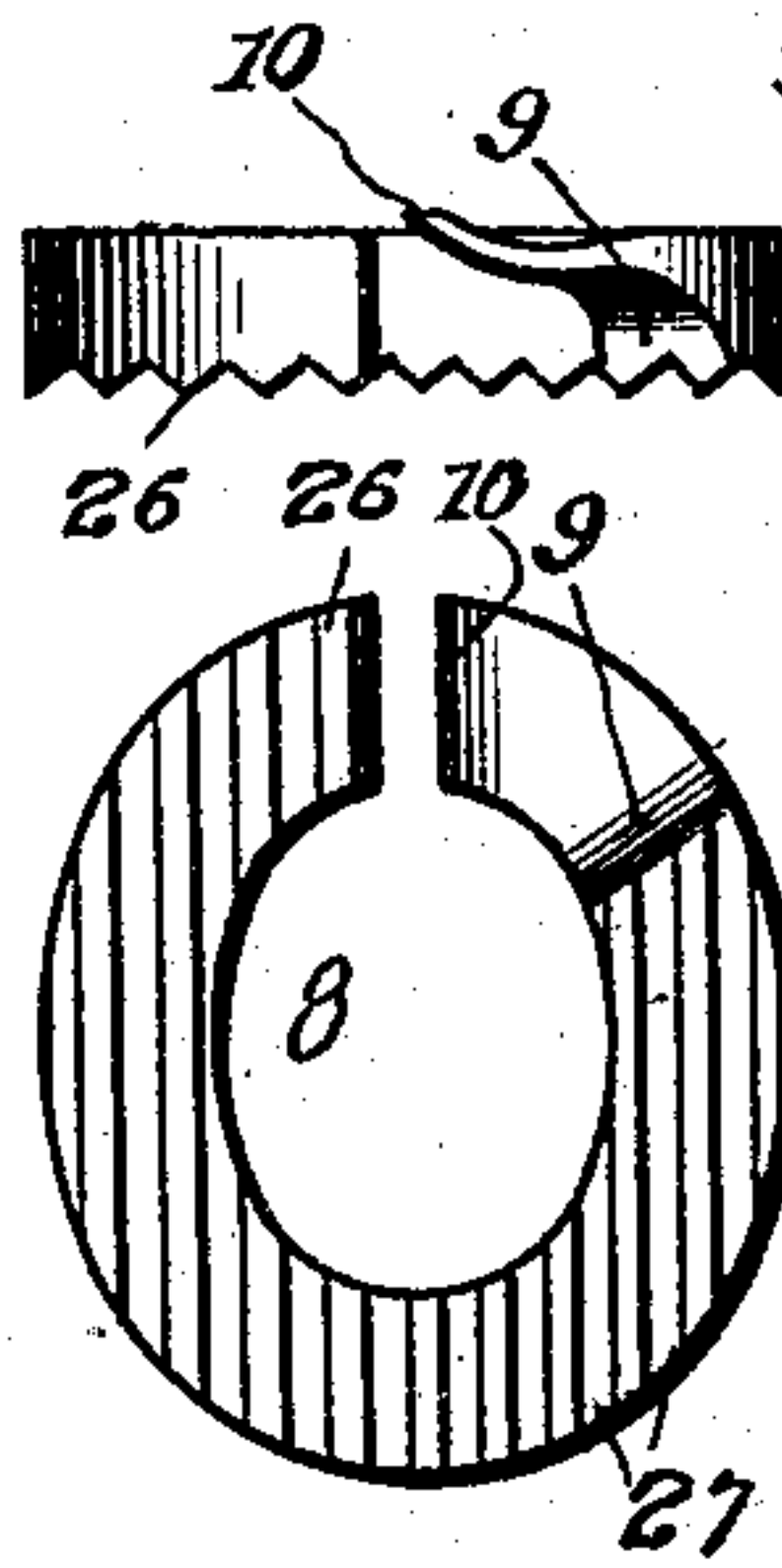
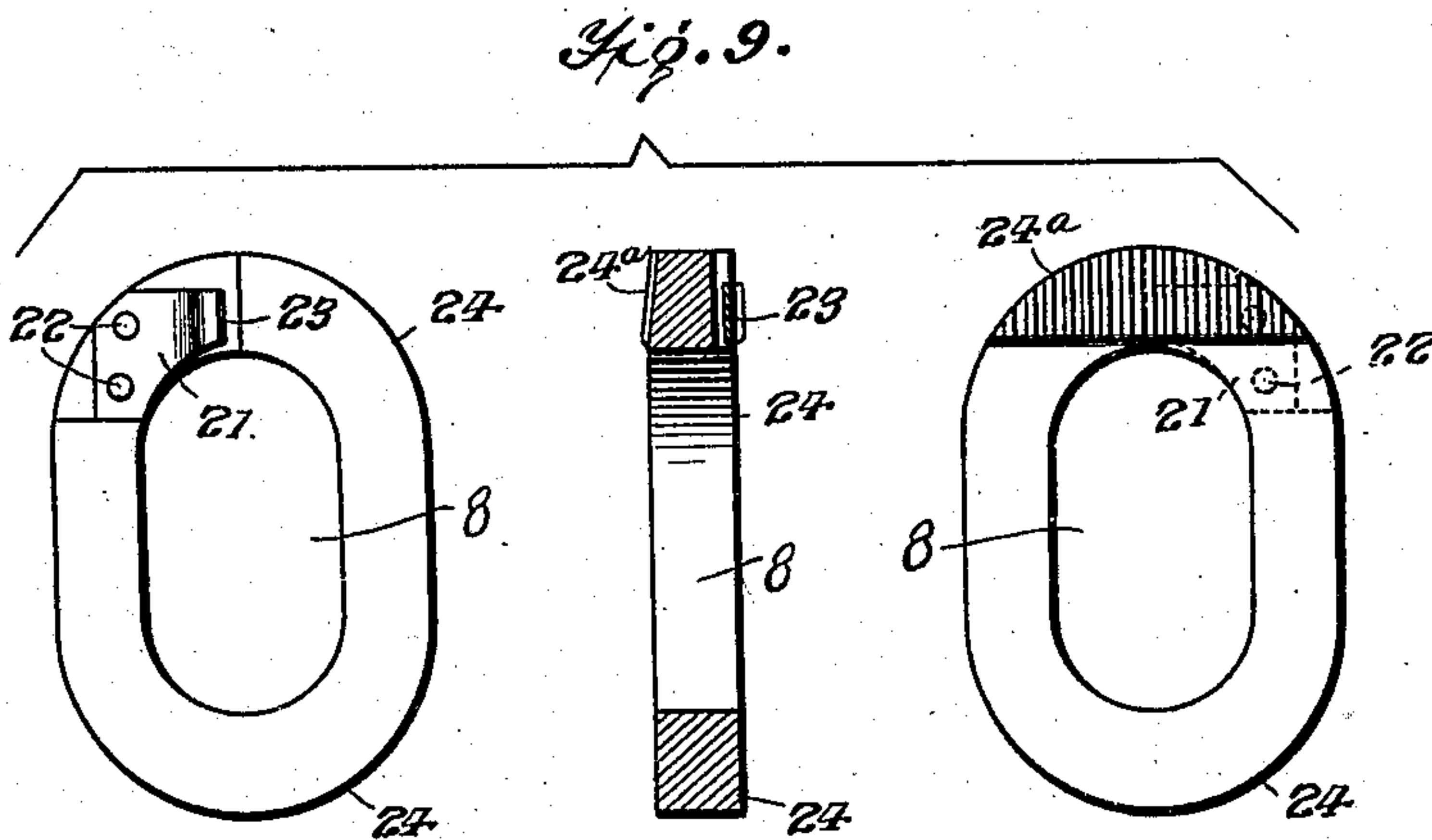
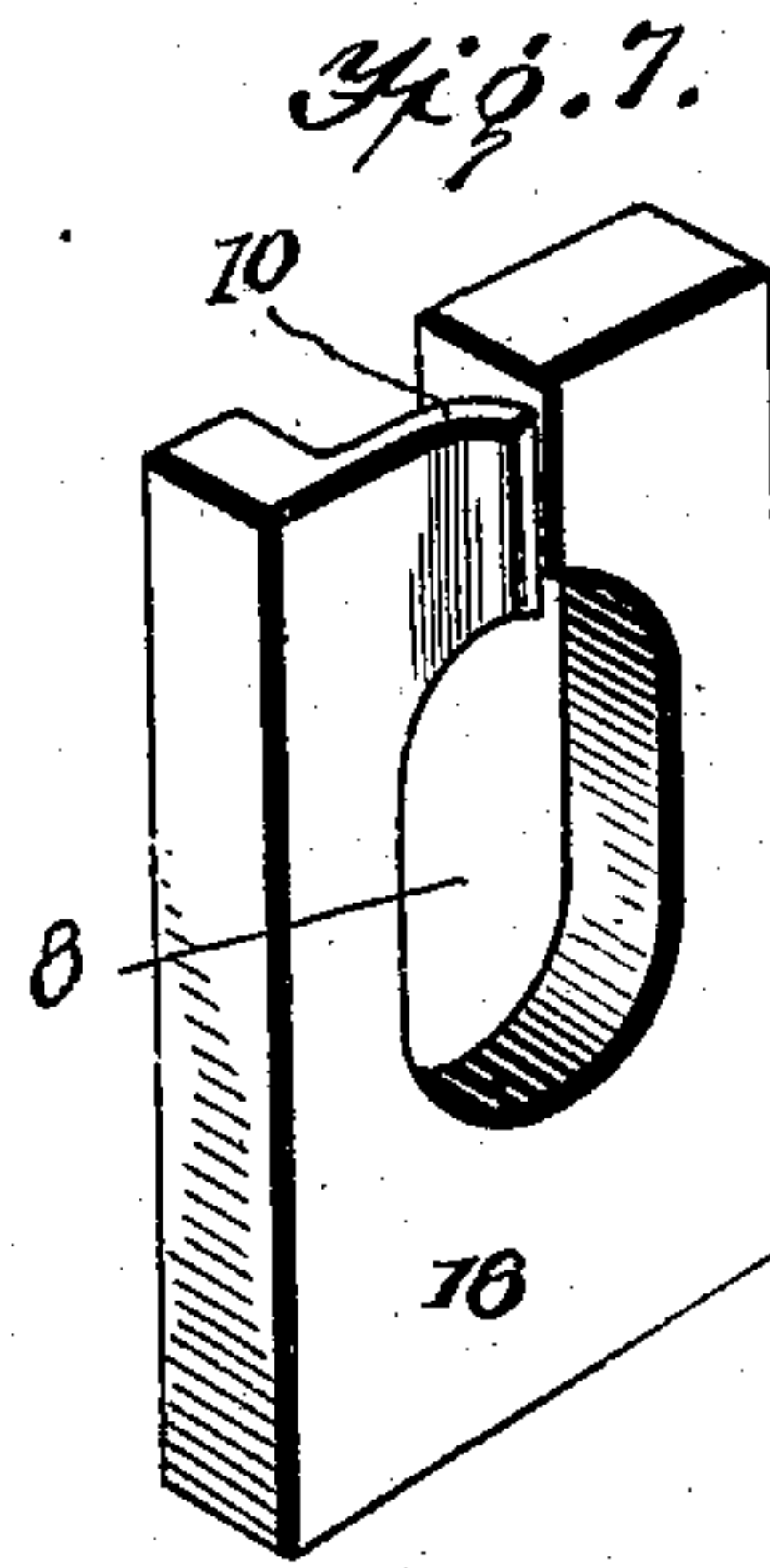
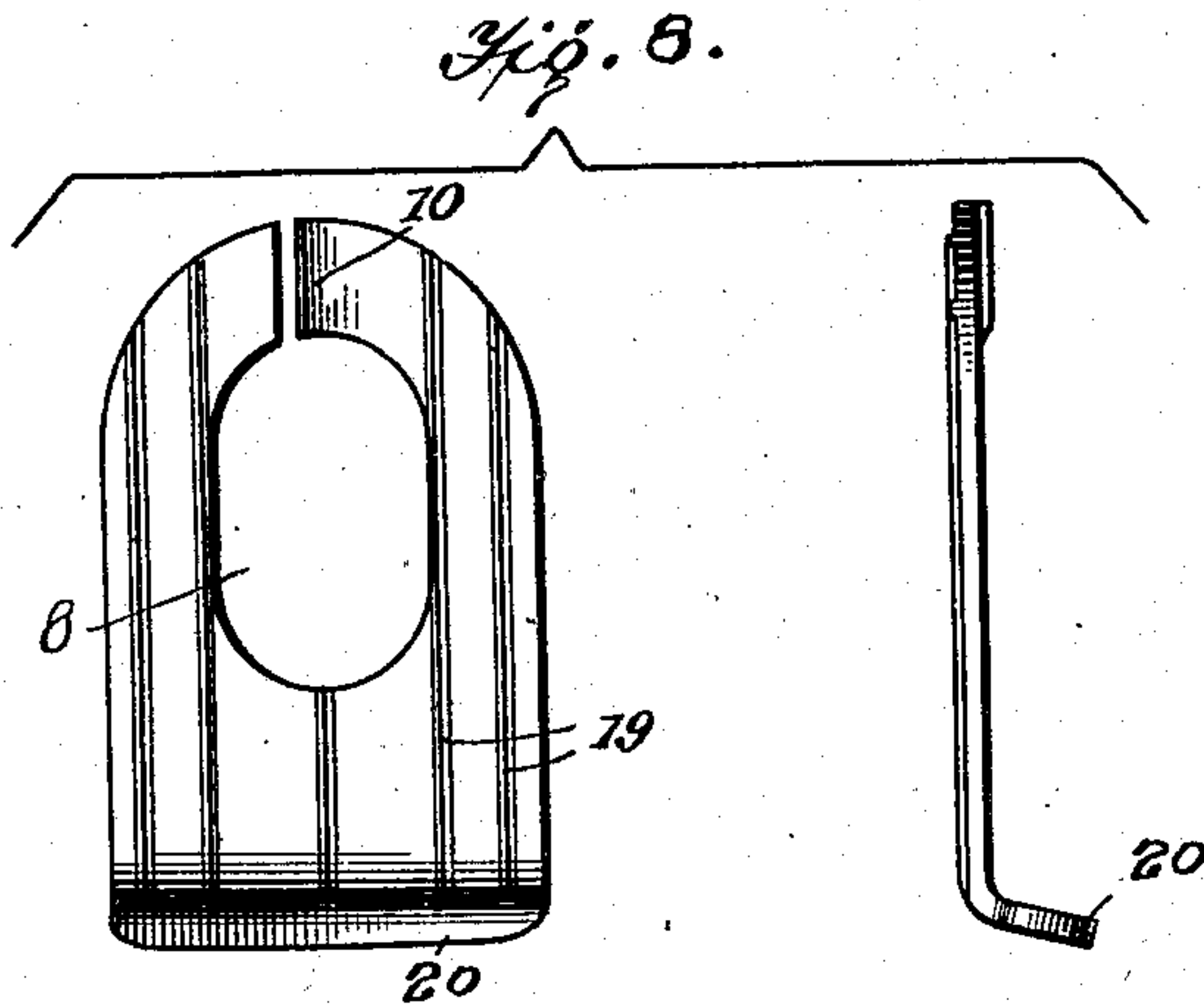
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2 SHEETS—SHEET 2.



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NUT-LOCK.

No. 919,993.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed July 8, 1908. Serial No. 442,450.

To all whom it may concern:

Be it known that I, HENRY W. WORTHINGTON, a citizen of the United States, and a resident of Richfield, in the county of Morton and State of Kansas, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification.

My invention is an improvement in nut locks and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof Figure 1 is a transverse section through a rail showing a bolt provided with my improved nut lock. Fig. 2 is a perspective view of the lock. Fig. 3 is a bottom plan view. Fig. 4 is a plan view of the nut. Fig. 5 is a perspective view of a modified form. Fig. 6 is a bottom plan view of Fig. 5. Fig. 7 is a perspective view of another modification. Fig. 8 is a bottom plan view and a side view of another modified form. Fig. 9 is a top plan, central longitudinal section, and bottom plan view of another modified form. Fig. 10 is a plan and edge view of another modified form, and Figs. 11, and 12 are similar views of other modified forms.

In the present embodiment of my invention, the bolt 1, is provided with the usual head 2 having the lateral enlargement 3, for preventing turning of the bolt and the usual threaded end 4, upon which screws the nut 5. The nut is of any suitable size and shape, and is provided on its inner face with an annular series of ratchet teeth, 6, for a purpose to be presently described.

The nut lock shown in Fig. 1, comprises a plate 7, having an elliptical opening 8 there-through, the plate at one end of the opening being cut-away as at 9, to form a tooth 10 for engaging the ratchet teeth, the washer being tempered in order that the tooth may be resilient. The plate is also arched longitudinally as at 11 and provided on its inner face with longitudinal corrugations 12, and at the end provided with the tooth, with a transverse groove 13.

In the form shown in Figs. 5 and 6 the corrugations are replaced by ribs 16 having a sharp edge for engaging the fish plate, the corrugations on the fish plate being omitted. In the form shown in Fig. 7, the plate is not arched, nor is it provided with corrugations, the inner face being smooth, as shown at 18.

In Fig. 8, the plate is thin, and is provided on its inner face with ribs 19, and the end

thereof opposite the tooth is bent at an angle to the body of the plate as at 20.

In the form shown in Fig. 9, the plate is not cut-away, at one end to form the tooth, but is provided with a spring plate 21, secured thereto as at 22, the free end of the plate being bent to form a tooth 23, for engaging the ratchet teeth, and the ends of the lock are rounded as at 24. The lower face of the plate is provided at one end with corrugations 24^a.

The form shown in Fig. 10, has its ends rounded as at 25 and corrugations are omitted from its inner face, the form being otherwise the same as shown in Fig. 8.

In the form shown in Fig. 11, the ends of the plate are rounded as at 26, and the inner face is corrugated as at 27, while in the form shown in Fig. 12, the inner face is provided with sharp ribs 26, and the end from which the teeth are formed is reduced in width as at 29.

It will be observed from an inspection of Figs. 2, 3, 5, 6, 8, 9, 11 and 12, that the corrugations or ribs are parallel with the direction of length of the elliptical opening, that is the said ribs or corrugations are parallel with the direction in which the lock will be driven to release the nut. It will be noticed that the transverse grooves do not interfere with this movement, since the points formed by the transverse grooves and the corrugations are arranged in parallel lines following the direction of movement of the lock. The spring tooth as will be evident from an inspection of Figs. 11 and 12 is depressed at its base below the face of the lock. This arrangement prevents interference of the base with the ratchet teeth.

It will be observed that each of the forms shown except Fig. 13 is provided with the elliptical opening, the object of which is to permit of the easy release or unlocking of the lock. The locks are placed on the bolt, with the long side thereof parallel with the rail, and the tightening of the nut on the bolt, forces the corrugations or the ribs as the case may be into the fish plate.

To release the lock, it is driven forward until the tooth 10 is disengaged from the ratchet teeth of the nut, the elliptical opening permitting this movement.

The object of the transverse groove shown in Figs. 2 and 3, is to assist in preventing movement of the nut, the transverse groove cutting the longitudinal groove thus forming

a series of teeth which bite into the fish plate. The entire extent of the face of the lock might be provided with the transverse grooves if so desired.

5 The forms shown in Figs. 7 and 10 having smooth under faces, are for positions where the edge of the lock is engaged by something such as the flange of the rail to prevent turning of the lock.

10 The form shown in Fig. 13 is a permanent lock, and not capable of being released, except by breaking the teeth, thus permitting the nut to be unscrewed. This form is especially adapted for rail joints.

15 The lock shown in Figs. 2, 3, 5 and 6 being arched, all the slack caused by strain of the parts, rust and heat is taken up.

In the form shown in Fig. 12, the end opposite the teeth is the heavier and tends to keep the spring end upward, gravity thus assisting to keep the spring catch in engagement. Fig. 12 is especially adapted for use in wood work.

20 In the forms shown in Figs. 7, 9 and 10, by inserting a slug of hard metal of crescent shape or otherwise between the bolt and the end of the lock, a permanent lock is formed.

If the slug is of soft metal such as lead or tin, it will be permanent or unlocking as may
25 be desired.

I claim:

1. The combination with the bolt and the nut provided on its inner face with spaced ratchet teeth, of a lock comprising a plate
35 having an elliptical opening for receiving the bolt, said plate being resilient and arched longitudinally, and provided on its lower face with longitudinal corrugations, one end of the plate being cut away to form a spring
40 tooth for engaging the teeth.

2. The combination with a bolt, and the nut provided on its inner face with spaced ratchet teeth, of a lock comprising a plate having an elliptical opening for receiving the
45 bolt, and provided on its lower face with longitudinal corrugations, and at one end with a transverse groove, the end of the plate

provided with the transverse groove being cut away to form a spring tooth for engaging the teeth of the nut. 50

3. The combination with the bolt, and the nut having ratchet teeth on its inner face, of a lock comprising a plate provided with an elliptical opening for receiving the bolt, and having its lower face provided with corruga- 55 tions, one end of the plate being cut-away to form a spring tooth for engaging the ratchet teeth.

4. The combination with the bolt, and the nut provided on its inner face with ratchet teeth, of a lock for the nut comprising a sub- 60 stantially flat plate provided at one end with a spring tooth for engaging the ratchet teeth, said plate having an elliptical opening extending longitudinally thereof for receiv- 65 ing the bolt, said opening being of a length sufficient to permit the disengagement of the tooth with the ratchet teeth when the plate is moved with respect to the bolt.

5. The combination with the bolt, and the nut provided on its inner face with ratchet teeth, of a lock for the nut comprising a re- 70 silient and arched plate provided at one end with a spring tooth for engaging the ratchet teeth, said plate having an elliptical opening 75 extending longitudinally thereof, for receiving the bolt, said opening being of a length sufficient to permit the disengagement of the tooth with the ratchet teeth when the plate is moved with respect to the bolt. 80

6. The combination with the bolt, and the nut provided on its inner face with ratchet teeth, of a lock provided with an elliptical opening for receiving the bolt, and having one of its ends cut away to form a spring tooth for 85 engaging the ratchet teeth, the inner face of the lock being provided with ribs or corrugations parallel with the direction of length of the elliptical opening.

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Witnesses:

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