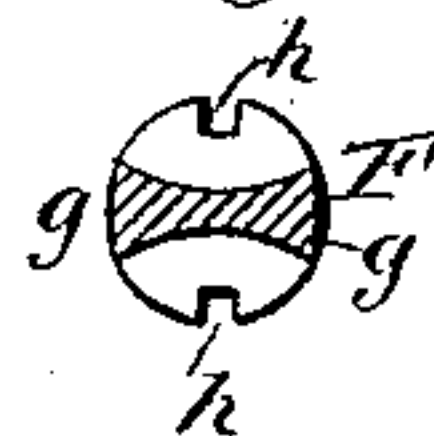
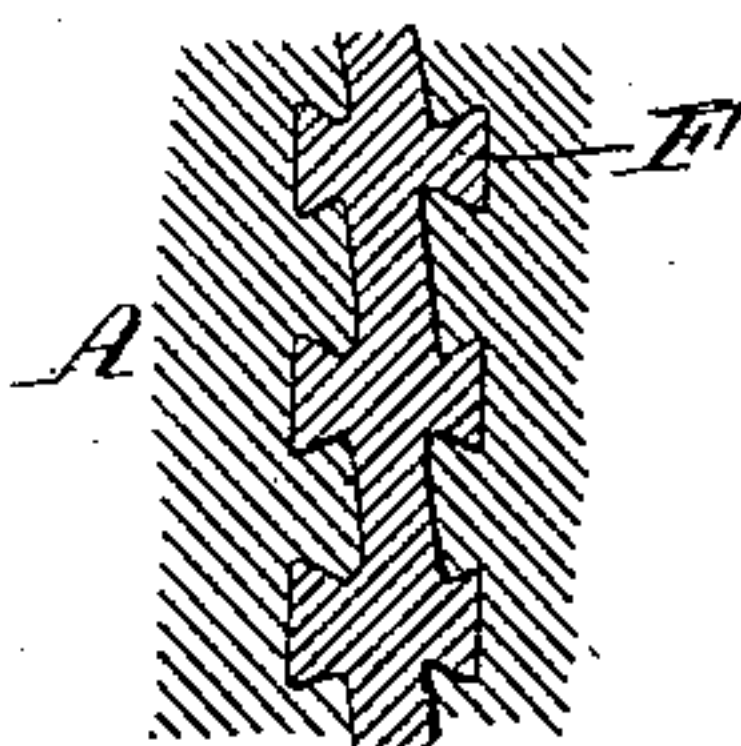
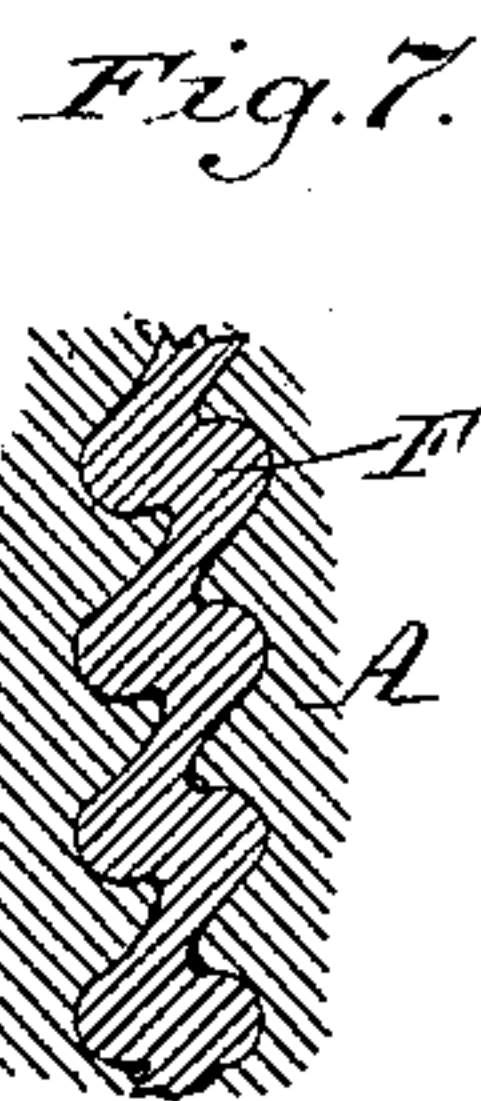
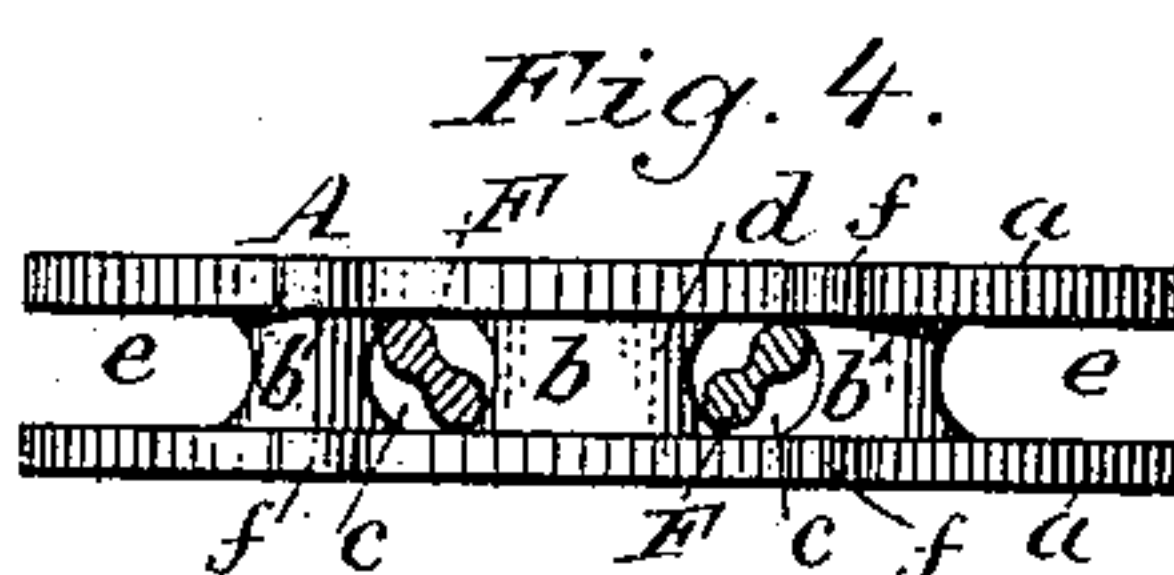
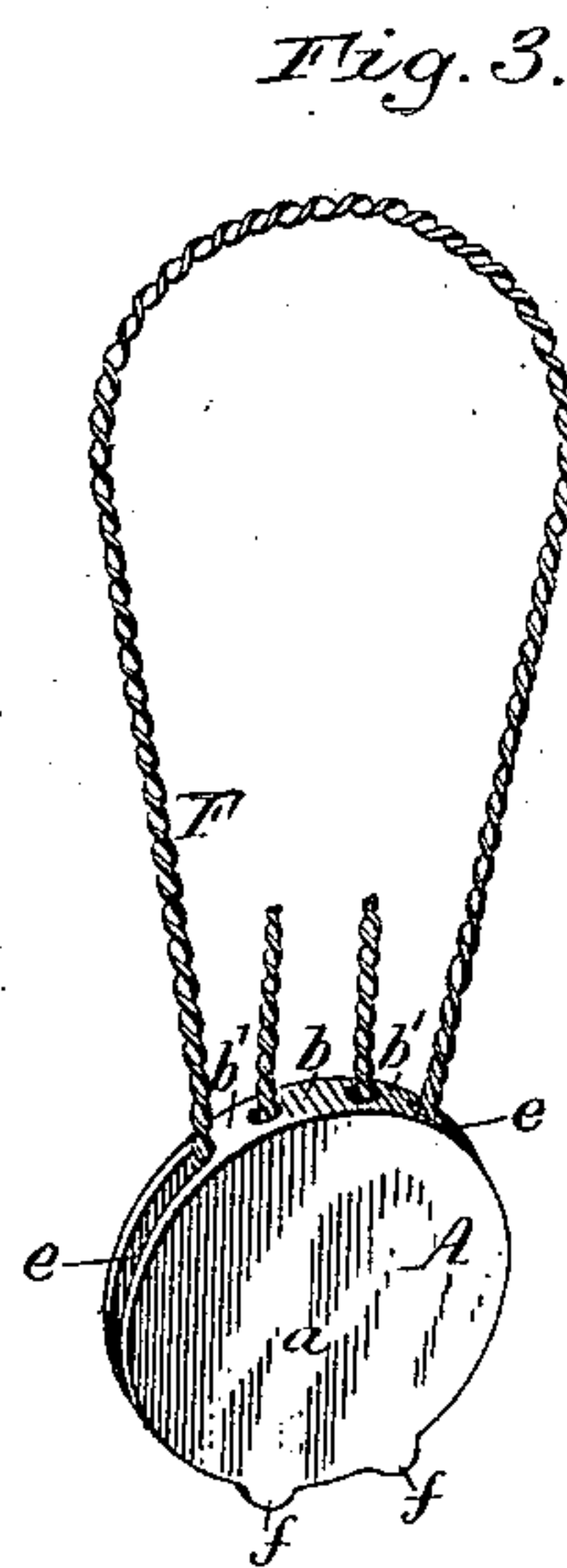
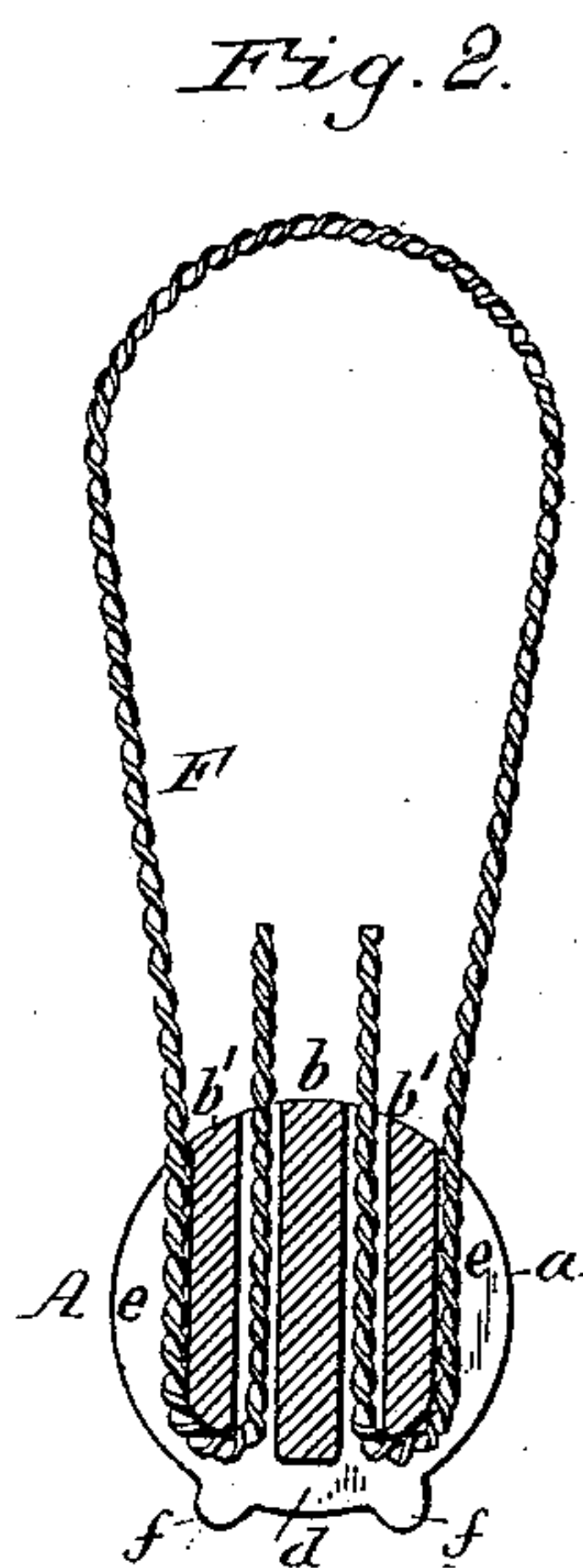
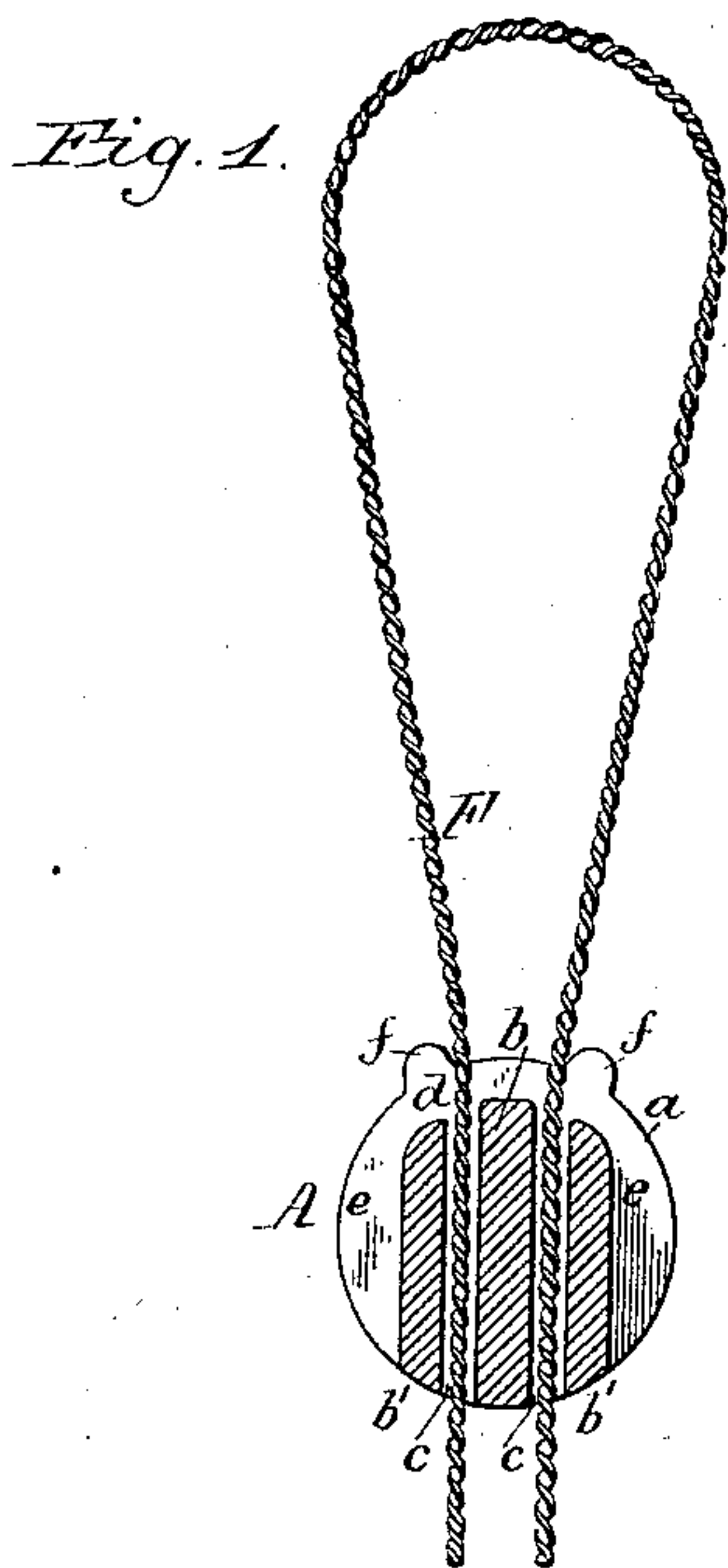


(No Model.)

C. L. POND.  
METALLIC SEAL.

No. 345,173.

Patented July 6, 1886.



Chas. J. Buchheit.  
Geo. J. Buchheit Jr. } witnesses.

Chas. L. Pond Inventor.  
By Wilhelm P. Ponne,  
Attorneys.



# UNITED STATES PATENT OFFICE.

CHARLES L. POND, OF BUFFALO, NEW YORK.

## METALLIC SEAL.

SPECIFICATION forming part of Letters Patent No. 345,173, dated July 6, 1886.

Application filed June 1, 1886. Serial No. 203,822. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. POND, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Metallic Seals, of which the following is a specification.

This invention relates to that class of metallic seals which consist of a disk or ball of soft metal and a shackle-wire.

The object of this invention is to produce a simple, cheap, and reliable seal of this kind in which the shackle-wire is securely attached to the seal disk or ball after the latter is pressed, so that the seal disk or ball cannot be detached or stripped from the wire without detection.

My invention consists to that end of the improvements, which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved seal with the ends of the shackle-wire inserted in the threading-holes. Fig. 2 is a similar view showing the seal-disk reversed, whereby the wire is bent and attached to the seal-disk. Fig. 3 is a perspective view of the seal ready for pressing. Fig. 4 is a top plan view of the seal on an enlarged scale. Fig. 5 is an enlarged elevation of one form of the shackle-wire. Fig. 6 is a cross-section of the same. Fig. 7 is a longitudinal section showing a portion of this threading-wire embedded in the seal. Fig. 8 is an enlarged elevation showing another form of the threading-wire. Fig. 9 is a cross-section of the same. Fig. 10 is a longitudinal section showing a portion of this threading-wire embedded in the seal. Fig. 11 is an enlarged elevation showing another form of the threading-wire. Fig. 12 is a cross-section of the same. Figs. 13 and 14 are enlarged cross-sections of different forms of threading-wire.

Like letters of reference refer to like parts in the several figures.

A represents the ball or disk, constructed of lead or other soft metal, and composed of two circular plates, *a a*, and three parallel bars, *b b' b'*, arranged between the plates *a a* and separated by two threading-holes, *c c*. The bar *b* is arranged centrally in the seal-disk, and extends from the top thereof nearly to the

bottom. The two bars *b'* are arranged on opposite sides of the central bar, *b*, and are separated therefrom by the threading-holes *c c*. The outer bars, *b'*, are somewhat shorter than the central bar, *b*, and have their outer lower corners rounded off to facilitate bending the wires around the same. The circular plates *a a* project beyond the lower ends of the bars *b b'* forming a recess, *d*, between the plates and below the bars, and these plates project also beyond the outer bars, *b'*, forming recesses *e e* on the outer sides of said bars and between the circular plates.

F represents the shackle-wire, which is inserted with its ends into the threading-holes *c c*, as represented in Fig. 1. Upon reversing the seal-disk or turning it about an axis at right angles to the threading-holes, and distending the upper portions of the wire, the threading ends of the wire are bent to form two hooks, as represented in Figs. 2 and 3, whereby both ends of the wire are attached to the disk. The lower bent portions of the wire are concealed in the bottom recess, *d*, and the lower side portions of the wire rest in the side recesses, *e*. The seal can now be placed in a suitable press which closes the metal upon the wire and produces the impression.

*f* represents downwardly-projecting ears or lips formed at the lower edges of the circular plates *a* for the purpose of supporting the disk in the cavity of the seal-press and holding the disk centrally between the dies. A single lip or ear, *f*, may be used, if desired.

In referring to the upper and lower sides of the seal-disk I refer to the sides which form, respectively, the upper and lower sides when the disk is ready to be pressed.

It is obvious that the hooks may be bent upon both ends of the shackle-wire, as represented in Fig. 2, and that the wire may be inserted in the threading-holes from below, instead of inserting the wire from above, and forming the hooks by reversing the seal-disk, as described.

The shackle-wire consists of a single strand, which is spirally twisted about its own axis, as shown in Figs. 5, 8, and 11. The wire or strand is drawn or rolled in such manner that its cross-section is reduced in width from its outer edge toward the center, or, in other



words, provided with outwardly-enlarged end portions or heads, *g*, as represented in Figs. 6, 9, 12, 13, and 14. By twisting a wire of this cross-section the spiral ribs formed by the enlarged heads *g* of the cross-section produce overhanging holding surfaces. When the seal-disk is compressed, the metal flows underneath these overhanging surfaces, as represented in Figs. 7 and 10, and firmly anchors the wire in the seal.

In the wire represented in Figs. 5, 6, and 7 the heads *g* are rounded.

In the wire represented in Figs. 8, 9, and 10 the heads are dovetail shaped and joined together with their small ends.

In the wire represented in Figs. 11 and 12 the cross-section is similar to that of the wire represented in Fig. 9, except that the sides of the cross-section are rounded in Figs. 11 and 12.

In the wire represented in Fig. 13 the heads *g* are rectangular and project from opposite sides of a connecting-web, *g'*.

In the wire represented in Fig. 14 the cross-section is provided with four projecting heads *g*.

If desired, the spiral ribs of the wire may be provided in their outer surfaces with longitudinal grooves *h*, arranged parallel with the axis of the twisted wire, as represented in Figs. 11 and 12. In compressing the seal the

metal flows into these grooves *h* and forms tongues, which resist any attempt to turn the wire in the seal-disk for the purpose of detaching the wire from the seal-disk without detection.

I claim as my invention—

1. A seal-disk of soft metal composed of two plates, *a a*, a central bar, *b*, and side bars, *b'*, separated from the central bar, *b*, by two threading-holes, and having a bottom recess, *d*, and side recesses, *e e*, on the outer sides of the bars *b'*, substantially as set forth.

2. A seal-disk of soft metal constructed at its lower edge with a projecting ear, whereby the disk is supported in the press and centered between the dies, substantially as set forth.

3. A twisted shackle-wire having its cross-section constructed with outwardly-enlarged heads, substantially as set forth.

4. A twisted shackle-wire having its spiral ribs provided in their outer surfaces with grooves, whereby the wire is held in the seal-disk against turning, substantially as set forth.

Witness my hand this 27th day of May, 1886.

CHARLES L. POND.

Witnesses:

OSCAR SCHAUB,  
CARL F. GEYER.