(No Model.)

# F. W. BROOKS.

## LEAD SEAL.

No. 373,332. Patented Nov. 15, 1887.

*Fig. 1.*

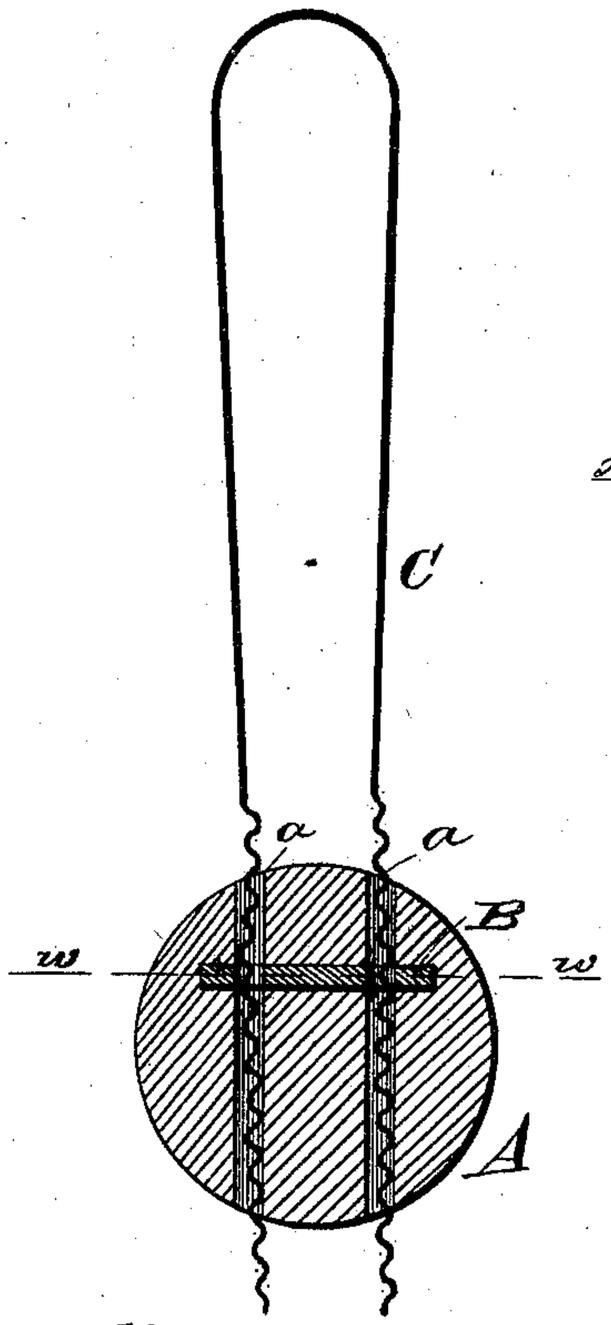



*Fig. 2.*

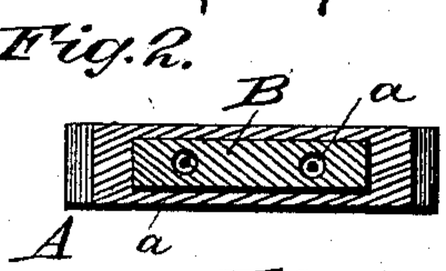



*Fig. 3.*

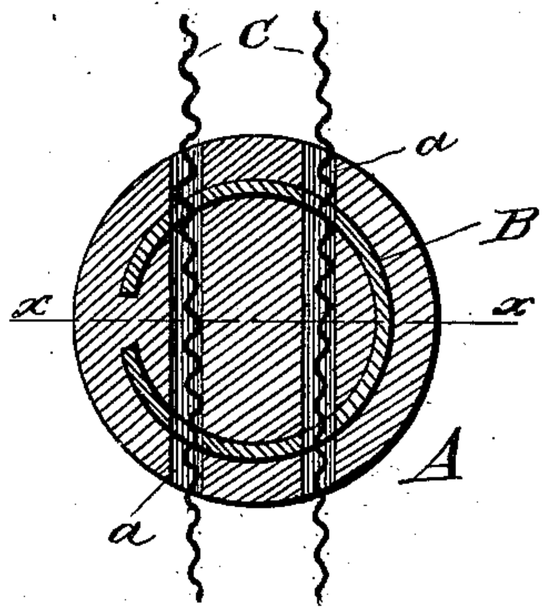



*Fig. 4.*

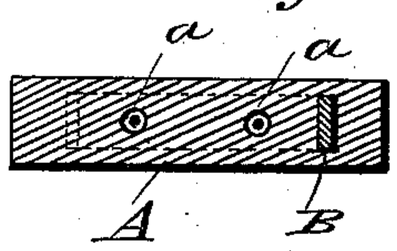



*Fig. 5.*

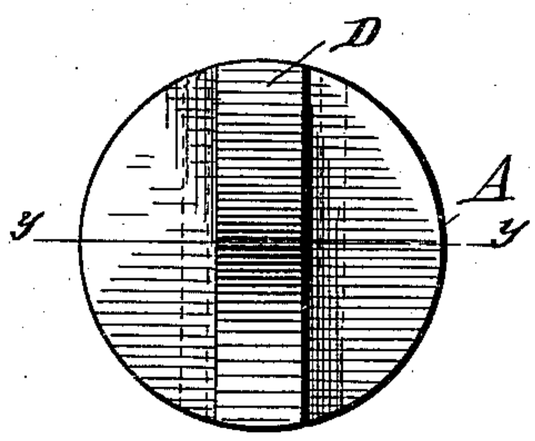



*Fig. 6.*

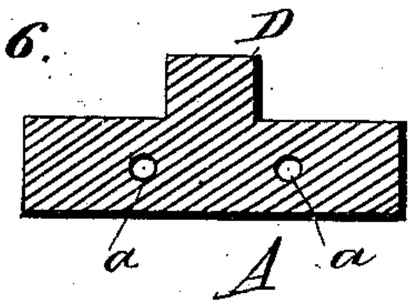



*Fig. 7.*

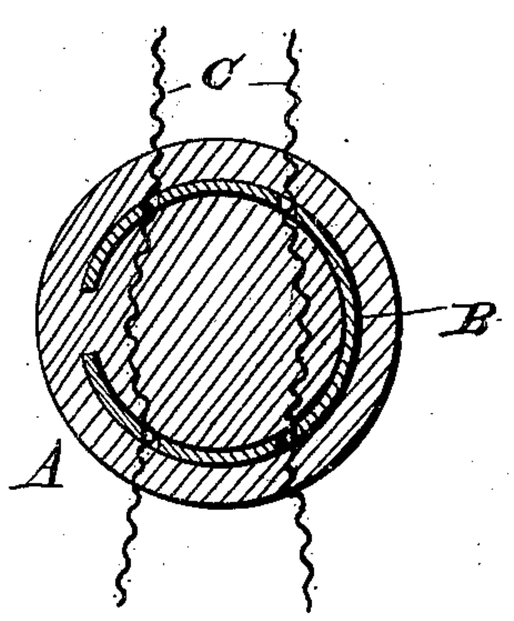



*Fig. 8.*

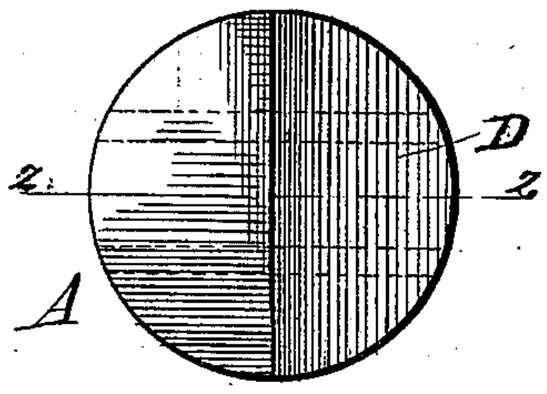



*Fig. 9.*

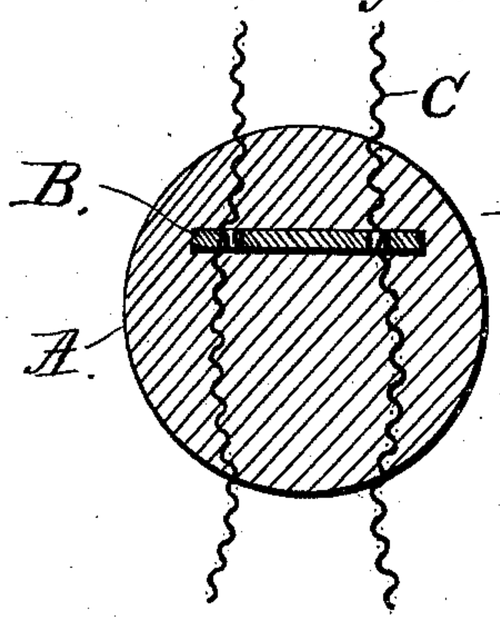
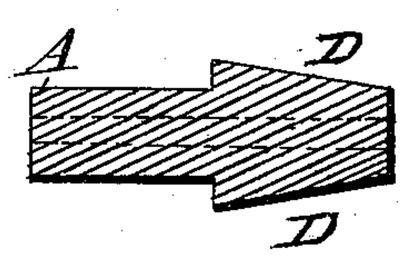



*Fig. 10.*




WITNESSES

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By Wm. C. Whittemore Attorney

# UNITED STATES PATENT OFFICE.

FRANKLIN W. BROOKS, OF NEW YORK, N. Y., ASSIGNOR TO THE NEW YORK LEAD SEAL AND PRESS COMPANY, OF SAME PLACE.

## LEAD SEAL.

SPECIFICATION forming part of Letters Patent No. 373,332, dated November 15, 1887.

Application filed June 2, 1887. Serial No. 240,023. (No model.)

*To all whom it may concern:*

Be it known that I, FRANKLIN W. BROOKS, a citizen of the United States, residing at New York, county and State of New York, have invented new and useful Improvements in Lead Seals, of which the following is a specification.

My invention relates to certain new and useful improvements in lead seals, and particularly to that class in which the wire or shackle is firmly locked against withdrawal from the lead disk after the latter has been compressed by the press or other compressing-tool; and my invention has for its objects to provide a bar of tin or sheet-iron arranged within the lead disk during the molding process, which shall serve as a certain anchor for the wire shackle when the latter is crimped or corrugated.

My invention has also for its object an enlargement of the lead disk at a predetermined locality, and of such configuration as to form a stop for the proper adjustment of the disk within the compressing-dies; and with these ends in view my invention consists, first, in providing the lead disk interiorly (and during the molding process) with a bar of tin or sheet-iron properly perforated or punctured in line with the wire-channels formed in the disk, to serve as an anchor to the wire shackle, which is preferably corrugated or crimped longitudinally; second, in forming the lead disk with an enlargement or preponderance of metal at a predetermined locality and of such configuration as will serve as a stop for the proper adjustment of the disk within the compressing-dies, all as will be hereinafter more fully described and specifically claimed.

In order that those skilled in the art to which my invention appertains may fully understand the same, I will proceed to describe its construction and operation, referring by letters to the accompanying drawings, in which—

Figure 1 is a central section of a lead seal with wire shackle embodying my improvements, and illustrating its condition before the metal disk is compressed. Fig. 2 is a transverse section taken on line *w w* of Fig. 1. Fig. 3 is a similar section to that shown at Fig. 1, but showing a modification as to form and arrangement of the internally-arranged tin or sheet-iron bar or strip. Fig. 4 is a section taken at line *x x* of Fig. 3. Fig. 5 is a plan view of a seal with a preponderance of metal arranged diametrically across the same on one side and tapered from the center toward the circumference, for the purpose presently to be explained. Fig. 6 is a section at the line *y y* of Fig. 5. Fig. 7 is a plan view of a modified form and arrangement of the preponderating portion of the seal, and Fig. 8 is a section at the line *z z* of Fig. 7. Fig. 9 is a section similar to Fig. 1, but showing the condition and relation of the seal and shackle after the disk has been compressed between dies; and Fig. 10 is a view similar to Fig. 3, showing the condition of the parts illustrated at Fig. 3 after compression between dies.

Similar letters indicate like parts in the several figures.

A represents a soft-lead seal, which is made by casting in the usual manner.

B is a bar or strip of thin sheet iron or tin arranged within the mold during the casting process, so that it will be confined within the body of the seal, as clearly shown. This bar or strip is formed with two holes in line with the channels *a a*, formed for the passage of the wire shackle C. The wire shackle C is preferably crimped longitudinally, in order that when the lead seal is compressed the curve of one of the crimps in each leg of the shackle will be pressed against the metal edge of the bar B, surrounding the holes *a a* therein firmly, as I have found from experience that the compression of the lead forming the disk (and especially when it is formed with a preponderance, as shown at Figs. 5, 6, 7, and 8) will tend to spread the ends of the wire below the bar B, as best illustrated at Figs. 9 and 10.

The shackle C, as shown at Fig. 1, above the disk A is intended to illustrate the fact (which is another desideratum of the crimped wire) that any attempt to withdraw the wire from the disk-seal after the latter has been compressed will result in straightening out the wire or destroying the crimps, and thus render manifest any such attempt, it being of course obvious that the strain necessary to

straighten the wire is considerably less than that required to dislodge the wire from its grip upon the bar B.

At Figs. 3 and 10 is clearly illustrated a modification in the form of the strip or bar B shown at Fig. 1. In the latter case it is represented as a simple straight bar, while at Figs. 3 and 10 it is a strip in the form of a partial or complete circle, and in which event the strip is punctured at four points to permit the passage of the ends or legs of the shackle C. This strip may also be made in V shape or zigzag form, if so desired, without departing from the spirit of my invention.

In order that the compression of the metal composing the disk shall with certainty tend to the spreading laterally of the lower ends of the wire shackle, as illustrated at Figs. 9 and 10, I form the disk with a preponderating bar, D, exteriorly, as shown at Figs. 5 and 6, or on both sides, each side of the center, as shown at Figs. 7 and 8; but in both cases the preponderating portion is tapered from the center to the circumference of the seal, as clearly shown, for the purpose of effecting the proper adjustment of the seals within the dies of the compressing-tool, the said dies moving in the arc of a circle. Their rear edges are of course nearer together than the forward edges; hence the taper of the portions D of either style represented will at the proper time come in contact with the faces of the open dies, and secure thereby the proper adjustment to secure perfect compression and impression, which is a great desideratum, especially when working at night, as most frequently occurs.

While I have shown the shackle of my improved seal as formed of crimped wire for the reasons explained, I do not of course wish to limit myself in this particular, as plain wire may be employed and a very secure lock made; nor do I wish to be confined to the exact limits as to size and location of the preponderating portion of the metal of the seal, as that may be varied considerably without departing from the gist of my invention in this particular, which rests in the idea of so locating and tapering this portion of the seal that at the proper time to secure the proper location of the seal the preponderance of metal will come in contact with those portions of the faces of the dies which are closest together.

I am aware of Letters Patent No. 321,275, in which is illustrated and described a means for protecting the wire shackle against outside manipulation by the employment of hard-metal protectors, around which the soft-metal seal is cast in such manner that the shackle is protected laterally at all points, and one of the modifications illustrated consists of a narrow metallic box open on three of its sides or edges and having each of its sides which are parallel with the disk-faces of the lead seal formed with openings to facilitate the flow of the liquid lead during the casting process. This construction differs from my invention in the fact that the flat sides of the concealed metallic box lie outside of or over the wire shackle, while in a structure involving my invention there is nothing superimposed upon the shackle but the lead composing the seal below or between the points at which the shackle passes through the cast-in metallic bar, and hence when pressure is exerted upon the seal to compress the same upon the wire shackle and to impress any suitable design upon the surface of the lead the latter is forced out toward the circumference of the disk, and that portion of the lead confined between the legs of the shackle, following the general direction of displacement referred to, spreads or carries with it the legs of the shackle, and thus securely locks the same with the cast-in bar, as clearly illustrated. This result cannot successfully ensue in a similar compression of the seal forming the subject-matter of the Letters Patent referred to, and hence it will be understood that I disclaim any such construction; but

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

1. In a lead seal provided with shackle-channels *a* through the disk, a flat bar or strip, B, concealed or located within the disk and having its flat surface arranged transverse to the faces of the lead disk, and provided with shackle-holes coincident with the channels *a*, the said concealed bar being free from any depending wings parallel with the faces of the lead disk, substantially as hereinbefore set forth.

2. The disk A, formed with a preponderating portion, D, said preponderance being tapered toward the edge of the disk to form an adjusting-stop, substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANKLIN W. BROOKS.

Witnesses:
FREDERICK R. ORR,
E. EVERETT ELLIS.