

No. 611,889.

Patented Oct. 4, 1898.

E. J. BROOKS.

SEAL.

(Application filed May 27, 1898.)

(No Model.)

Fig. 1.

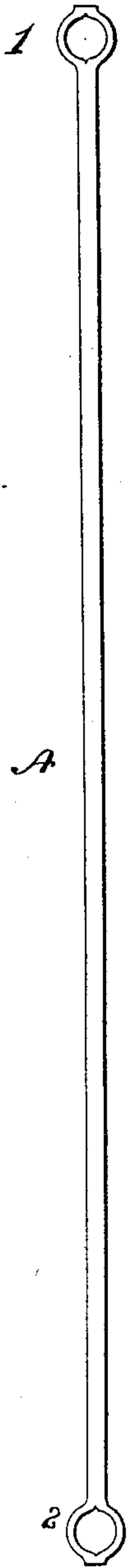


Fig. 2.

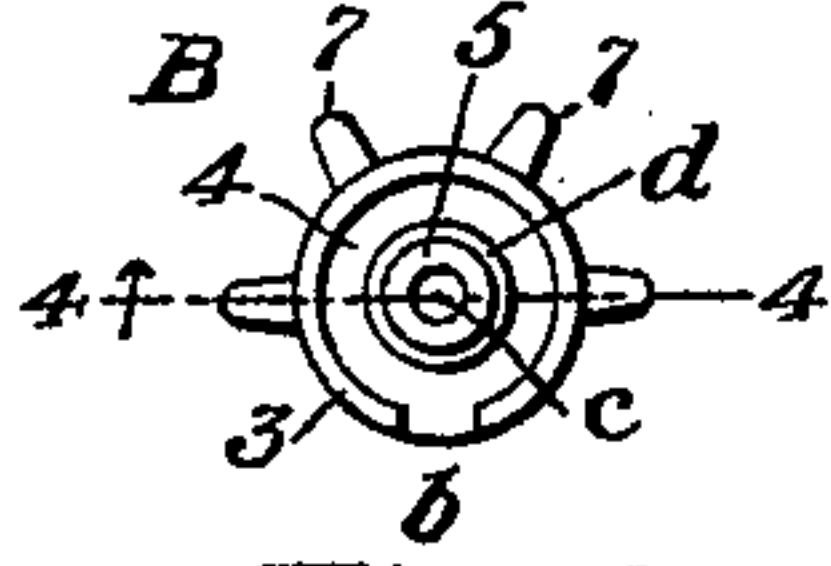


Fig. 3.

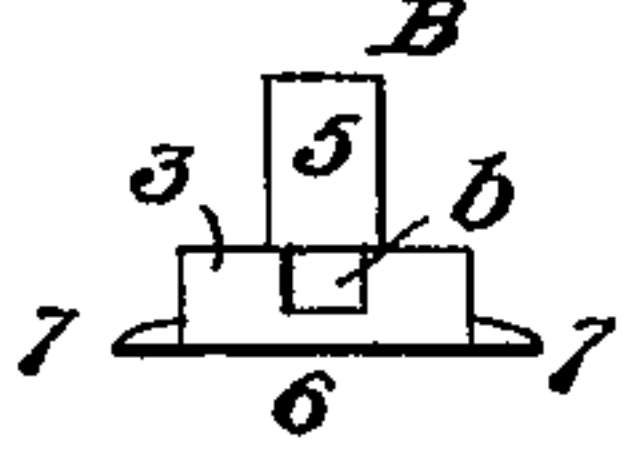


Fig. 4.

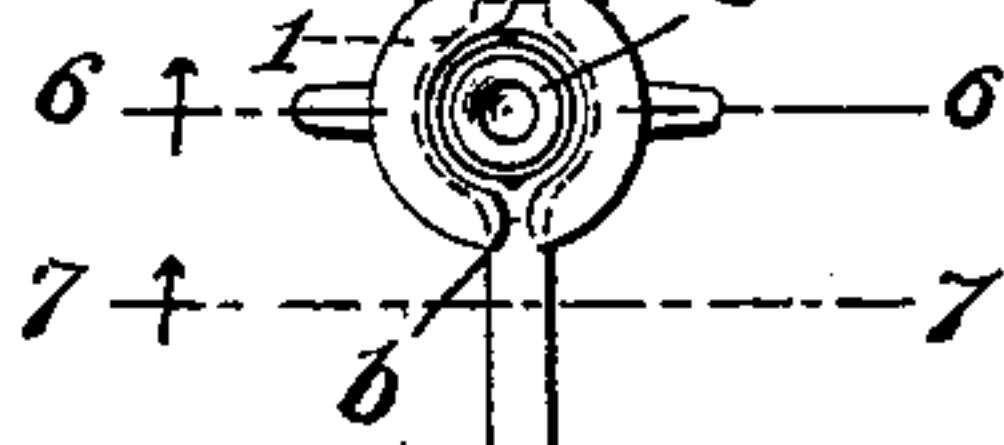
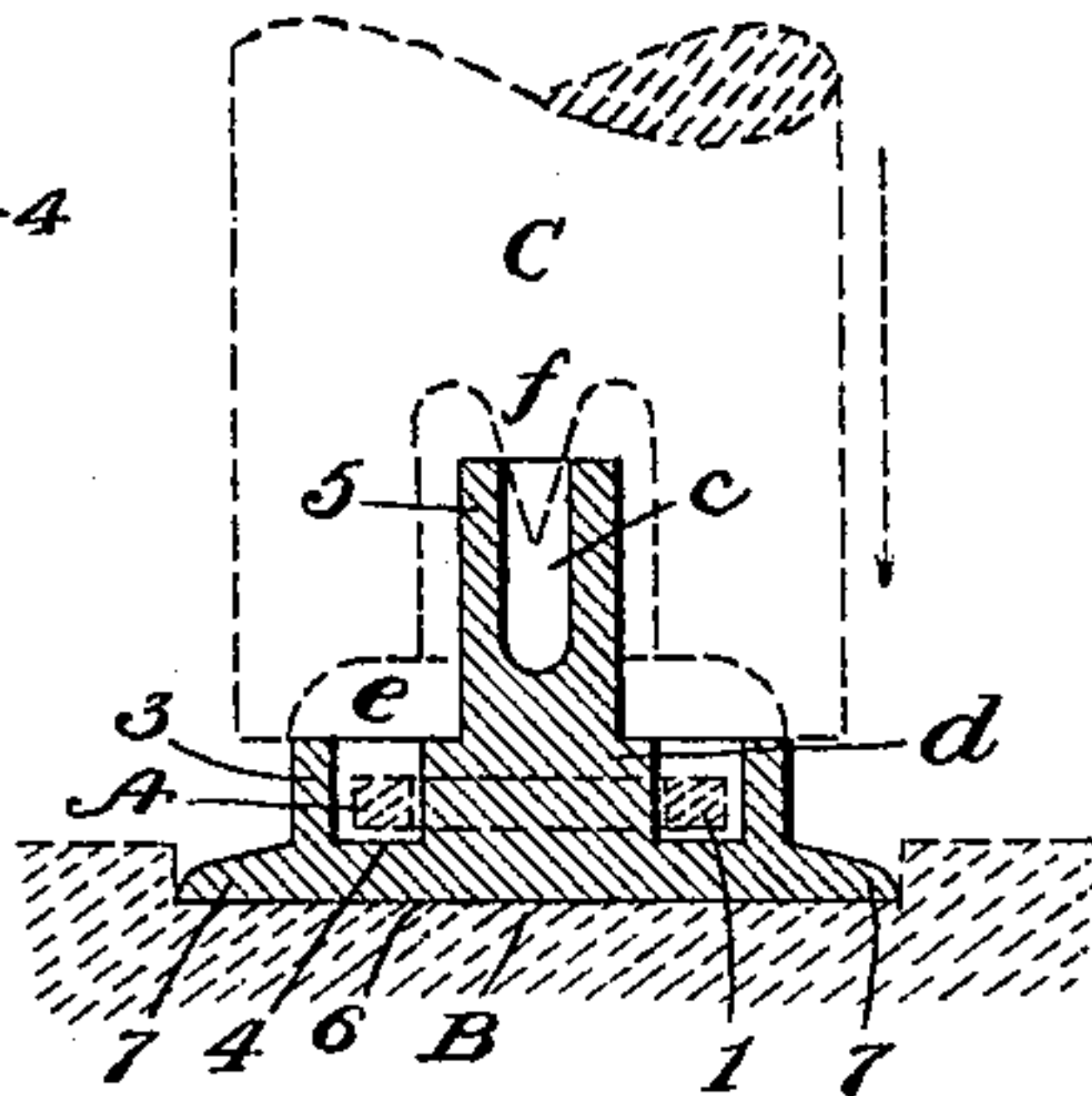


Fig. 6.

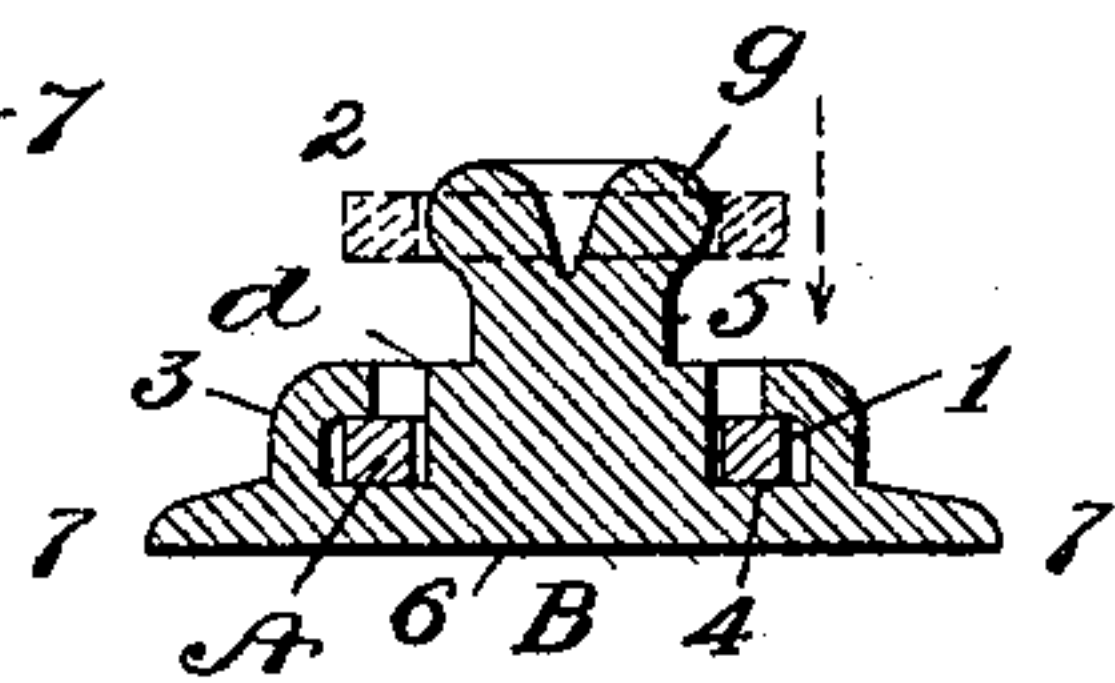


Fig. 7.

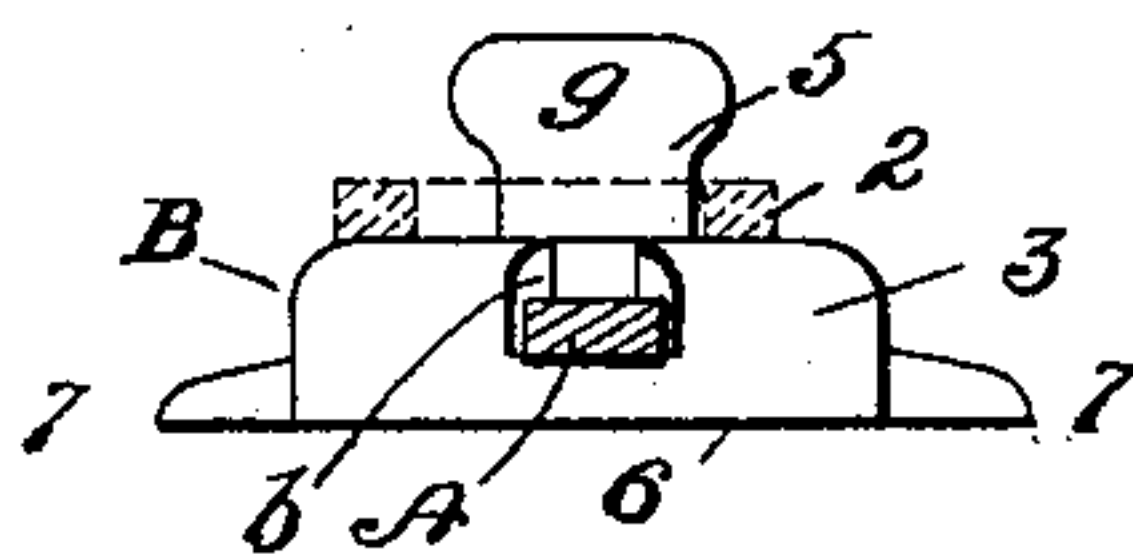


Fig. 8.

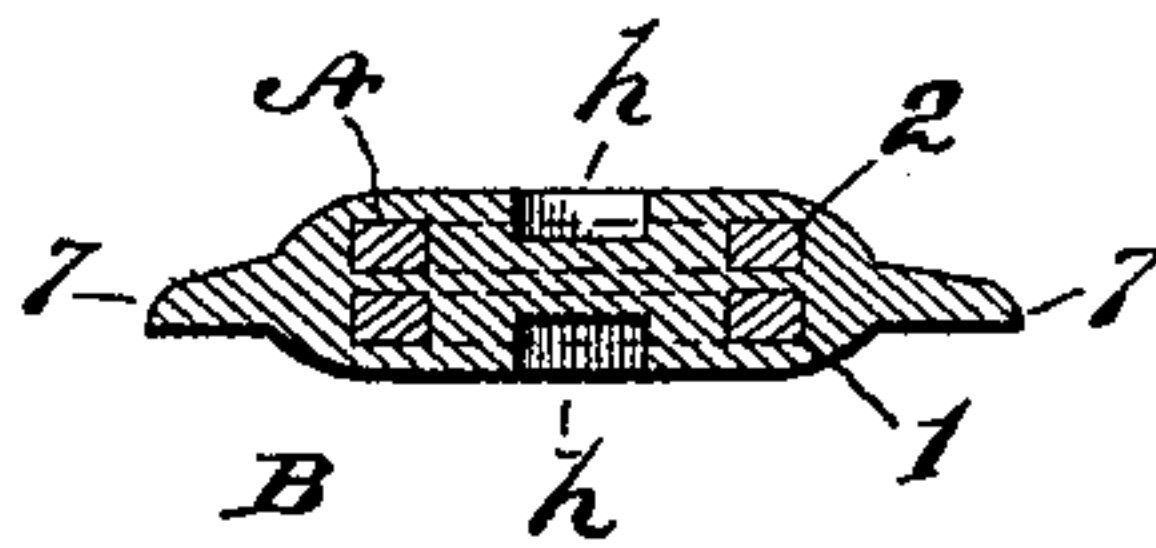


Fig. 9.



Fig. 10.

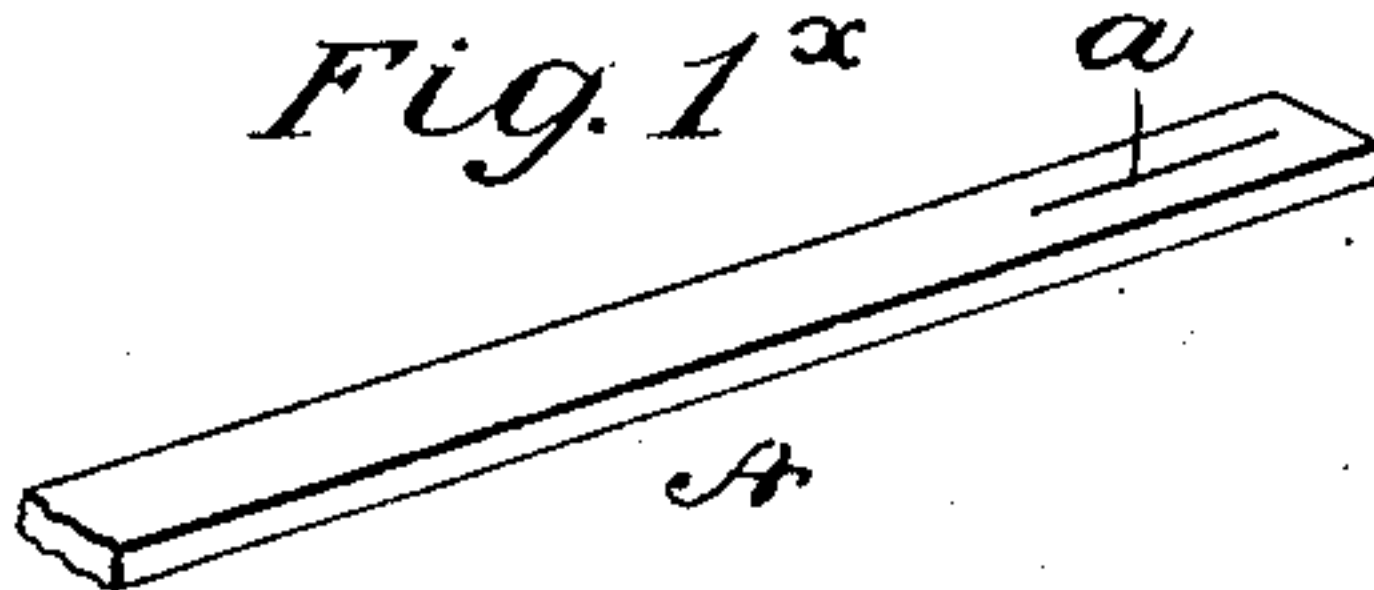
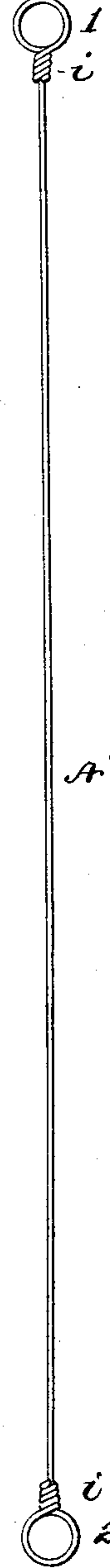
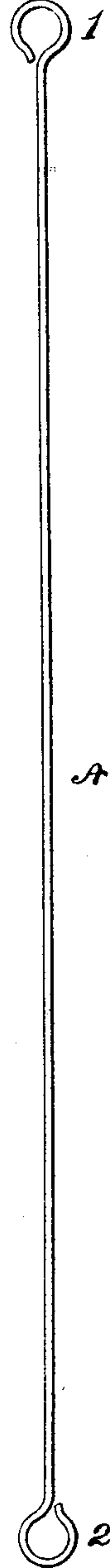


Fig. 11.



Witnesses
Jno. Miller
Arthur C. Cowle

Inventor
Edward J. Brooks
for *[Signature]*
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD J. BROOKS, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO THE
E. J. BROOKS & COMPANY, OF NEW YORK, N. Y.

SEAL.

SPECIFICATION forming part of Letters Patent No. 611,889, dated October 4, 1898.

Application filed May 27, 1898. Serial No. 681,913. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. BROOKS, a citizen of the United States of America, and a resident of East Orange, in the State of New Jersey, have invented a new and useful Improvement in Seals, of which the following is a specification.

This invention relates to improvements on those "horseshoe" seals set forth in my previous specifications forming part of United States Patents Nos. 294,576, 368,126, 512,274, and 521,137, in which seal parts of lead are combined with flexible shackles of single wire having anchoring-eyes at their ends.

It relates more particularly to those horseshoe seals in which the seal part is attached to one end of the shackle by a preliminary pressing operation, as broadly set forth and claimed in said Patent No. 512,274, and to seals in which the free end of the shackle is held in place within the seal part preparatory to the pressing operation and the seal part is centered in the seal-press, as set forth and claimed in said Patent No. 521,137.

The present invention consists in certain novel combinations of peculiarly-constructed parts, as hereinafter set forth and claimed, including the combination, with a compressible seal part, of a light and highly-effective shackle of flat wire provided with jointless anchoring-eyes by expanding the slotted extremities of the wire; also, a combination of parts whereby a light and thin seal part, as compared with those set forth in said previous specifications, is securely fastened upon one end of the shackle, and the central rivet-stud is provided at the same operation with an effective head for temporarily holding in place the second anchoring-eye preparatory to the final pressing operation, while the seal part may be, and preferably is, provided, as in said Patent No. 521,137, with two or more radial horns for centering the seal part between the dies of the seal-press.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of the drawings is an elevation of the shackle of the specific seal represented by Figs. 1 to 9, inclusive. Fig. 1^x is a fragmentary perspective view illustrating the method of making the shackle. Fig. 2 is a face view of

the seal part as it leaves the mold. Fig. 3 is an edge view projected from Fig. 2. Fig. 4 is a magnified cross-section on the line 4 4, Fig. 2, illustrating the method of uniting the shackle and seal part and completing the latter. Fig. 5 is a small-scale face view of the completed seal as it leaves the factory. Figs. 6 and 7 are cross-sections, respectively on the lines 6 6 and 7 7, Fig. 5, illustrating by dotted lines the preparation of the seal for the seal-press. Figs. 8 and 9 represent cross-sections on the same scale as Figs. 4, 6, and 7, illustrating different shapes in which the seal part may be effectively pressed; and Figs. 10 and 11 represent elevations of alternative shackles, as hereinafter described.

Like letters and numbers refer to like parts in all the figures.

The improved seal is invariably composed of a shackle A or A² or A³, of flexible wire, and a compressible seal part B, of lead or equivalent soft metal, permanently united at one end of the shackle in the factory, as represented in Fig. 5, and is permanently fastened by securing the other end of the shackle within the seal part by means of a seal-press in a customary manner.

The improved shackle A, Fig. 1, is of flat wire, having its ends perforated and expanded to form jointless anchoring-eyes 1 and 2 at the respective ends of the shackle. In forming the eyes the wire is first slotted longitudinally, as shown at *a* in Fig. 1^x, and the eye is then rounded and flattened by the same punch or cutter, leaving the end in the shape represented at 1 or 2 in Fig. 1.

The seal part B is cast in the form represented by Figs. 2 and 3 and by full lines in Fig. 4 and comprises a thin crown-flange 3, which is preferably and conveniently circular, except where it is broken by a single embrasure *b*, an annular floor 4 within said flange, a central rivet-stud 5, having an axial recess *c*, a flat back 6, which forms the base of the seal part in the uniting and fastening presses, and radial centering-horns 7, projecting from the perimeter of the seal part at or immediately in front of the plane of said back. A relatively large inner end *d* of said rivet-stud 5, rendering it shouldered, has as its only function in this seal the filling up of the an-

choring-eye 1 when the latter is inserted in the seal part, as in Fig. 3, and is not considered essential. After the anchoring-eye 1 is so inserted the seal part B is moved beneath the reciprocating punch C, Fig. 3, of the uniting-press. The lower end of the punch is constructed with an annular concave surface *e* to act on said crown-flange 3 and with a central projection *f* to enter said recess *c* in the rivet-stud 5, as shown in dotted lines in Fig. 4, and the descent of the punch (represented by the dotted arrow in this figure) upsets or turns in said crown-flange 3 upon the anchoring-eye 1 and simultaneously expands the outer end of the rivet-stud 5, so as to provide the same with a head or enlargement *g*, Figs. 6 and 7, over which the anchoring-eye 2 will freely pass, as in dotted lines in Fig. 6, but which will sufficiently interlock with said eye, as in dotted lines in Fig. 7, to hold said eye in place preparatory to applying the fastening seal-press.

The radial horns 7, which may be of any number not less than two, operate, as set forth in said Patent No. 521,137, to center the seal part between the dies of the seal-press, so as to facilitate applying the latter, or, in other words, to insure a secure fastening and perfect impression when the seal-press is hastily applied to the improved seal.

The pressed seal, Figs. 8 and 9, may have any preferred shape in cross-section and may be pressed with or without central depressions *h* in its faces to displace some of the lead within the anchoring-eyes. Pressed in either of the forms shown in Figs. 8 and 9 or in any ordinary manner the lead in the head *g* of the rivet-stud 5 spreads radially on all sides over the second anchoring-eye 2 and flows into unison with the lead of the inturned flange 3, so as to perfectly inclose said anchoring-eye 2 and render the seal absolutely secure against being tampered with without detection.

In place of the flat-wire shackle A, above described, I may unite with said seal part B a shackle A², Fig. 10, of round or square wire, having its ends bent to form anchoring-eyes 1 and 2, as described with reference to Figs. 1, 1^x, 1^y, and 1^z in said Patent No. 294,576, or a shackle A³, Fig. 11, of thinner wire, having its anchoring-eyes 1 and 2 closed by locking-twists *i*, like the shackle set forth in my previous specification, forming part of Patent No. 505,388, and other like modifications will suggest themselves to those skilled in the art. As compared with said shackles A² and A³ the improved wire shackle A, Figs. 1 to 9, has seamless eyes, so as to prevent tampering with the press-fastened seal by opening the eyes and then withdrawing the wire lengthwise, and said seamless eyes are formed in the manner above set forth even more cheaply than the inferior looped eyes.

Having thus described said improvement, I claim as my invention and desire to patent under this specification—

1. In a lead and wire seal, the combination with a compressible seal part, of lead, of a flexible shackle of flat wire, preliminarily fastened within said seal part at one end, and having its other end perforated and expanded to form a jointless anchoring-eye, with which said seal part interlocks when press-fastened.

2. In combination with a flexible shackle having anchoring-eyes at both ends, a compressible seal part of lead having an inturned crown-flange by which one eye is preliminarily secured within the seal part, and a central rivet-stud which extends through both eyes and has an expanded end to hold the second eye in place preparatory to applying the seal-press.

EDWARD J. BROOKS.

Witnesses:

JAS. L. EWING,
ARTHUR C. FOWLE.