(No Model.)

2 Sheets—Sheet 1.

E. J. BROOKS.

SEAL.

No. 379,885. Patented Mar. 20, 1888.

Fig. 1.

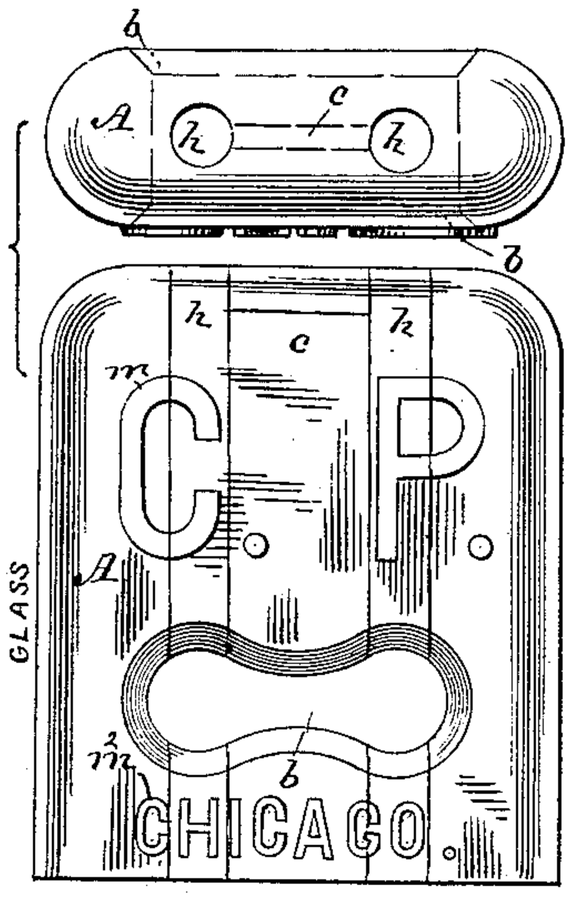


Fig. 2.

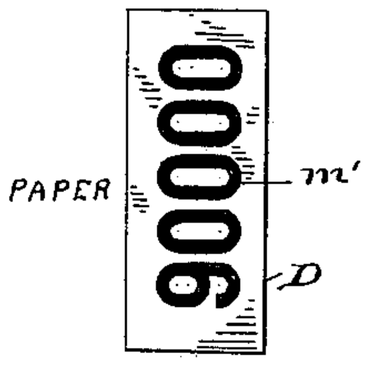


Fig. 3.

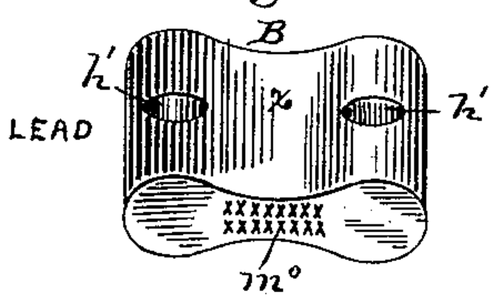


Fig. 4.

Fig. 5

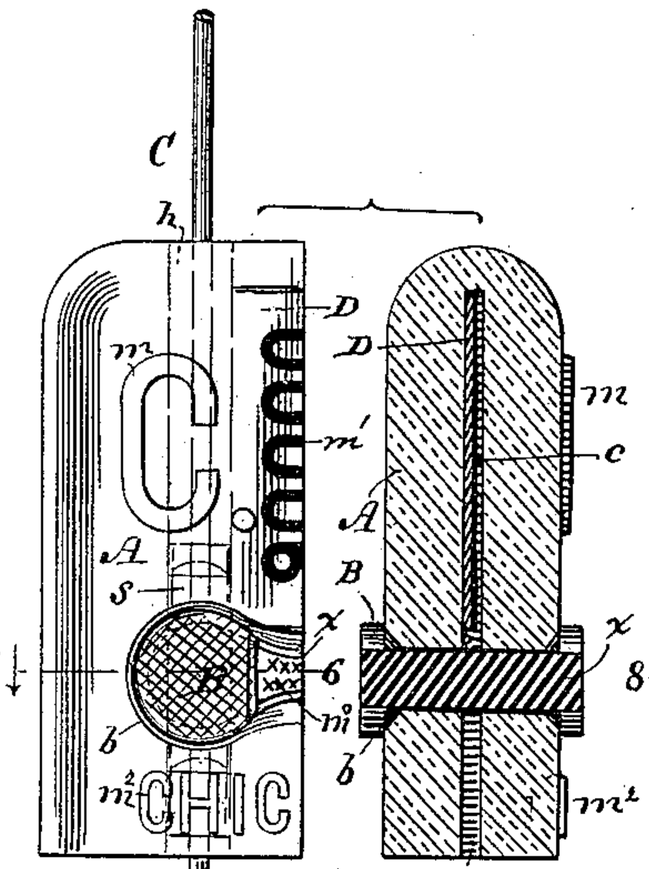


Fig. 6.

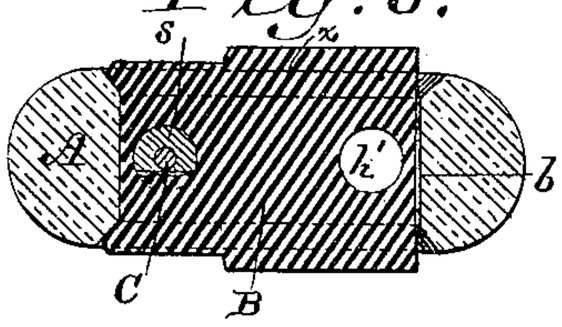


Fig. 4*.

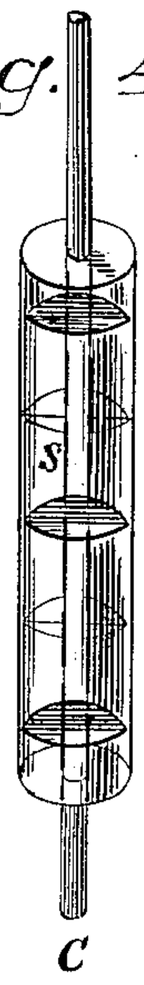


Fig. 7.

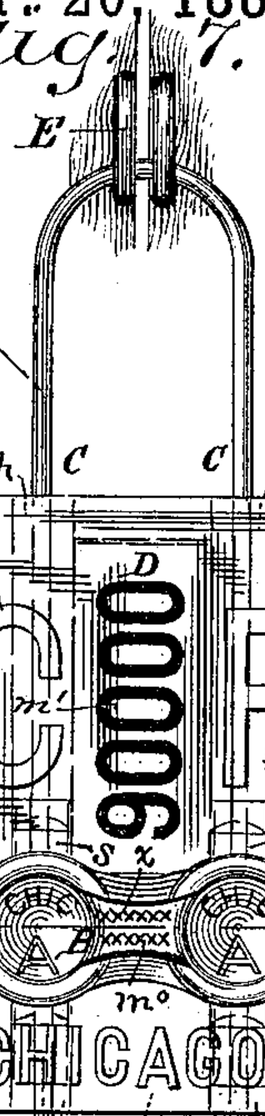


Fig. 8.

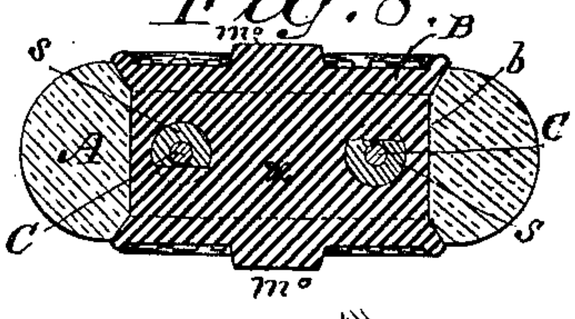
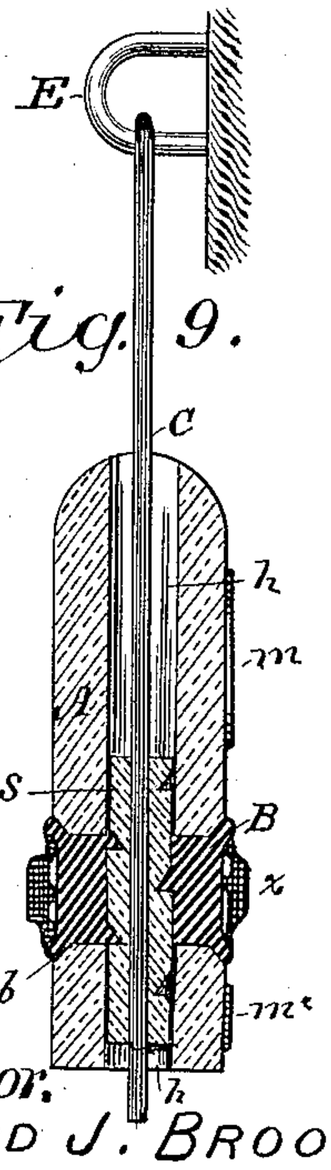


Fig. 9.



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(No Model.) 2 Sheets—Sheet 2.

E. J. BROOKS.

SEAL.

No. 379,885. Patented Mar. 20, 1888.

Fig 12.

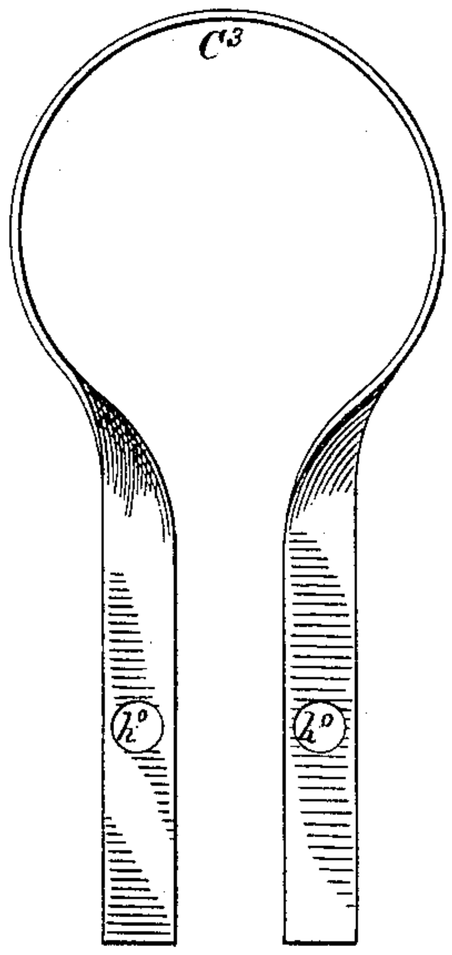


Fig. 10.

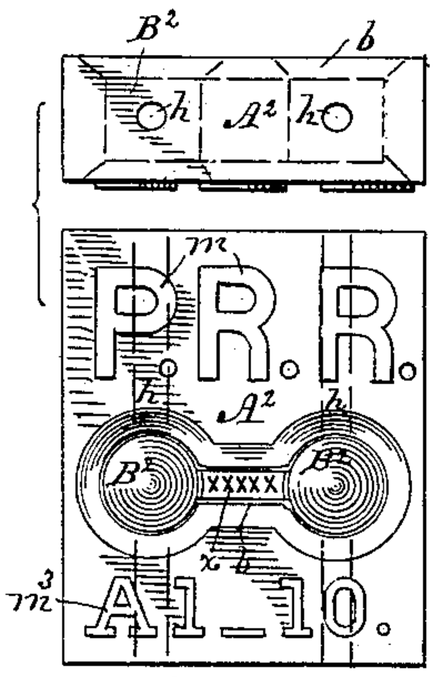


Fig. 11.

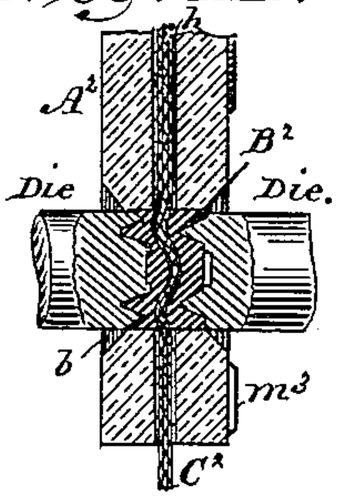


Fig. 13.

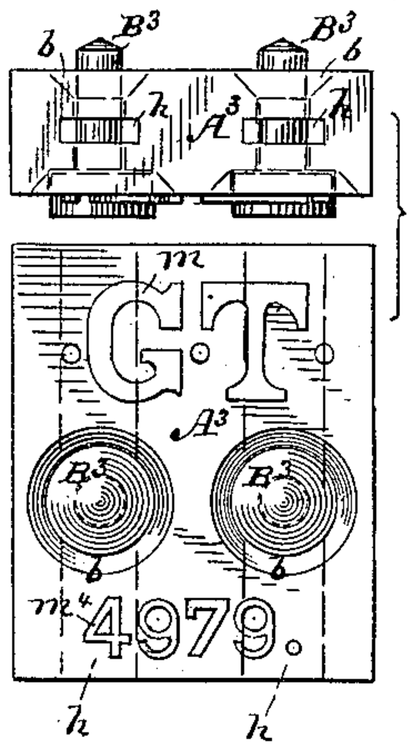


Fig. 15.

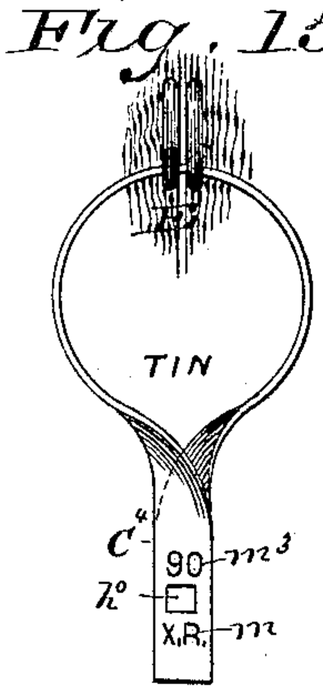


Fig. 14.

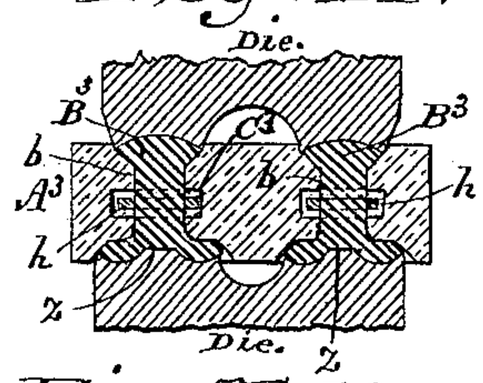


Fig. 17.

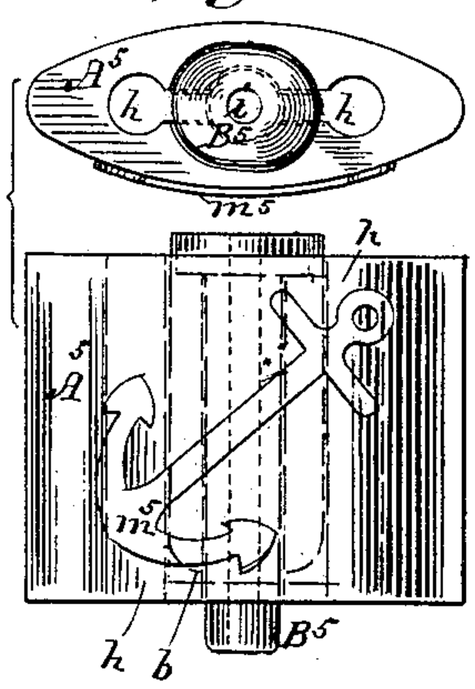
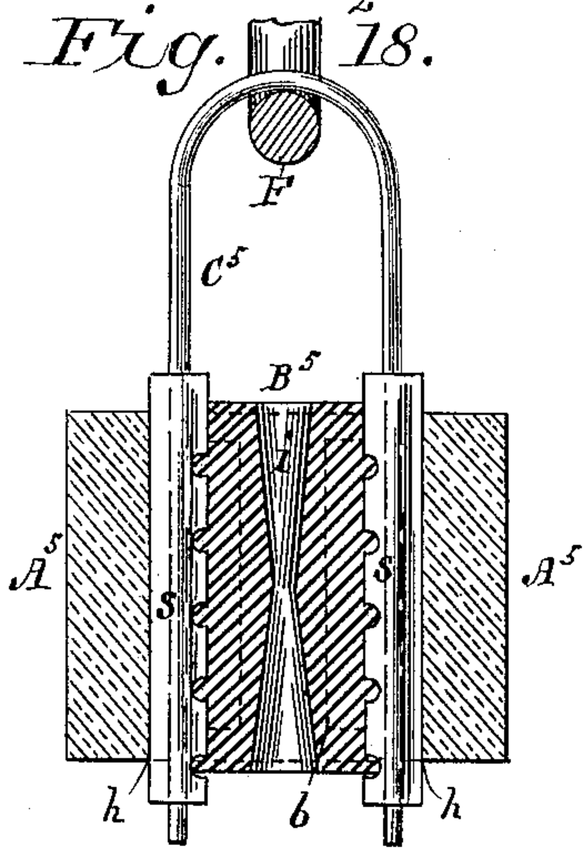


Fig. 18.



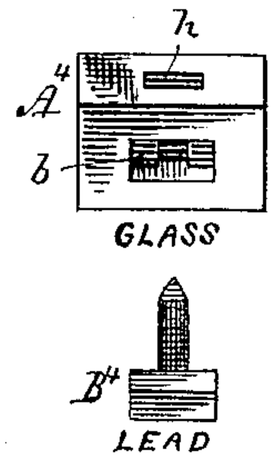
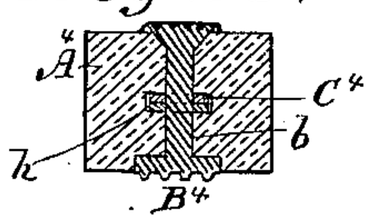


Fig. 16.



Witnesses.

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Ed. A. Newman.

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By his Attorney
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UNITED STATES PATENT OFFICE.

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SEAL.

SPECIFICATION forming part of Letters Patent No. 379,885, dated March 20, 1888.

Application filed January 17, 1888. Serial No. 260,999. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. BROOKS, a citizen of the United States, 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 is additional to my improvements in seals patented August 26, 1884, and June 23, 1885, (United States Patents Nos. 304,164 and 320,904,) so far as the same relate to securing the ends of flexible metallic shackles within seal disks or "shells," as they are hereinafter termed, of transparent glass in press-fastened seals.

The present invention consists, primarily, in a novel combination and arrangement of parts whereby the transparent shell is made to inclose and at the same time expose to view the pressed portions of a distinct compressible seal part of soft lead which fastens the shackle end or ends and receives the impressions of the dies, so that such seal part is securely guarded against being tampered with.

This invention consists, secondly, in the same combination of parts made to comprise a shackle provided with "securers" in the form of notched sleeves of transparent glass fast on the shackle ends to more fully expose to view the internal condition of the seal; thirdly, in the combination of parts first named together with a card or slip of paper inclosed within the transparent shell and bearing a serial number or the like, the escape of which is prevented by the pressed seal part; fourthly, in the combination, with a double seal part and flexible shackle, of a shell having a cross-bore to receive the former, the shell and seal part having coinciding threading-holes to receive the shackle ends, whereby one of the latter may be fastened preliminarily, the seal part being at the same time united with the shell; and, fifthly, in the combination last named together with said card, the shell being transparent and provided with a card-chamber, as aforesaid, whereby provision is made for preliminarily uniting all said parts of each seal at the factory to facilitate handling and applying the seal.

Two sheets of drawings accompany this specification as part thereof.

Figures 1, 2, 3, and 4 of these drawings, with Fig. 4×, represent top and face views of the several parts of a seal composed of glass, paper, lead, and wire, fully illustrating the present invention. Fig. 5 represents a half-face view and a vertical section of said seal with its parts preliminarily united. Fig. 6 represents a cross-section in the line 6 6, Fig. 5. Fig. 7 represents a face view of the same seal in use press-fastened. Fig. 8 represents a cross-section on the line 8 8, Fig. 7; and Fig. 9 represents a vertical section on the line 9 9, Fig. 7. Fig. 10, Sheet 2, represents top and face views of the shell and unpressed seal part of a modified seal of glass, lead, and wire. Fig. 11 represents a vertical section of this modified seal in the act of being press-fastened. Fig. 12 represents an elevation of the shackle; and Fig. 13, top and face views of the shell and unpressed seal parts of a seal of glass, lead, and sheet metal, illustrating another modification. Fig. 14 represents a cross-section of the fastened seal and another suitable style of dies. Fig. 15 represents face and top views of the separated parts of a smaller glass, lead, and sheet-metal seal. Fig. 16 represents a cross-section of the same press-fastened. Fig. 17 represents top and face views of the shell and unpressed seal part of another glass, lead, and wire seal, illustrating additional modifications of the same invention. Fig. 18 represents an elevation of its shackle and a vertical section of the shell and seal part represented by Fig. 17 after the latter has been "pressed."

Like letters refer to like parts in all the figures.

Each of said seals comprises a non-compressible shell, A or A^2 or A^3 or A^4 or A^5, of transparent glass, having a longitudinal threading hole or holes, *h*, and a recess or bore, *b*, communicating with said hole or holes; and in each seal a compressible seal part, B or B^2 or B^3 or B^4 or B^5, is fitted to such bore *b*, and the ends of a flexible shackle, C or C^2 or C^3 or C^4 or C^5, are fastened within the transparent shell by "pressing" the seal part, as in ordinary lead and wire seals. The shackle is thus more securely held than in previous glass-shell seals, and the effective portions of the seal part or seal parts are inclosed, so as to be guarded against being tampered with, while the whole is exposed to view by the transparency of the

shell. Furthermore, the bore *b* is in each case formed with countersunk ends to facilitate inserting the seal parts and applying the pressing-dies thereto, and with sufficient lead in the seal parts to expand within the countersinks. Each seal part, when pressed, becomes immovable within the bore, so as to preclude working it back and forth to loosen its hold on the shackle.

The glass shell and seal parts may in each seal be of any approved shape and size. The former may be conveniently molded with suitable permanent marks—such as the initials of a road, (represented at *m*, Figs. 1, 5, 7, 10, and 13,) a station-name, m^2, Fig. 1, &c., a station-number, m^3, Fig. 10, a car-number, m^4, Fig. 13, or an arbitrary symbol, m^5, Fig. 17; and any preferred combination of such permanent marks, together with tints and the like, may be used to prevent counterfeiting or to facilitate locating the violation of a seal.

In the specific seal represented by Figs. 1 to 9, inclusive, the bore *b* of the shell A is a cross-bore perpendicular to the face of the seal and common to a pair of threading-holes, *h*, and between said holes a flat chamber, *c*, Figs. 1, 5, and 7, is formed parallel with the face of the shell, extending upward from the lower end of the shell to a point near its top. Within this chamber is placed a "card," D, Fig. 2, of paper or the like, which conveniently bears the serial number *m'* of the seal, or any desired supplemental marks, so that they may be printed, written, or stamped. The face of the card is seen through the transparent face of the shell, as indicated in Figs. 5 and 7. The card may be cemented to the back of the chamber *c;* but its escape is prevented by the seal part B, subsequently inserted, as seen in Fig. 5. Said seal part B (shown separate in Fig. 3) has two effective portions pierced with holes, *h'*, which correspond with said holes *h* in the shell A and form continuations of the same when the seal part is inserted, as shown in Figs. 5 and 6. A relatively thin or contracted connecting portion, *x*, between said effective portions serves to unite the latter, so as to render them interdependent, and conveniently bears at one or both ends permanent marks m^0, such as patent-marks.

The body of the shackle C is of single wire, and is provided with notched securers *s*, of transparent glass, fast on its respective ends, to serve as anchors within the pressed-seal part, and at the same time, by their transparency, to more fully expose to view the interior of the pressed seal.

After the card D is inserted, followed by the seal part B, as aforesaid, one end of the shackle C is inserted, and the corresponding end of the seal part B is compressed upon its securer *s* by means of ordinary pliers, for example, as illustrated at the left-hand side of the seal in Figs. 5 and 6. All the parts of the seal are thus readily united at the factory.

In use, after passing the free end of the shackle C through a pair of car-door staples, E, Figs. 7 and 9, or the like, this end is inserted, and both effective portions of the seal part B are pressed, by means of a suitable seal-press, at one or two operations, and thus solidified around the shackle ends or the securers thereon, and at the same time stamped with suitable die-marks, as illustrated in Figs. 7, 8, and 9, leaving said marks m^0 on the connecting portion *x* uneffaced between the disks of the two die-marks. The seal is "opened" by cutting the shackle C above the shell A, which leaves all the parts united for preservation until the contents of the car or other receptacle have been inspected.

The smaller seal represented by Figs. 10 and 11 is composed of a glass shell, A^2, having only longitudinal threading-holes *h* and a cross-bore, *b*, a double seal part, B^2, having a connecting portion, *x*, like said seal part B, and a flexible shackle, C^2, preferably of annealed or soft-iron or copper wire, so as to be crimped within the seal part when the latter is pressed, as illustrated by Fig. 11. The parts of this seal may be preliminarily united at the factory, like those of the one first described.

The modified seal represented by Figs. 12, 13, and 14 comprises a glass shell, A^3, having a pair of flat threading-holes, *h*, each crossed by a bore, *b*, and it has two seal parts, B^3, in the form of rivets, its shackle C^3 being of sheet metal, with holes h^0 in its respective ends to receive the rivet-stems. A preferred mode of pressing the seal parts B^3 after they are inserted through the shell and shackle ends is illustrated by Fig. 14, where *z z* represent central flat-faced projections in the concave faces of one die. The figure also illustrates pressing the double seals at one operation, as aforesaid.

The small seal represented by Figs. 15 and 16 has a glass shell, A^4, having a single threading-hole, *h*, and a single rivet-hole cross-bore, *b*, being combined with a single rivet-shaped seal part, B^4, and a sheet-metal shackle, C^4. The ends of the latter are provided with holes h^0, like said shackle C^3, and are brought together after applying the shackles to car-door staples E or the like, as illustrated in Fig. 15, and then inserted in the threading-hole *h* of the shell A^4, after which the seal part B^4 is inserted and pressed. Fig. 16 represents the pressed seal.

The modified seal represented by Figs. 17 and 18 has the bore *b* of its shell A^5 between its threading-holes *h* and lengthwise of the shell. A peculiarly-shaped hollow seal part, B^5, fitted to said bore, extends laterally to the respective threading-holes without obstructing them before the seal is pressed, and it may be preliminarily fastened in place by partly expanding its lower end. The shackle C^5, Fig. 18, has by preference transparent notched securers *s* fast on its respective ends, like said shackle C. After applying the shackle C^5 to a staple, F, Fig. 18, or the like, the shell A^5, containing the seal part B^5, is applied to the ends of the shackle, and the seal part is then

expanded by means of a tapering punch or punches introduced within its interior *i*. Fig. 18 represents the seal as thus press-fastened.

Other like modifications of this invention will suggest themselves to those skilled in the art.

C², Fig. 11, may represent a shackle of cord or twine, or of single soft-iron or other wire, as well as twisted or braided wire. The sheet-metal shackles may be of "tin," (tin-plate,) taggers iron, or other cheap thin metal. I also propose using in connection with the within-described shells and seal parts any of my patented shackle-wires which may be suitable.

I do not claim herein, broadly, a seal-shackle provided with non-compressible notched securers, because of my previous seals having such shackles, patented September 15, 1885, (United States Patent No. 326,199.)

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

1. An improved seal comprising a non-compressible transparent shell having a threading-hole or threading-holes and a supplemental bore, a compressible seal part occupying said bore, and a flexible shackle having an end or ends fastened by said seal part within the transparent shell, substantially as hereinbefore specified.

2. In combination with a transparent shell having a threading-hole or threading-holes and a supplemental bore, and a compressible seal part occupying said bore, a flexible shackle having each threading end provided with a transparent securer fast on the wire body of the shackle within the seal part and transparent shell, substantially as hereinbefore specified.

3. In a seal, a transparent shell having a threading-hole or threading-holes, a supplemental bore, and a card-chamber open only at bottom and crossed by said bore, in combination with a compressible seal part occupying said bore, a flexible shackle having an end or ends fastened within the transparent shell by said seal part, and a card occupying said chamber and held in place by the seal part, substantially as hereinbefore specified.

4. The combination, with a flexible shackle having two threading ends, of a compressible seal part having a pair of effective portions and a connecting portion, and a non-compressible shell having a cross-bore occupied by said seal part, a pair of threading-holes extending through said shell and said effective portions of the seal part to receive said shackle ends, substantially as hereinbefore specified.

5. The combination, with a flexible shackle having two threading ends, of a compressible seal part comprising a pair of effective portions having holes to receive said ends and a connecting portion which unites said effective portions, a transparent shell having a cross-bore to receive said seal part, longitudinal holes to receive said shackle ends, and a chamber open at bottom between said holes, and a card occupying said chamber above said seal part and held in place by the latter, substantially as hereinbefore specified.

EDWARD J. BROOKS.

Witnesses:

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NORMAN S. KLINE.