

(No Model.)

A. B. SCHOFIELD.

SEAL FOR CAR DOORS.

No. 373,200.

Patented Nov. 15, 1887.

Fig. 1.

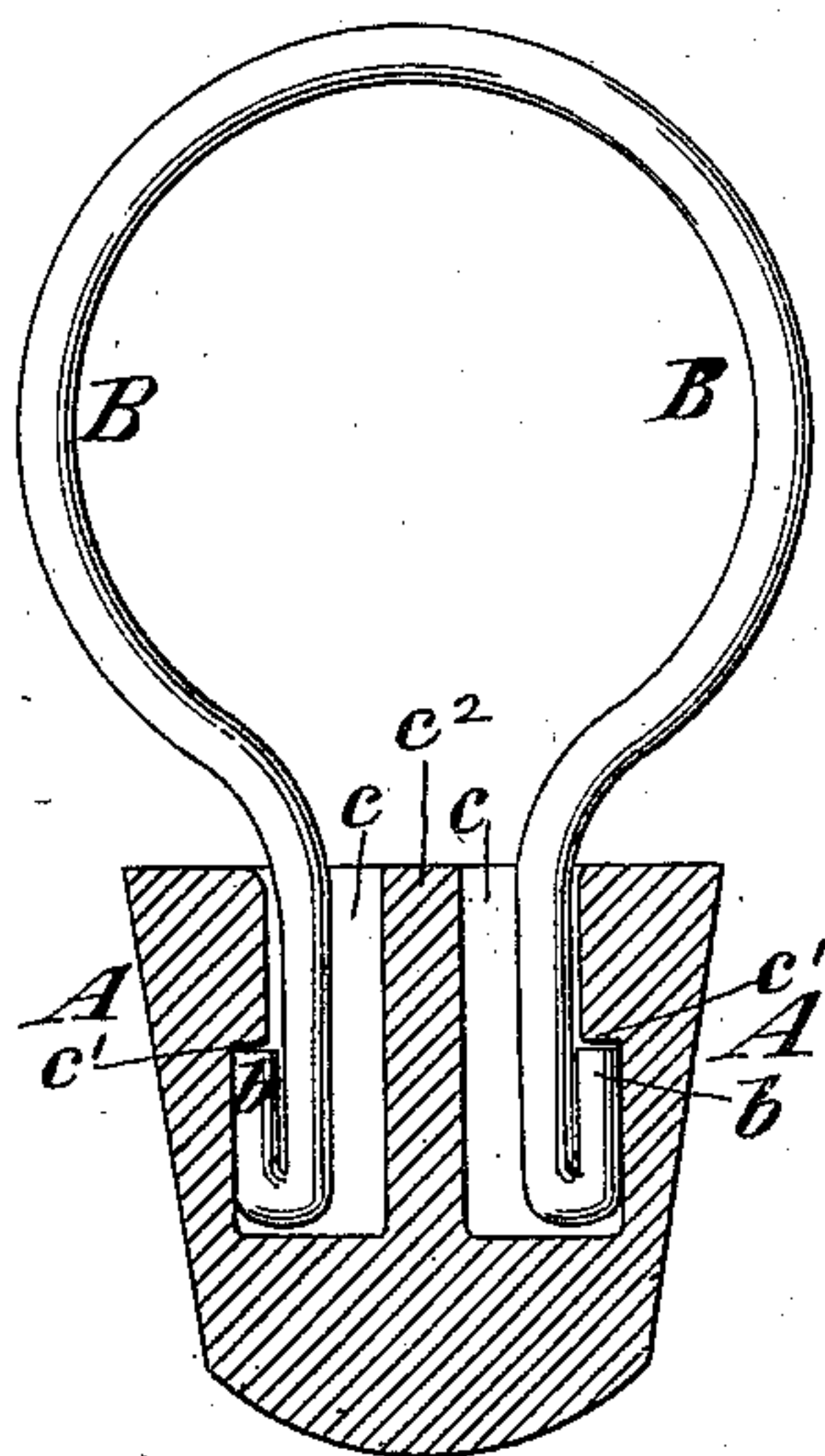


Fig. 3.

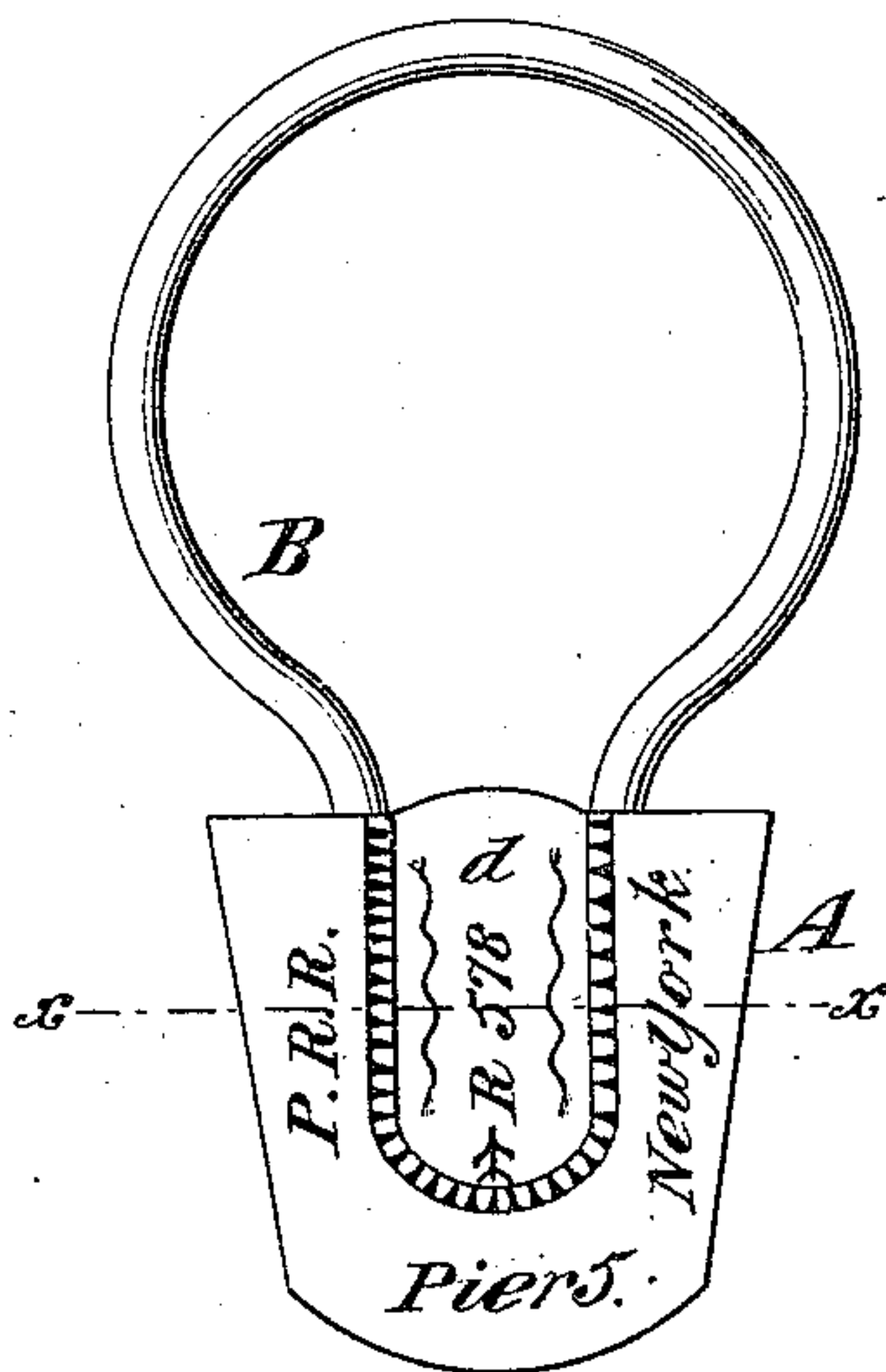


Fig. 2.

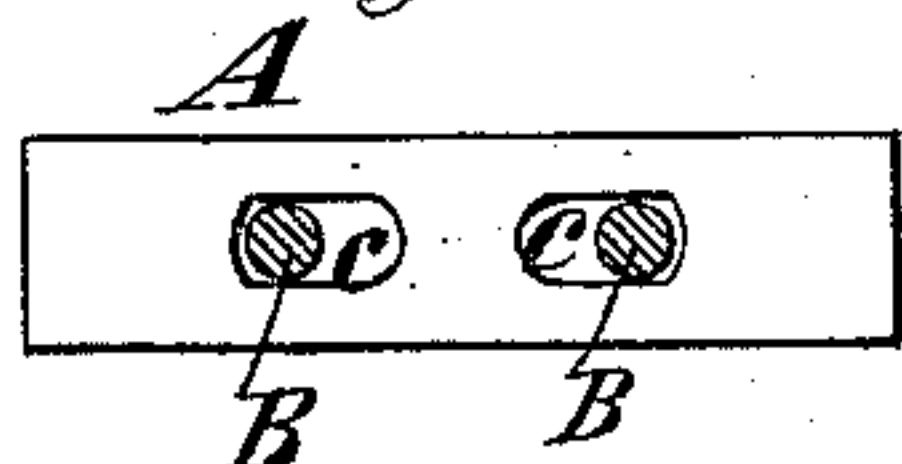


Fig. 4.

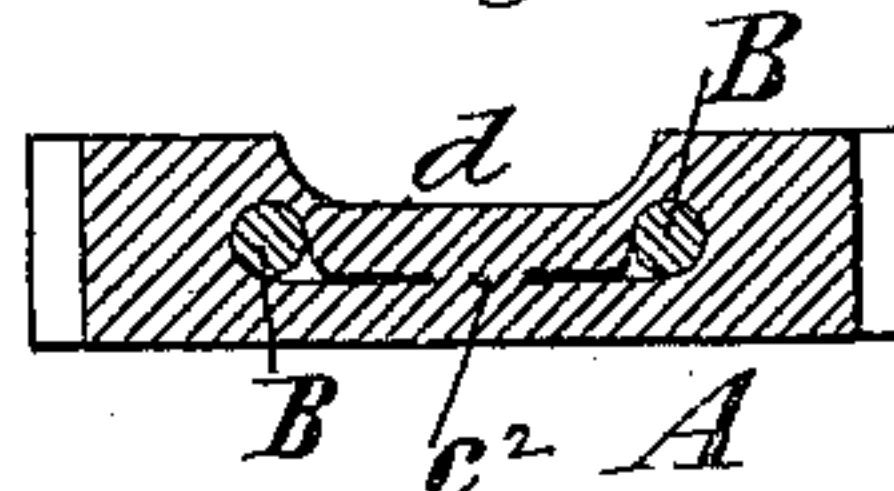


Fig. 6.

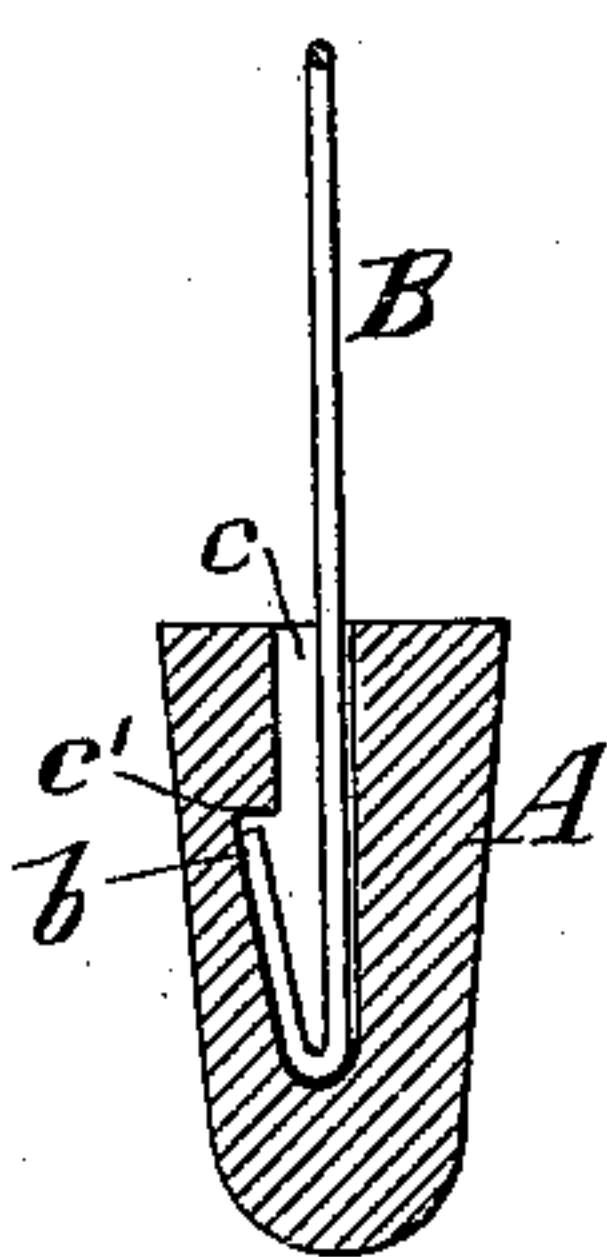


Fig. 5.

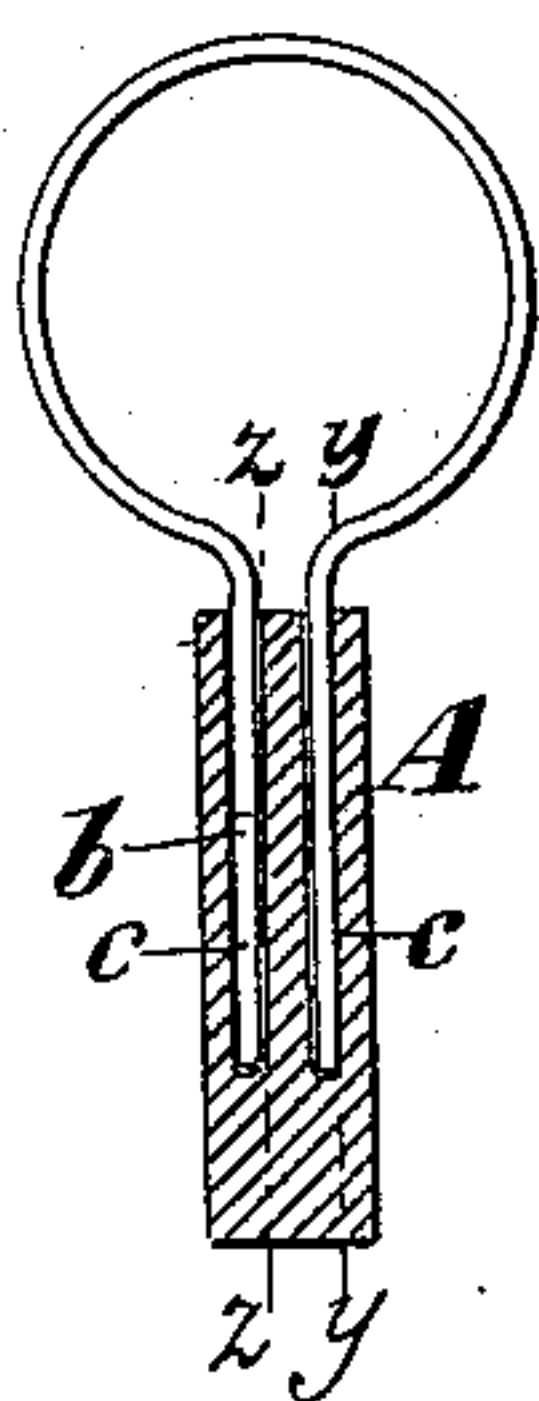


Fig. 7.

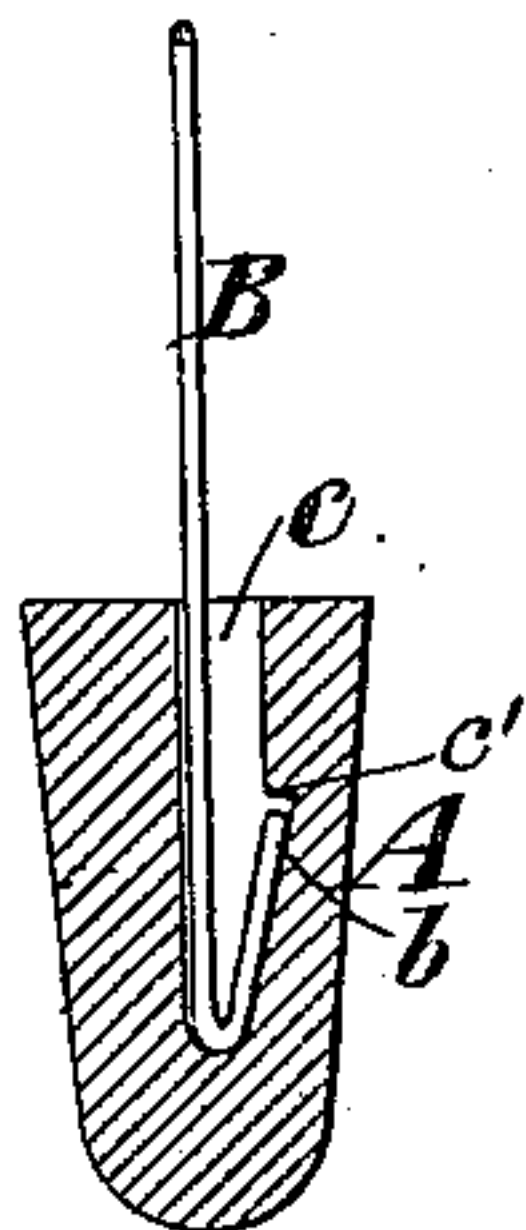
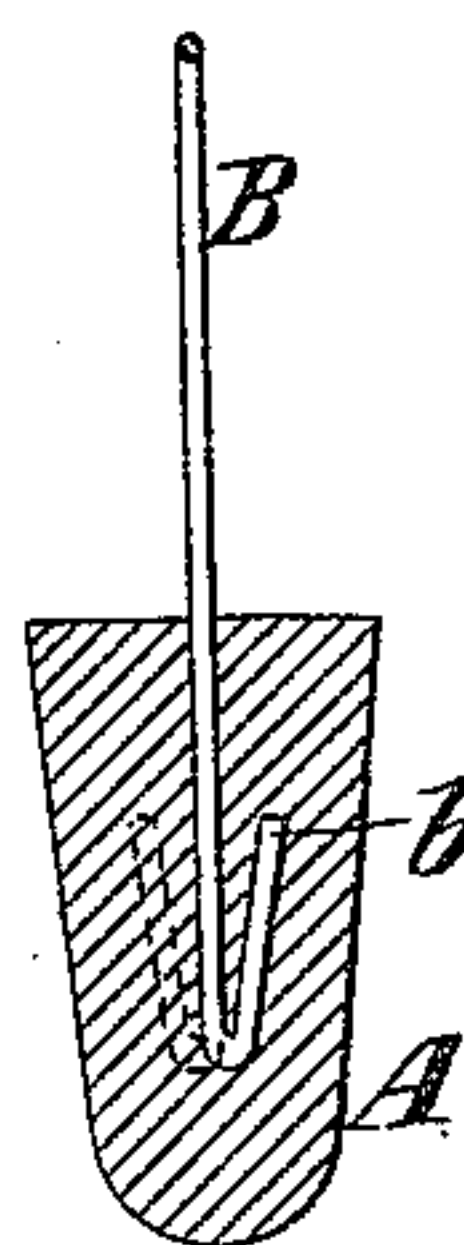


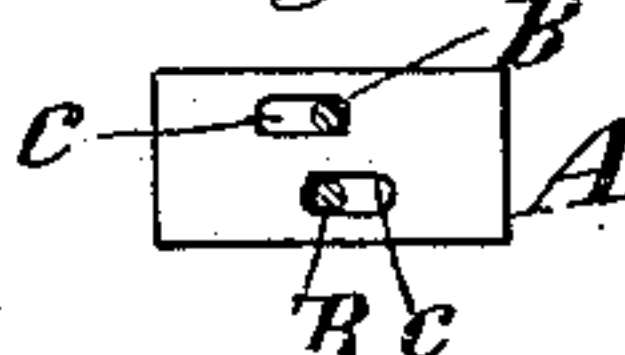
Fig. 9.



Witnesses:

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Fig. 8.



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by his attys
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UNITED STATES PATENT OFFICE.

ALBERT B. SCHOFIELD, OF JERSEY CITY, NEW JERSEY.

SEAL FOR CAR-DOORS.

SPECIFICATION forming part of Letters Patent No. 373,200, dated November 15, 1887.

Application filed July 2, 1886. Serial No. 206,921. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. SCHOFIELD, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Seals for Car-Doors and other Purposes, of which the following is a specification.

Theseals which have heretofore been in common use for car-doors and analogous purposes have usually been small fragile devices consisting of a small disk of lead within which are confined, by pressure, the two ends of a fine wire. Such a device is simply useful as affording evidence in case the seal has been tampered with and the car or other guarded structure or receptacle entered or opened; but it is not intended to serve in any sense the purpose of a lock or secure fastening. Moreover, such seals do not afford any great degree of security, as skill and experience only are required to unseal and reseal them without detection and with the exercise of little force or power.

An important object of my invention is to provide a seal or device of such character that it will practically serve the purpose of a lock after being applied, and can only be opened or broken by suitable tools, and which will therefore be useful not only as affording evidence that the guarded structure or receptacle has been tampered with, but also as opposing material obstacles against any attempt to open or enter the structure or receptacle.

In my seal I employ a body of soft metal—such as a mixture of lead, tin, and antimony—which will yield or flow under great pressure, and I employ a wire or other bail or loop, the ends of which preferably engage automatically when slipped thereinto and resist any attempt at withdrawal, and which are secured and sealed permanently in the body by pressure applied thereto, and which closes the soft metal of the body around the shouldered arms.

The invention consists in novel features in the construction of the parts of the seal and in the manner of combining such parts, as fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional view of the body of a seal embodying my invention, showing the bail or loop temporarily engaged therewith and before

pressure is applied for sealing. Fig. 2 is an end view of such body and a transverse section of the arms or shanks of the bail or loop. Fig. 3 represents a face view of the seal after the same has been sealed by pressure. Fig. 4 is a transverse section on the plane of the dotted line *x x*, Fig. 3. Fig. 5 is a sectional view of a seal of smaller size embodying my invention. Figs. 6 and 7 are sectional views on the planes of the dotted lines *y y* and *z z*, Fig. 5, before pressure is applied to the seal. Fig. 8 is an end view of the body of the seal shown in Figs. 5, 6, and 7 before pressure is applied for sealing; and Fig. 9 is a sectional view similar to Fig. 7, representing the seal after pressure is applied to the body for sealing it.

Similar letters of reference designate corresponding parts in all the figures.

I will first refer to the device shown in Figs. 1 to 4, inclusive, which is very advantageous, because its strength is such that as much or more power or force would be required to break it as would be required to force or break an ordinary padlock.

A designates the body, and B the bail or loop, the two ends or arms of which are sheathed within the body and sealed by pressure applied to the body. The body A should be of some metal or alloy of metals soft enough to flow or change form by very strong or heavy pressure exerted thereon. A mixture of lead, tin, and antimony will well answer. The bail or loop B, I prefer to make of steel wire, and when bent into the form shown the natural elasticity or resilience of the wire will cause its arms to spring outward or move apart when pressed together or toward each other and released.

The body A is constructed with recesses *c*, extending inward from the end and provided in their outer walls, or those walls most distant from each other, with shoulders *c'*. The arms of the resilient bail or loop are likewise provided on their outer sides with shoulders *b*, which may be advantageously formed by reverting or turning backward the end portions of the wire upon itself. The recesses *c* in the body A should be broad or wide enough outward beyond the shoulders *c'* to receive the doubled end portions of the wire bail or loop.

To apply the device the bail or loop is

thrust through the staple of a car-door or other securing device with which the seal-lock is to be used, and the end portions or arms of the bail or loop are then pressed toward each other or drawn together and thrust into the recesses *c* in the body. As the shoulders *b* pass the shoulders *c'* the arms of the bail or loop spring apart and carry the shoulders *b* into strong engagement with the shoulders *c'*, as shown in Fig. 1, and the bail or loop and body are thus locked together or automatically engaged by the elasticity or resilience of the wire of which the bail or loop is formed.

To compress the seal I employ a press such as that which forms the subject of my pending application for patent, Serial No. 226,122, filed February 1, 1887, and which comprises a box into which the body *A* is slipped and a die or presser which is brought down forcibly upon the body *A* by a screw or cam, to form in the face thereof the recess or indentation *d*, (shown in Figs. 3 and 4,) and thus flatten or thin the body and force the metal in opposite directions outward around the arms. By such pressure the metal of the body *A* is closed around the arms of the bail or loop *B*, closing or filling up the recesses *c* and permanently holding the shoulders *b* of the bail or loop *B* in strong engagement with the shoulders *c'* in the body. After the seal is thus secured it is almost an impossibility to open the body in order to release the arms of the bail or loop and permit the separation of the two parts, and such operation, even if it could be done at all, would require the most substantial and suitable tools, and the seal-lock could not be reapplied and resealed without certain detection. When the seal has performed its office and it is desired to open the guarded structure or receptacle, the bail or loop *B* is cut with a suitable tool and the seal-lock removed and thrown away, or saved for the metal in the body.

The body *A* might be cast with but a single recess, having shoulders *c'* in its opposite side walls, and without the partition *c''*; but the construction shown obviously affords greater security.

In order to afford evidence in case of any attempt to tamper with the seal-lock, the body *A* may be covered with lacquer or varnish or plated with metal, which will be scratched or scaled off by any attempt to open the body.

It will be observed that the opposite side edges of the body *A* converge toward the back end, giving it a wedge shape, and the advantages of this construction will be more clearly understood by reference to the aforesaid pending application. If the box of the press in which the body is placed for sealing is correspondingly wedge-shaped, the placing of the body in proper position to receive the pressure of the die is insured, it being only necessary to push the body *A* into the wedge-shaped cavity in the press-box until the body comes to a stop therein. The wedge-shaped form of the body is also desirable, because

there is a tendency of the body, when subjected to pressure between the arms, to spread laterally, and if the body *A* and press-box had parallel and straight walls the body would become so firmly fixed in the box as to render its removal very difficult. The press may also produce letters or figures in the bottom of the recess *d* and on the face of the body around the recess. For example, the letter and figures "R. 578" may be produced in the bottom of the recess *d* and the letters "PRR," "New York," and "Pier 5" in the face of the body around the recess. In the sealing of the lock the letters in the face of the body *A* around the recess, and denoting the destination, will not be produced until the die has properly formed the recess *d*, and hence no destination will appear on the body until the body is securely sealed, and any failure to properly seal the lock will be at once detected.

The device shown in Figs. 5 to 9, inclusive, embodies all the advantages of my invention so far as is necessary to produce a seal, although it has not the strength necessary to serve as a secure fastening. In this device the body *A*, which is of soft metal and wedge-shaped, as and for the purpose above described, has two recesses, *c*, arranged parallel with each other and side by side in the thickness of the seal, and these recesses have shoulders *c'*, as shown in Figs. 6 and 7. The bail or loop *B*, which is of small wire, has its ends reverted or turned back, but not folded tightly against the body-portion of the wire, as in Fig. 1. These spring-hooks thus formed on the wire *B* will yield as they are pressed into the recesses *c*, but will spring open as they pass the shoulders *c'* and into strong engagement therewith. The ends of the resilient hooks form shoulders *b*, which automatically engage the shoulders *c'*, as before described. After the end portions of the bail or loop *B* are thrust into the body the latter is subjected to the pressure necessary to close its metal around the arms of the bail or loop, as shown in Fig. 9.

The seal herein described may be applied to car-doors, express safes or packages, mail-bags, and generally to structures or receptacles which it is desired to guard against being tampered with. After the arms of the bail are firmly secured by closing the metal of the body around them the structure to which the seal is applied cannot be opened without great effort unless it be done by cutting the wire bail or loop. This cutting would be done close to the body for the purpose of avoiding the notice of the inspector; but if the bail or loop be resilient the arm which is cut will spring outward and the notice of the inspector will thus be more certainly called to it.

I am aware of Patent No. 77,953, granted to Bickerstaff, May 19, 1868, and do not claim a seal-lock such as is shown therein as of my invention. The lock shown in that patent consists of a body having shouldered recesses and a bail or shackle, the ends of which are shoul-

dered and split to give them resilience and cause them to engage automatically with the shoulders of the body when thrust thereinto. In my seals the shouldered arms of the loop
5 or bail are only temporarily held in engagement with the shoulders of the body by the resilience of the bail or loop, and the closing in of the soft metal of the body around the arms is relied on to produce the secure con-
10 nection of the body with the bail or loop.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The seal herein described, consisting of a bail or loop having shouldered arms and a
15 soft-metal body having a recess or recesses extending inward from its end, and formed with internal shoulders, and receiving the arms of the bail or loop, the soft metal of the body being closed by pressure closely around the arms
20 of the bail or loop to hold said arms in permanent engagement with the body, substantially as herein described.

2. The seal herein described, consisting of a soft-metal body having a recess or recesses
25 formed with internal shoulders, and a metal bail or loop having shouldered arms, which engage automatically with the shoulders of the

body by the resilience of the metal in the bail or loop, and which will spring out of position if cut close to the body, substantially as here- 30
in set forth.

3. A seal consisting of a body having its opposite faces substantially flat and parallel and having its opposite edges converging or made wedge-shaped, and a bail or loop having
35 its end portions or arms secured in the body by pressure upon opposite faces thereof, substantially as herein described.

4. The seal herein described, consisting of a soft-metal body, wedge-shaped or having con- 40
verging edges, having a recess or recesses extending from its end inward and formed with internal shoulders, and a bail or loop having arms provided on their outer sides with shoul-
45 ders, which are held in permanent engagement with the shoulders of the body by flattening or thinning the soft metal of the body between the arms, substantially as herein set forth.

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Witnesses:

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