No. 878,277. PATENTED FEB. 4, 1908.

H. V. CONOVER.

SEAL LOCK.

APPLICATION FILED OCT. 7, 1907.

2 SHEETS—SHEET 1.

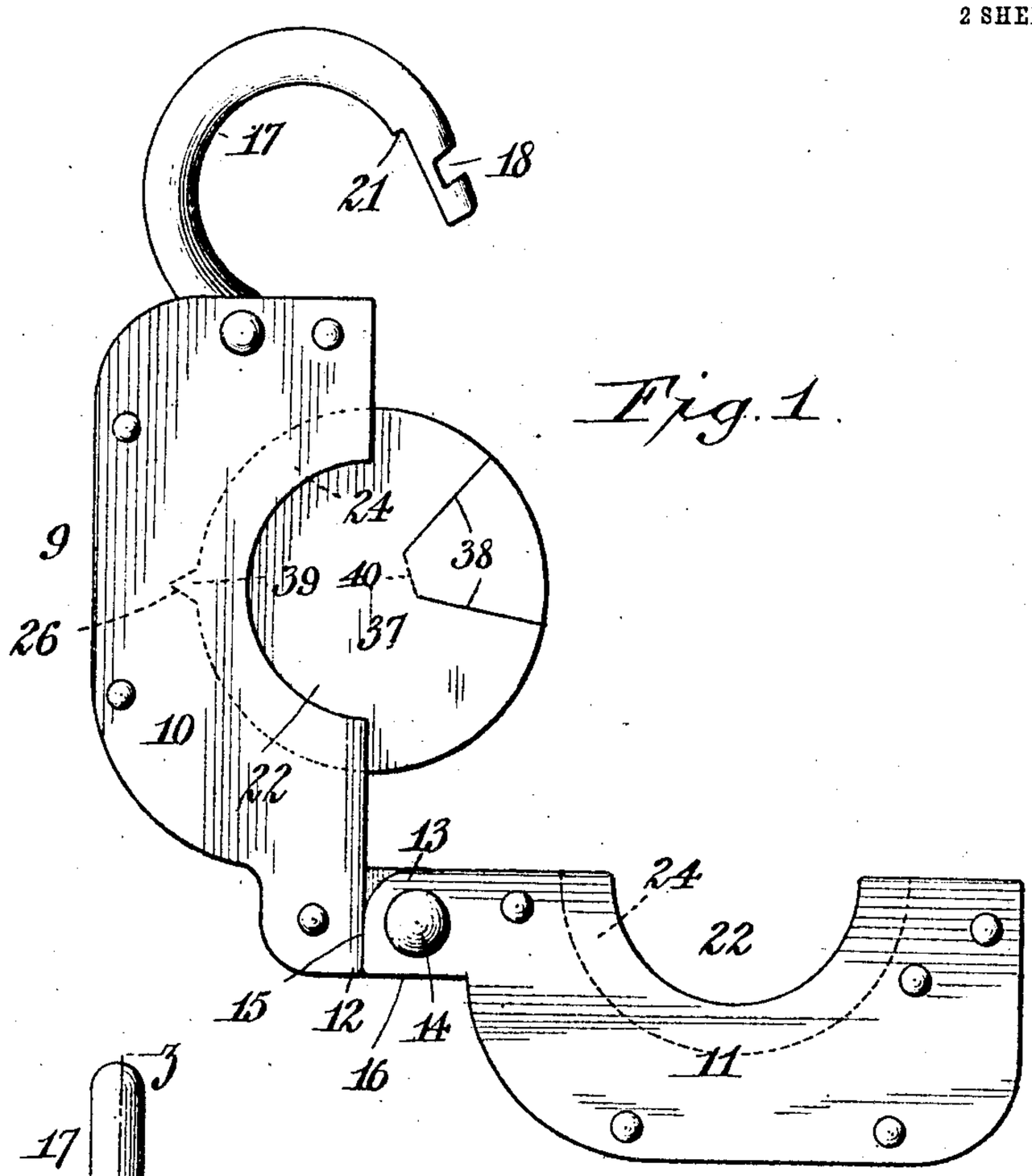


Fig. 1.

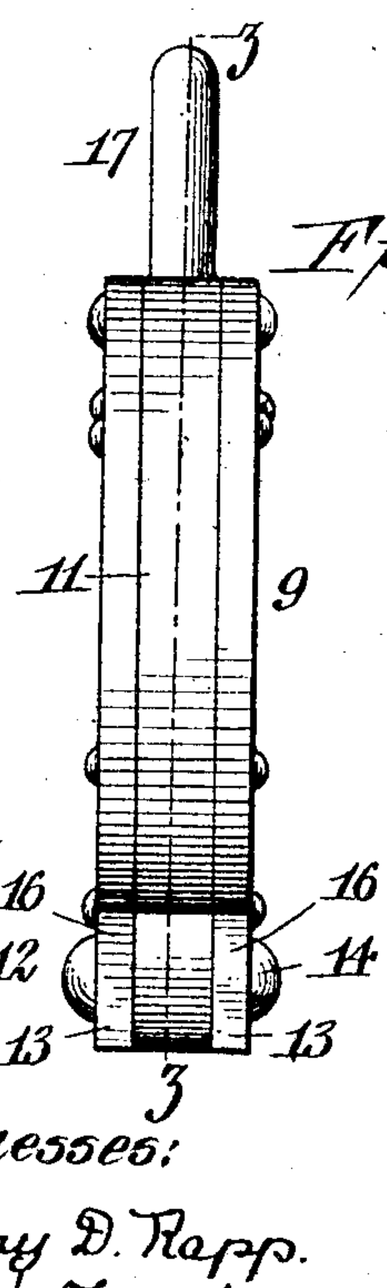


Fig. 2.

Fig. 3.

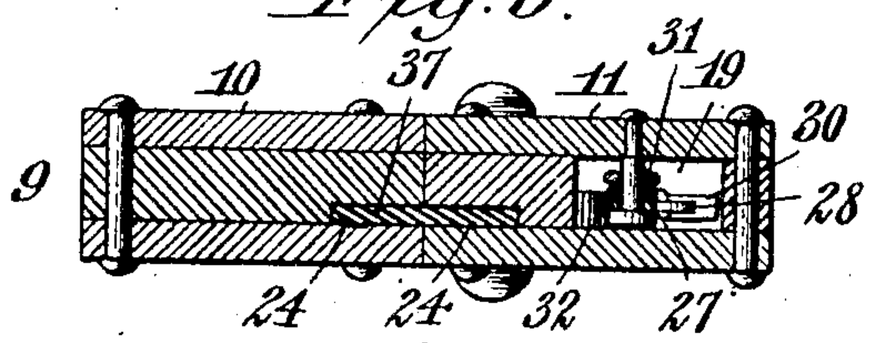
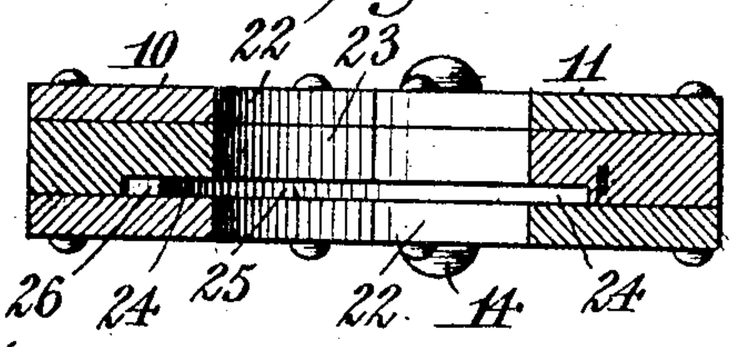


Fig. 4.



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By Emil Neuhark,
Attorney

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2 SHEETS—SHEET 2

Fig. 5.

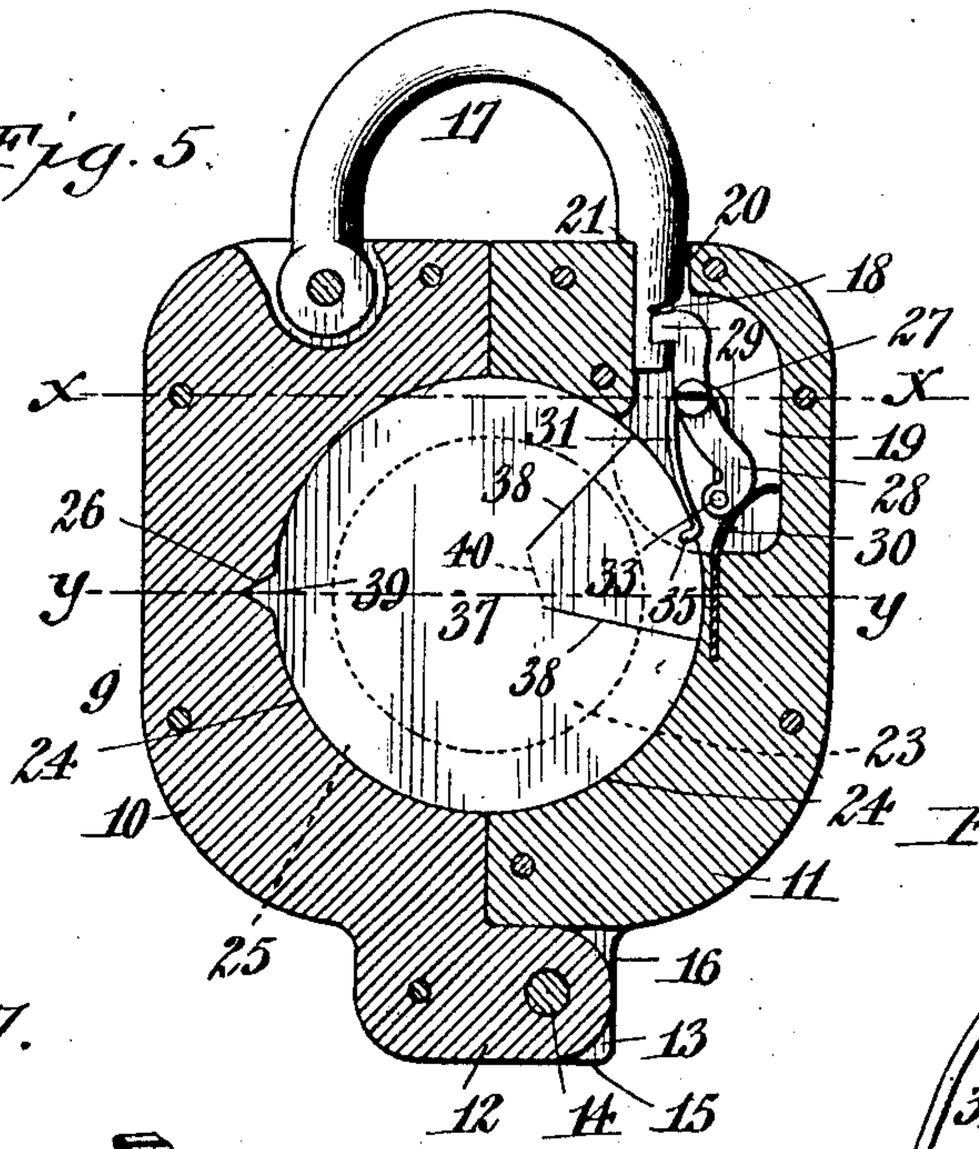

Fig. 8.

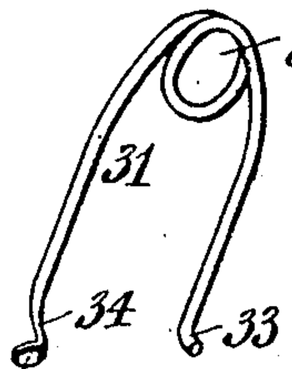

Fig. 7.

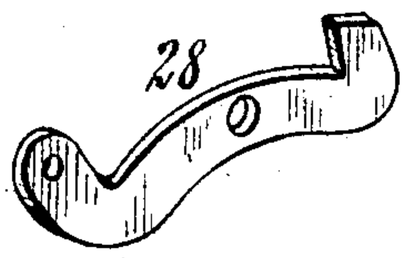

Fig. 6.

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UNITED STATES PATENT OFFICE.

HENRY V. CONOVER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO CHARLES OISHEI, OF BUFFALO, NEW YORK.

SEAL-LOCK.

No. 878,277. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed October 7, 1907. Serial No. 396,278.

To all whom it may concern:

Be it known that I, HENRY V. CONOVER, a citizen of the United States, and resident of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Seal-Locks, of which the following is a specification.

This invention relates to a seal lock, and its primary object is the production of a seal-lock wherein the seal serves to control the locking and unlocking of the lock.

Another object is to so construct the seal-lock that when attached to an object and unlocked, the parts of the body-portion will assume relatively different positions than when locked, thus disclosing without close examination that the seal has been broken.

Further objects are, to provide a seal-lock which is simple in construction, inexpensive to manufacture, and thoroughly practicable and effective when in use on car-doors, chests, or other objects where the use of a seal-lock is desirable; to provide a lock of this character in which the seal acts as a key; and to so construct the seal that substitution with unofficial seals is impracticable.

With the above and other objects in view, my invention consists in the construction, arrangement and combination of parts to be hereinafter described and particularly pointed out in the subjoined claims.

In the accompanying drawings, consisting of two sheets, corresponding numerals of reference refer to corresponding parts in the several figures.

Figure 1 is a side elevation of a lock embodying my invention and showing the body-portion open and a seal placed therein preparatory to locking the lock; this is also the position of the parts after a seal is destroyed or removed from the lock. Fig. 2 is an edge view of the lock. Fig. 3 is a transverse section taken on line *x*—*x*, Fig. 5. Fig. 4 is a transverse section taken on line *y*—*y*, Fig. 5 the seal being removed. Fig. 5 is a vertical section taken on line *z*—*z*, Fig. 2; the seal being in position and the shackle locked. Fig. 6 is a similar section with a portion of the seal removed, the shackle in locked position, and the locking-mechanism in normal position; this being the portion of the parts when the two members of the lock-body separate. Fig. 7 is a detached perspective view of the locking-latch. Fig. 8 is a detached perspective view of the spring adapted to be engaged by the seals.

The reference numeral 9 designates the body of the lock which may be of any shape or construction and it preferably consists of two members 10, and 11, pivotally connected at their lower ends; member 10 having a downwardly and laterally projecting lug 12 fitting between spaced ears 13 depending from member 11 and said lug and ears having alined pivot-holes through which a pivot-pin 14 is passed. The lower edges 15 of ears 13 are at right-angles to the outer edges 16 thereof so that when the lock is unlocked, member 11 will swing to a position at a right-angle to that of member 10, as clearly shown in Fig. 1, thus showing without close examination and from a distance that the lock is unlocked. Such is the position of the parts when the lock is applied to a door or other object, unless the seal, to be hereinafter described, is placed in the lock and remains intact. Although the outline of the ears 16 as above described is preferred, it is not necessary to a practical embodiment of my invention, they being so formed to retain member 11 at a right-angle to member 10 so that in a casual examination, the peculiar position member 11 assumes attracts the eye, since it acts as a visible signal to inform all whose duty it is to attend to such matters, that the car or other object is unlocked and may have been tampered with. If desired, the angular edges may be omitted, in which case member 11 would assume a pendent position, which would also attract attention and show that the lock is unlocked, but in practice I have found the construction illustrated best adapted for use on car-doors, for which my invention is primarily designed.

Member 10 has one end of a U-shaped shackle 17 pivotally attached thereto, the other or free end of which is notched, as at 18 and adapted to enter a chamber 19 in member 11 by passing through an opening 20 extending from the upper edge of said last-mentioned member to said chamber. The shackle is provided with a shoulder 21 which bears against the upper edge of member 11 when the shackle is in locked position, said shoul-

der serving to limit the extent to which the free end of the shackle enters chamber 19.

Each member of the lock-body has a groove 22 formed centrally along its inner edge, preferably of semi-circular contour, and when both members are brought together in locked position, a circular opening 23 is formed thereby. Along the inner edge of each member, following the contour of the semi-circular groove therein is a semi-annular depression or groove 24, which form an annular groove 25 when the members of the lock-body are brought together into locked position. The depression or groove 24 in member 10 has a comparatively small notch or recess 26 for a purpose to presently appear.

Chamber 19 opens into the semi-annular groove 24 in member 11 so that locking-mechanism located in said chamber may extend partly into said groove. Said locking-mechanism comprises a lock-latch 28 pivotally secured between its ends to one of the side-walls of said chamber and having at its upper end a lateral projection 29 adapted to enter the notch 18 in the free end of the shackle. The lock-latch is normally held out of range of the shackle by a flat spring 30 which acts against the edge of the lock-latch at a point below the pivot of the latter. A second spring 31—preferably of the "trigger" type—of greater power than spring 30 is provided to overcome the action of the latter when locking the shackle, and it has its coil 32 encircling the pivot of the lock-latch with one end 33 secured to the lower extremity of said latch and its other end free and extending into the adjacent semi-annular groove of the lock-body. The free end of spring 31 is bent laterally, as at 34, and terminates in an inwardly directed lip 35.

The parts above described are those pertaining to the lock proper, but such parts are not capable of use without a locking-element or key-device, which in this invention consists of a frangible or destructible seal 37, which as illustrated is in the form of a flat disk, such as tin or other suitable material, bearing the impression of a station-agent, owner, or other person, or a company or corporation, as the case may be, and as is customary in marking or impressing seals. The seal is preferably provided with two incisions 38, extending from the edge inward and it is placed within the lock-body, or more particularly between the two members of the lock-body so that it is exposed to view from both sides of the lock through the opening 23 in the latter. In placing the seal in the lock, it is first slipped into the semi-annular groove 24 in the member 10 with that portion of its edge between the incisions so placed that when member 11 is closed, it engages the free end of the "trigger" spring to place the same under tension. This action causes deflection of spring 30 and compels the lock-latch to swing on its pivot and enter the notch in the free end of the shackle, thus locking the lock and positively holding the seal between the two members of the lock-body.

In order that the seal will be properly placed within the lock-body so as to bring the portion of the seal between the incisions therein in contact with the locking-mechanism, each seal is provided with a lip 39 corresponding in shape to the outline of the notch or recess 26 in member 10 which it enters. This arrangement compels the seal to be properly positioned before member 11 of the lock-body can be moved into closed position. A reversal of this arrangement in which the lip is formed in the groove of member 10 and the notch in the seal will answer the purpose as well.

After the seal is placed in position and the device locked, it can only be opened by removal or destruction of the seal. It is my intention to use a specially designed seal-cutting device for this purpose, which will only be in possession of an authorized person, or persons, who will be held responsible for them. By the use of such tool the seal can be cut on a line connecting the incisions 38, as shown for example, by dotted line 40, Fig. 5. When the seal is cut, the portion in contact with the locking-mechanism can be removed, whereupon the tension on the "trigger" spring 31 is removed, after which the spring 30 acts to swing the lock-latch free of the shackle. This brings the parts into the position shown in Fig. 6; and simultaneously the lock-member 11 frees itself of the shackle and gravitates to the position shown in Fig. 1. Other means may be used to destroy the seal, such as by bulging it to draw the edge thereof out of engagement with the locking mechanism; but in any event, member 11 will immediately assume a position at a right-angle to member 10, and thus show that the car or other object to which the lock is applied is open.

It is apparent that seals of any outline may be employed; the receiving groove, of course, to correspond in shape. It will be also clear from the foregoing, that seals and the groove in the lock-body can be so constructed and related that the slightest change in position of notch or clip on either, or the slightest variation in size of notch and lip will render the seal useless. Therefore each individual or company can have a seal of special design, which must be exactly duplicated by an unauthorized party before it can lock the shackle of the lock after having opened it. This would be the only means of avoiding immediate detection when a car or other object locked by a seal-lock embodying my invention is opened by an unauthor-

ized person, as in no other way can he retain the two members of the lock-body in position without arousing suspicion.

Having thus described my invention, what I claim is,—

1. In a seal-lock, the combination of a lock-body having an endless groove, a shackle, locking-mechanism adapted to engage said shackle to lock the same and normally in a position free of said shackle, and a seal having its marginal portion fitting within said endless groove and serving to move said locking-mechanism into engagement with said shackle.

2. In a seal-lock, the combination of a lock-body comprising two parts, a shackle pivotally connected to one of said parts and adapted for locking engagement with the other of said parts, locking-mechanism in said last-mentioned part, and a destructible seal coöperating with said locking-mechanism and whereby said shackle is caused to be locked.

3. In a seal-lock, the combination of a lock-body comprising two pivotally connected members having coinciding grooves forming an opening when said members are moved into closed position, a shackle pivoted at one end to one of said members and having its other end adapted to enter the other of said members, locking-mechanism in said last-mentioned member, and a destructible seal held in the opening formed by said members and serving to move the locking-mechanism into engagement with said shackle.

4. In a seal-lock, the combination of two pivotally-connected members, a destructible seal held between said members, a shackle pivotally secured at one end to one of said members with its other free end adapted to enter the other of said members, spring-governed locking-mechanism normally held out of range of said shackle and adapted to be moved into engagement with said shackle by said seal.

5. In a seal-lock, the combination of two pivotally-connected members, each member having a pocket and an opening which coincide when said members are held in closed position, a flat seal held in said pockets and exposed through said openings, a shackle, and locking-mechanism controlled by said seal.

6. In a seal-lock, the combination of two pivotally-connected members adapted to be swung into closed position and having adjacent portions recessed and notched, one of said members having a comparatively small notch in its recessed portion and the other member having a chamber in communication with its recessed portion, a flat seal held within the recesses of said members and having a lip entering the small notch in the recessed portion of one of said members, a shackle pivoted to said last-mentioned member and having its free end adapted to enter said chamber in the other member, and locking-mechanism in said chamber controlled by said seal to engage said shackle and to free itself therefrom.

7. In a seal-lock, the combination of two pivotally-connected members, a seal adapted to be held between said members and having incisions from its edge inward partly defining a portion to be removed or deflected, means of connection to the object to be locked, and locking-mechanism engaged by the edge of said seal at a point between the incisions thereof, said locking-mechanism being moved into engagement with said means of connection to lock the seal and being adapted to disengage itself from said shackle when that portion of the seal between said incisions is removed or deflected.

8. In a seal-lock, the combination of a body-portion, a shackle pivotally connected thereto and having a notched free end, a destructible seal carried by said body portion, and locking-mechanism comprising a pivoted latch adapted to engage the notched end of said shackle, a spring serving to hold said latch out of range of said shackle and a second spring of greater power acting against said latch and adapted to be engaged by the seal, said second spring overcoming the power of the first-mentioned spring when placed under tension by the seal and serving to move said latch into engagement with the notched end of said shackle.

9. A seal-lock, comprising two pivotally-connected members, a shackle held to one of said members, locking-mechanism in the other of said members, and a seal controlling the locking and unlocking of the shackle, said members assuming relatively different positions when the shackle is locked and unlocked so that the unlocking of the lock can be easily detected.

In testimony whereof, I have affixed my signature in the presence of two subscribing witnesses.

HENRY V. CONOVER.

Witnesses:
ELLA C. PLUECKHAHN,
EMIL NEUHART.