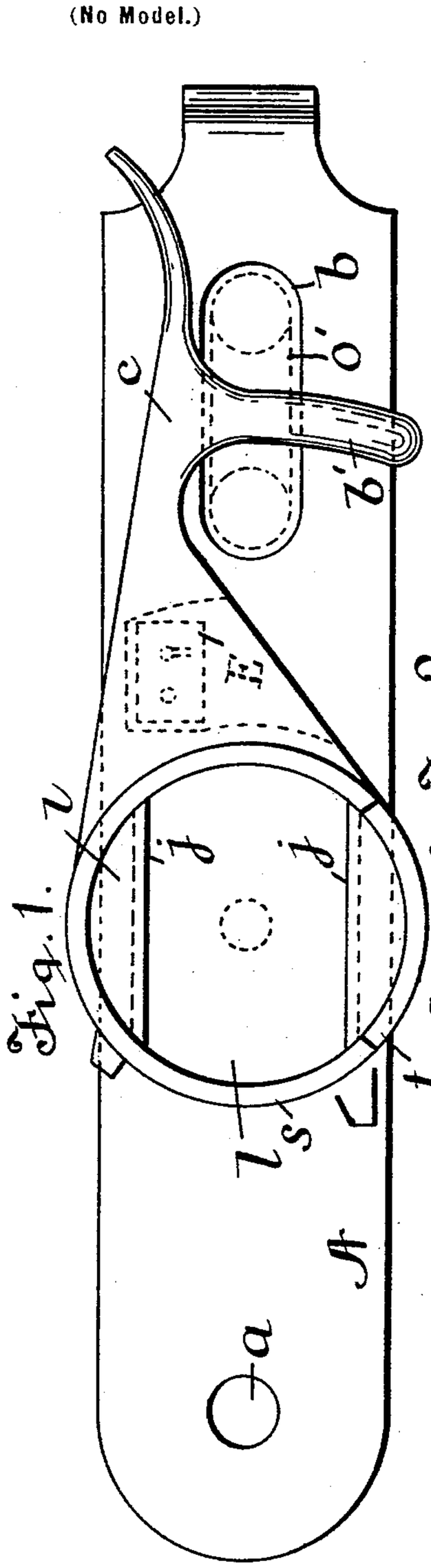
No. 677,013. Patented June 25, 1901.

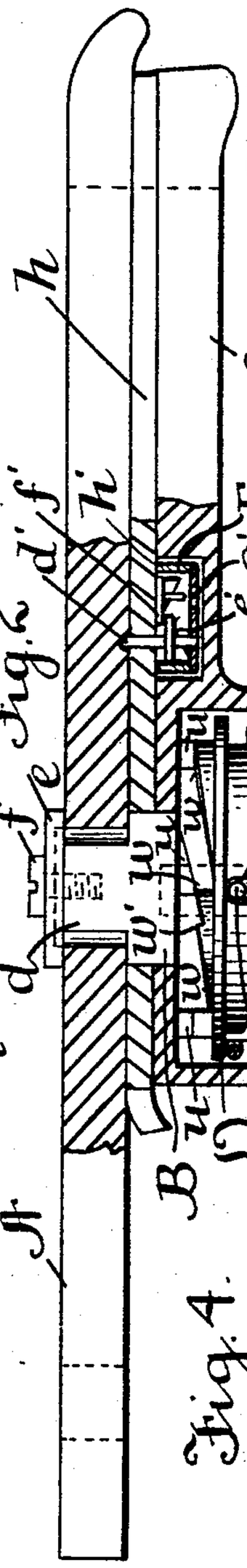
H. B. BROWER.

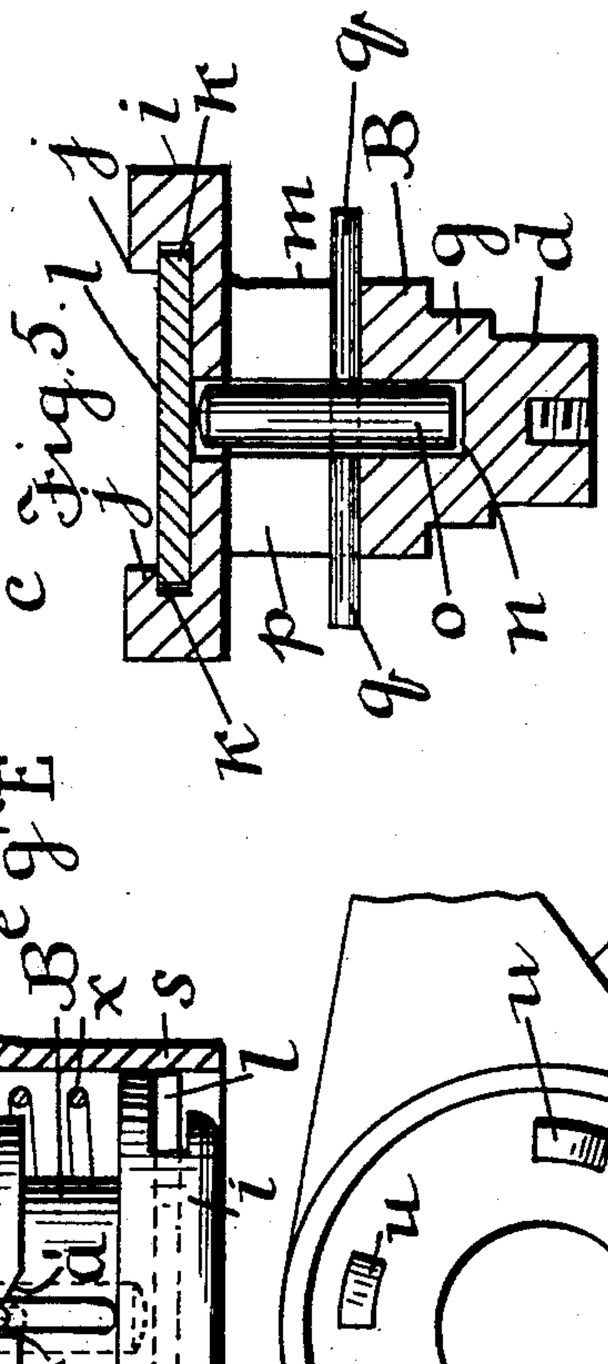
SEAL LOCK.

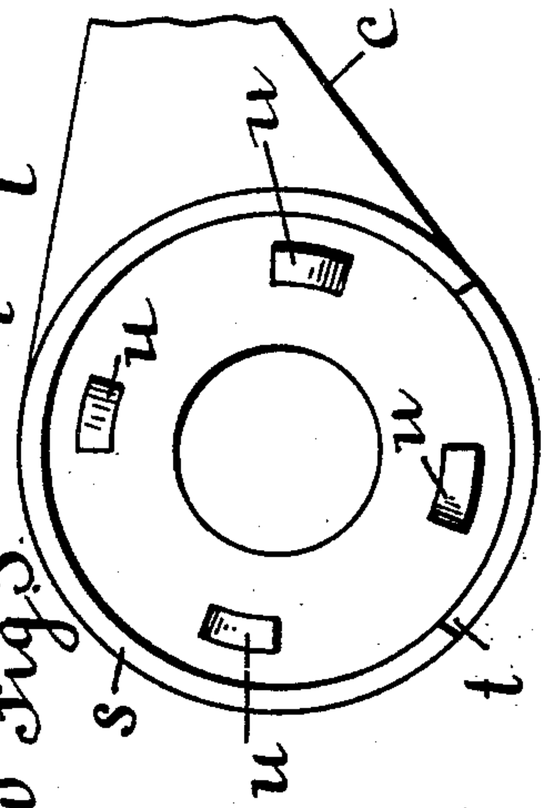
(Application filed Sept. 30, 1898. Renewed Nov. 27, 1900.)

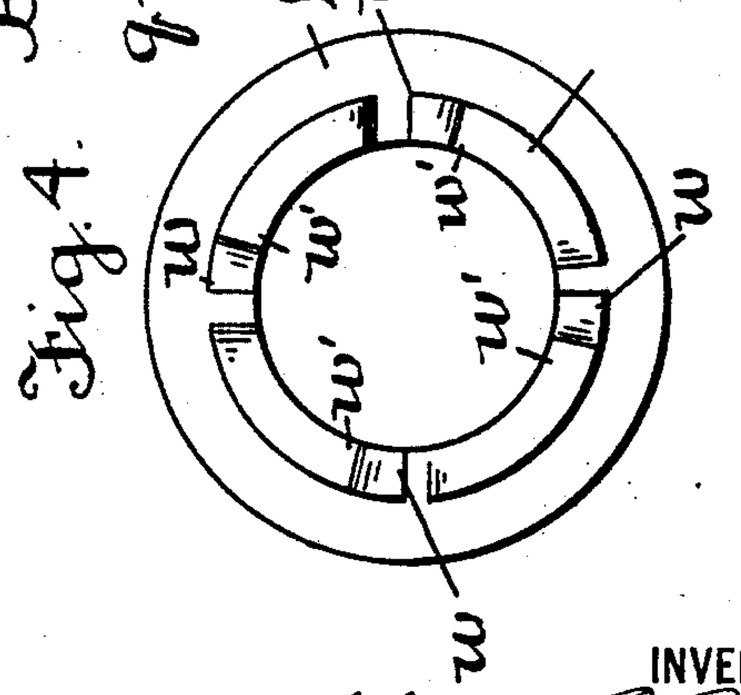
(No Model.)

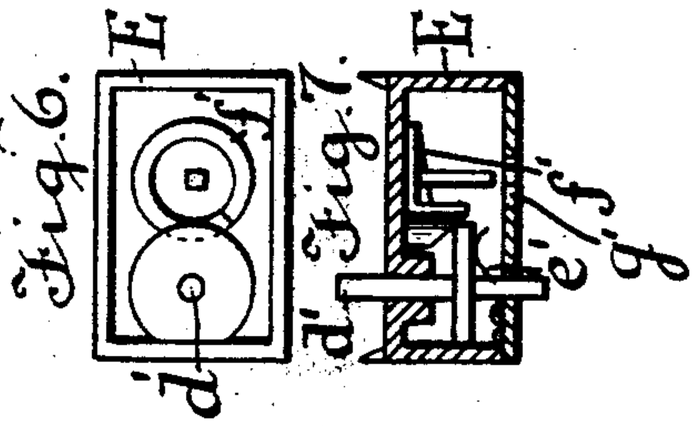












WITNESSES:
Jos. S. Lockwood.
J. Howard.

INVENTOR
Hiram B. Brower
BY
A. D. Thayer
ATTORNEY

UNITED STATES PATENT OFFICE.

HIRAM B. BROWER, OF QUAKER FARMS, CONNECTICUT, ASSIGNOR TO WILLARD B. HOSMER, OF BOSTON, MASSACHUSETTS, AND FRANK W. WOOD, OF NEW YORK, N. Y.

SEAL-LOCK.

SPECIFICATION forming part of Letters Patent No. 677,013, dated June 25, 1901.

Application filed September 30, 1898. Renewed November 27, 1900. Serial No. 37,925. (No model.)

To all whom it may concern:

Be it known that I, HIRAM B. BROWER, a citizen of the United States of America, and a resident of Quaker Farms, county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Seal-Locks for Car and other Doors and other Objects, of which the following is a specification.

My invention relates to improvements in the seal-lock for car and other doors and other objects to be locked on which a patent was granted to me March 1, 1898, No. 599,956; and it consists of an improvement of the cam-ring employed in the chambered hub of the hook to cause the breaking of the seal when the hook is opened, contrived for protection against deceptive adjustment of the hook, so as to appear locked when it is not so, and thus enable the hook to be opened without breaking the seal; and it also consists in the application of an auxiliary hook with locking devices that are not accessible for unlocking until the main hook is opened for further protection, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved seal-lock adapted for a car or other door fastener. Fig. 2 is partly a top view and partly a horizontal section. Fig. 3 is a front elevation of part of the main hook separately from the rest of the parts. Fig. 4 is a face view of a cam-ring employed in a chamber in the hub of the hook to cause the breaking of the seal when the hook is opened. Fig. 5 is a longitudinal section of the pivot-stud of the hooks and seal-holder, also of a seal. Fig. 6 is a plan of the lock for the auxiliary hook inverted and with the interior parts uncovered, and Fig. 7 is a longitudinal central section of the lock.

A represents a hasp such as is usually pivoted at *a* to a car-door to be connected to the car-body, or vice versa, by a staple, as *o'*, (dotted,) over the projecting portion of which the slotted end *b* is adjusted to be secured by the hook *c*, pivoted on the stud B, attached to the hasp A by its shouldered part *d*, inserted through the hasp and secured by the cap *e* and a tap-screw *f* or other approved means. The pivot-stud B has another shouldered section *g*, whereon the hook *c* is pivoted, and the auxiliary hook *h* also. At the outer extremity of stud B it has an enlarged head *i*, which has a transverse groove *j*, the walls of which are undercut, as at *k*, to receive frangible seals *l*. Between the head *i* and the part *g* of the pivot-stud is an intermediate section *m*, larger than part *g* and smaller than the head. The pivot-stud is bored centrally from the outer end inward a suitable distance to provide a socket *n* for reception of a seal-breaking plunger *o*, and it is slotted at *p* for working space for arms *q* of the plunger, reaching outward some distance beyond the sides of the pivot-stud. The hook *c* has a large circular hub *s* coincident with the pivot-stud and chambered from the front nearly its whole depth of equal size, as the head *i* of the pivot-stud, and said head is flush with the front of the hub when the parts are assembled. A notch *t* is formed in the outer extremity of the hub in such dimensions and location that a frangible seal *l* may when the hook, being disconnected from the locking-staple, projects upward be inserted through said notch into the groove, where it is so confined when the hook is in the locking position that the seal cannot be removed without being broken. In the bottom of the chamber of said hub *s* is a series of ratchet-teeth *u*, projecting from the surface.

D is a cam-ring adapted to enter the chamber of the hub *s* and turn freely therein. It has on one side ratchet-teeth *w*, similar to teeth *u*, but in the reverse relation, these two sets of teeth being so formed that when the hook is raised to release its prong *b'* from the staple its teeth *u* will engage the teeth *w* of the cam-ring and turn said ring; but when the hook swings down its teeth will not take effect on the cam-ring, which will remain at rest. The other side of the cam-ring has cams *a'*, on which the arms *q* of the seal-breaker rest, so that when the cam-ring is turned by lifting the hook the seal-breaker will be thrust forward against the seal and will break it be-

fore prong b' rises out of the staple, and thus will always show when the door has been unfastened, there being no means of removing the seal without breaking it after the hook has been engaged with the staple. The cams a' are arranged at such distance apart that arms q will escape from those effecting the break into the notches v' before the upward movement of the hook ceases, to allow the plunger to recede to permit the next seal to be inserted, and a coiled spring x between the head i of the pivot-stud and the ring keeps the ratchet-teeth of the cam-ring in engagement with the ratchet-teeth of the bottom of the chamber, the plunger being free to be pressed back when a new seal is to be inserted.

It will be seen that the seal-breaking devices are so effectually inclosed that they are in no way accessible for breaking the safeguard. The seal can be of any suitable size for being conspicuously visible.

As thus far described, the invention is, with the exception of the auxiliary hook h, practically the same as in the before-mentioned patent and is not claimed herein.

In the practical use of these seals it is the common practice of an inspector to walk along the track at the side of the train at each regular stopping place to see if the seals are unbroken, and the hooks are duly engaged with the staples, which is considered satisfactory evidence that the fastener is intact; but as the trains are sometimes very long and the stops are short the inspection is so hurriedly and imperfectly made that a hook might possibly be purposely set by a dishonest employee of the road, so as to appear all right in such inspection and yet not be actually engaged with the cam-ring for breaking the seal when the hook is withdrawn from the staple, and thus be in a condition enabling a confederate farther on to open the car without breaking the seal. To guard against such frauds, the cam-ring is now constructed with supplementary teeth w' in addition to teeth w, in close proximity to said teeth w and of less depth, and on the other side it has a notch v' at the bottom of each cam a', which locks the cam-ring on the arms q when teeth u are engaged in teeth w', so that the cam-ring cannot be turned backward, and consequently the hook cannot be raised out of the staple sufficiently to release the hasp. It will be seen that were it not for the teeth w', if the hook were set and temporarily secured in the position a little short of the actual locking position, as indicated by the point of tooth u resting on the point of tooth w in Fig. 2, the cam-ring would not be engaged with teeth u of the hook, and so the hook could be raised and the seal would not be broken; but with these additional teeth w' to engage the cam-ring and the notches v' locking the cam-ring on the arms q the hook cannot be raised until it is first turned so far down that teeth u must engage teeth w, whereby said teeth w being deeper than teeth w' the cam-ring will be pushed so far back in the chamber by the spring that notches v' will no longer lock the cam-ring on the arm q, the cams a' being now in position to pass behind the arms and thrust out the seal-breaker, as illustrated by the dotted indication of the relation of arm q to the cam a' in Fig. 2; but it is to be understood that it is the cam-ring that goes farther back relatively to the arm to so enable the cam to pass behind and take effect on the arm.

For still further security against opening the fastener without detection the auxiliary hook h is provided on the same pivot-section g of the stud B between hook c and the hasp A and having a like prong, as b', to engage the staple, on the front side of which hook a lock E is located, so as to be covered by hook c when said hook is locked, and thus prevent access to said lock except when hook c is opened, which lock E has in this example a slide-bolt d', that is pressed into a socket in the hasp by a spring e' when said auxiliary hook is engaged with the staple, with a retracting-cam f', to be actuated by a key inserted at the keyhole g' to withdraw the bolt when said keyhole is uncovered by the hook c, and the parts are so adjusted that this will not take place until hook c is so wide open as to insure the breaking of the seal. Any approved form of lock may be substituted for the lock E shown.

It is to be noted that when the auxiliary hook h is locked by the bolt d' entering the socket of the hasp, as in Fig. 2, said auxiliary hook being then engaged with the staple o', the other end of said bolt d' is flush with the exterior of the cover of the lock-case, permitting the hook c to be opened or closed; but when hook c has been raised and hook h unlocked by the withdrawal of the bolt d' and the hook raised and the bolt shifted away from the socket the locking end of said bolt then bears against the surface of the hasp, and its other end projects beyond the cover of lock-case E, and thus prevents hook c from being closed without first locking hook h, as a means of deceiving the inspector.

What I claim as my invention is—

1. In a seal-lock of the character herein described, the combination with a hasp and a hook pivoted on said hasp, of a seal-holder in which the seal is not removable intact when the door is fastened, a seal-breaker and means operated by the hub of the hook to actuate said breaker by the opening of the hook, and automatically break the seal prior to the release of the hasp, also means to prevent false engagement of the hook so as to open without breaking the seal substantially as described.

2. In a seal-lock of the character herein described, the combination with a hasp, and a hook pivoted on said hasp, of a seal-holder in which the seal is not removable intact when the door is fastened, said holder located in the axis of the pivotal hub of the hook, a seal-breaker consisting of the sliding plunger in

said axis, a cam-ring turning on the pivot-stud for actuating the plunger, a ratchet on the hub of the hook for turning the cam-ring to actuate the plunger and break the seal, said cam-ring having the supplementary teeth and notches, to prevent opening the hook without engagement with the cam-ring for breaking the seal substantially as described.

3. In a seal-lock of the character herein described, the combination with the chambered hook having the ratchet-teeth in the bottom of the chamber, and the seal-breaking plunger located in the pivot-stud, and provided with the arms for actuating it, of the cam-ring having the ratchet-teeth for engaging with the hook-teeth, also having the cam for actuating the plunger, and provided with the supplementary teeth, and the locking-notches to engage the arms of the plunger and prevent the turning of the cam-ring when the hook-teeth are engaged with the supplementary teeth of the cam-ring substantially as described.

4. The combination with the main hook and hasp, seal-holder, seal-breaker, and means operated by the hub of the hook to automatically break the seal prior to the release of the hasp, of the auxiliary hook, and a locking device for said hook covered by the main hook and being inaccessible for release of said auxiliary hook while the main hook is unopened substantially as described.

5. The combination with the main hook and hasp, seal-holder, seal-breaker and means operated by the hub of said hook to automatically break the seal prior to the release of the hasp, of the auxiliary hook, and a locking device for said hook covered by the main hook and being inaccessible for release of said auxiliary hook while the main hook is unopened, and means to prevent closing the main hook without first closing and locking the auxiliary hook substantially as described.

Signed by me at New York this 26th day of September, 1898.

HIRAM B. BROWER.

Witnesses:
C. SEDGWICK,
A. P. THAYER.