No. 616,499. Patented Dec. 27, 1898.

P. B. SMITH.

SEAL LOCK.

(Application filed Mar. 25, 1897.)

(No Model.)

Fig. 1.

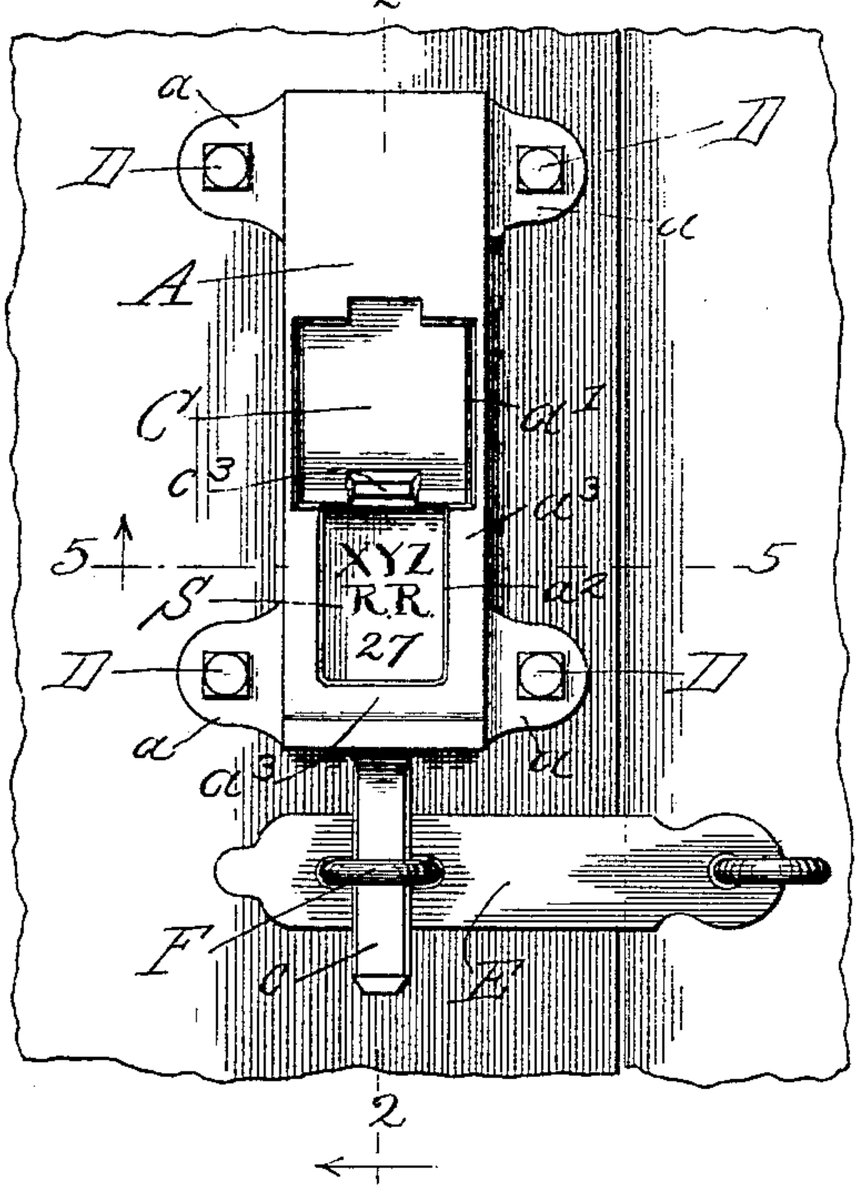


Fig. 2.

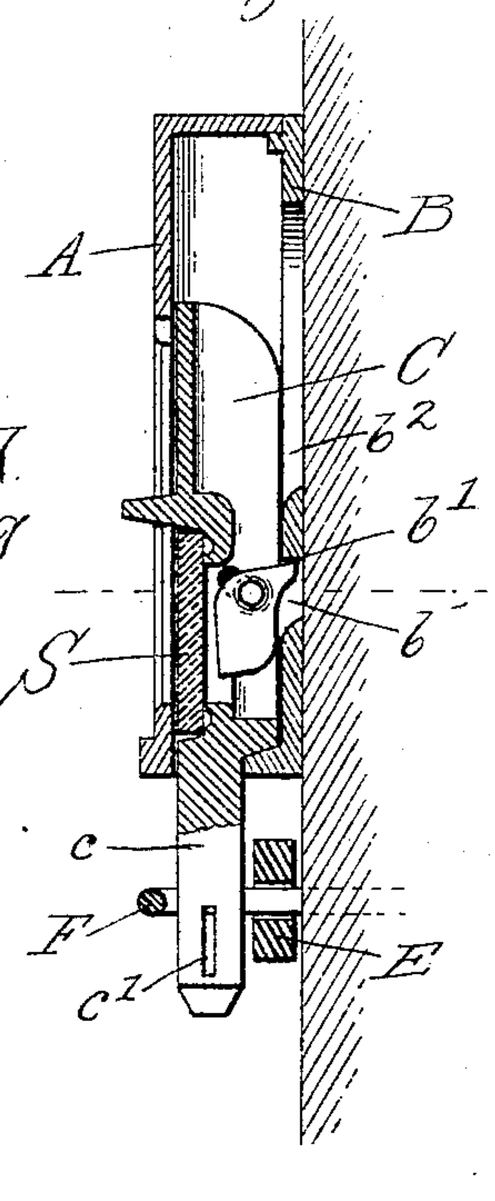


Fig. 7.

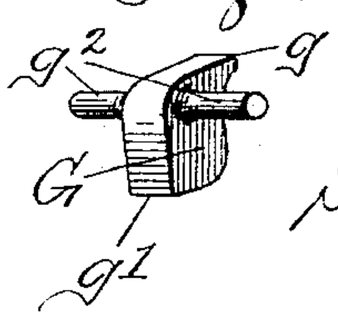


Fig. 3.

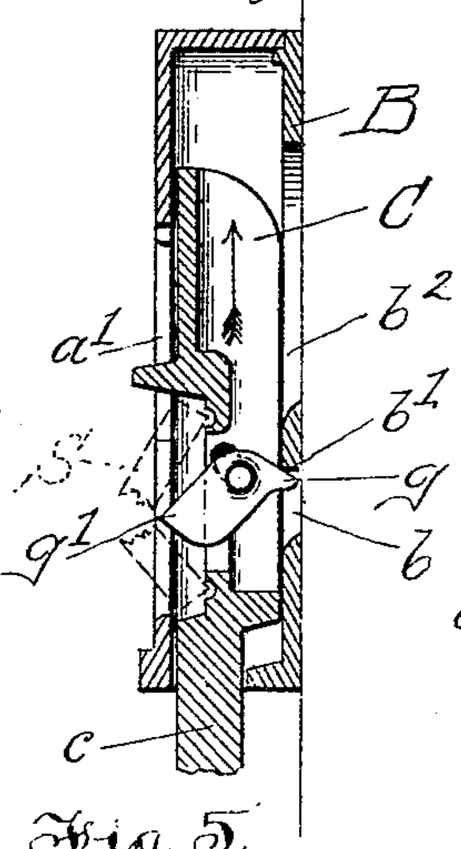


Fig. 4.

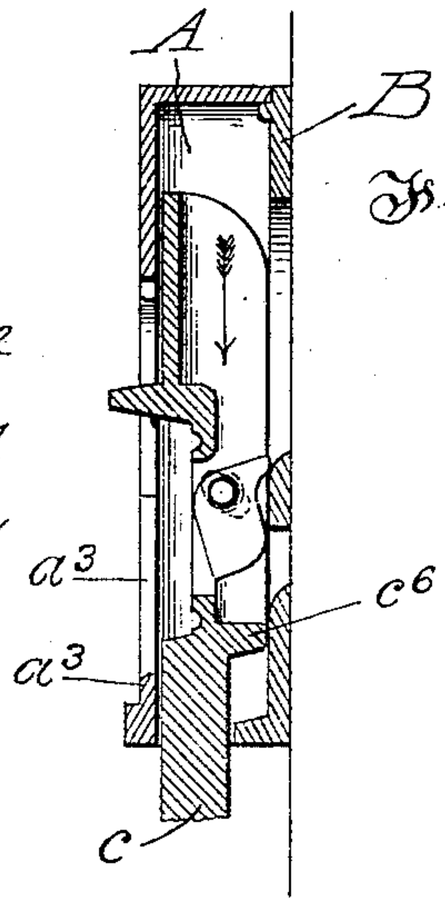


Fig. 6.

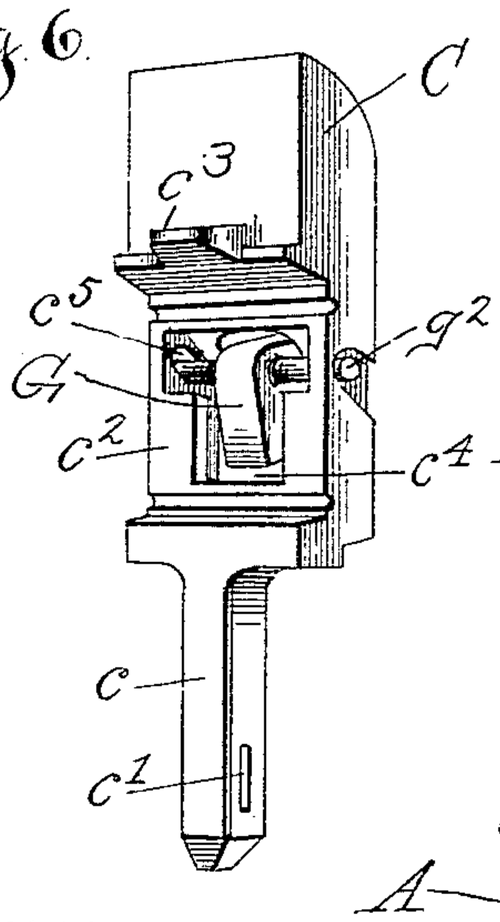


Fig. 8.

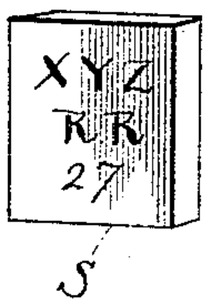
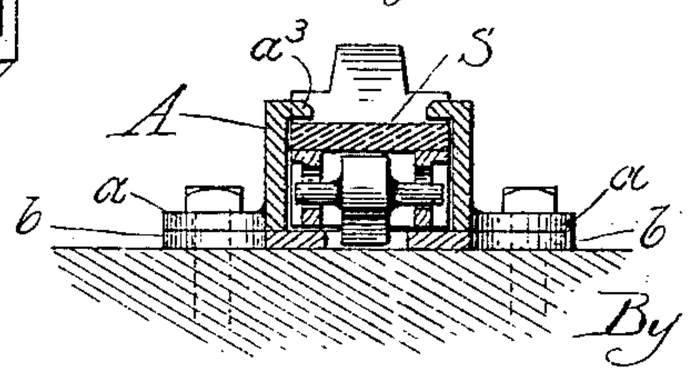


Fig. 5.



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UNITED STATES PATENT OFFICE.

PLINY B. SMITH, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF, AND THEODORE WILBUR SNOW, OF BATAVIA, ILLINOIS.

SEAL-LOCK.

SPECIFICATION forming part of Letters Patent No. 616,499, dated December 27, 1898.

Application filed March 25, 1897. Serial No. 629,170. (No model.)

To all whom it may concern:

Be it known that I, PLINY B. SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Seal-Locks, of which the following is a specification.

My invention relates to that class of locks for railway-cars and the like in which a frangible seal is secured in the lock in such manner that it is impossible to open the lock without fracturing or mutilating the seal, thus betraying the fact that the lock has been opened.

The object of the invention is to provide an improved device of this character which shall be simple and economical to manufacture and operate and effective in accomplishing the purposes for which it is designed.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims, when considered in connection with the accompanying drawings, in which—

Figure 1 is a front elevation showing a lock embodying my improvements applied to a car and adjusted in locking position, with its bolt projected and with a frangible seal secured in the lock. Fig. 2 is a sectional elevation taken on line 2 2 of Fig. 1. Fig. 3 is a fragmentary detail taken on the same line of section as Fig. 2, but illustrating more particularly the position assumed by the tumbler immediately after the beginning of the upward movement by which the bolt is retracted from its locking position. Fig. 4 is a similar view showing more particularly the position assumed by the tumbler when the bolt is moved downward to its locking position. Fig. 5 is a transverse section taken on lines 5 5 of Figs. 1 and 2. Fig. 6 is a perspective view of the bolt, showing the tumbler in position within it. Fig. 7 is a perspective view of the pawl or tumbler. Fig. 8 is a perspective view of the seal.

In said drawings, A designates the front portion and B the back of a rectangular guide-casing designed to contain a locking-bolt C and to permit longitudinal movement thereof. In the convenient form of construction herein shown laterally-projecting lugs *a* and *b*, respectively, are provided in corresponding positions on said front and back of the casing and apertured to permit the passage of bolts D, which serve to clamp the parts of the casing together and to fasten the lock as a whole to the side of the car. The reduced lower end *c* of the bolt C projects downwardly out of the casing through a suitable opening in the lower end of the latter and may be arranged to operate as a locking-bolt in any manner found desirable. As herein shown, an ordinary hasp E, fastened to the car-door, fits over a staple F, secured in the frame of the car immediately below the lock, so that when the bolt C is projected its lower end *c* extends through the staple and locks the hasp in position thereon. An aperture *c'* in the extremity of the bolt then permits the application of the ordinary tin or wire and lead seal, if desired.

The body of the bolt C within the casing is provided in its lower front portion with a pocket c^2, adapted to contain a frangible seal S. As herein shown, this seal takes the form of a rectangular tablet, which may conveniently be made of clay or other cheap and brittle material, and is inserted in the pocket c^2 of the bolt through an aperture a', which is provided in the front A of the casing at a point such that it will register with said pocket when the bolt is raised to its uppermost position. A smaller aperture a^2 is furthermore provided in the front A of the casing below the aperture a' and at a point situated opposite to the position occupied by the pocket c^2 when the bolt is projected into its locking position. This aperture a^2 is too small to permit the seal to be inserted or removed through it without being fractured, but enables the seal to be readily inspected from without when the car is locked. As herein shown, the apertures a' and a^2 open into each other at their adjacent ends and are only distinguished by the narrower width of the latter; but they may obviously be entirely separate, if so desired. A forwardly-projecting lug c^3 provided on the front of the bolt at the upper edge of the recess c^3 serves as a handle by which the bolt may be readily raised or lowered.

G designates a gravity pawl or tumbler pivotally mounted in a recess c^4 formed in the

body of the bolt C immediately behind the pocket c^2. This pawl is substantially of the shape of a bell-crank lever, with a rearwardly-projecting end g and a downwardly-projecting end g', and its proportions are such that it naturally hangs by gravity with its front side in an approximately vertical position, as shown in Fig. 2. Aside from its pivotal movement the pawl G is permitted to have a limited bodily movement from front to rear, in this instance by reason of the mounting of its pintles g^2 within upwardly and forwardly projecting slots c^5 in the side walls of the bolt C. When the bolt is projected into its locking position, the rear end g of the pawl extends into an aperture b provided adjacently in the back B of the casing, the pawl at this time being in its rearmost position, with its pintles g^2 occupying the position at the bottom of the slots, which they naturally assume under the action of gravity. When the bolt is raised from its locking position, the rear end of the pawl strikes the upper margin b' of the aperture b and tilts or rotates the pawl so as to force its lower end g' into the seal-pocket c^2, after the manner indicated in Fig. 3. Then as the bolt approaches its uppermost position the upper end of the pawl enters a second aperture b^2 formed in the back B of the casing and permits the pawl to drop by gravity into its normal position once more. In the return or downward movement of the bolt the rear end g of the pawl strikes the back of the casing below the aperture b^2 and rotates it slightly, so as to cause its lower portion to strike the casing also, after which the pawl is forced bodily forward far enough to clear the casing, but not enough to force it into the seal-pocket, so as to interfere with the seal therein, the pintles of the pawl sliding upwardly and forwardly in the slots c^5 to the necessary extent to permit this movement. This combination of rotary and bodily movement which must be given the pawl in order to enable it to clear the casing and permit the bolt to be removed without affecting the seal renders it practically impossible for any person to manipulate the pawl by means of a wire or otherwise so as to lift the bolt without breaking the seal. The pawl is furthermore protected from the introduction of a wire or other instrument for this purpose by the lower rear ledge c^6 of the bolt and by the margins a^3 of the casing around the opening a^2, which protect the seal when the bolt is in locking position.

The operation of the lock in use will be readily understood. When the bolt is raised, the seal S can be readily inserted in the pocket c^2 of the bolt through the aperture a' in the front of the casing. The pawl G at this time will hang in its normal position behind the pocket c^2, and although it will be slightly rotated and forced bodily forward in the manner before described when the bolt is moved downward into its locking position yet this movement of the pawl will not be great enough to disturb the seal. After the bolt is once fully projected to its locking position, however, it is impossible to raise it again without rotating the pawl into the recess occupied by the seal, as shown in Fig. 3, and this cannot occur without its fracturing or mutilating the seal, so as to make it apparent that the car has been unlocked since the seal was placed in position.

Among the advantages of the device thus described may be prominently mentioned its simplicity and cheapness of construction, both as to the lock itself and as to the form of seal which it employs. A perfectly satisfactory form of the latter can be made simply of baked clay molded into rectangular form and bearing the initials of the railway company or any other desired marking. The lock itself consists of but four pieces, which may conveniently be made of malleable cast-iron or the like and need no machine-work whatever, the pintles of the pawl being readily cast integral therewith and the recess c^4 being readily made sufficiently wider than the pawl and of such shape as to permit said pintles to be slipped endwise into the slots c^5. Obviously when the lock is made and installed on the car all expense ceases except for the seals, which, as above stated, are of the cheapest possible construction, the simplicity and durability of the parts of the lock being such that the expense for breakage and repairs ordinarily to be figured on can be practically entirely neglected.

I claim as my invention—

1. A seal-lock, comprising a guide-casing, a locking-bolt sliding within said casing, a pocket in said bolt for receiving a frangible seal, an aperture in the casing registering with the pocket in the bolt when the latter is retracted and through which the seal can be inserted in said pocket, a smaller aperture in the casing situated at a point opposite the pocket when the bolt is projected and through which the seal is visible but not removable unless fractured, a movable pawl mounted in the bolt adjacent to the pocket, and means for forcing said pawl into the pocket to fracture the seal when the bolt is retracted.

2. A seal-lock, comprising a guide-casing, a locking bolt sliding within said casing, a pocket in said bolt for receiving a frangible seal, an aperture in the casing for admitting the seal to said pocket, a second aperture in the casing through which the seal is visible when the bolt is projected, a pivoted pawl mounted in the bolt adjacent to the pocket, a stop on the casing engaging one end of the pawl to swing its other end against the seal when the bolt is retracted, and means permitting a bodily movement of the pawl past said stop without disturbing the seal when the bolt is projected.

3. A seal-lock, comprising a casing, a bolt sliding within said casing, a pocket in said bolt adapted to receive and contain a frangible seal, a gravity-pawl pivotally mounted in upwardly-inclined slots in the walls of the bolt, an opening in the wall of the casing

adapted to receive the end of the pawl when the bolt is projected, and a second opening in said wall of the casing adapted to receive said end of the pawl when the bolt is retracted.

4. In a seal-lock, the combination, with the casing, consisting of the front portion A having the apertures a' and a^2 and the back portion B having the openings b and b^2, and with the bolt C having the pocket c^2, recess c^4, and slots c^5, of the gravity-pawl G, having the end g adapted to enter the apertures b and b^2, and the end g' adapted to enter the pocket c^2, and with its pintles g^2 engaging the slots c^5 of the bolt.

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