

(Model.)

J. A. KIRBY.

SEAL LOCK.

No. 356,770.

Patented Feb. 1, 1887.

*Fig. 1.*

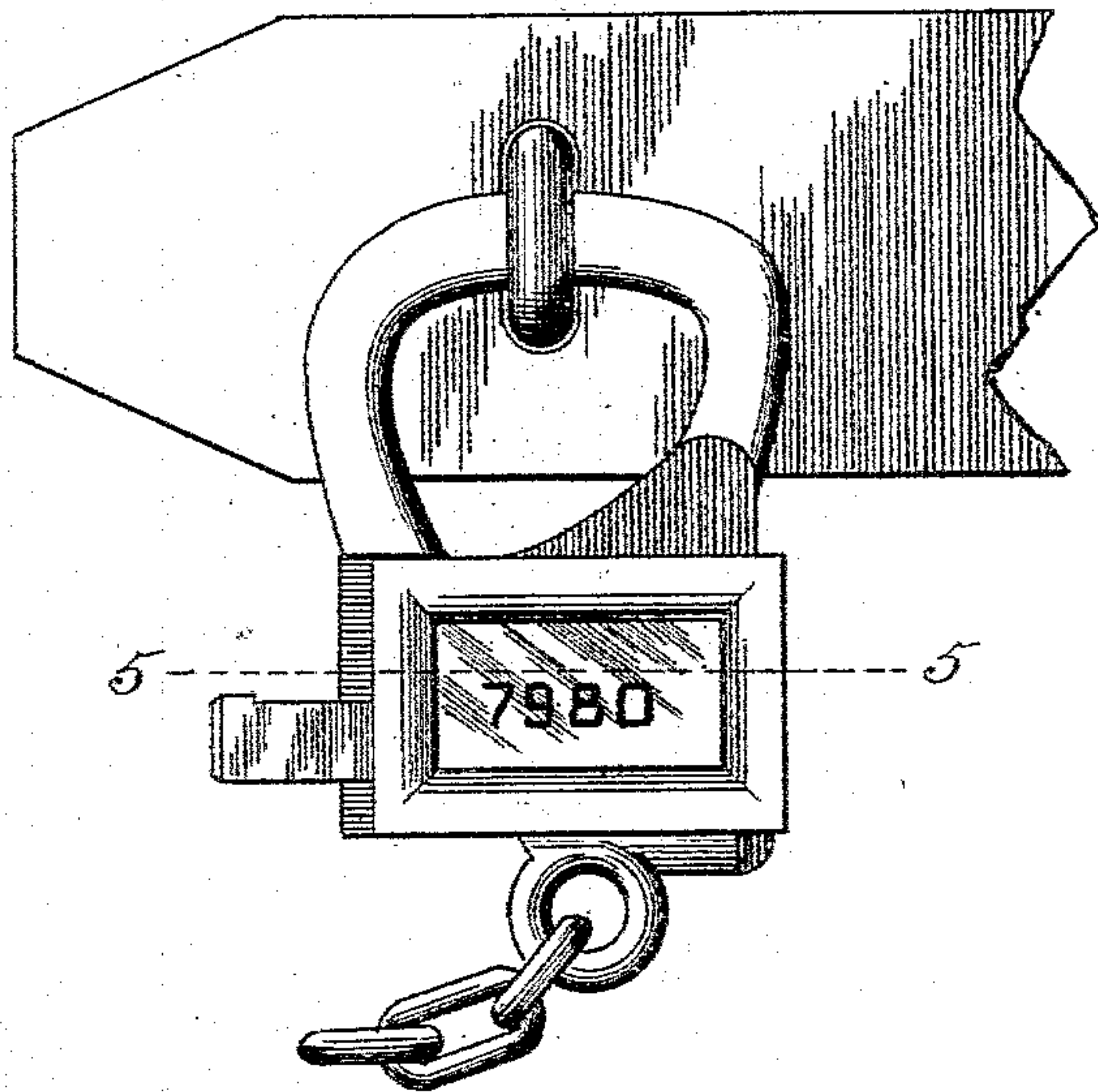


Fig. 2.

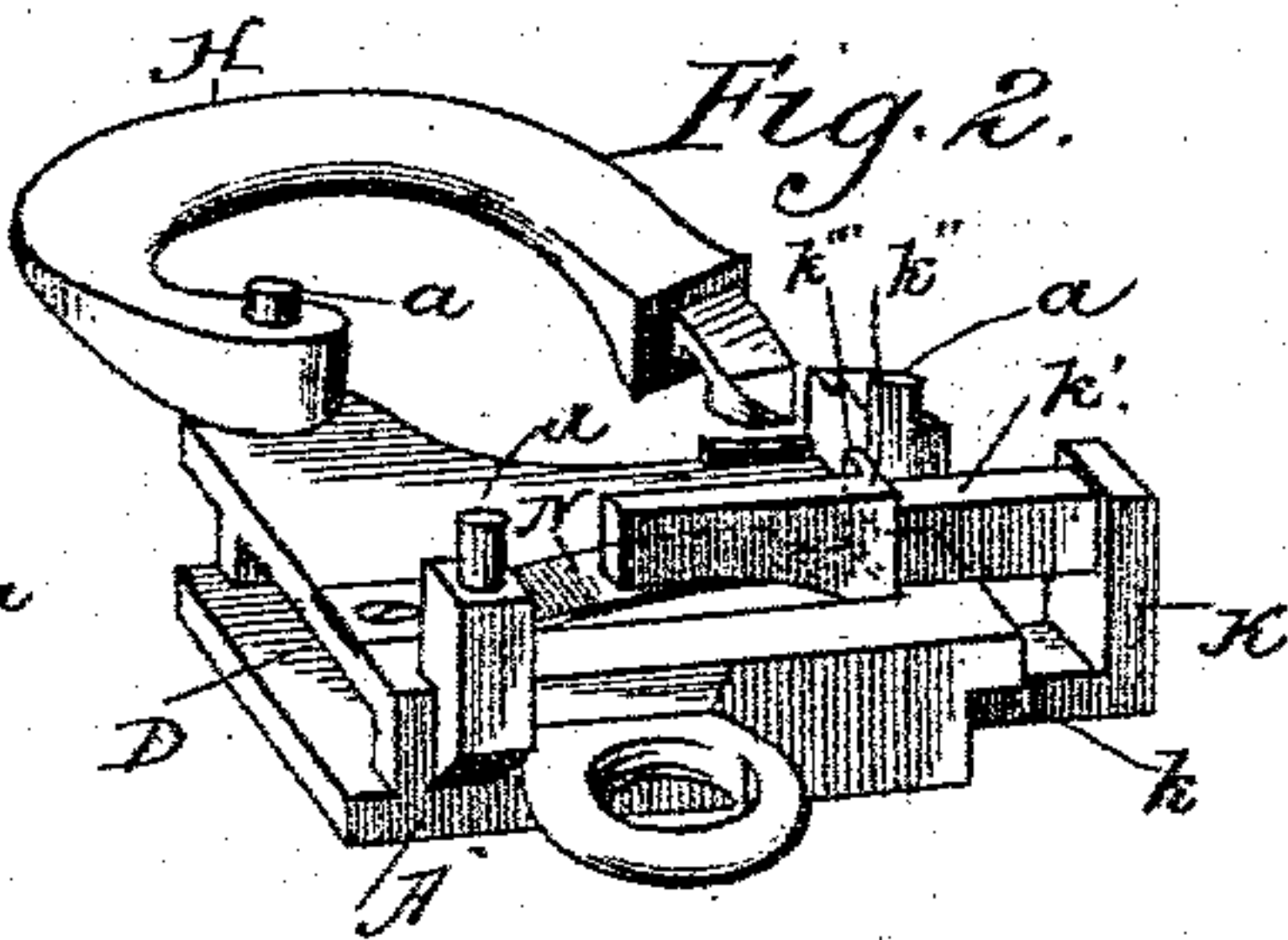


Fig. 3.

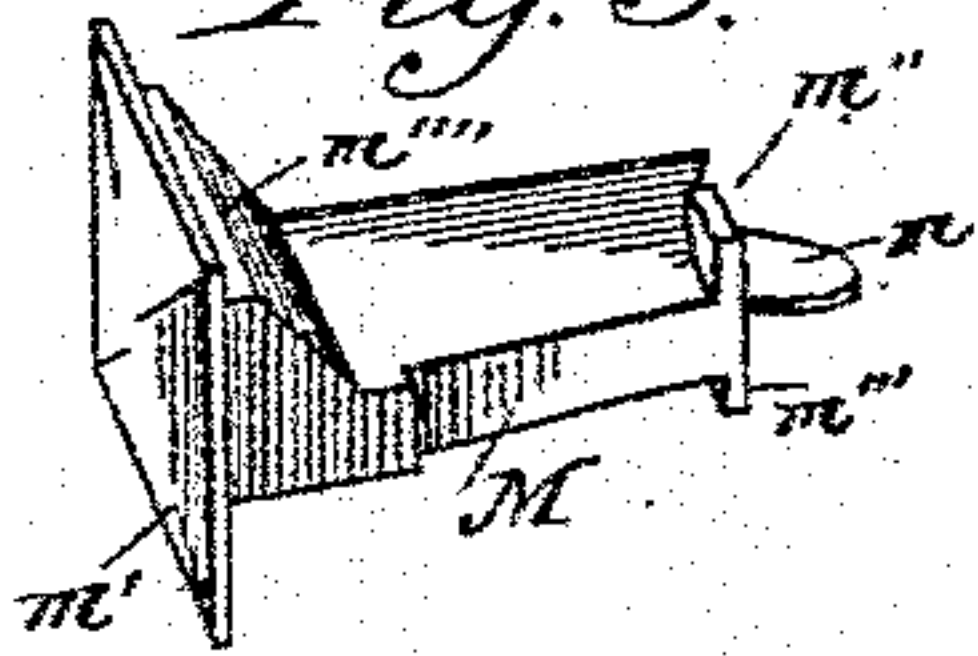


Fig. 4.

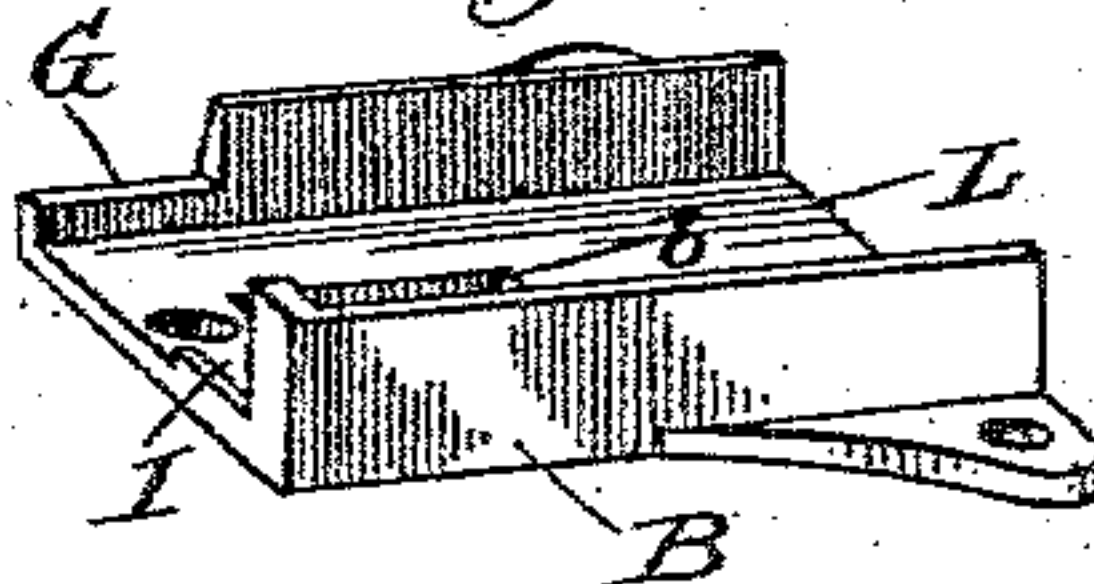


Fig. 5.

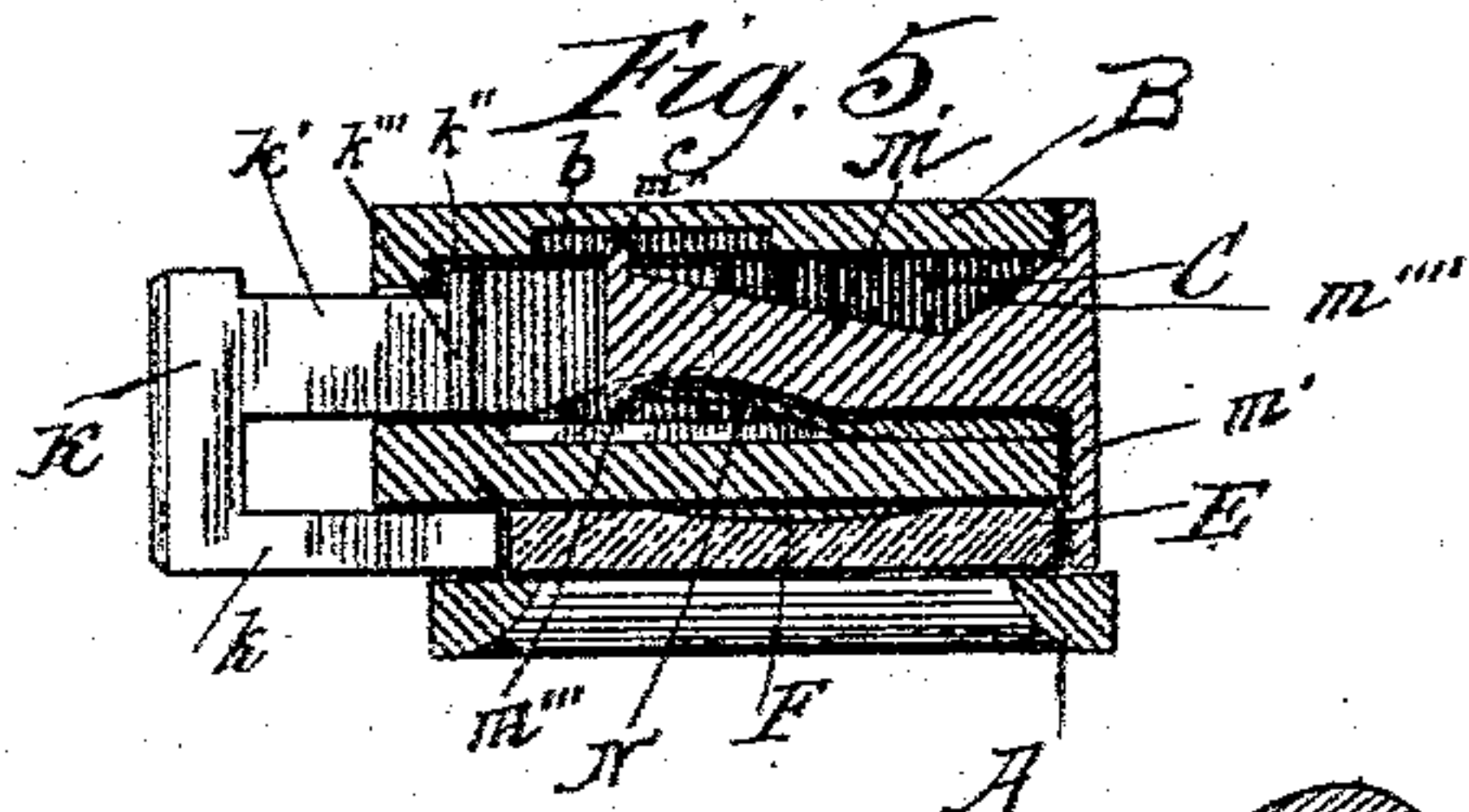
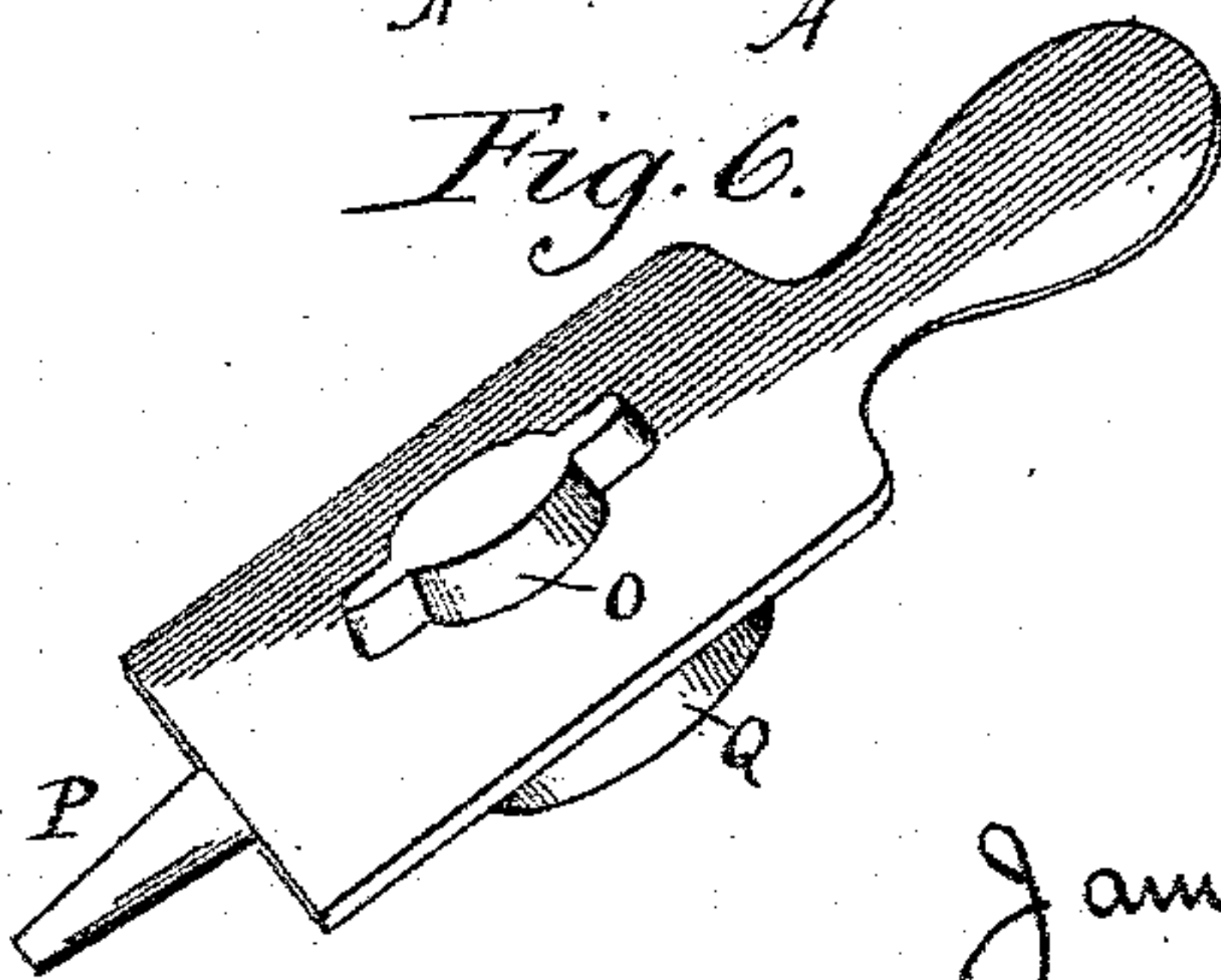


Fig. 6.



Witnesses,

L. F. Mann  
Frederick Goodwin

*Inventor.*

James A. Kirby

Offield Towle & Phelps  
Attys.

By,



# UNITED STATES PATENT OFFICE.

JAMES A. KIRBY, OF CHICAGO, ASSIGNOR OF ONE-HALF TO ERNEST S. BENSON, OF COOK COUNTY, ILLINOIS.

## SEAL-LOCK.

SPECIFICATION forming part of Letters Patent No. 356,770, dated February 1, 1887.

Application filed May 1, 1886. Serial No. 200,767. (Model.)

*To all whom it may concern:*

Be it known that I, JAMES A. KIRBY, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Car-Door Seal-Locks, which I desire to protect by Letters Patent of the United States, and of which the following is a specification.

With car-seals as heretofore constructed, while it has been impossible to open the lock without breaking the seal, and so leaving a record of the fact that entrance has been effected, it has, nevertheless, been possible to break the seal and open the lock secretly and without attracting attention, and this fact has led to frequent depredations of cars by employes and others in the yards, which would have been impossible had the breaking of the seal been necessarily accompanied by such a report or detonation as to attract the attention of persons in the vicinity.

The object of my present invention is, in addition to devising a seal-lock of simple construction, and therefore cheap and certain in its action, to provide a car-seal which cannot be broken without causing a sharp explosion; and to this end I propose to place a detonating cartridge of dynamite or other explosive material upon the seal which will be exploded by any pressure or blow upon the seal itself sufficient to break it.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of my improved seal-lock as it appears when attached to a car-door. Figs. 2, 3, and 4 are perspective views of the several parts of the same. Fig. 5 is a vertical longitudinal cross-section taken approximately at the line 5 5, Fig. 1, showing the position of the parts when the lock is closed and the seal unbroken; and Fig. 6 represents a device with which the seal may be conveniently and safely broken.

The casing of the lock is made in two parts, A and B, which, when fastened together by bolts or rivets *a*, form practically a single piece, and is provided with two chambers, C and D, in the larger of which, C, the locking devices are contained, and the smaller of which serves as a seal-chamber, and is of a size and shape to receive the seal E, the latter being made of glass or any other frangible material,

and provided with an explosive cartridge or wafer, F.

The upper or principal chamber, C, is completely closed, except at three points—namely, an opening, G, on the side of the piece B, for the entrance of the point of the hasp H; an opening, I, at one end, through which enters one arm, *k'*, of a two-armed slide-piece, K, the other arm, *k*, of which enters an opening left for it in one end of the seal-chamber, and an opening at L, into which is inserted a carrier-piece, M, having on its inner end a spring-catch, *m*, which, engaging with the catch on the point of the hasp, forms with it a spring-lock.

The carrier-piece M has on its outer end a flange, *m'*, of sufficient width to cover the end of the seal-chamber, which is left open for the introduction of the seal. This carrier-piece has also at its inner end two projecting flanges or lugs, *m''m'''*, the former entering a groove or recess, *b*, cut in the top of the casing. (See Fig. 4.) This lug slides in the groove *b* and permits the carrier-piece M to have a limited amount of to-and-fro motion in the casing, the engagement of the lug with the end of the groove preventing the carrier-piece from being entirely withdrawn from the lock and so displaced or lost.

A spring-detent, N, is fixed to the bottom of the chamber C in such a position that its end engages with the lug *m'''* when the carrier-piece is pushed in, so that its head closes the end of the casing. The carrier-piece is provided at its outer end with a bevel shoulder, *m''''*, which fits in the opening L of the chamber when the carrier-piece is pushed in, but which permits said piece to be raised when pulled out, so as to expose the opening to the seal-chamber and permit the introduction of the seal. The inner end of arm *k'* is provided with a shoulder, *k''*, of such a size that it cannot be withdrawn through the opening I in the end of the chamber. The slide-piece K will thus be capable of a limited movement forward and back in the case. The inner end of the arm *k'*, where it projects over the spring-detent N, is beveled on its under side, so that when the arm is pushed in it depresses the spring to such an extent that it no longer engages with the lug *m'''*; but when the arm is drawn out the spring is



free to rise and engage the lug. The arm  $k'$  and the carrier-piece M are mutually cut away on their sides, so as to engage with and closely fit upon each other, the arm  $k'$  having a flange,  $k''$ , projecting out over the end of the carrier-piece M, so that when the slide-piece K is pushed in the carrier-piece M will be pushed out.

When the lock is to be applied, the carrier-piece M is pulled out and raised, so as to expose the end of the seal-chamber. The seal is inserted, the lower arm,  $k$ , of the slide-piece K being necessarily pushed out of the seal-chamber by the seal. The carrier-piece is then pushed home, where it is held by the engagement of spring-detent N with lug  $m''$ , and the lock is applied to the door and the hasp pushed in, its point being caught by the spring-catch  $m$ . The hasp can now be released only by withdrawing the carrier-piece M and its spring-catch  $m$ ; but the former can only be released from the spring N by pushing in the slide-piece K, and this in turn is impossible without removing the seal, which, as its chamber is closed by the flange  $m'$  of the carrier-piece M, can be effected only by breaking it, which will be accompanied by the explosion of the cartridge.

It is evident that the special form of the slide-piece and carrier-piece which I have shown is not essential to the invention, and may be widely varied without departing from its principle. So, too, the relative location of the spring-detent N and lug  $m''$  may be varied between the two sliding parts and the casing, the gist of my invention lying in the use of a catch to retain in its locking position one of the essential parts of the lock, which catch can only be released by the forcing apart of a slide-piece adapted to control it into the seal-chamber.

The instrument shown in Fig. 6 is a plate of metal provided with a central projecting boss, O, and a point, P, and on its opposite side, with a second boss, Q, for receiving the blow of a hammer or other implement. The instrument is applied so that the boss O rests against the seal, and a blow is then given to the outside of the plate or boss Q, the plate preventing injury to the face of the operator from flying pieces of glass, and the point P serving to pick out the fragments of the seal from the seal-chamber.

In car-seals as previously made it has been common to place a spring-button under the seal, which is pressed after the seal is broken, in order to open the lock. Such a construction or any construction which gives anything but an unbroken plate for the seal and cartridge to rest on would be badly adapted for use with an explosive seal, for the reason that the violent shock of the explosive would quickly cause the metal of the springs to deteriorate, and would in time warp any slender or fragile mechanism exposed to it. The feature of a releasing slide or key which passes around outside of the casing from the seal-chamber to the lock-chamber, leaving the plate

on which the seal rests unbroken, is therefore of importance.

Another feature of importance in my invention is the spring-lock in connection with the carrier-piece M, which closes the seal-chamber and secures the seal within it while the lock is still open. Previously in car-seals locks have been used which had to be closed at the time of placing the seal in the casing, there being no provision for fastening the seal into the lock so that it cannot be removed without breaking until the lock is applied to the car-door. This has caused inconvenience, because it is not desirable to entrust the seals to the yard-men, and it has therefore been necessary for the superintendent or other officer in charge to personally close each car. With my spring-lock, however, the seal may be placed in the seal-chamber by the superintendent or other officer in charge, and the slide-piece M pushed home, securing the seal in its place, so that it cannot be removed therefrom without breaking it, and the lock entrusted in this form to the workman, by whom it may be applied to the car after the latter is filled, thus dispensing with the necessity of personal supervision of the locking of the car by the officer.

I claim—

1. In a car-door seal, the combination, with a hasp, of a movable carrier-piece provided with a spring-catch which engages with said hasp, a spring-detent for holding said carrier-piece in position, a slide-piece adapted to control said detent, said slide-piece being provided with an arm which enters the seal-chamber when the slide-piece is moved to liberate the detent, and a frangible seal filling the seal-chamber and preventing movement of the slide-piece until it is broken, substantially as described, and for the purpose set forth.

2. In a car-door seal-lock, the combination of a casing provided with a seal-chamber open at one end, a movable carrier-piece provided with a spring-catch and with a flange closing the open end of the seal-chamber, a spring-detent for holding said carrier-piece in position, a slide-piece adapted to control said detent, said slide-piece being provided with an arm which enters the seal-chamber when the slide-piece is moved to liberate the detent, and a frangible seal filling the seal-chamber and preventing movement of the slide-piece until it is broken, substantially as described, and for the purpose set forth.

3. The combination of a car-door seal-lock, a frangible seal, an explosive wafer for the same, and a plate provided with a boss for breaking the seal, substantially as described.

4. The combination, in a car-door seal-lock, of a casing provided with a seal-chamber, a frangible seal, a detent controlling the opening of the lock, and a slide-piece for releasing the detent passing from the seal-chamber outside of the casing into the lock-chamber, whereby the breaking of the plate under the seal is avoided, substantially as described.



5. In a car-door seal, the combination of a spring-lock with a detent for holding the same in its locked position and a frangible seal provided with an explosive wafer controlling the moving of the detent, substantially as described.

6. The combination, with a spring-lock, of a movable carrier-piece, M, controlling by its position the locking and unlocking of the lock, said piece M being provided with a flange which closes, when said piece is pushed in, the opening of the seal-chamber through which the seal is introduced, a spring-detent for holding said piece M in position, and a slide-piece, K, adapted to control said detent, said slide-piece K being provided with an arm, k, which enters the seal-chamber when the slide-piece K is moved to liberate the detent, whereby the seal may be secured in the seal-chamber without possibility of removal unless broken before the lock is locked, substantially as described.

7. In a seal-lock, the combination of a hasp, a spring-lock mechanism for receiving the hasp, a carrier-piece adapted to close the seal-chamber, and also controlling the condition of the spring-lock mechanism as regards its preparation for the reception of the hasp, a spring-detent for said carrier-piece independent of said lock mechanism, and a frangible seal controlling the operation of the said detent, substantially as and for the purpose set forth.

8. The combination of the carrier-piece M, which completes the spring-lock when pushed in, and also closes the seal-chamber, with a spring-detent therefor, and a frangible seal provided with an explosive wafer controlling the operation of the detent, substantially as and for the purpose set forth.

JAMES A. KIRBY.

Witnesses:

FREDERICK C. GOODWIN,  
E. L. HUBER.