(No Model.)

J. J. WOLCOTT.

INDICATOR LOCK.

No. 562,059. Patented June 16, 1896.

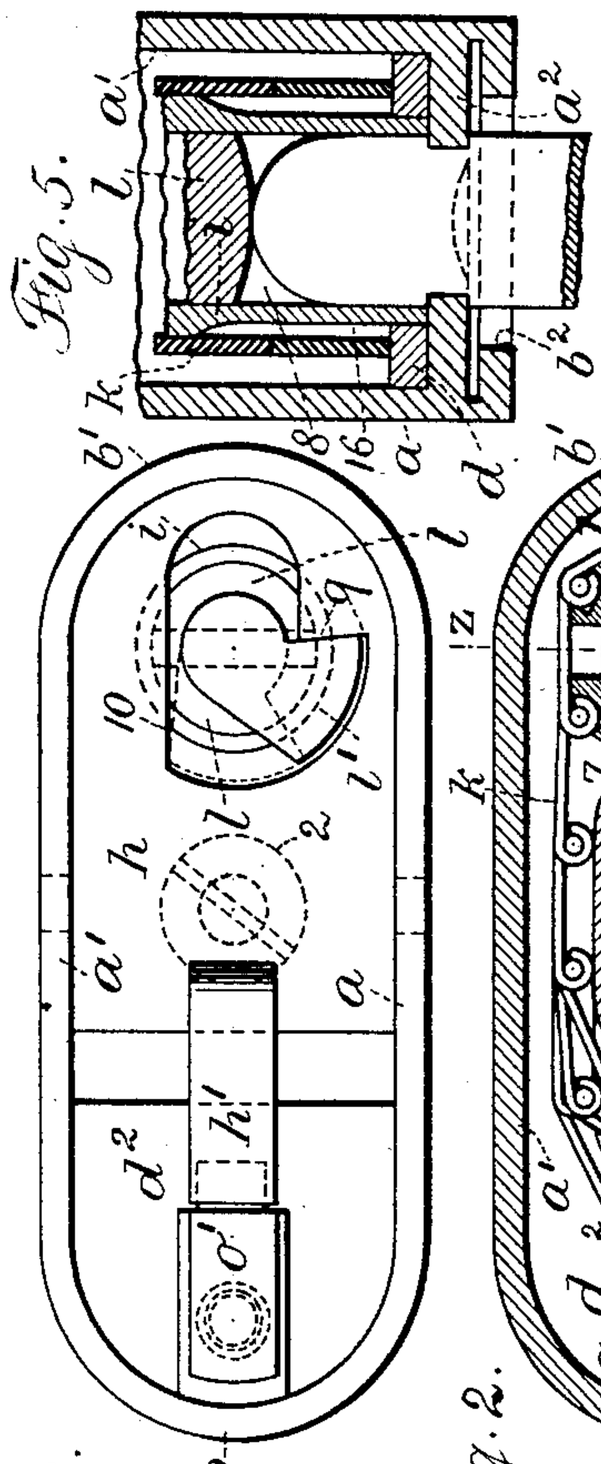
Fig. 5.

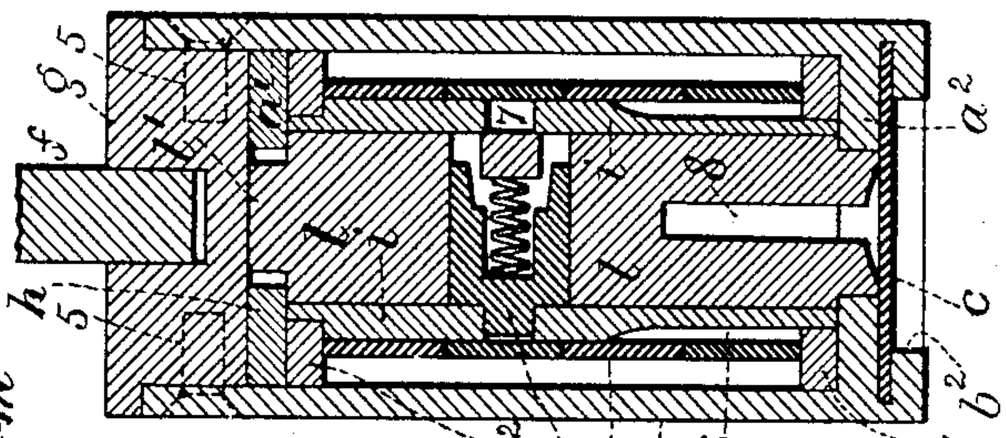
Fig. 4.

Fig. 6.

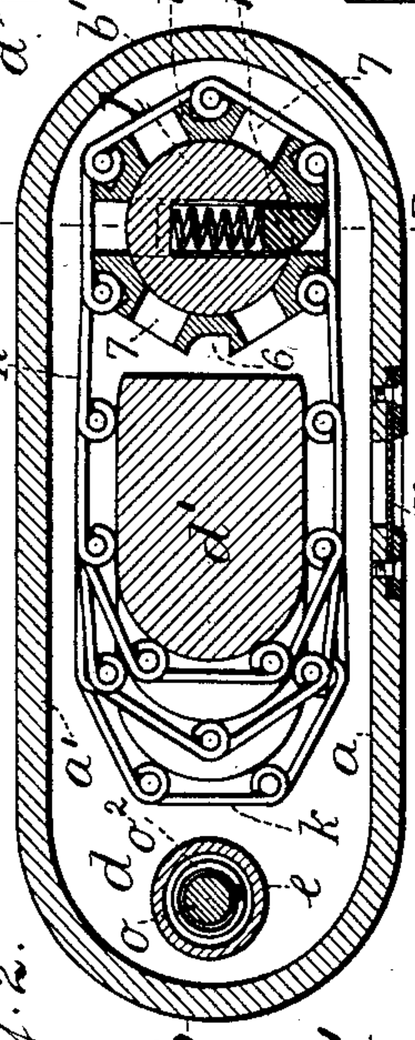
Fig. 2.

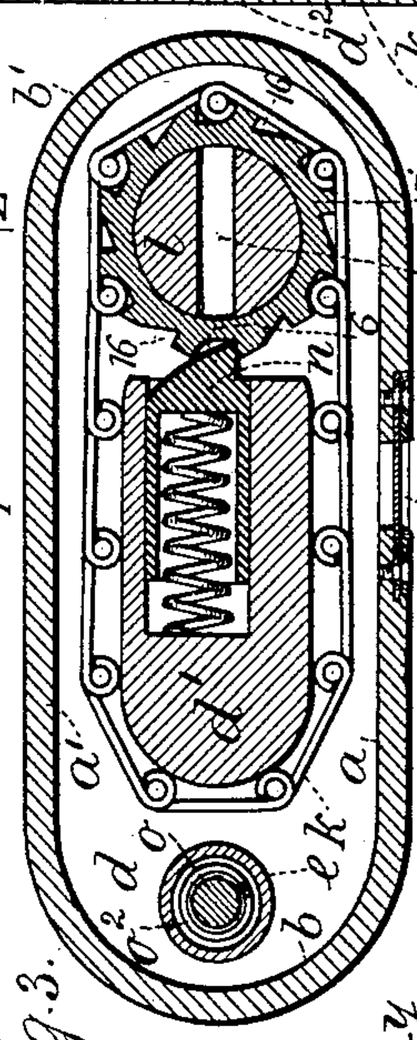
Fig. 3.

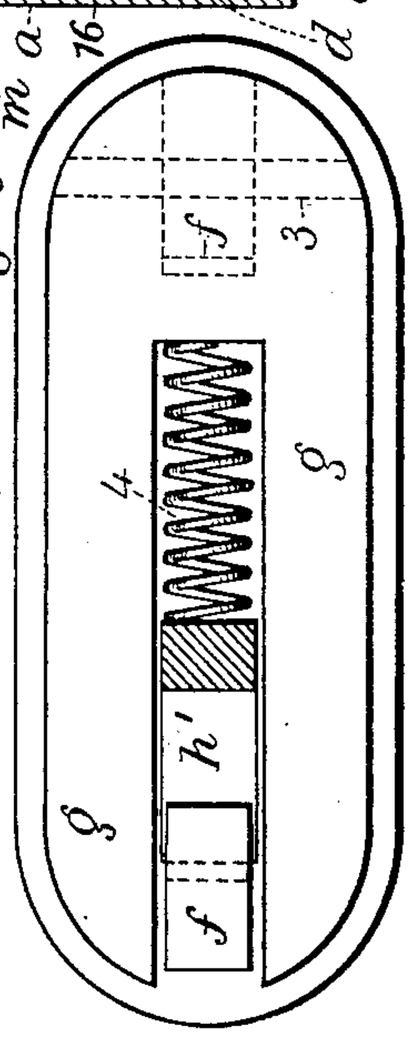
Fig. 7.

Fig. 1.

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UNITED STATES PATENT OFFICE.

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INDICATOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 562,059, dated June 16, 1896.

Application filed July 12, 1895. Serial No. 555,795. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA JONES WOLCOTT, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Indicator-Locks, of which the following is a specification.

My invention relates particularly to that class of locks usually employed upon freight-cars, and which contain indicating devices adapted to show "*en route*" if the lock has been operated or tampered with and where, so that the matter may be traced. In this class of locks endless character-bearing bands have been employed in combination with mechanism adapted to engage and hold the hasp of the lock, the characters in changing combinations being visible through an opening in the lock-case.

In carrying out my invention I employ endless character-bearing bands visible through an opening in the lock-case and a barrel, a cylinder, and mechanism connected therewith and operated by a plate-key, whereby the bands are moved simultaneously and the hasp disengaged, also mechanism for perforating and holding a seal-ticket, the peculiarities of which are hereinafter more fully set forth.

In the drawings, Figure 1 is an elevation and partial vertical longitudinal section showing my improved indicator-lock. Fig. 2 is a sectional plan at the line $x\ x$ of Fig. 1. Fig. 3 is a sectional plan at the line $y\ y$ of Fig. 1. Fig. 4 is a vertical cross-section at $z\ z$ of Fig. 2. Fig. 5 is a similar cross-section at the lower part of the lock-case, showing the end of the key in elevation. Fig. 6 is a plan view with the hasp and top frame removed, and Fig. 7 is an inverted plan of the top frame and section of the locking-dog at the line $x'\ x'$ of Fig. 1.

The metal case, as shown in the drawings, is provided with parallel sides $a\ a'$ and rounded ends $b\ b'$, a base-plate a^2, and a lower rim b^2, between which and the base-plate there is a groove opening through the rim at one end for the seal-ticket c, of cardboard. The internal case fitting within said outer case is composed of a base d, a block d', rising therefrom, a top plate d^2, secured to the block by a screw 2 and notched at one end. This base d is also provided with a tube e, rising therefrom toward the notch in the top plate d^2. The hasp f is pivoted at 3 to the top frame g, and this top frame is channeled on the under side for the helical spring 4, and the top frame g and the case proper are connected together by pins or screws at 5. Between the top frame g and the top plate d^2 there is a plate h, having a bolt h', and shown especially in the plan, Fig. 6. This plate h has an opening through it near the opposite end to the bolt. A barrel i occupies a position between the base d and the top plate d^2. This barrel is grooved vertically on its outer surface with long grooves at 6 and short grooves at 16 and perforated at 7, and has circular top and bottom ends extending through such base and plate. The block d' at its left-hand side, as shown in the drawings, is stepped between the base d and the top plate d^2, and around the stepped portions of this block and the barrel i extend the endless character-bearing bands k, which bands are of different lengths, as shown in the drawings. The parts of the bands are preferably hinged together, the eyes of the hinges fitting into the vertical grooves 6 of the barrel i, so that by the progressive rotation of the said barrel the said bands are turned.

Each movement given to the bands by the barrel brings the next set of numbers into view; but as one band is longer than another they require different numbers of movements to impart to each band a complete rotation. Hence a very great number of movements have to be made before the same characters or numbers are again brought into line with each other. These bands, however, have been used in other similar locks and are well known, and my invention does not relate to any particular kind of a character-band.

A cylinder l is provided within the barrel i and its lower end is slotted at 8 for the reception of a plate-key, and it passes through the base-plate a^2 of the main case, and said base-plate is slotted at the edges of the key-slot in said cylinder, so as to allow for the introduction and withdrawal of the notched key in only one position. At the upper end of the cylinder l is a cam-plate l', the same being within the opening in the plate h, and

said plate *h* has a projection 9, serving as a stop for the cam-plate *l'* to act against. An opening is made transversely through this cylinder *l* for the forked and shouldered latch *m*, which is spring-actuated, and whose latch-point successively engages the perforations 7 in the barrel *i*.

The block *d'* in its lower portion has an opening lengthwise of the lock-case to receive the spring-actuated latch *n*. This latch at its point successively engages a portion of the grooves 6 and 16 in the surface of the barrel *i*. A pin *o*, surrounded by a helical spring o^2, is located in the tube *e* of the internal case, and there is a head *o'* to the pin that is depressed by the end of the hasp, and the point of the pin perforates the seal-ticket *c* when the lock is fastened, holding said seal-ticket in place and preventing its withdrawal, and the seal-ticket covers over the key-entrance into the cylinder *l*, so that in order to tamper with the lock either by the introduction of a key or a blade of any kind to operate it the seal-ticket must be destroyed, or at least sufficiently so to give visual evidence that the lock has been tampered with.

Fig. 1 of the drawings shows the notched end of the hasp *f* in the lock engaged by the bolt *h'* of the plate *h*, the spring 4 having forced the bolt *h'* forward into locking engagement. To unlock the mechanism and disengage the hasp, the key is inserted into the cylinder and given a partial turn. The key operates the cylinder *l* and its cam-plate *l'*, and said cam-plate acts against the projection 9 of the plate *h* and forces the plate *h* and its bolt *h'* backwardly within the lock-case, withdrawing the bolt from engagement with the notched end of the hasp. In this operation the latch *m*, in engagement with the barrel *i*, causes the rotation of said barrel and the simultaneous turning of the endless character-bearing bands *k* to present a new series of numbers or characters into view at the opening *r* in the main case. These parts stop when the plate *h* comes in contact with the inside of the main case, and during the rotation of the barrel the latch *n* has slipped from one notch to another. The key cannot now be withdrawn until it and the cylinder *l* are partially turned backward into line with the slots in the base-plate a^2. In doing this the cam-plate moves away from the stop 9 back against the edge 10 of the opening in the plate *h*, and the parts stop there. During this movement the latch *n* holds the barrel and prevents its backward rotation, and the forked latch *m* yields as the cylinder *l* turns and then springs out into the next perforation 7 as the key comes to place, and these operations are repeated with each movement of opening the lock. As the lock is opened and the bolt *h'* drawn back with the plate *h* the spring 4 is compressed and the liberated hasp is raised out of the case. The spring o^2 elevates the pin *o* and its head *o'*, so that the upper portion of the head *o'* fits into the opening in the top *g* of the case, making a flush surface to protect the mechanism of the lock from the entrance of dust and dirt, and at the same time the vertical surface of the head *o'* acts as a stop for the bolt *h'*, so that all that is necessary to do to engage the hasp in the lock is to press its notched end down against the head *o'*. This will cause the point to perforate the seal-ticket and the spring 4 to press forward the bolt into the notched end of the hasp and so secure the same in the lock.

The short grooves 16 in the barrel *i* are intermediate to the long grooves 6 and permit the latch *n* to engage the barrel at the half of each key movement. This serves to prevent the parts being moved just sufficient to release the hasp and then being turned back, as might be done just before the latch *n* engages the next groove 6. Hence the endless bands *k* cannot be turned back to the original combination of characters after the lock has been opened, thus guarding the lock by the indicated numbers, even in cases where a duplicate or counterfeit seal-ticket was inserted after the lock had been opened.

It will be understood that a record is to be kept of the numbers or characters indicated by the locks on the cars at each stopping-place, and as a lock cannot be opened without changing the indicated numbers or letters the place at which such change has been made can be ascertained.

I claim as my invention—

1. In an indicator-lock the combination with endless character-bearing bands, of a barrel capable of rotation in one direction only and around which such bands pass, a cylinder within said barrel capable of a forward-and-backward movement by a key, a plate and a bolt for engaging the hasp, and means connected to and operated by the cylinder for drawing back the bolt, substantially as specified.

2. In an indicator-lock the combination with endless character-bearing bands, of a barrel capable of rotation in one direction only and around which such bands pass, a cylinder within such barrel capable of a forward-and-backward movement, said cylinder being slotted at its lower end for a plate-key and having a cam-plate at its upper end, a sliding plate with an opening to receive said cam-plate, and a bolt connected therewith to engage the hasp and a spring for moving said plate and bolt in one direction, substantially as specified.

3. In an indicator-lock the combination with endless character-bearing bands, of a barrel having vertical peripheral grooves 6 and perforations 7, the stepped block *d'* around which and the barrel the said bands pass, the spring-actuated latch *n* engaging the grooves of the barrel but permitting it to be turned in one direction, the cylinder within such barrel having a lateral opening, the spring-actuated latch *m* in said opening and

entering the perforations 7, substantially as specified.

4. In an indicator-lock, the combination with the hasp *f* and the top frame *g* channeled on the under side and to which the hasp is connected, of the bolt *h'* and slotted plate *h* having a stop 9, a spring in the channel of the top frame bearing against the bolt for actuating the same in one direction, a key-operated cylinder having a cam-plate *l'* on its upper end in the opening of the plate *h* to act against the stop 9 in moving said plate to retract the bolt, substantially as specified.

5. In an indicator-lock having a case slotted to receive a seal-ticket, the inner case having a bottom plate adjacent to the bottom of the lock-case and a tube *e* rising therefrom, in combination with the sliding head *o'* and pin *o* extending down from the same through the tube and bottom of the case, and the spring o^2 around the pin and within the tube to raise the head and withdraw the pin, substantially as specified.

6. In an indicator-lock, the combination with endless character-bearing bands, of a barrel around which the bands pass and by which they are moved progressively, a key-operated cylinder within the barrel, a latch for turning the barrel and a latch for preventing the backward movement of the barrel, and a stop for limiting the forward movement of the cylinder, substantially as specified.

7. In an indicator-lock the combination with endless character-bearing bands, of a barrel around which the bands pass and by which they are moved progressively, a key-operated cylinder within the barrel, a latch for turning the barrel and a latch for preventing the backward movement of the same, substantially as specified.

8. In an indicator-lock the combination with the hasp, of the bolt *h'* and slotted plate *h* having a stop 9, a spring for actuating the bolt in one direction, a cylinder turned forward and backward by the key and having a cam-plate *l'* on its upper end in the opening of the plate *h* to act against the stop 9 in moving said plate to retract the bolt, and a series of character-bands, a barrel and a latch for moving the same, substantially as specified.

Signed by me this 2d day of July, A. D. 1895.

JOSHUA JONES WOLCOTT.

Witnesses:
RUDOLPH VAIL,
A. L. STEINWEY.