

UNITED STATES PATENT OFFICE.

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LOCK.

SPECIFICATION forming part of Letters Patent No. 499,503, dated June 13, 1893.

Application filed March 17, 1893. Serial No. 466,448. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. BEASLEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to locks that are adapted to prevent the separation of two parallel or substantially parallel parts, to one of which the lock is attached, and through the other of which it is adapted to pass.

For this purpose my invention consists in a rotating barrel, having a cross head thereon, which is adapted to pass through a suitably apertured keeper, and when carried by the rotation of the barrel, to take such a position as will prevent its withdrawal, and indicating mechanism and a locking mechanism being provided, the former of which will record the rotation of the barrel from its locked position, in which position the withdrawal of the cross-head from the keeper is prevented, and it also consists in the construction, arrangement and combination of the several parts of which it is composed, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings in which corresponding parts are designated by similar marks of reference: Figure 1 is a perspective view of a lock constructed in accordance with this invention, and adapted for use in securing a sliding car door. Fig. 2 is a vertical longitudinal section thereof. Figs. 3 and 4 are vertical transverse sections on lines Z Z and Z' Z' respectively of Fig. 2. Fig. 5 is a plan view of a lock such as that shown in the before mentioned figures, a part of the cover thereof being removed to show the registering mechanism.

Although I have shown by the accompanying drawings a lock adapted to secure a sliding door, it is obvious that such a lock can be applied for other locking purposes, the keeper upon the door being replaced by a keeper upon any part, the separation of which, from the part carrying the lock, it may be desired to prevent, and I desire to be so understood in the following specification and claims.

As shown, a suitable casing 1 is secured on the side A of the car, the said casing being formed by a base plate 1^a, having a central, longitudinal depression 1^b therein, the said base plate having slits 1^c therein, while a curved cover plate 1^e has tongues 1^d, projecting through the slits in the base plate and bent or upset in the rear thereof, the said cover plate having its forward end closed, as at 1^f. Such casing is secured on the side of the car, as before stated, or on a block thereon, as the construction of the door may require, adjacent to the door-opening by bolts 1^g passing through the edges of the base plate. A housing 2 formed of a suitably shaped block of metal is secured in the rear end of the casing 1, which it closes, the said housing having a boss 2^a, on its bottom, which projects through the cover plate 1^e, it being grooved as at 2^b, to receive the edges formed by the necessary slot in the latter.

A bore 3 is formed in the housing, by preference, centrally to the curved portions of the cover plate, while an aperture 4, though of smaller size is formed in the forward closed end 1^f of the cover plate, which has formed on the outer side thereof a boss 5, which is, by preference, in the shape of an elongated parallelogram, through the center of which the aperture 4 passes.

A barrel 6 is contained in the casing, the rear end thereof being enlarged, as at 6^a, while the forward end of the barrel passes through the aperture 4 in the front of the cover plate, and has a cross head 6^b thereon, the cross head being substantially of the same shape as the boss, but being slightly smaller, and lying immediately in front thereof, the enlargement 6^a of the barrel being contained in the bore 3 of the housing 2. Diametrical perforations 7 are formed in this enlargement, springs 8 and pins 9^a being inserted in the said perforations, the springs being in the center of the perforations and between the inner ends of the two pins contained therein, which will be thus forced by the springs outwardly. Recesses 9 are formed in the housing, radially from the bore therein, in which recesses, pins 10 of unequal length are contained, and into these recesses the outer ends of the pins in the barrel will be shoved by the springs 8, thus locking the

barrel against rotation. In order to permit the insertion of a key to move the pins 10 a sufficient distance inwardly to cause the ends of the pins 9^a contained in the recesses 9 to be flush with the periphery of the enlargement 6^a of the barrel, the said recesses 9 are continued downwardly, though in smaller cross section through the boss 2^a on the bottom of the housing, the reduction in the size of the recesses being made in order to prevent the pins 10 contained therein from falling out.

The key 11, which is provided to unlock the above described device, consists of a handle 12, having a transverse bar 13 upon the upper end thereof, the said bar being provided with upwardly extending points 14, which are adapted to enter the continuations of the recesses 9, and to shove the pins 10 contained therein a sufficient distance, the several points of the key being of a different and the proper length for this purpose.

The cross head 6^b is secured upon the barrel in such a position that when the barrel is locked by the pins 9^a, it, the said cross head, will lie across the shorter axis of the boss 5, and at right angles to the length thereof, and it will be evident that the barrel will be so locked twice on each revolution thereof, and at diametrical points, each time in a position to cause the cross head to be at right angles to the boss. It is also evident that in case it be desired to lock only the barrel once on each revolution thereof, the locking mechanism described in the patent to Henry Clarke, No. 220,124, dated the 30th day of September, 1879, may be employed.

In order to register the rotation of the barrel 6 from its locked positions, I either use the registering mechanism in the hereinbefore mentioned patent to Clarke, or the improvement thereon, described and claimed in an application for a patent for improvements in locks and indicating mechanisms therefor, filed by me in the United States Patent Office on the 24th day of January, 1893, and serially numbered 459,517. The general features of such mechanism are shown in the accompanying drawings, the indicating disks 15 being journaled upon the barrel 6, and showing through a transparent opening 16 in the cover plate, while the floating wheels 17 which actuate the said indicating disks are mounted on a post, 17^a, which project from the forward face of the housing and is by preference concentric to the depression 1^b in the base plate. The collar 18, which is keyed upon the barrel, and rotates therewith, has a projection 19 in the annular groove 20, formed in its periphery, in which groove the shoulders 21 of the first floating wheel project, the said projection 19 being so situated in the groove as to throw the floating wheel upon the initial movement of the barrel from its locked position. In case the hereinbefore described construction of locking mechanism is used, whereby the barrel is locked twice in

each revolution thereof, a plurality of the said projections 19 are placed within the groove 20, in such positions that they will throw the floating wheel twice for each completed revolution of the barrel, at each half a revolution of the latter, and upon the initial movement of the barrel from each of its locked positions. From this construction it will be seen that it is impossible to so rotate the barrel as to cause the cross head thereon to be in alignment with the boss 5 on the end of the casing (whereby the withdrawal of the keeper from the barrel is permitted, as will be hereinafter described) without the said rotation being indicated by the said mechanism.

The part which I generically called a keeper is shown in the accompanying drawings as consisting of a hasp 25, pivoted to the car door B and having its end bent at right angles thereto, the said bent end having an elongated slot 26 therein of the same shape and lying in the same position as the boss 5 on the end of the cover plate, so that when the door is closed and shoved against the frame of the car, the cross head upon the barrel being parallel with the boss, the said cross head and boss will enter the slot 26, the cross head passing entirely therethrough, after which it may be turned until it assumes a position at right angles to the boss and slot, when it will be locked by the pins 9^a entering the recesses 9 in the housing. At the same time, as is evident, the separation of the keeper from the casing is prevented, until the cross head is again in line with the boss and slot. As the backward rotation of the barrel is prevented by a series of forwardly facing shoulders 27 around the periphery of the bore 3, against which the end of the pins 9^a impinge upon such backward rotation, the only manner of again causing such a coincidence of the cross head upon the boss, is by unlocking the barrel and rotating it in a forward direction, which will cause the actuation of the registering or indicating mechanism, as has been hereinbefore described.

When it is desired to lock the barrel once in each rotation, the opposite ends of the cross head, boss 5 and slot 26 may be made of different shape, whereby it will be necessary to rotate the barrel through a full circle from the position in which it was inserted in order to withdraw it.

In Letters Patent No. 467,146, granted to me January 19, 1892, and in Letters Patent No. 471,167, granted to me March 22, 1892, I have shown and described, but have not claimed, a lock, consisting of a barrel, having a cross head thereon, and a locking mechanism for the barrel in combination with an indicating mechanism consisting of a series of disks adapted to be thrown by the rotation of the barrel, and I have therefore claimed such a construction herein, together with improvements thereon, and it will be obvious that such a lock having many of the improvements first described herein, may be used in

connection with the device described in such Letters Patent.

It is obvious that the shape and manner of construction of the inclosing casing and the details of construction thereof and of other parts of the device can be greatly changed without departing from the spirit of my invention, and

What I therefore claim is—

1. In a lock, the combination with a casing; of a barrel contained therein; a cross head mounted upon the projecting end of the said barrel; locking mechanism adapted to engage the said barrel, and an indicating mechanism consisting of a series of disks journaled upon the said barrel and actuated by the movement of the barrel from its locked position, substantially as described.

2. In a lock, the combination with a barrel; of indicating mechanism therefor; means for locking the said barrel at a plurality of points, and a plurality of projections secured upon the barrel, and adapted to throw the indicating mechanism upon the movement of the barrel from its locked positions, substantially as described.

3. The combination with a suitable casing; of a slotted keeper; a barrel partially contained in the said casing, and having a cross head on the projecting part thereof, adapted to pass through the slot in the said keeper; a locking mechanism adapted to lock the said barrel in such a position that the cross head thereon will lie across the said slot; and an indicating mechanism consisting of a series of disks journaled upon the said barrel and adapted to be thrown by the movement of the said barrel from its locked position, substantially as described.

4. The combination with a suitable casing; of a slotted keeper; a barrel partially contained in the said casing, and having a cross head upon its projecting part, adapted to pass through the slot in the said keeper; a locking mechanism adapted to lock the said barrel at each half revolution, and in such position that the cross head thereon will lie across the said slot; an indicating mechanism, and a plurality of projections secured upon the barrel and adapted to throw the said indicating mechanism upon the movement of the barrel from either of its locked positions, substantially as described.

5. The combination with a suitable casing

having a boss on the end thereof; a barrel partially contained in the said casing and having a cross head upon its projecting end; a locking mechanism adapted to lock the said barrel at half a revolution apart, and in such position that the cross head thereon will lie across the said boss; an indicating mechanism, and projections on the barrel adapted to throw the said indicating mechanism upon the rotation of the barrel from either of its locked positions, substantially as described.

6. The combination with a suitable casing; of a barrel partially contained therein, and having a cross head on its projecting end; the said barrel having diametrical perforations therein, and the said casing having recesses therein extending radially from the said barrel to the outer surface of the said casing; springs contained in the center of the perforations of the said barrel, and pins contained in the end of the said perforations and in the recesses of the casing, substantially as described.

7. The combination with a suitable casing, having a housing provided with a central bore located therein, the periphery of the said bore being provided with forwardly facing shoulders; a barrel partly contained in the said casing and housing, and having a cross head upon its projecting end, that portion of the barrel which is contained in the bore of the said housing, having diametrical perforations therein, and the said housing having recesses therein extending radially from the said bore to the outer surface of the casing, springs contained in the center of the said perforations, pins contained in the ends of the perforations and in the recesses of the said housing, whereby the barrel will be locked twice upon each revolution thereof, and at diametrically opposite points; an indicating mechanism, and a plurality of projections secured upon the barrel and adapted to throw the said indicating mechanism upon the rotation of the barrel from either of its locked positions, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. BEASLEY.

Witnesses:

VERNON M. DORSEY,
ELEANOR TIPPETT.