

**No. 640,017.**

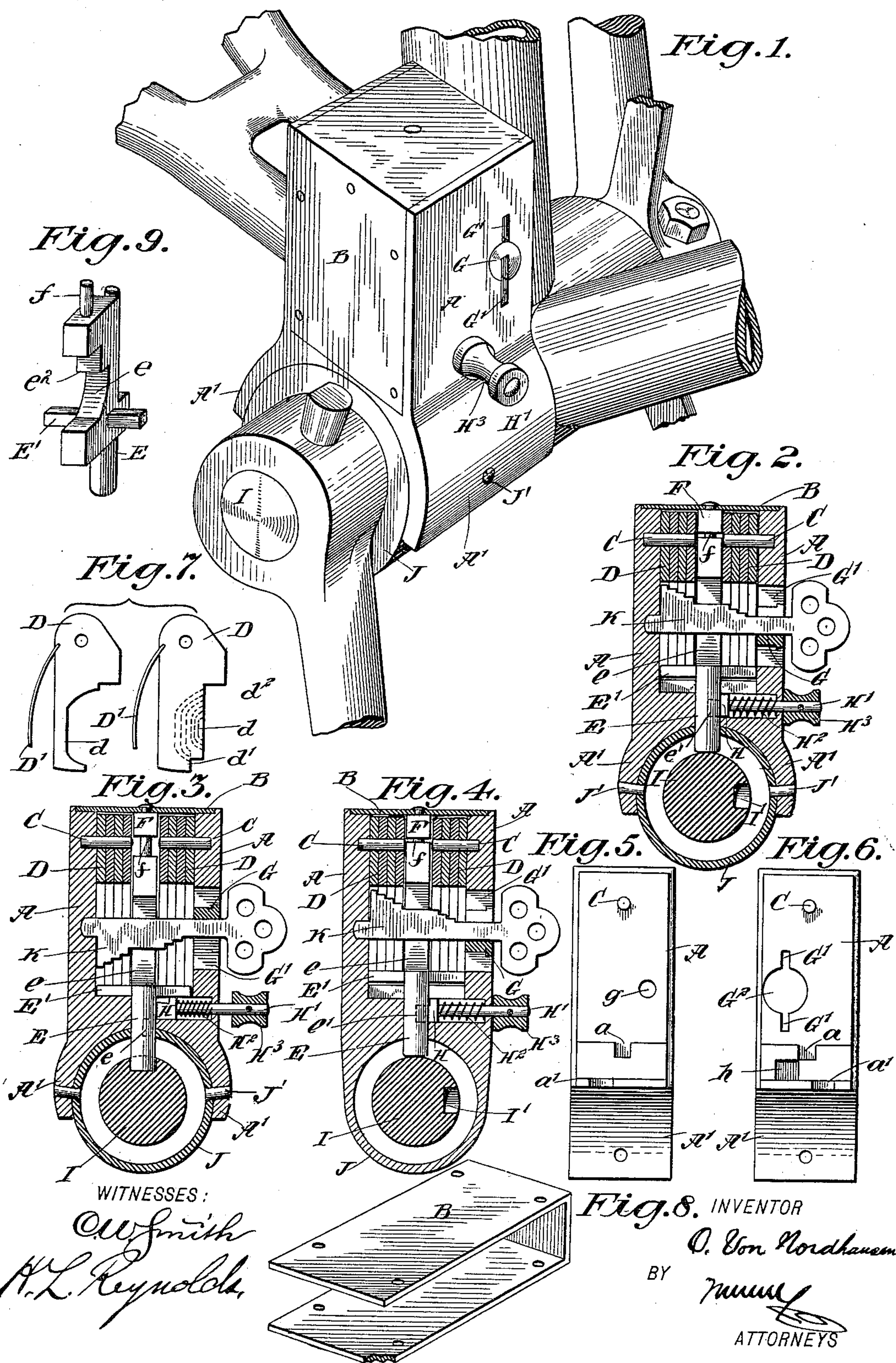
**Patented Dec. 26, 1899.**

**O. VON NORDHAUSEN.**

**BICYCLE LOCK.**

(Application filed Sept. 18, 1899.)

(No Model.)





# UNITED STATES PATENT OFFICE.

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## BICYCLE-LOCK.

SPECIFICATION forming part of Letters Patent No. 640,017, dated December 26, 1899.

Application filed September 18, 1899. Serial No. 730,869. (No model.)

*To all whom it may concern:*

Be it known that I, OTTO VON NORDHAUSEN, of the United States Revenue Marine, serving on the United States revenue cutter *Galveston*, Galveston, Galveston county, Texas, have invented a new and Improved Bicycle-Lock, of which the following is a full, clear, and exact description.

My invention relates to an improvement in locks designed especially for application to bicycles and comprises the novel features hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view showing the crank-hanger and adjacent parts of a bicycle-frame with my invention applied thereto. Figs. 2 and 3 are sectional elevations taken through the lock and the crank-hanger. Fig. 4 is a view similar to Figs. 2 and 3, except that the lock has in this case been designed for construction with the wheel instead of for attachment thereto afterward. Figs. 5 and 6 are elevations showing the two sides of the case from the inside. Fig. 7 shows the keepers used in the lock. Fig. 8 is a perspective view of the plate used for inclosing the case, and Fig. 9 is an elevation of the locking-bolt removed from the lock.

The object of my invention is to provide a device which may be attached to a bicycle and by which the pedal-crank may be locked against rotation, so that the bicycle-wheel may not turn.

The device is inclosed within a suitable case A, which is mounted upon the upper side of the crank-hanger J. Within this case is placed a suitable locking mechanism which may be operated by means of a key to free the crank-axle I or which may be released so as to engage said crank-axle and prevent its rotation. The crank-axle is provided with a recess or socket I', extending inwardly from one side thereof and adapted to be engaged by the lower end of the locking-bolt E, said bolt being mounted to slide within the lock-case. When the bolt enters the socket I', as

shown in Fig. 3, the crank-axle is prevented from turning. The bolt E has a recess or socket *e'* (see Figs. 3, 4, and 5) formed near the lower end thereof and opening to one side.

The lock-case has a recess *h* therein, within which slides a block H, secured to a stem H', extending to the outside of the case. A spiral spring H<sup>2</sup> lies between the block H and the side of the case and acts upon said block to force it inwardly or against the locking-bolt E. When the locking-bolt E is raised so as to free the crank-axle, the socket *e'* in the bolt is brought into registry with the block H, and said block enters the socket, thus holding the locking-bolt raised. The outer end of the stem H' of said block is provided with a knob H<sup>3</sup>, by which it may be readily engaged and drawn out, thus freeing the locking-bolt E and permitting the latter to drop into contact with the crank-axle I. In such case it will either enter the socket I' or rest upon the surface of the crank-axle until the said axle is turned so as to bring the socket I' into registry with the bolt, when the bolt will drop into said socket.

Between the two sides A of the case is placed a series of keepers D. These keepers are pivotally mounted upon two pins C, which project inwardly from each side of the case, but which terminate short of the center, the ends of said pins extending inward a sufficient distance to be substantially flush with the outer surfaces of the upper portion of the bolt E. When the bolt E is removed from the case, the keepers D may then be readily placed upon their pivot-pins or removed therefrom. These keepers are constructed after the manner shown in Fig. 7, in which two keepers are shown, and each consists of a plate D, having a spring D' secured to the back thereof and holding the keepers toward the center of the case. The lower portion of each of the plates is provided with a notch *d*, which varies in depth in accordance with the outline of the key. When the depth of the hole is considerable, the width of the key is correspondingly great. This variation in shape is only the variation which is ordinarily made in the size or outline of keepers for locks. At



the lower end the keepers are provided with a notch  $d'$ , which is adapted to engage a cross-pin  $E'$ , which is secured to the lower portion of the locking-bolt. When the bolt is in locking position, the cross-pin lies within the notch  $d'$  in the keepers and is thus held downward and prevented from rising until the keeper has been thrown to one side.

In such of the keepers as have the notch  $d'$  extended downward to such a distance as to prevent the formation of the notch  $d'$  said notch is of course omitted, as is shown by one of the keepers in Fig. 7.

At one side of the case is placed a keyhole, which consists of a narrow vertical slot  $G'$ , having a central circular enlargement  $G^2$ , within which is mounted to turn a circular block  $G$ , which has a slot extending from one side thereof to a little beyond the center and adapted to receive the shank of the key  $K$ .

The opening between the two sides  $A$  of the case is closed by means of a plate  $B$ , which is bent into a  $U$  shape and fits over the top of the case. This plate is then secured in place by rivets or screws in an ordinary manner. To the upper portion of the plate  $B$  is secured a block  $F$ , which lies between the upper ends of the two divisions of the keepers and has a guide-pin  $f$  extending downwardly therefrom and entering a hole in the upper end of the locking-bolt  $E$ . This locking-bolt is of irregular shape in that portion of the casing occupied by the keepers. It is provided with a notch  $e$  upon one side, which corresponds in general outline with the notches  $d$  in the keepers. The depth of this notch is, however, intermediate the extremes which are used for the keepers. The bolt is also provided with a latch or shoulder  $e^2$ , which is adapted to be engaged by the corresponding portion of the key, so as to raise the bolt out of the socket  $I'$  in the crank-axle.

In the form of lock shown in Figs. 1, 2, and 3 the case is provided with downwardly-extending wings  $A'$ , which are adapted to fit upon the outer surface of the crank-hanger  $J$  and be secured thereto by means of rivets  $J'$  or in any other suitable manner.

In Fig. 4 a lock is shown which has been constructed upon the machine when first built and is secured rigidly thereto at the time of manufacture. This form of lock dispenses with the wings  $A'$ , but is otherwise similar to that shown and described. The case  $A$  is provided with a groove  $a$ , adapted to receive the pin  $E'$  on the locking-bolt, and is also provided with a hole  $a'$ , adapted to receive the lower portion of the locking-bolt  $E$ . This lock is normally held disengaged by means of the block  $H$ , which is secured upon the inner end of the stem  $H'$ . When it is desired to lock the wheel, it is only necessary to pull out the stem  $H'$ . It will be noticed that the upper surface of that portion of the block  $H$  which enters the locking-bolt  $E$  is slightly sloping, the outer end being higher. In consequence of

this when the block is pulled outward it slightly raises the locking-bolt  $E$ , so that when the stem  $H'$  is released it is certain that the block will engage the outer surface of the locking-bolt and not reënter the recess  $e'$  therein. If the socket  $I'$  in the crank-axle is not directly under the locking-bolt, the wheel may be turned until the bolt drops into said socket or it may be left without doing this. In the latter case as soon as the wheel has been turned a sufficient amount to bring the socket beneath the bolt the bolt will enter the socket and the wheel may be locked. To release the wheel, the key  $K$  is inserted with the wing thereof downward, as shown in Fig. 3. It is then turned, the first quarter-turn serving to throw the keepers  $D$  to one side, so as to free the locking-bolt. The second quarter-turn will then raise the locking-bolt, the key at this time engaging the shoulder  $e^2$  upon the bolt. As soon as the bolt has been raised a sufficient distance the block  $H$  will enter the socket in said bolt and hold it raised until released by pulling outward upon the stem  $H'$ .

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A bicycle-lock, comprising a casing mounted upon the crank-hanger, a gravity-bolt slidable in said casing and adapted to engage the crank or pedal shaft to lock it against turning, a series of keepers pivoted to opposite sides of the casing and between which the bolt slides, said keepers being adapted to engage the bolt to hold it in locked position, a key adapted to operate said keepers and to slide the bolt, and a sliding and spring-held bolt-holder having an external knob and adapted to engage and hold the bolt in unlocked position, substantially as described.

2. A lock, comprising a case having two pins projecting toward each other from opposite sides of the case and terminating short of the center thereof, keepers pivoted on said pins, and a bolt adapted to be engaged by a key to operate it, said bolt lying between the keepers and the ends of the pins and holding the keepers on said pins, substantially as described.

3. A lock, comprising a case having two pins projecting toward each other from opposite sides and terminating short of the center of the case, keepers pivoted on the said pins, a bolt lying between the keepers and the ends of said pins and adapted to be engaged by the key to throw it, the bolt having a locking-recess, a guide projecting from the top of the case between the keepers and upon which the bolt slides, and a locking-pin mounted to slide in the casing and adapted to enter said recess, the said pin being spring-held and extending to the exterior of the case whereby it may be hand-operated, substantially as described.

4. A lock, comprising a case having pins projecting from opposite sides of the case and



terminating short of the center thereof, keep-  
ers pivoted on the pins and having recessed  
lower ends and a gravity sliding bolt between  
the keepers and the ends of the pins, and  
5 provided with a cross-pin adapted to be en-  
gaged by the recessed ends of the keepers to  
hold the bolt projected, the bolt and keepers  
being adapted to be engaged by a key to dis-  
engage the keepers from the bolt and raise  
10 the latter, substantially as described.

5. A lock, comprising a case having pins  
projecting from opposite sides of the case and  
terminating short of the center thereof, keep-  
ers pivoted on the pins and having recessed  
15 lower ends, a gravity sliding bolt between the

keepers, said bolt having a recess in its lower  
end and provided with a cross-pin adapted to  
be engaged by the recessed ends of the keep-  
ers to hold the bolt projected, the bolt and  
keepers being adapted to be engaged by a 20  
key to disengage the keepers from the bolt  
and raise the latter, and a sliding and spring-  
pressed locking-bolt adapted to engage the  
recess of the bolt to hold the same withdrawn,  
substantially as described.

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Witnesses:

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