

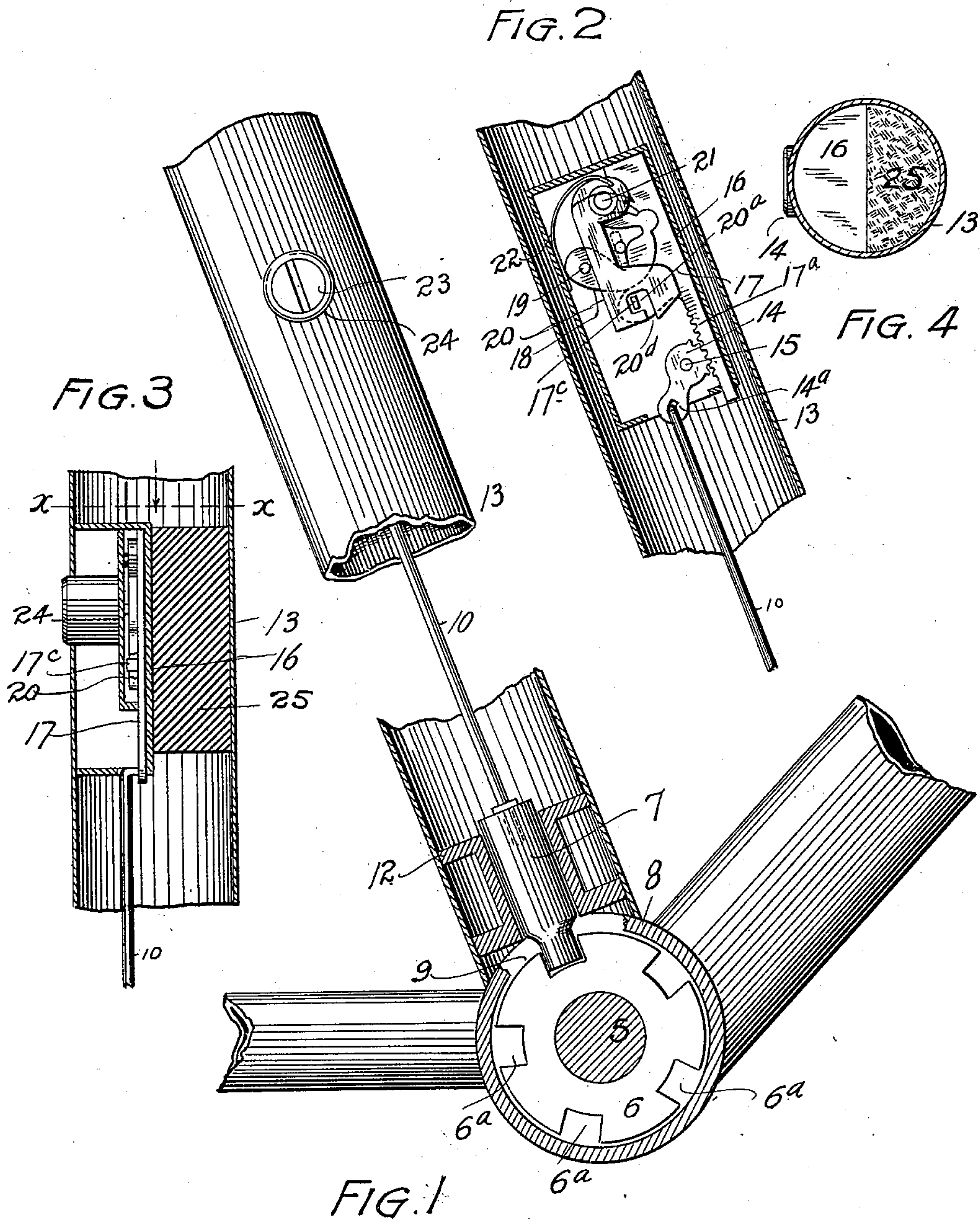
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Patented June 6, 1899.

C. A. HALL.
BICYCLE LOCK.

(Application filed Nov. 25, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES A. HALL, OF DENVER, COLORADO, ASSIGNOR OF ONE-THIRD TO
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BICYCLE-LOCK.

SPECIFICATION forming part of Letters Patent No. 626,656, dated June 6, 1899.

Application filed November 25, 1898. Serial No. 697,340. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HALL, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Bicycle-Locks; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in bicycle-locks, my object being to provide a device of this class which shall be simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features herein-
after described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a section taken through the center bearing of a bicycle equipped with my improvements, the frame-bar containing the locking devices being shown partly in elevation and partly in section. Fig. 2 is a fragmentary section of the frame-bar, taken through the lock-case. Fig. 3 is a section taken at right angles to Fig. 2. Fig. 4 is a section taken on the line xx , Fig. 3.

Similar reference characters indicating corresponding parts in the views, let the numeral 5 designate the crank-shaft of a bicycle. Upon this shaft is made fast a disk 6, which is provided with notches or recesses 6^a, adapted to receive a bolt 7, the center bearing 8 being provided with an opening to allow the bolt to enter. This bolt 7 is attached to the lower extremity of a rod 10 and is arranged to move in a guide-bushing 12, placed in the lower extremity of the frame-bar 13 adjacent the center bearing. The upper extremity of the rod 10 is connected with a crank-arm 14^a, forming a partially-cogged pinion 14, journaled on a stud 15, mounted on the lock-case 16. The crank-arm 14^a is slotted to receive a pin formed on the upper extremity of the rod, whereby the latter is allowed to move in a

direct line as the pinion and crank-arm are actuated. The cogs of the pinion 14 engage a cogged rack 17^a, formed on the lower extremity of a slidable plate 17, arranged in the lock-case 16 and adapted to be actuated by a dog 18, pivoted on a stud 19 of the case. This dog is arranged to actuate the slidable rack-plate 17. This rack-plate when in the raised position (see Fig. 2) corresponding with the locked position of the bolt 7 is held in place by a tumbler 20, pivotally mounted on a stud 21 of the lock-case 16. This tumbler is provided with a recess 20^a, into which projects a lug 17^c, formed in the plate 17. The recess of the tumbler is so shaped that when the tumbler is held in its normal position by a spring 22 the lug cannot escape from the recess of the tumbler. When, however, the tumbler is given a slight movement toward the left, an escape opening or slot 20^d is brought in line with the lug, permitting the plate 17 to be moved downwardly, thus raising the bolt 7 through the instrumentality of the rod 10, the crank-arm 14^a, the pinion 14, and the rack 17^a. This is accomplished by means of a key inserted in the slot of a cylinder 23 of the lock. A flat key is employed, and when inserted is in the position shown in dotted lines in Fig. 2. Now when this key is turned in the direction indicated by the arrow the lower part of the tumbler is thrown toward the left, (see Fig. 2,) thus bringing the slot 20^d in line with the lug 17^c. As soon as this occurs the opposite edge of the key engages the dog 18 and actuates the latter sufficiently to move the plate 17 downwardly and raise the bolt 7 out of its notch in the disk 6. The lug 17^c has now passed to a position immediately below the tumbler 20, and when the key is removed from the lock the tumbler is returned by the spring 22 to its normal position and forms a stop against the upward movement of the lug and the rack-plate 17, thus preventing the bolt 7 from dropping by gravity into a notch 6^a of the disk until the key is again inserted and the tumbler thrown toward the left, bringing the slot 20^a again into line with the lug 17, after which the locking-bolt 7 will drop into a notch 6^a of the disk, the lug 17^c and the rack-

plate simultaneously moving upwardly to the position shown in Fig. 2, and when the key is again removed the tumbler returns to the position shown in Fig. 2, thus securing the bolt in the locked position.

The lock-case 16 is held in place in the frame-bar 13 by a backing-plug 25, composed of cork, rubber, or other suitable material, that may be crowded in behind the case after the latter is inserted. The barrel 24, inclosing the cylinder 23, protrudes slightly through an opening formed in the frame-bar 13, whereby the lock-case and its contents are held in position after the insertion of the plug 25.

I claim—

1. In a bicycle-lock the combination with a crank-shaft, provided with a metal disk having notches, of a rod located in one of the frame-bars and provided with a bolt at its lower extremity, adapted to enter a notch of the disk, a lock-case inserted in the frame-bar, a slidable plate located in said case and provided with a cogged rack, a pinion engaging the rack and provided with a crank with which the upper extremity of the rod is connected and suitable means for actuating the rack-plate, whereby the rod and locking-bolt are actuated for the purpose set forth.

2. The combination with a recessed shaft, of a locking-rod located in the frame-bar and adapted to engage said shaft, lock mechanism connected with the rod and comprising a lock-

case, a slidable rack-plate located in the case, a pinion engaging the rack of the plate and provided with a crank-arm connected with the rod, a key-operated dog for actuating the rack-plate, and a cooperating tumbler for locking the plate in either position of adjustment.

3. The combination with a recessed crank-shaft, of a locking-rod located in the frame-bar and adapted to engage said shaft, of lock mechanism connected with the rod and comprising a lock-case, a slidable rack-plate located in the case and provided with a lock, a pinion to engage the rack of the plate and provided with a crank-arm connected with the rod, a key-operated dog for actuating the rack-plate, a cooperating tumbler for locking the plate in either position of adjustment, said tumbler having a recess adapted to receive the lug of the rack-plate, the arrangement being such that the tumbler locks the rack-plate and its connections against movement, the tumbler being provided with a slot communicating with the said recess to allow the lug of the rack-plate to move out of and into the recess, as the tumbler is actuated by the movable key.

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

CHARLES A. HALL.

Witnesses:

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BERNICE C. CAUGHEY.