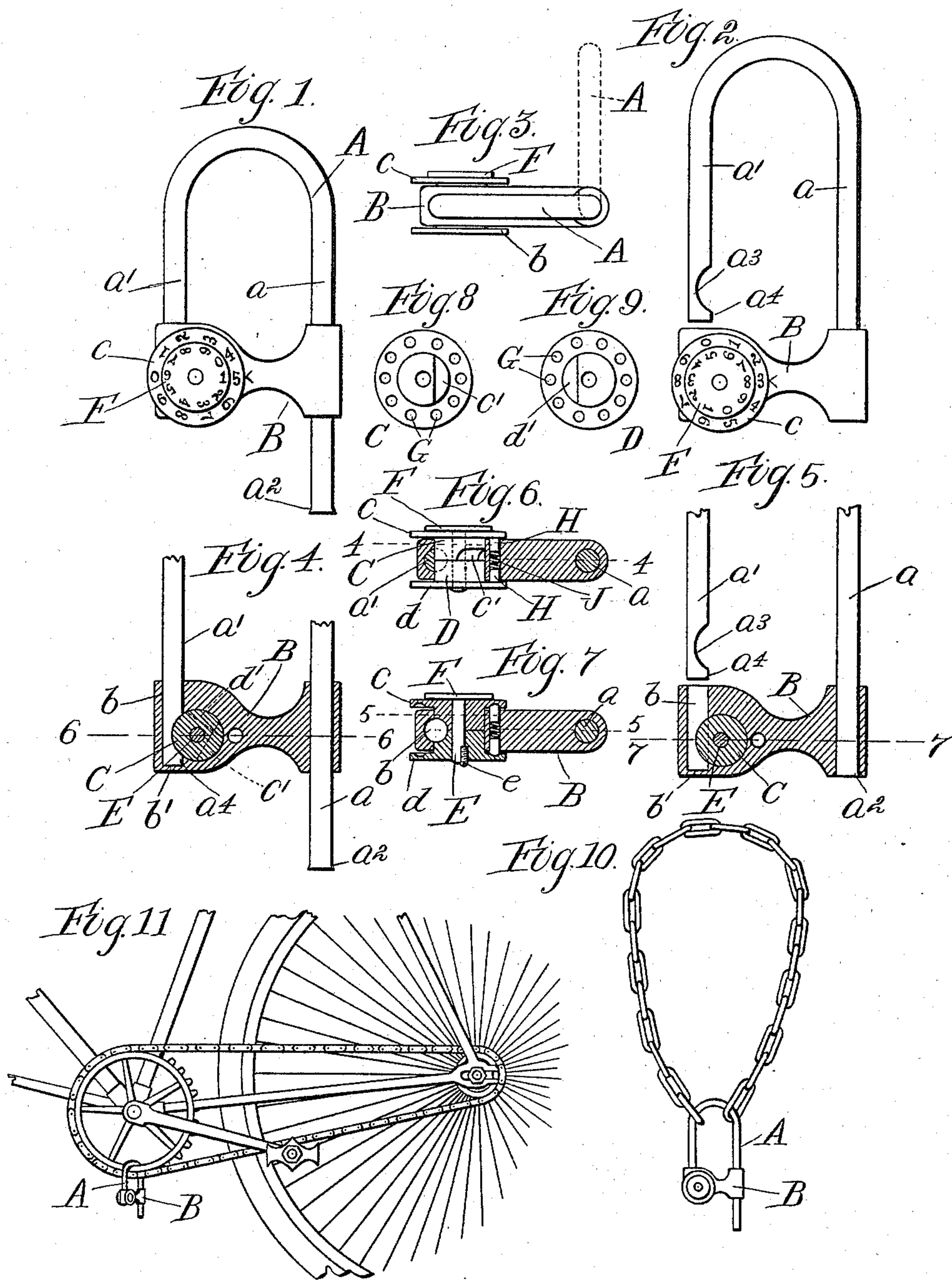


(No Model.)

L. T. CORNELL.  
PERMUTATION PADLOCK.

No. 584,575.

Patented June 15, 1897.



Witnesses  
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# UNITED STATES PATENT OFFICE.

LEWIS T. CORNELL, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MORGAN & WRIGHT, OF SAME PLACE.

## PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 584,575, dated June 15, 1897.

Application filed May 1, 1896. Serial No. 589,862. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS T. CORNELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Locking Devices, of which the following is a specification.

My invention relates to locking attachments and devices, and especially to such as are adapted for service in securing bicycles and similar vehicles.

Prominent objects of my invention are to produce a strong and durable device which is capable of resisting all ordinary human efforts to break it or dislodge its parts, to make the same light, simple, portable, and readily applicable to many and various uses, to construct the locking portions so that they cannot be "picked" or unlocked by persons unacquainted with its arrangement, but which may be easily opened by the owner without the use of a key, and to adapt the same particularly for use in locking bicycles, tricycles, and the like.

To the attainment of the foregoing and other desirable ends my invention consists of matters hereinafter set forth.

In the accompanying drawings, Figure 1 is a view showing a locking device embodying my invention, the same being in a locked condition. Fig. 2 is a view similar to Fig. 1, showing the device unlocked and the hasp withdrawn from the yoke. Fig. 3 is a top plan of the same, showing in dotted lines one of the positions to which the hasp may be swung when unlocked and withdrawn from the yoke. Fig. 4 is a section of the device when locked, taken on line 4 4 in Fig. 6. Fig. 5 is a section taken on line 5 5 in Fig. 7, the device being unlocked. Fig. 6 is a section on line 6 6 in Fig. 4. Fig. 7 is a section on line 7 7 in Fig. 5. Figs. 8 and 9 are detail views of parts of the divided rotary tumbler. Fig. 10 shows the device employed for locking together the ends of a chain. Fig. 11 shows one way in which the same may be employed for locking a bicycle.

The hasp A is desirably constructed from a straight cylindrical rod or bar bent to bring the end portions  $a$  and  $a'$  substantially parallel and to make one of them, as  $a$ , longer than

the other. This long end portion  $a$  may conveniently serve as a guide upon which the yoke may slide, and to such end is provided with a stop  $a^2$  at its extremity to limit the movement of said yoke.

The short end or shank  $a'$  of the hasp is provided with a shouldered or engaging portion near its extremity; but instead of enlarging the shank for this purpose I simply form a recess  $a^3$  above the end of the shank, which evidently gives the desired shoulder  $a^4$ . This has the advantage that the size of the end of the shank is not objectionably enlarged and also offers an opportunity to form the recess  $a^3$  of a shape and size to conveniently fit the tumbler with which the yoke is provided.

The yoke B is arranged to span the distance between the end portions  $a$  and  $a'$  of the hasp and is bored at one end, so as to slide readily upon the long end  $a$  of the hasp. The other end is arranged to form a socket for the shank  $a'$ , and such end is provided with a passageway  $b$  of a size to receive said shank. This passage  $b$  is closed at its lower end by the stop  $b'$ , so as to prevent the end of the shank from emerging therefrom. The yoke B is further provided with a rotary tumbler extending partially into the passage  $b$ , which is transversely divided to form the portions C and D. The adjacent faces of these portions C and D are grooved, as at  $c'$  and  $d'$ , so as to form when placed alongside each other a channel corresponding in size to the passage  $b$ , which channel may be turned into alignment with said passage and when in such position coincides with and forms part of the same. In this way the shank  $a'$  may be inserted within the yoke when the portions C and D of the tumbler are in a position to permit its free entrance, and the shoulder  $a^4$  on the shank may be passed beyond said tumbler, as in Fig. 5, the dotted line in the tumbler indicating the channel. The portions C and D may then be turned to cause them to partially fill the passage  $b$  and to engage the shoulder  $a^4$ , as in Fig. 4, which evidently prevents the withdrawal of the shank  $a'$ .

The tumbler is desirably made cylindrical and the recess  $a^3$  in the shank correspondingly circular, by which arrangement the por-



tions C and D fit closely and snugly in the recess and the parts are locked securely together.

The portions C and D should be capable of being easily turned, and the positions which they are to occupy to permit the withdrawal of the shank  $a'$  must be known to the possessor of the device. To such end I provide the milled flanges  $c$  and  $d$  for the same and mark them with any suitable arbitrary symbols which will be understood by the possessor of the device and will enable him to place such portions C and D in the proper positions. In place, however, of marking both of said flanges I arrange means whereby the movements of both portions of the tumbler may be observed from one side of the device.

As a simple construction I pass through a central hole in one of the rotary portions, as C, a pin E, Fig. 7, having at its outer end the disk F, and secure the end of this pin rigidly to the other rotary portion D, as by the small screw  $e$ . In this way the disk F turns with the portion D and hence indicates the position of the latter. I desirably make the diameter of this disk F smaller than that of the flange  $c$ , so that a portion of the flange  $c$ , as well as the disk F, may be visible. This permits me to place characters on the faces of both the disk and the flange, a simple arrangement of which is to have figures near the periphery of each, as shown in Figs. 1 and 2. In this way the figures may be placed on the disk and flange with reference to the grooves in the portions C and D in such a manner that the grooves are brought into positions to release the shank  $a'$  by bringing the figures into any predetermined arrangement. I have shown a notch in the yoke near the periphery of the flange  $c$ , which may serve as a point to which such a combination of figures may be brought.

The inner faces of the flanges  $c$  and  $d$  are desirably provided with a series of indentations G, Figs. 8 and 9, corresponding to the figures on their outer faces, and a couple of small pins H H, Figs. 6 and 7, are inserted in an aperture in the yoke and pressed outward by a spring J, so as to normally engage with the indentations G. In this way the pins H H tend to maintain the hubs in any position in which they are left.

It is obvious that such a device can be made extremely simple and light and is capable of many and various uses. For instance, I may employ it for locking together any of the movable or movable and stationary parts of a bicycle which it will surround. In Fig. 11 I have shown the sprocket wheel and chain locked by such a device; or it may be used to hold the ends of a suitable chain together, as shown in Fig. 10, and also in numerous other ways.

In any case it is evident that the device cannot be unlocked except by persons acquainted with the arbitrary arrangement in which the characters on the disk F and flange  $c$  must be placed.

What I claim as my invention is—

A locking device comprising the hasp A having the straight recessed end  $a'$  and the long end  $a$ , and the yoke B sliding on the end  $a$ , and provided with the rotary channeled tumblers C and D, having the internally-indented flanges  $c$  and  $d$  arranged to be held in position by the spring-actuated pins H, and the tumbler D being rigidly connected with the face or dial F located in front of the flange  $c$ , substantially as described.

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Witnesses:

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