No. 610,722. Patented Sept. 13, 1898.

F. H. RICHARDS.

COMBINED CYCLE HOLDER AND LOCK.

(Application filed May 3, 1898.)

(No Model.)

Fig. 1.

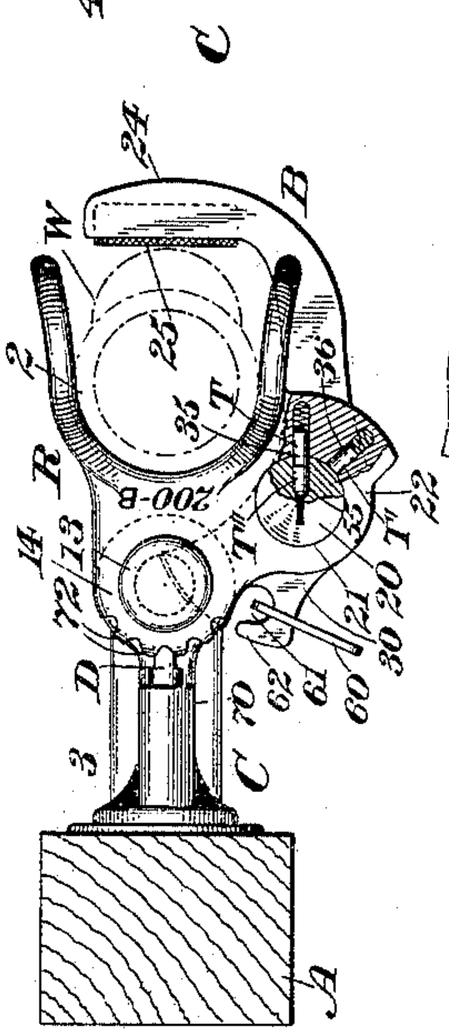

Fig. 2.

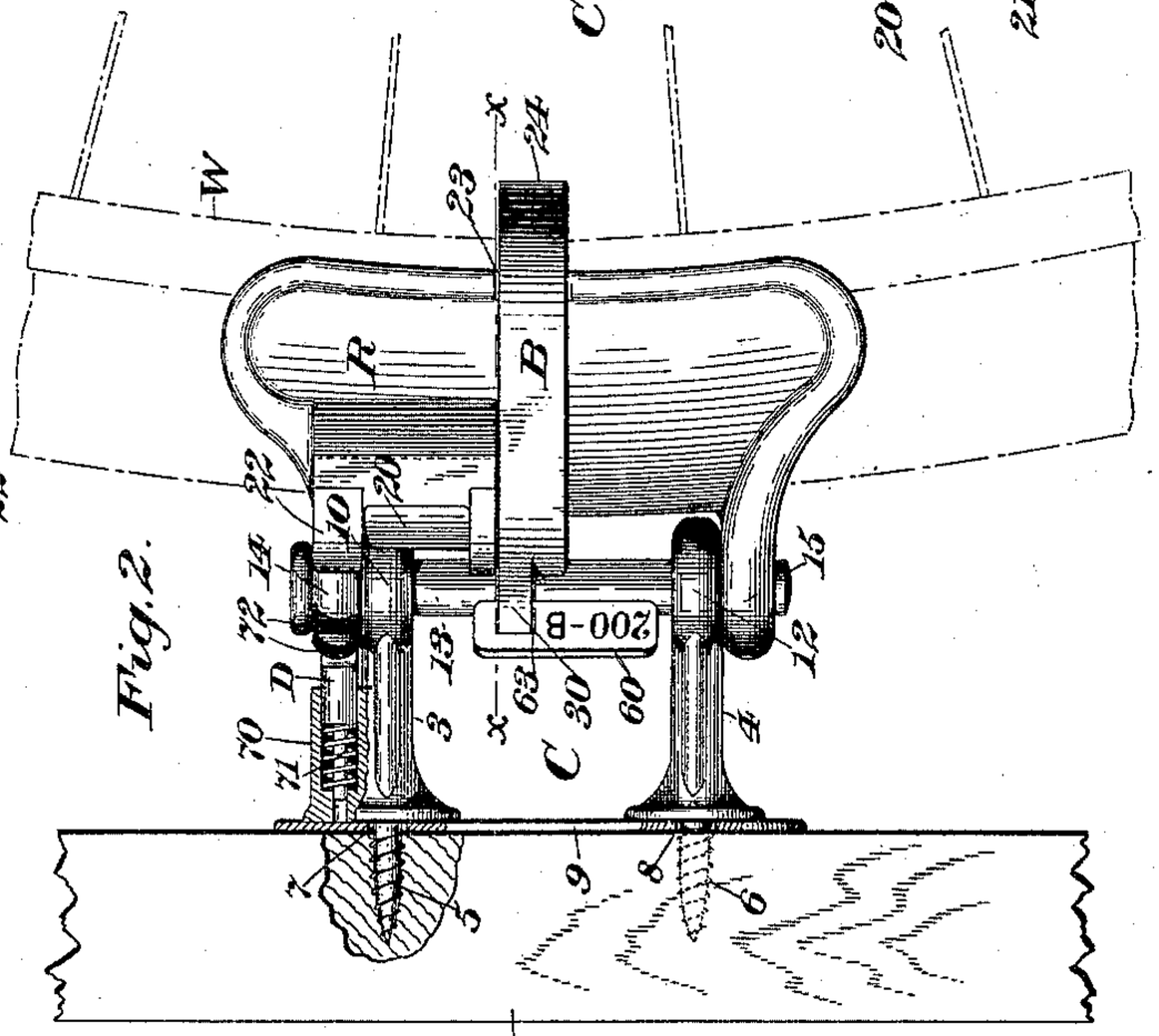

Fig. 3.

Fig. 4.

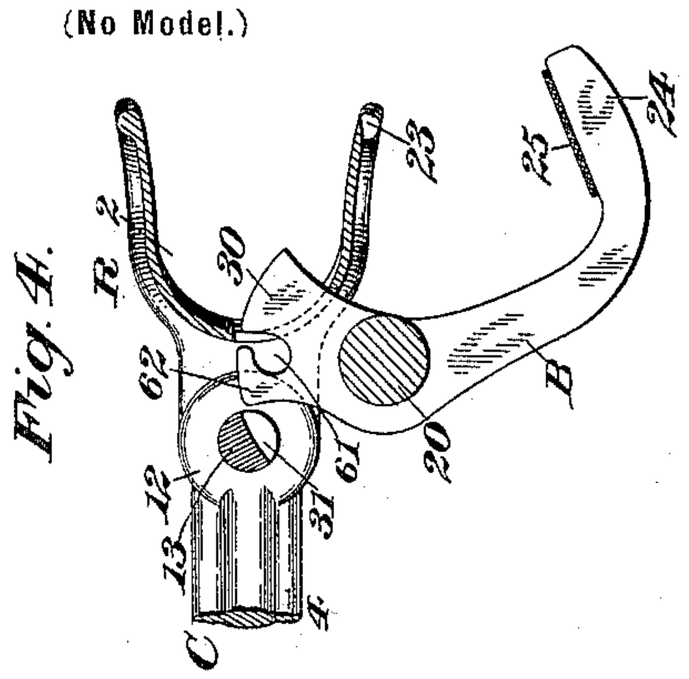

Fig. 5.

Fig. 6.

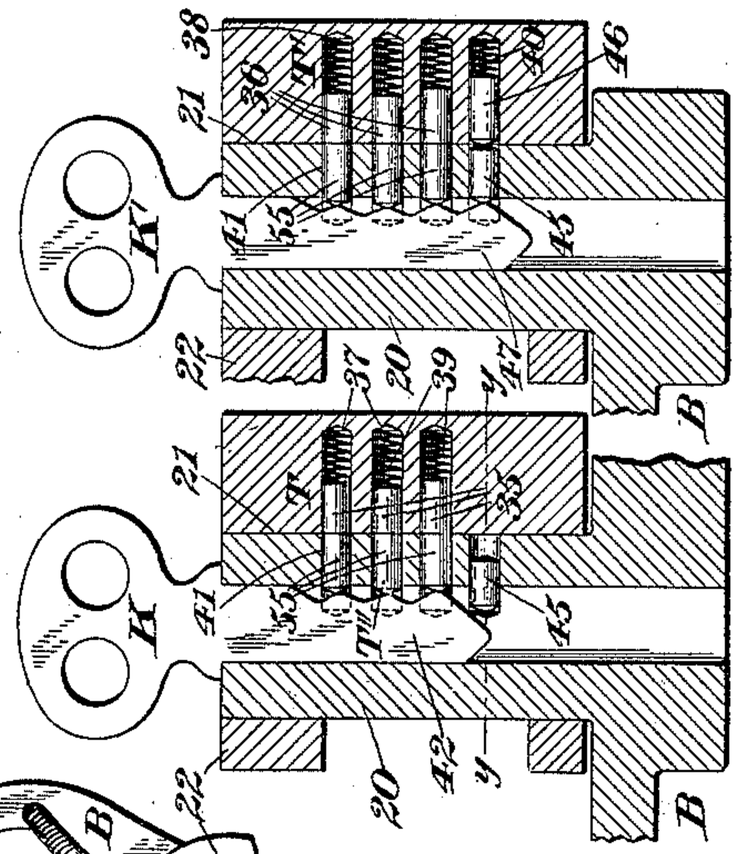

Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT.

COMBINED CYCLE HOLDER AND LOCK.

SPECIFICATION forming part of Letters Patent No. 610,722, dated September 13, 1898.

Application filed May 3, 1898. Serial No. 679,573. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in a Combined Cycle Holder and Lock, of which the following is a specification.

This invention relates to a combined cycle holder and lock, the object being to provide a simple and inexpensive device of this character which may be readily assembled upon a support and which when in working position is adapted to uphold a cycle and also to lock the same against removal by unauthorized persons.

The improved device includes as one of its features, in the form thereof herein illustrated, a receiver, which is of a construction to seat a cycle-wheel or other member, means for securing said receiver upon a support, a bolt or shackle constructed to hold the cycle in the receiver and also to maintain said receiver and its securing means in assembled relation upon the support, and a lock for the bolt. The carrier for the receiver includes, preferably, two screws, by which it can be attached to a support, and the receiver and the carrier are joined by a connector, and the locking-bolt, to which reference has been made, is of such a construction as to hold said connector against removal when the bolt is in a certain position, by reason of which the screws cannot be detached. When, however, the bolt is moved to another position, the connector will be released and can be removed, whereby the device as a whole can be detached from the support. The connector, to which reference has been made, consists in the present case of a pivot between the receiver and the carrier, and it has at a suitable place in its length a notch or recess, in which one end of the locking-bolt is normally seated, thereby to prevent removal of the pivot and consequently the detachment of the carrier, which in the present case consists of two separate or independent sections, each having a screw adapted to be seated in the support.

My improved device includes as another of its features a lock involving a barrel or cylinder and a casing or equivalent parts and in combination therewith two independent series of tumblers carried by one of the lock parts and a series of tumblers upon the other lock part corresponding with one but not with the other of said two first-mentioned series. In the present case there are mounted in or upon the casing two independent series of tumblers and upon the barrel a third series of tumblers, which equals in number one of but is different from the other of the first-mentioned series, which are supported by the casing, and in conjunction with these several tumblers two independent and differently-formed keys are provided, one of the keys being adapted to operate certain of the tumblers upon the barrel, whereby the corresponding tumblers in the casing may be operated to permit the cylinder being turned a predetermined distance, and the other key being adapted to operate all of said series of said tumblers upon the barrel, whereby the second series of tumblers upon the casing may be operated, so as to permit the further rotation of the barrel. The lock preferably governs the operation of the bolt or shackle, to which allusion has been made and which secures the bicycle in place and also retains the several parts of the receiver and its securing means in an assembled relation upon a support. Upon the primary movement of the lock the bicycle may be released, and upon the secondary or final movement of said bolt the several parts of the device can be disassembled and detached from the support.

My improved device also embodies means for positively maintaining the receiver in an adjusted position, such means consisting in the present case of a spring-actuated detent or dog upon the carrier, adapted to engage the said receiver, and which may enter a space between any two of a series of teeth upon the adjacent portion of said receiver to hold the latter in the desired position, and it also involves means for locking an identifying check or tag against removal when the bolt or shackle is open, whereby such check cannot be lost.

In the drawings accompanying and forming part of this specification, Figure 1 is a plan view of my improved combined cycle holder and lock, showing by dotted lines a

portion of a wheel locked in the receiver and a part being broken away to show the lock. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional plan view, the section being taken in the line *x x*, Fig. 2, illustrating by full and dotted lines, respectively, the bolt or shackle in its closed and open positions. Fig. 4 is a similar view showing the bolt in its extreme shifted position, or that which it occupies when the parts are to be disassembled. Fig. 5 is a plan view illustrating the receiver in a different position from that represented in the other views. Figs. 6 and 7 are longitudinal sections of the lock-barrel and casing, the section being taken just in front of the two series of tumblers in the casing and showing the barrel in its two positions and with the keys therein; and Fig. 8 is a sectional plan view, on an enlarged scale, taken in the line *y y*, Fig. 6.

Similar characters designate like parts in all the figures of the drawings.

My improved device includes in its construction a receiver and a carrier, and the two parts are so connected, preferably, that the receiver may be turned to different angles relative to the support, means being provided to hold the same firmly in its adjusted position, as will hereinafter appear, and the carrier may be secured to an upright post or to the ceiling or floor of a building, as the user may desire. Said carrier is illustrated in the present case secured to the vertical post or column A.

The receiver for the wheel is designated by R and the carrier by C, and said receiver may consist of a socketed piece or casting having the recess or pocket 2, in which a wheel (indicated by W) may be seated and held therein by a locking-bolt or keeper, hereinafter more particularly described.

The carrier C consists in the present case of two separate brackets or projections, as 3 and 4, having at their inner ends the rigid screws 5 and 6, respectively, which may be seated in the support A, said screws passing through openings, as 7 and 8, in the face-plate 9, which fits against the outer face of the support A, and the two openings serve to insure the proper spacing of the two screws. The members 3 and 4 terminate at their outer ends in the eyes 10 and 12, through which the connector or pivot 13 may pass, said pivot also passing through the eyes 14 and 15 upon the receiver R, and by reason of this construction said receiver may be freely turned at any desired angle to the support A.

To support and lock a cycle by means of my improved device, the wheel W is entered into the recess 2, and the bolt, which had previously been opened to permit this operation, is then moved across the wheel and locked, whereby the cycle can be maintained in its upright position and retained against removal except by the use of the proper key.

The bolt, which may be of any suitable construction, is designated in the present case by B, and it is supported by the receiver for swinging or oscillatory movement relatively thereto, and it has upon its upper surface the barrel or cylinder 20, which serves as a pivot and which is fitted to turn in the seat 21, formed in the hub or enlargement 22 on the receiver, said hub forming a casing for the lock-barrel 20.

The wheel-seating portion of the receiver is recessed, as at 23, to receive the bolt or shackle B when the latter is in its extreme advanced or cycle-locking position. (Shown in Figs. 1 to 3.) The working or hooked end 24 of the bolt or shackle B has a pocket to receive the pad 25, of rubber, which comes directly in contact with the wheel, by reason of which the latter cannot be injured when locked in place.

The means for connecting the receiver R with the support A includes the carrier C, the screws 5 and 6, and the pivot 13 between said carrier and the receiver, and for the purpose of preventing the detachment of the carrier or the separate devices 3 and 4 constituting the same the bolt B is employed—that is, it not only serves to lock a wheel in the receiver R, but also locks the pivot against removal, and it will be evident that this being the case the carrier or the screw-eyes 3 and 4 cannot be detached from their support.

In Figs. 1 and 3, by full lines, the bolt B is shown in its closed position, and in Fig. 3, by dotted lines, as open, and when in these two positions and when intermediate the same the bolt serves to prevent the withdrawal of the pivot, and it may have for this purpose the extension or tailpiece 30, which when the said bolt is in or between the two positions just mentioned is disposed in the transverse notch or groove 31 in the pivot, which acts as a bar to the withdrawal of the pivot 13. When the bolt B is swung a sufficient distance, as indicated in Fig. 4, to carry the extension 30 out of the notch 31, the pivot 13 can be removed, as can the receiver R, so that by manipulating the two parts 3 and 4 the screws 5 and 6 can be turned from their seats in the support A.

The bolt B is locked in the two positions shown in Fig. 3, and the lock includes a barrel or cylinder, as 20, and a case, as 22, therefor, the casing in the present instance supporting at least two series of tumblers, the respective series being designated by T and T′ and being represented clearly in Figs. 6 and 7. The series T has three tumblers or pins, (each denoted by 35,) while the series T′ has four pins, (each denoted by 36,) although it is obvious that this number may be varied. The pins 35 and 36 are located in two series of parallel sockets, as 37 and 38, respectively, formed in the casing and are held in working position by a series of springs, as 39 and 40, seated at the backs of and bearing against the respective pins, and which when the bolt is in either its open or closed position hold the tumblers of a set in a cor-

responding set of sockets in the barrel 20 and against a series of pins, as T″, in said barrel, as indicated in Fig. 1.

The operation of the barrel or cylinder 20 is controlled by two separate keys, as K and K′, the ordinary key K serving to lock in or unlock a bicycle from the receiver R, while the master-key K′ is only used when it becomes necessary to disassemble or disconnect the parts.

The tumblers or pins of the series T″ are each designated by 55, and they are four in number, or, in other words, they exceed the number of pins in the primary set T, while equal to number in the secondary set T′, which latter, it is understood, govern the detachment of the device as a whole.

In Fig. 1 the bolt B is shown in a position to lock a wheel in place in the receiver, the series of pins 35 being at this time in the three upper sockets 41 in the barrel 20. On the introduction of a properly-shaped key the projections on the bit 42 thereof will engage and force the tumblers 35 in the casing 21 upward until said pins have crossed the periphery or circumference or the barrel, at which time the said barrel may be turned until the respective sockets 41 are in line with the pins 36 of the set T′, at which time the three upper pins will be thrust into the sockets 41 by the springs 38, thereby locking the barrel 20 against further movement. When the three pins 36, however, are thrust out of the three upper sockets 41 by the introduction of the primary key K, the bolt B can be swung to a cycle-locking position, or until the pins 35 can be thrust into the corresponding sockets 41 in the cylinder 20.

It will be remembered that the set of tumblers T′ is composed of one more member than the set T and that the three upper tumblers 55 of the set T″ operate the set T, so that the bolt can be opened or closed. For the purpose of operating the secondary set of tumblers T′ a normally idle tumbler, as 45, is brought into play, this coöperating with the lowermost tumbler 46 of the series T′, Fig. 8, and being operated by the lowermost projection-bit 47 of the master-key K′ and being beyond the primary key K, as seen in Fig. 6, it therefore being evident that the tumbler-operating or effective portion of the master-key K′ is longer than that of the key K. The inner end of the lowermost tumbler 46 of the set T′ is disposed in the slot or channel 48, formed transversely in the barrel 20 and in line with the socket 49. By the formation of the said slot the catch faces or shoulders 50 and 51 are provided, the tumbler 45 being disposed in the path thereof to limit the movement of the barrel. The tumbler 46 is normally held in the slot 48 by the spring 52, as represented in Fig. 8, and it will be apparent that when said barrel is in either of its two normally extreme positions the shoulders 50 and 51 will be contiguous to said tumbler 46, which is the lowermost of the series T′. On the introduction of a key, such as K′, when the bolt B is in its secondary position, (illustrated in dotted lines in Fig. 3,) the lowermost projection of the key will strike the normally idle tumbler 45 and will force the same outward, and it being in engagement with the tumbler 46 the latter will be moved farther into its socket and out of the path of the shoulder 50, whereby the barrel 20 and bolt B can be turned to carry the extension 30 out of the notch 31, it being understood, of course, that the key K′ also serves to press the several upper pins 36 out of the sockets in said barrel. Therefore it will be apparent that my improved device includes a lock-barrel supported to have a working stroke comprising two successive stages of movement, tumblers on said lock-barrel, at least one of which is normally idle during the first stage of movement of the lock-barrel, and independent tumblers carried by the casing and controlling the operation of the tumblers of the lock-barrel, one of said tumblers on the casing being adapted to coöperate with said normally idle tumbler to permit the second stage of movement of the lock-barrel.

These cycle holding and locking devices may be mounted in series upon a support, and their owner can hire them to wheel-riders, and to prevent accidental or intentional exchange of wheels each cycler is given a check, as 60, having a distinguishing symbol corresponding with that on the device in which his cycle is locked, and to prevent the check 60 from being lost when the bolt or shackle B is in its open position means will be provided for positively securing the check in place when said bolt is open, as just pointed out. The check 60 is suspended from the fan-shaped extension 30 of the bolt, except, of course, when it is given into the possession of the cycler. The fan-shaped extension 30 is slotted near one corner thereof, as at 61, thereby producing a projection 62, upon which the check 60 can be hung, the latter being slotted, as at 63, and through said slot the projection 62 is inserted. The slot 61 is so located that when the bolt B is in its intermediate position, as represented by dotted lines in Fig. 3, the mouth of said slot will be opposite the solid portion of the pivot 13, so that the check cannot be removed, said pivot serving to close the mouth of said slot. When, however, the bolt is swung to its locked position, (illustrated by the full lines in Fig. 3,) the mouth of the slot will be carried clear of the pivot, so that the check can be unhooked.

It is essential in some cases to dispose the receiver R at an angle to its carrier C and the support A for the latter, and to hold said receiver in an adjusted position a dog or detent, as D, is illustrated, the same being supported for reciprocatory movement in the housing 70 upon the upper side of the screw-eye 3 and being held in working position by the coiled spring 71, fitting against the head

of the detent on the back side of the housing, said detent being adapted to enter the spaces of the series of teeth 72 upon the lug 14 of the receiver R. The spring is of such strength as to hold the receiver R in a bicycle-sustaining position, but is not sufficient to resist the hand adjustment of the receiver R.

To adjust the receiver, the extreme outer portion thereof can be grasped and turned, and to facilitate the disengagement of the detent from the receiver the teeth 72 have sloping surfaces (see Fig. 1) which serve when said receiver is turned in either direction to force the detent out of engagement therewith.

It is apparent that various changes may be made in my improved device by those skilled in the art without departing from the scope of the invention—for example, some other type of lock might be substituted for that illustrated—and it is not essential that the receiver should be supported for adjustment, as the part 13 might connect the receiver with the brackets 3 and 4 in such a manner as to prevent the receiver from turning, in which case the detent D would be dispensed with.

Having described my invention, I claim—

1. The combination, with a receiver, of means for securing the same upon a support, and a locker constructed to hold a cycle-wheel or similar object in said receiver, and also, when in certain positions, to maintain the latter and its securing means in assembled relation, and against removal, upon said support.

2. The combination, with a receiver, of a carrier for the receiver, provided with means for securing the same to a support; a connector between the receiver and its carrier; and a locker constructed to retain a cycle-wheel or similar object in said receiver, and also to prevent the withdrawal of the connector when said locker is in certain positions, and also to permit the removal of said connector when in another position.

3. The combination, with a receiver, of means for securing the same upon a support, said means including a pivot, and a bolt constructed to hold a device in the receiver and also to lock said pivot against removal.

4. The combination, with a receiver constructed to seat a cycle-wheel or similar object, of a carrier for said receiver, including two screws by which said carrier can be attached to a support; a connector between the receiver and its carrier; and a bolt constructed to lock said wheel in the receiver and also to secure the connector against removal when said bolt is in certain positions.

5. The combination, with a receiver, of carrying and attaching means for the receiver, including two screws, and means involving a locking-bolt for preventing the withdrawal of said screws when the locking-bolt is in certain positions, and for also locking an object in said receiver when in another position.

6. The combination, with a receiver, of a carrier for said receiver, including two separate brackets each of which is provided with a screw; a connector between the receiver and its carrier; and a bolt constructed to hold a device in the receiver and also to secure the connector against removal when said bolt is in certain positions.

7. The combination, with a socketed member, of means involving two screws by which to connect said socketed member to a support, and a bolt constructed to hold the two parts in assembled relation.

8. The combination, with a receiver for a cycle-wheel or similar object, of a carrier provided with means for attaching the same to a support; a notched pivot between the receiver and the carrier; and a locking-bolt a portion of which is located when said bolt is in certain positions in the notch in said connector.

9. The combination, with two separate brackets each provided with an eye and with a screw, of a receiver having corresponding eyes; a member passing through the several eyes and notched; and a locking-bolt mounted to coöperate with said parts and having a portion seated, when said bolt is in certain positions, in said notch.

10. The combination, with a plate having two holes adapted to fit against a support, of two brackets each provided with a screw adapted to pass through said holes and to be seated in the support; a receiver; a connector between the receiver and the said brackets; and a locking-bolt constructed to prevent the removal of said connector.

11. The combination, with two independent brackets provided with screws for attaching the same to a support, of a receiver; a connector for the receiver and the brackets; and a locking-bolt constructed to lock said connector in place when the bolt is in certain positions.

12. The combination, with two separate brackets each provided with a screw, of a receiver; a connector for the receiver and brackets; and a bolt supported for swinging movement by the receiver and constructed, when said bolt is in certain positions, to prevent the withdrawal of the connector.

13. The combination, in a lock, with a barrel and its casing, of two independent series of tumblers on one of said lock parts, and a series of tumblers upon the other lock part corresponding with one, but not with the other, of said two first-mentioned series.

14. The combination, in a lock, with a barrel and its casing, of two independent series of tumblers on one of said lock parts, and a series of tumblers upon the other lock part equal in number to one, but different from that of the other, of said two first-mentioned series.

15. The combination, in a lock, with a barrel having a catch-face, of a casing carrying two independent series of tumblers at least

one tumbler in one of the series being disposed in the path of said catch-face, and means for operating said tumblers.

16. The combination, in a lock, with a barrel having a catch-face, of a casing carrying two independent series of tumblers at least one tumbler in one of the series being disposed in the path of said catch-face, and means upon the barrel for operating said series of tumblers.

17. The combination, in a lock, with a barrel having a catch-face, of a casing carrying two independent series of tumblers at least one tumbler in one of the series being disposed in the path of said catch-face, and a series of tumblers upon the barrel, corresponding in number with one, but not with the other, of said two first-mentioned series.

18. The combination, in a lock, with a barrel having an transverse slot, of a casing carrying two independent series of tumblers at least one tumbler in one of the series being disposed in said slot.

19. The combination, in a lock, with a barrel and its casing, of two independent series of tumblers on one of said lock parts; a series of tumblers upon the other lock part, corresponding with one, but not with the other, of said two first-mentioned series; and two independent keys, one of which is constructed to operate certain of the tumblers of said barrel, and the other of which is adapted to operate all of the tumblers on said barrel.

20. The combination, with a receiver, of means for securing the same upon a support; a bolt constructed to hold a device in the receiver and also to maintain said receiver and its securing means in assembled relation upon a support; and a lock for the bolt, said lock involving a barrel and a casing, one of said lock parts being provided with two independent series of tumblers, and the other lock part being provided with a series of tumblers corresponding with one, but not with the other, of said two first-mentioned series.

21. The combination, with a receiver, of means for securing the same to a support, and a locker mounted relatively to said parts and constructed to hold a cycle-wheel in said receiver, and also to maintain the latter and its securing means in assembled relation upon a support, and mounted for movement in two distinct stages, at the end of one of which it is adapted to release said cycle-wheel or other part, and at the end of the other to permit the release of the receiver and its securing means.

22. The combination, with a lock-barrel and its casing, said lock-barrel being supported to have a working stroke comprising two distinct successive stages of movement, of tumblers on said lock-barrel, at least one of which is normally idle during the first stage of movement of the lock-barrel, and independent tumblers carried by the casing and controlling the operation of the tumblers of the lock-barrel, one of said tumblers on the casing being adapted to coöperate with said normally idle tumbler to permit the second stage of movement of the lock-barrel.

23. In a device of the class specified, the combination, with a receiver and with means for securing the same to a support, the receiver being constructed to seat a cycle-wheel or other object, of a locking-bolt mounted to coöperate with the receiver and constructed when in one position to lock a cycle in the receiver against removal, and when in another position to lock a check in place.

24. In a device of the class specified, the combination, with a receiver and with means for securing the same to a support, of a locking member coöperative with the receiver and having a slotted rearward extension, the slot producing a projection upon which a check can be suspended; and means located to maintain the locking member in position with the mouth of said slot opposite the solid portion of the device.

25. The combination, with a socketed member having a series of teeth, of a carrier; a pivot between said parts; and a spring-actuated locking-bolt upon the carrier, adapted to enter the space between two teeth on the receiver to hold the latter in its fixed position.

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