

[54] COMBINATION CABLE LOCK
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2,933,915 4/1960 Gossner 70/49
 3,611,760 10/1971 Muther 70/18
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 E05B 67/06; E05B 73/00

[58] Field of Search 70/18, 30, 49, 76, 233;
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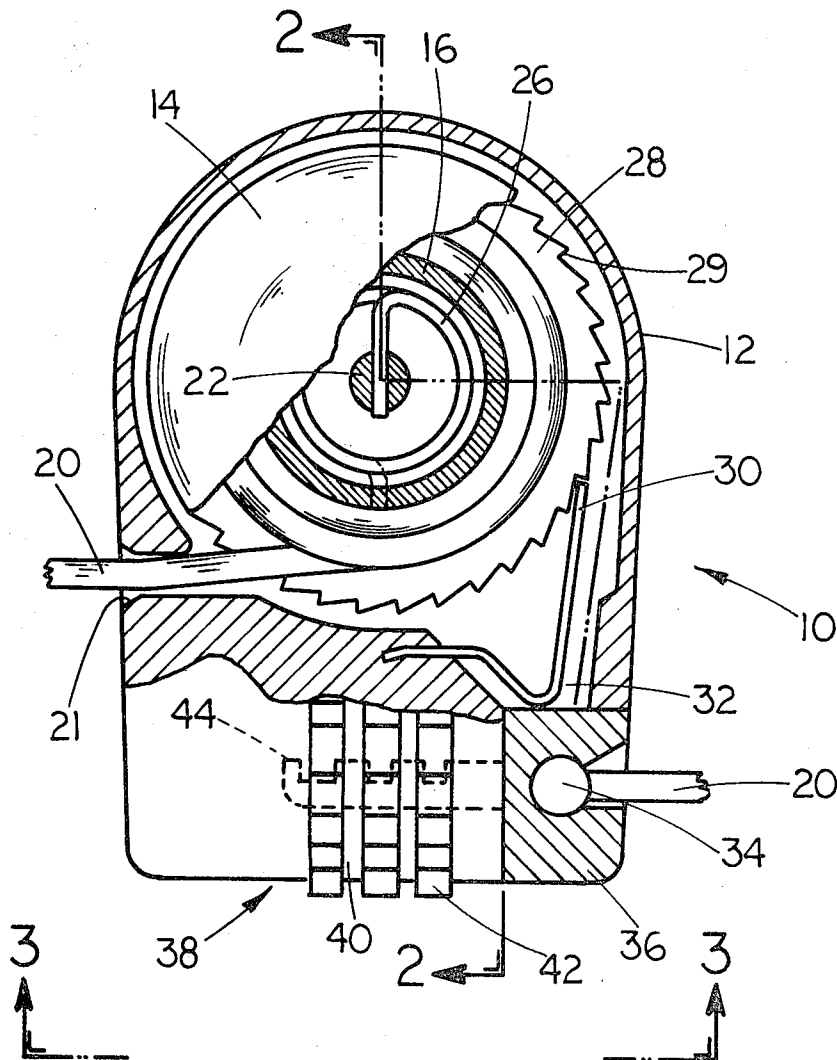
[57] **ABSTRACT**

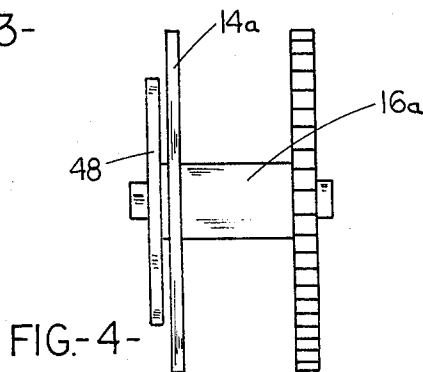
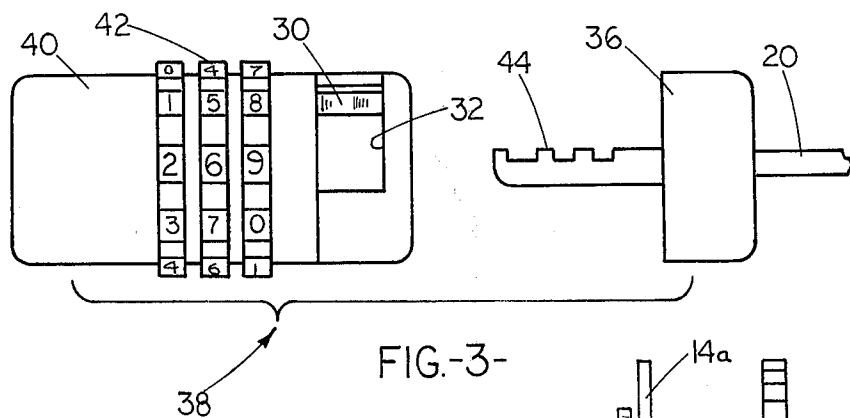
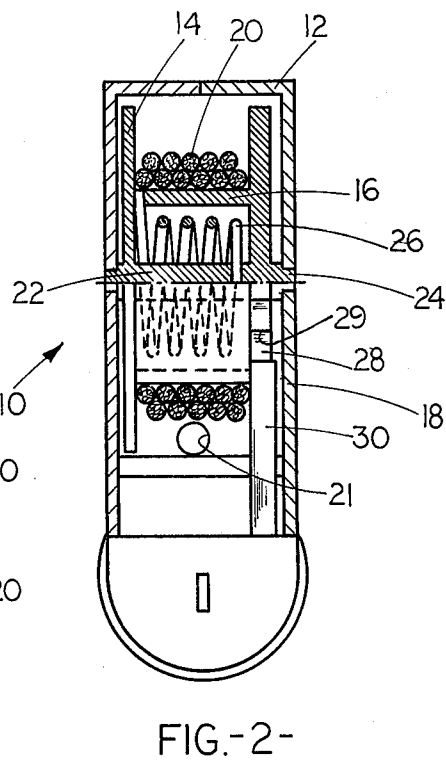
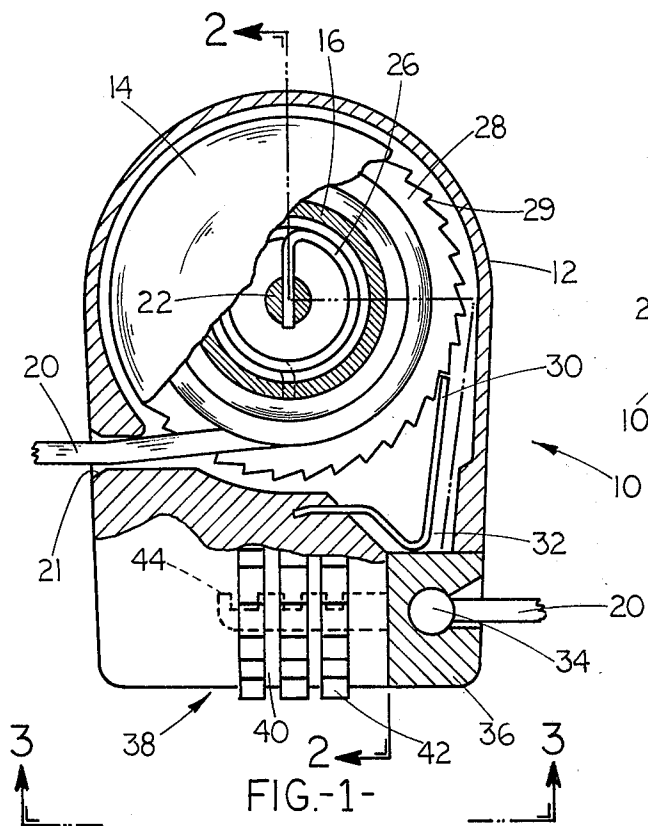
Disclosed is a cable wound onto a reel, with one component of a separable combination lock device on the end thereof, the other component being carried on the reel housing. A ratchet wheel is secured to the reel, and a pawl is normally biased out of engagement with the ratchet to extend through an opening in the housing. When the lock components are engaged, the pawl is forced into engagement with the ratchet wheel whereby the cable may not be extended further.

[56] **References Cited**
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5 Claims, 4 Drawing Figures





COMBINATION CABLE LOCK

BACKGROUND OF THE INVENTION

Many items of personal property, such as bicycles, skis and the like are necessarily left unattended at times and are subject to theft. Because of the vast numbers of many such items, they are, when stolen, extremely difficult to trace. Accordingly, when such articles are left unattended, it is highly desirable to make the theft thereof difficult if not impossible. In the case of bicycles, it has been found desirable to carry a chain with locking means to secure the bicycle to a post or other convenient stationary member. Such chains and lock may be carried on some part of the bicycle when not in use. However if used for the protection of other articles, such as skis, it is necessary to carry the chain and lock on the person while the skier is on the slopes. Accordingly, it is desirable to have some locking device which is more conveniently carried. A flexible shackle lock shown in U.S. Pat. No. 2,933,915 has, to some extent, proved advantageous but the insertion and removal of a key are essential steps in the operation of the device and the loss or unavailability of the key can, of course, render the locking device useless.

OBJECTS OF THE INVENTION

It is an object of this invention to provide a locking device which may be conveniently carried and which is operative to lock articles of personal property to stationary members.

It is a further object of this invention to provide a lock for securing articles of personal property without requiring the use of a key.

It is a further object of this invention to provide a locking device including a cable which can be wrapped around an article of personal property to hold it snugly in place against a stationary member, and which cannot be extended.

Other objects and advantages of this invention will become apparent from the description to follow when read in conjunction with the accompanying drawing.

SUMMARY OF THIS INVENTION

In carrying out this invention, there is provided a case or housing in which a reel is rotatably mounted. A cable is wound on the reel and extends from the reel through an opening in the housing. A ratchet wheel is secured to the reel and, when engaged by a complementary pawl, it is free to rotate in one direction only, to wind the cable further onto the reel, retracting the cable into the housing under a spring force. One component of a separable combination lock is carried on the housing and the second component is carried on the end of the cable. Normally, the pawl is spring-biased away from the ratchet so that a portion thereof extends through an opening in the housing adjacent to the lock component thereon. However, when the other lock component is inserted into place it engages the pawl and biases it into engagement with the ratchet whereby further extension of the cable is impossible. The reel is spring-biased in a cable-retracting direction whereby release of the cable, after the lock is placed, will retract the cable firmly around the article of personal property being secured.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a section view of a combination operated cable lock embodying features of this invention;

FIG. 2 is a section view taken along line 2—2 of FIG. 1;

FIG. 3 is an exploded bottom view taken along line 3—3 of FIG. 1; and

FIG. 4 is an elevation view of another embodiment of this invention.

DESCRIPTION OF A PREFERRED EMBODIMENT

The Embodiments of FIGS. 1 to 3

Referring now to FIGS. 1 and 2 with greater particularity, the cable lock 10 of this invention comprises a housing 12 in which a cable reel 14 is rotatably mounted. On the drum 16 of the reel 14 is wound a cable 20 of steel or the like which extends out through an opening 21 in the housing 12. The reel 14 may be rotatably carried on a stationary shaft 22 which is secured in place against rotation by extending squared ends 24 thereof into complementary openings in the walls 18 of the housing 12. Suitable means such as a coil spring 26 extending between the shaft 22, or other stationary member, and the reel 14 tends to bias the reel rotatably in a direction to wind the cable 20 more fully onto the reel drum 16 and, hence, to retract the cable into the housing 12.

As shown, one side 28 of the reel 14 is formed as a ratchet wheel having teeth 29 thereon which are engageable by a spring pawl 30 which, in its normal condition, is biased to extend through an opening 32 in the bottom of the housing 12 and free of the teeth 29 on the ratchet wheel 28.

On the end of the cable 20 there is preferably provided a swivel device, such as a ball and socket joint 34 supporting the male component 36 of a conventional, separable combination lock 38 of the type found on certain bicycle chain locks. In such locks, the male member 36 is held in place within the female member 40 by turning numbered dials 42 out of a predetermined, unlocked position. It is only when the dials are turned to free lugs 44 on the male component 36, that it may be removed from the female component lock. When the male component 36 is inserted into the lock 36, it engages under the spring pawl 33 and biases it upward into engagement with the teeth 29 of the ratchet wheel 28. Hence, as long as the male component 36 is so engaged, the ratchet wheel may be rotated only in the counterclockwise direction in FIG. 1 to wind the cable 20 more fully onto the reel drum 19.

In operation, the lock dials 42 are turned to their open combination positions and the male component 36 is removed from the female component 40 of the lock. Then, the cable 20 is extended and wrapped around both the article of personal property such as a pair of skis, a bicycle or the like, and a fixed pole or other stationary member to which the personal property is to be locked. Then, the lock 38 is again engaged and the cable is allowed to retract under force of the coil spring 26 until the item of personal property and the stationary member are snugly embraced. The swivel connection 20 permits rotation of the lock component 36 on the cable to facilitate mating with the female component 40. As previously described, engagement of the lock components will result in engagement of the pawl with the teeth of the ratchet to prevent extension of the cable until such time as the male component of the lock is again removed. When the combina-

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tion dials 42 are rotated away from their open combination positions, the article of personal property is relatively secure against theft.

In the embodiment of FIG. 4, the coil spring 26 is replaced by a tension spring 48 which may be secured between the reel 14a and some stationary part of the housing 12. Preferably, the spring 48 is carried on the side of the reel 14a away from the ratchet wheel so as to insure that there will be no interference with the pawl member 30. An advantage of the structure of FIG. 4 is that it enables the diameter of the reel drum 16a to be minimized whereby the length and/or diameter of the cable 20 may be maximized without increasing the size of the housing.

While this invention has been described in conjunction with preferred embodiments thereof, it is obvious that modifications and changes therein may be made by those skilled in the art without departing from the spirit and scope of this invention.

What is claimed as invention is:

- 1. A cable lock comprising:
 - a housing;
 - a reel rotatably carried in said housing;
 - a ratchet wheel coaxially carried on said reel;
 - a cable wound on said reel and extending outside of said housing;
 - a first component of a separable combination lock device on the end of said cable;

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the complementary component of said separable lock device being carried on the housing;

a pawl on said housing engagable with said ratchet wheel to enable rotation thereof only in the direction to retract said cable into said housing;

means normally biasing said pawl out of engagement with said ratchet wheel to extend through an opening in said housing adjacent to said complementary lock component;

said pawl being engagable through said opening by said first said lock component when it is operatively engaged with said complementary component to hold said pawl against the teeth of said ratchet wheel.

2. The cable lock defined by claim 1 including: spring means biasing said reel toward said unidirectional rotation.

3. The cable lock defined by claim 2 wherein: said spring means comprises a coil spring connected between said reel and said housing.

4. The cable lock defined by claim 1 including: a swivel connection between said cable and said first lock component.

5. The cable lock defined by claim 4 wherein said swivel connection enables: complete rotation of said first lock component about said cable.

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