Jan. 6, 1948. W. E. PALMER 2,434,009

SAFETY DEVICE

Filed Feb. 23, 1946 2 Sheets-Sheet 1

Fig. 1

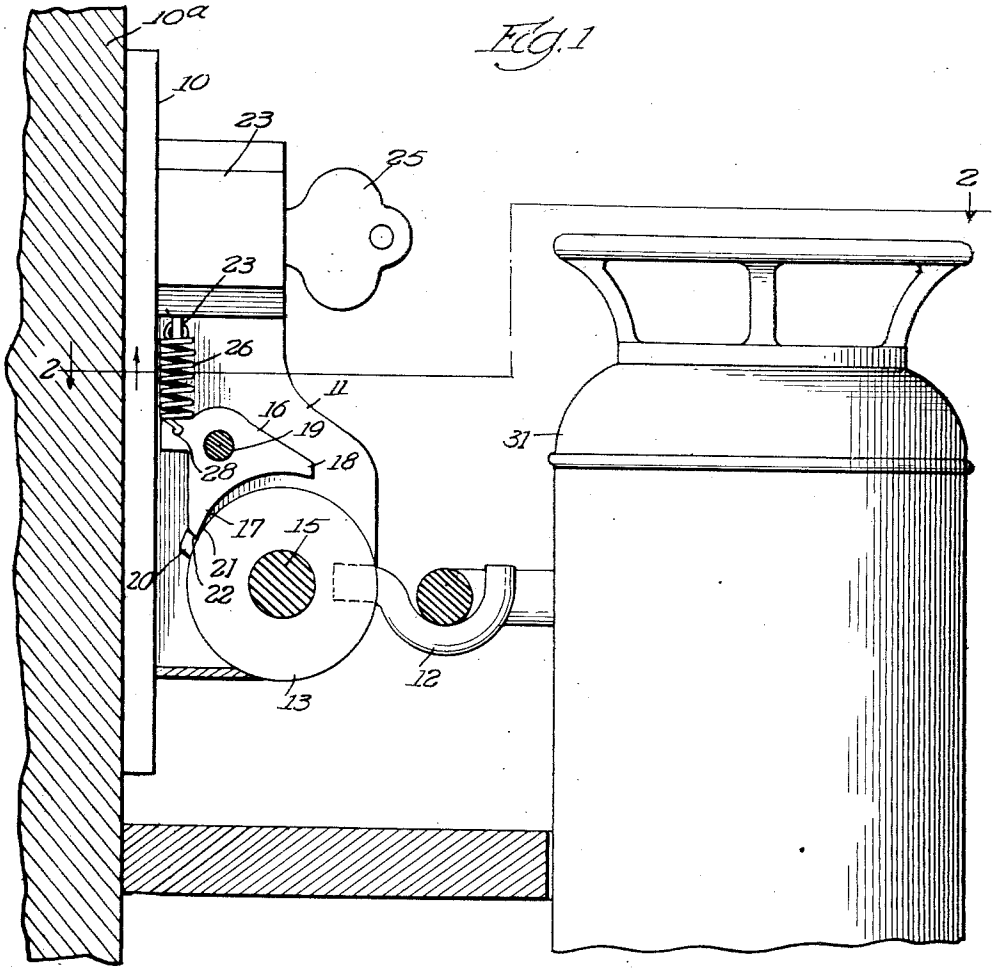

Fig. 2

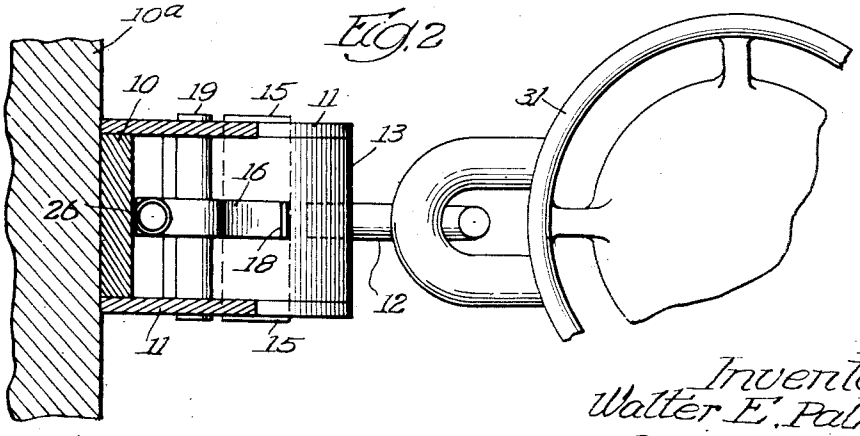

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Fig. 3

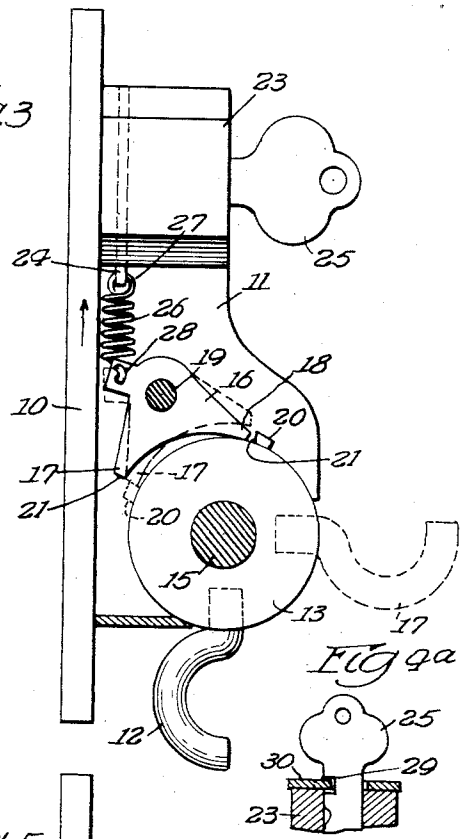


Fig. 4

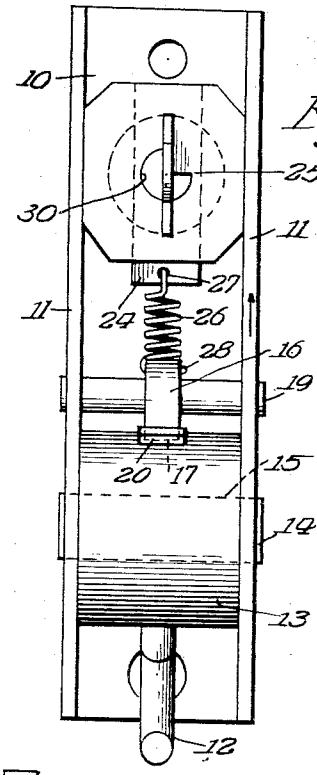


Fig. 4a

Fig. 5

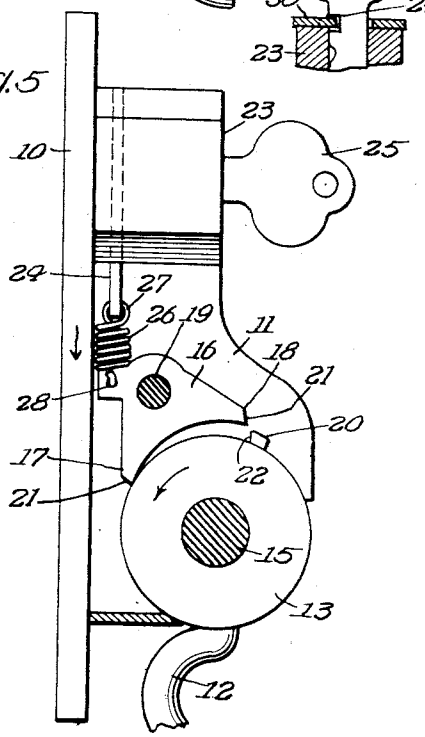
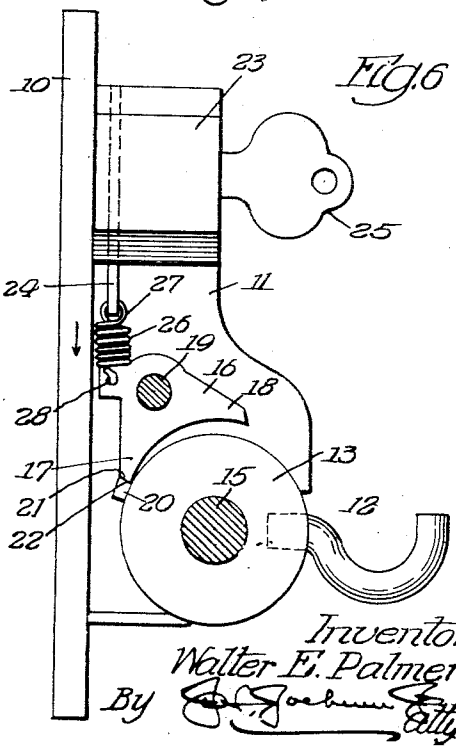


Fig. 6



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Patented Jan. 6, 1948

2,434,009

UNITED STATES PATENT OFFICE

2,434,009

SAFETY DEVICE

Walter E. Palmer, Cicero, Ill.

Application February 23, 1946, Serial No. 649,624

22 Claims. (Cl. 248—203)

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This invention relates to improvements in safety devices embodying a support, preferably in the form of a hook, arm or bracket, particularly adapted, though not necessarily limited in its use, for receiving and suspending fire extinguishers, which are generally in the form of a tank, and one of the objects of the invention is to provide an improved device of this character, which will indicate when the extinguisher has been unauthorizedly taken from the support.

Another object is to provide an improved device of this character, embodying improved means for locking the support in position to hold the supported object, and improved means operating, when the object is removed from the support, to render the support inactive, and for preventing the support from being rendered active after the object is removed, thereby rendering it impossible for the object to be placed back upon the support without the use of a proper key or lock-controlling element.

A further object is to provide an improved device of this character, which will be of a simple and durable construction, and effective and efficient in operation, and in connection with the use of which the ready and quick removal of the object, in case of emergency, will not be interfered with, and which will not require the use of any unlocking means or key, but which will, however, necessitate the use of a special unlocking means to permit the replacement of the object after it has once been removed from the support.

A still further object is to provide improved means for retaining the locking key against removal until the device has been properly set, and the object placed in proper position with relation thereto.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention, in which

Fig. 1 is a view in side elevation, partly in section and with parts removed, of a device of this character, constructed in accordance with the principles of this invention.

Fig. 2 is a sectional view taken on line 2—2, Fig. 1.

Fig. 3 is a view similar to Fig. 1, with parts in section, parts omitted, and showing the parts in a released position.

Fig. 4 is a right-hand end elevation of Fig. 3.

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Fig. 4ª is a detail sectional view showing the key retaining means.

Fig. 5 is a view similar to Fig. 3, with some of the parts in another position.

Fig. 6 is a view similar to Fig. 5, with the parts in a locking position, ready to receive the article upon the support.

The safety device consists essentially of a main supporting frame or base 10, that is adapted to be mounted upon a suitable support or upright 10ª, and preferably embodies spaced side members 11, between which the mechanism is disposed. The base and side members may be of any suitable or desired size and configuration, and constructed of any suitable material such as metal. An arm or support 12, of suitable configuration, is provided with an enlarged or hub portion 13, having trunnions 14 projecting from the lateral faces thereof. The trunnions may be formed by the ends of a shaft 15, that passes through the enlarged portion 13, and these parts are secured together to form a pivot for the arm or support 12. The trunnions 14 are journaled in the spaced members 11, for free rotation with respect thereto.

A dog or catch 16, having spaced noses 17–18, is pivotally supported, as at 19, for co-operation with a shoulder or projection 20, that is carried by, and projects beyond the periphery of the part 13. The face 21 of the nose 17, and the face 22 of the projection or shoulder 20, are beveled or inclined, for a purpose to be later set forth.

Mounted upon the frame or base 10, in any suitable manner, is a lock 23, which may be of any suitable type or construction, provided it has as a part thereof, a sliding member 24, that is operated by mechanism controlled by a key 25. The lock 23 is spaced a suitable distance from the dog or catch 16, so that a resilient element or spring 26 may be interposed between the slide 27 and the catch 16, one end of the element being connected to the slide, as at 27, and the other end being connected to the dog or catch, as at 28. The point of connection of the resilient element 26 with the dog or catch 16 is such that it will, under predetermined conditions, tend to swing the latter in two diffeernt directions about its pivot 19.

The direction of movement of the catch is controlled by the resilient element 26, and this element is of a nature and construction that, under predetermined conditions, it will operate to pull the catch in one direction about its pivot and, under other predetermined conditions, it will operate to push the catch in the opposite direc-

tion about its pivot. That is, the element 26 may be converted from a pulling element to a pushing element with respect to the catch, and vice versa, by the operation or positioning of the slide 24 with the key 25.

The barrel of the lock 23, and the key 25, are so constructed and co-operate with each other in such a manner, that the key cannot be removed from the lock until the parts are in predetermined positions with relation to each other. That is, the key 25 is provided with a groove or recess 29, into which a flange 30 on the barrel of the lock projects, the flange having a slot (not shown), so that the key can be withdrawn from, or inserted into the lock, only when the parts are in predetermined relative positions.

In operation, and assuming the parts to be in the position shown in Fig. 6, the resilient element 26 is acting as an element pushing in the direction of the arrow, Figs. 5 and 6, to lock the arm or support 12 in an active position to receive and hold the article 31. That is, the resilient element 26 is operating to push and hold the nose 17 of the catch against the projection or shoulder 20, and the key 25 cannot be removed. After the article is placed upon the support 12, the key 25 is operated to retract the slide 27, thereby converting the resilient element 26 from a pushing element, as shown in Figs. 5 and 6, so that it will pull in the direction of the arrow in Figs. 1 and 3. This operation will be permitted because the weight of the article upon the support 12 will hold the shoulder or projection 20 firmly against the nose 17, and this, together with the shape of the contacting faces of the nose and shoulder, will overcome the pulling stress of the element 26. The key can then be removed, as the device will be in a set, locked condition. Immediately after the article 31 is raised to remove it from the support 12, the pulling stress of the element 26 will prevail, and the catch 16 will be swung about its pivot 19, from the position shown in Fig. 1, and in dotted lines in Fig. 3, to the position shown in full lines in Fig. 3, thereby permitting the support 12 to move or drop, by its own weight, to the position shown in Figs. 3 and 5.

The shoulder or projection 20 will, when thus released, and during this dropping movement, pass the nose 18 of the catch 16 (Fig. 3), and this nose 18 will, under the stress of the pulling action of the resilient element 26, assume a position in the path of movement of the shoulder or projection 20, on an upward or return movement of the support 12, and thereby prevent the return of the support. Thus, when the article is once removed from the support 12, it cannot be replaced until the catch 16 has been moved back to the position shown in Fig. 1. Such movement of the support cannot be accomplished until the catch 16 is released and reset by converting the element from a pulling element back to a pushing element, so that the shoulder 20 can pass the nose 18 of the catch. This is accomplished by operating the key 25, to project the slide 24, regardless of the position of the support 12. If the support 12 is in the position shown in Fig. 5, and the key 25 is operated to cause the element to act as a pushing element, the nose 17 of the catch will be in the path of return movement of the shoulder or projection 20, and when the projection strikes the nose 17, the latter will yield to permit the projection 20 to pass, so that the parts will automatically assume the relative positions as shown in Fig. 6.

If, however, the parts are in the position shown in Fig. 1, which is possible by raising the support 12 and holding it elevated, the resilient element may still be converted into a pushing element by actuating the key, as the contact of the shoulder 20 with the nose 17 will permit of such operation, after which the key can be removed. The key 25 cannot be removed from the lock until the resilient element and the parts of the device are set in the relative positions as shown in Fig. 1.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction, and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:

1. A safety device of the character described, embodying a shiftable article holder, a catch co-operating with the holder for maintaining it in an active and also in an inactive position, and means controllable at will for selectively moving the catch to either of two active positions with respect to the support, the said means operating automatically when the article is removed from the holder, to permit said support to freely assume an inactive position so that it will not hold an article and to maintain the catch in a position to lock the holder against return movement.

2. A safety device of the character described, embodying a shiftable article holder, a catch co-operating with the holder for maintaining it in an active or inactive position, means controllable at will for selectively moving the catch into either of two active positions with respect to the holder, the said means operating automatically when the article is removed from the holder, to permit said support to freely assume an inactive position so that it will not hold an article, and means with which said catch co-operates for maintaining the support against return movement.

3. A safety device of the character described, embodying a shiftable article holder, a catch co-operating with the holder for maintaining it in an active position, and means controllable at will for moving the catch into two active positions with respect to the support, the said means operating automatically when the article is removed from the holder, whereby to permit said support to freely assume an inactive position so that it will not hold an article, the said means embodying means operating alternately directly upon said catch, to move it in two opposite directions.

4. A safety device of the character described, embodying a shiftably mounted article holder, a catch, resilient means for moving the catch about its pivot into a position to lock the holder in an operative position, means for controlling said resilient element to cause it to selectively move the catch in either of two directions about its pivot, and means with which said catch co-operates when moved in one direction to lock the holder in an operative position when an article is held by the holder, the said resilient element operating to move the catch in another direction to release the holder upon removal of the article from the holder, and to maintain the holder in an inactive condition.

5. A safety device of the character described, embodying a shiftably mounted article holder, a shiftable catch having two locking positions with respect to the holder, means for moving said catch into one position to lock the holder in an active position to hold an article, the said means adapt-

ed to be set while the catch is active, whereby when the article is removed from the holder, the catch will be rendered inactive to render the holder inactive, and will be moved into a position to lock the holder against return movement.

6. A safety device of the character described, embodying a shiftable article holder, locking means for the holder, said locking means being operable in two different directions, to lock the holder in either an active or an inactive position with respect to the holder, one of said directions operating to maintain the holder in condition to hold an article and to become inactive by the removal of the article from the holder, whereby said holder will assume a condition that it will not hold an article, and means for changing the direction of operation of the said locking means, to lock the holder in an inoperative position.

7. A safety device of the character described, embodying a shiftable article holder, means operable in two different directions for selectively locking the holder in two different positions, one in an article holding position and the other out of such position, means influenced by the removal of the article from the holder for controlling the first said means, and key-controlled means for controlling the second said means for selectively causing the said holder to be locked in either of its positions.

8. A safety device of the character described, embodying a shiftably mounted article holder, a pivotally mounted catch for maintaining the holder in an active position to hold an article, means for moving the catch to an active position with respect to the holder, and means for converting the first said means, while the catch is in an active position, into a condition that, when the article is removed from the holder, the catch will be shifted into an inactive position, whereby the said holder will shift to an inactive position, and to position the catch to lock the holder against return movement.

9. A safety device of the character described, embodying a shiftably mounted article holder, a catch shiftable in two different active directions, one to maintain the holder in an active position to hold an article, means embodying a resilient element for thus shifting the catch in both directions, and means for conditioning said resilient element, while it is maintaining the holder in an active position, so that when the article is removed from the holder, said element will operate to shift the catch into the other direction, whereby to permit the said holder to shift into an inactive position, and to lock the holder in such inactive position.

10. A safety device of the character described, embodying a shiftably mounted article holder, a shiftable catch for locking the holder in two different positions, one of said positions being an active position to hold an article, means embodying a resilient element for thus shifting the catch in one direction, and key controlled means for conditioning said resilient element, while the catch is maintaining the holder in an active position, so that when the article is removed from the holder, said element will operate to shift the catch into an inactive position from its said locking position, whereby to permit the said holder to shift into an inactive position, and to position the catch to lock the holder in its inactive position.

11. A safety device of the character described, embodying a freely shiftable article holder, a shiftable catch co-operating with the holder to lock the latter in an active position to hold an article, a shiftable member, a resilient element connecting said shiftable member with said catch, and means for shifting said member, the movement of said member in one direction with respect to said catch operating to cause said resilient element to move the catch in a direction to lock said holder, and the movement of said member in another direction operating to condition said resilient element to move the catch in another direction to unlock said holder when the article is removed from the holder.

12. A safety device of the character described, embodying a freely shiftable article holder, a shiftable catch co-operating with the holder to lock the latter in an active position to hold an article, a shiftable member, a resilient element connecting said shiftable member with said catch, and means for shifting said member, the movement of said member in one direction with respect to said catch operating to cause said resilient element to move the catch in a direction to lock said holder, and the movement of said member in another direction and while the catch is in a position to lock the holder for holding the article, operating to condition said resilient element to move the catch in another direction to unlock said holder when the article is removed from the holder.

13. A safety device of the character described, embodying a shiftably mounted article holder, a shiftably mounted catch co-operating with the holder to maintain it in a position to hold an article, a shiftable member, a resilient element forming a connection between said member and said catch, and means for shifting said member in one direction, to cause said resilient element to operate under contraction to move the catch in one direction, and under expansion to move the catch in another direction.

14. A safety device of the character described, embodying a shiftably mounted article holder, a shiftably mounted catch co-operating with the holder to maintain it in a position to hold an article, a shiftable member, a resilient element forming a connection between said member and said catch, and key controlled operating means for shifting said member in one direction, to cause said resilient element to operate under contraction to move the catch in one direction, and under expansion to move the catch in another direction.

15. A safety device of the character described, embodying a pivotally mounted article holder, a pivotally mounted catch co-operating with the holder for locking it in a position to hold an article, means embodying a shiftably mounted control member, a spring connection between said member and said catch, and means for actuating said control member, the movement of said control member in one direction operating to condition the spring to move the catch into a position to lock the holder against movement about its pivot, and the movement of the control member in another direction, and while the catch is in locking position with respect to the holder, operating to condition the spring to move the catch into an inactive position with respect to the holder, whereby when the article is removed from the holder, the said holder will drop into, and remain in a position that it will not hold an article.

16. A safety device of the character described, embodying a pivotally mounted article holder, a pivotally mounted catch co-operating with said

holder to lock the latter in a position to receive and hold an article, the weight of the article assisting to maintain the catch in locking relation with respect to said holder, a spring for moving the catch into an active position, and a shiftably mounted control member, said control member being operable to expand said spring to cause the catch to assume a locking position with respect to the said holder and, while the catch is thus locking the holder, to compress the spring, causing it, when the article is removed from the holder, to move the catch out of locking, and into unlocking relation with respect to the holder, whereby the holder will drop or move into a position in which it will not hold an article.

17. A safety device of the character described, embodying a pivotally mounted article holder, a pivotally mounted catch co-operating with said holder to lock the latter in a position to receive and hold an article, the weight of the article assisting to maintain the catch in locking relation with respect to said holder, a spring for moving the catch into an active position, a shiftably mounted control member, said control member being operable to expand said spring to cause the catch to assume a locking position with respect to the said holder and, while the catch is thus locking the holder, to compress the spring, causing it, when the article is removed from the holder, to move the catch out of locking, and into unlocking relation with respect to the holder, whereby the holder will drop or move into a position in which it will not hold an article, key actuated means for controlling the movement of said control member, and means maintaining the key against removal until the parts have assumed predetermined relative positions.

18. A safety device of the character described, embodying a shiftably mounted article holder, a pivotally mounted catch means on said holder with which one portion of the catch co-operates to lock the holder in an active position, and with which means another portion of the catch co-operates to restrain the holder from moving back, when released, into an active position, a control member, a resilient element connecting said control member and said catch, and means for actuating said control member to vary the action of said resilient element, whereby said element may be conditioned to act as a pushing or a pulling element.

19. A safety device of the character described, embodying a shiftably mounted article holder, a shiftable catch having spaced active portions, means on said holder with which one of said portions of the catch co-operates to lock the holder in an active position, and with which means the other of said portions of the catch co-operates to restrain the holder from moving back into an active position when released, a control member, a resilient element connecting said control member and said catch, and key controlled mechanism for actuating said control member to vary the action of said resilient element, whereby said element may be conditioned to act as a pushing or a pulling element.

20. A safety device embodying an article holder freely shiftable into an active and an inactive position, a pivotally mounted catch having spaced locking portions, means on said holder with which said portions of the catch co-operate, one to lock the holder in an active position and the other to lock the holder against return from an inactive position, means for shifting the catch about its pivot into one or the other of its positions with respect to the holder, and means for controlling the last said means to selectively position the catch.

21. A safety device embodying an article holder freely shiftable into an active and an inactive position, a pivotally mounted catch having spaced locking portions, means on said holder with which said portions of the catch co-operate, one to lock the holder in an active position and the other to lock the holder against return from an inactive position, means for shifting the catch about its pivot into one or the other of its positions with respect to the holder, means for controlling the last said means to selectively position the catch, the second recited means embodying a resilient element, and means for controlling said element at will, whereby to determine the direction of movement of said catch about its pivot.

22. A safety device embodying an article holder freely shiftable into an active and an inactive position, a pivotally mounted catch having spaced locking portions, means on said holder with which said portions of the catch co-operate, one to lock the holder in an active position and the other to lock the holder against return from an inactive position, means for shifting the catch about its pivot into one or the other of its positions with respect to the holder, means for controlling the last said means to selectively position the catch, the second recited means embodying a resilient element operable upon said catch to push the catch about its pivot in one direction or pull it about its pivot in the opposite direction, and means for conditioning at will, said resilient element, to selectively cause the same to operate to push or pull the said catch about its pivot.

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