Aug. 3, 1943. J. W. SAMZELIUS 2,326,069

CABINET LATCH

Filed Nov. 26, 1941

Fig. 1.

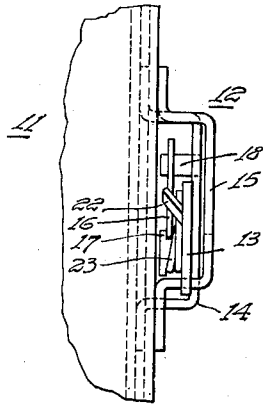


Fig. 2.

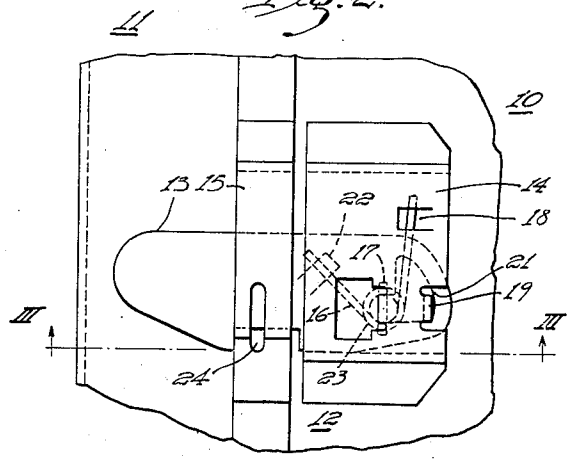


Fig. 3.

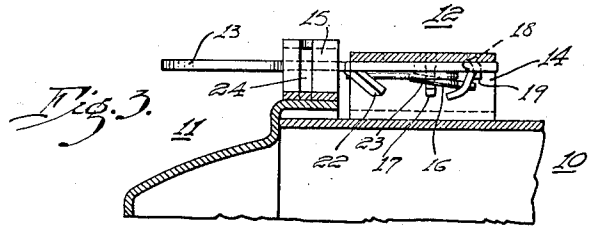
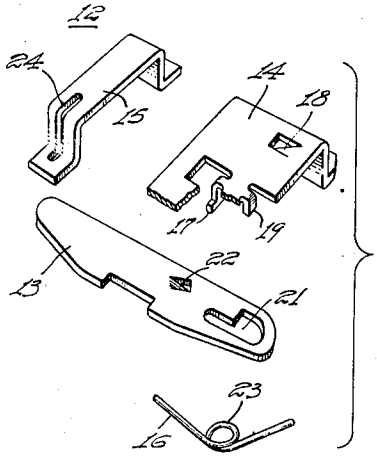


Fig. 4.



WITNESSES:

E. C. Kiding.

M. E. Chilcott

INVENTOR

John W. Samzelius.

BY

Crawford

ATTORNEY

Patented Aug. 3, 1943 2,326,069

UNITED STATES PATENT OFFICE

2,326,069

CABINET LATCH

John W. Samzelius, Forest Hills, Pa., assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania

Application November 26, 1941, Serial No. 420,518

5 Claims. (Cl. 292—128)

My invention relates, generally, to cabinets or boxes and, more particularly, to safety latches for the covers of boxes suitable for enclosing safety switches or motor starting switches and the like.

The safety latches for switch cabinets with which I am familiar require some machining operations, such as riveting or the like, in the assembly of the latch on the cabinet. Such operations are not only expensive but are almost impossible to perform without damaging the paint finish on the cabinet which is applied prior to the assembly of the latch and switch mechanisms.

An object of my invention, generally stated, is to provide a latch for the cover of an enclosing cabinet which shall be simple and reliable in operation and which may be economically manufactured and installed.

A more specific object of my invention is to provide a latch which may be readily assembled on a cabinet.

Another object of my invention is to provide a latch which may be adjusted to secure the cover tightly in position on the cabinet.

Other objects of my invention will be explained fully hereinafter or will be apparent to those skilled in the art.

According to one embodiment of my invention the catch portion of a latch is supported by tongues lanced out of the cabinet by a single operation. The catch is retained on the tongues by a spring which also biases the catch against the cover.

For a fuller understanding of the nature and objects of my invention, reference may be had to the following detailed description, taken in conjunction with the accompanying drawing in which:

Figure 1 is a view, in front elevation, of a portion of a switch cabinet having a latch constructed in accordance with my invention;

Fig. 2 is a view, in side elevation, of the latch and a portion of the cabinet;

Fig. 3 is a view, in section, taken along the line III—III of Fig. 2; and

Fig. 4 is an exploded view, in perspective, of parts of the latch mechanism.

Referring to the drawing, the structure shown therein comprises a cabinet 10, only a portion of which is shown, and a cover 11, a portion of which is shown, which may be hinged to the cabinet at one side in order that the cover may be opened to provide access to the interior of the cabinet. The cabinet 10 and cover 11 are preferably formed from sheet steel and are of the type utilized for enclosing electric switches or other electrical devices.

In order that the cover may be secured in the closed position of the cabinet, a latch mechanism 12 is provided. In general, the latch mechanism 12 comprises a catch 13 pivotally mounted on a support 14 secured to the one side of the cabinet, a strap 15 secured to the cover for engagement by the catch 13 and a spring 16 for biasing the catch into engagement with the strap 15.

As shown, the support 14 is of a rectangular U-shape and may be spot welded onto the cabinet before the paint finish is applied. The support 14 may be made in one operation on a punch press and has three lanced out tongues 17, 18 and 19 which are bent inwardly from the bottom of the U. The tongue 17 is preferably shaped in the form of the letter T and serves as the fulcrum for the catch 13. The projecting tongue 18 serves as the anchor for one end of the spring 16 and the tongue 19 prevents the catch 13 from sliding up and down on the fulcrum 17 and is disposed in an opening 21 which admits the catch over the fulcrum 17.

The catch 13 also has a projection 22 similar to the projection 18 for anchoring the other end of the spring 16. The strap 15 is also of a rectangular U-shape and may be spot-welded to the cover 11 or secured thereto in any other suitable manner.

The latch may be assembled by inserting the catch 13 from the top over the T-shaped fulcrum 17. The lower portion of the opening 21 is sufficiently large to permit the wide portion of the T-shaped fulcrum 17 to pass through the opening 21. The catch is then lowered to a position in which the bottom of the opening 21 engages the projection 19 and the T-shaped fulcrum passes into the narrow portion of the opening 21. In this position the catch 13 lies flatly against the support 14 and exposes the maximum length of the T-shaped fulcrum.

The spring 16 which is of the torsion type having a loop 23 may now be inserted from the bottom with its upper end engaging the anchor 22 and the loop 23 is slipped over the T-head of the fulcrum. A suitable tool may now be utilized to push the lower end of the spring 16 over the anchor 18 and in so doing the diameter of the loop 23 of the spring will be decreased, thereby preventing the spring from passing back over the head of the fulcrum so long as the spring is under tension. In this manner the spring 16 functions as a ring key for holding the catch 13

in its place on the fulcrum. The spring 16 also functions to bias the catch 13 against the strap 15 in the usual manner.

For applications where small openings in the cabinet are permissible, the fulcrum 17, the anchor 18 and the stop 19 may be punched out directly from the side of the cabinet and the catch 13 may work in a slot provided in the cover. In this case the catch 13 will be located inside of the cabinet and the support 14 and the strap 15 may be eliminated. The catch 13 will be retained in position by the spring 16 in the manner hereinbefore described.

In order to prevent the cover 11 from rattling on the cabinet, or in case a felt seal is utilized to insure that the cover is held tightly against the seal, provision is made for adjusting the strap 15 at the point of engagement between the strap and the catch 13. As shown most clearly in Fig. 4, an elongated slot 24 is provided at the end of the strap 15 which is engaged by the catch 13. The slot 24 is of sufficient length to permit a suitable tool, such as a screw driver, to be inserted in the slot to spread the strap 15 a sufficient amount to cause the catch 13 to engage the strap tightly. If necessary, the adjustment can be made in the opposite direction by pinching the material together with a pair of pliers or other suitable tool. In this manner an adjustment in either direction may be made easily to compensate for manufacturing variations, thereby insuring that the cover is tightly secured on the cabinet when engaged by the catch 13.

From the foregoing description it is apparent that I have provided a latch mechanism which may be readily assembled without requiring any of the usual machining operations, such as riveting. Furthermore, the latch may be constructed with a minimum number of punching operations, thereby reducing the cost of the apparatus.

Since numerous changes may be made in the above described construction and different embodiments of the invention may be made without departing from the spirit and scope thereof, it is intended that all the matter contained in the foregoing description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim as my invention:

1. A latch for a cabinet having a cover comprising a catch for engaging the cover, a pivotal support for the catch, a shoulder on said support, and a spring for biasing the catch into engagement with the cover, said spring having a variable diameter loop therein disposed on said support between said shoulder and the catch to retain the catch on said support, the diameter of said loop being reduced sufficiently when the spring is under tension to prevent the loop from passing over said shoulder.

2. A latch for a cabinet having a cover comprising a catch for engaging the cover, a pivotal support for the catch, a shoulder on said support, and a spring for biasing the catch into engagement with the cover, said spring having a loop therein disposed between said shoulder and the catch to retain it on said support, said loop being large enough to pass over said shoulder when the spring is released and small enough to be retained on the support when the spring is under tension.

3. A latch for a cabinet having a cover comprising a catch for engaging the cover, a pivotal support for the catch, a shoulder on said support, and a spring for biasing the catch into engagement with the cover, said spring having a loop therein disposed between said shoulder and the catch to retain it on said support, said loop being large enough to pass over said shoulder when the spring is released and small enough to be retained on the support when the spring is under tension, and means formed integrally with the catch for maintaining the spring under tension.

4. A latch for a cabinet having a cover comprising a catch for engaging the cover, a support for the catch secured to the cabinet and having an integrally formed pivotal support for the catch, a shoulder on said support, and a spring for biasing the catch into engagement with the cover, said spring having a loop therein disposed between said shoulder and the catch to retain it on the support, said loop being large enough to pass over said shoulder when the spring is released and small enough to be retained on the support when the spring is under tension.

5. A latch for a cabinet having a cover comprising a catch for engaging the cover, a support for the catch secured to the cabinet and having an integrally formed pivotal support for the catch, a shoulder on said support, and a spring for biasing the catch into engagement with the cover, said spring having a loop therein disposed between said shoulder and the catch to retain it on the support, said loop being large enough to pass over said shoulder when the spring is released and small enough to be retained on the support when the spring is under tension and means formed integrally with the catch and the support for maintaining the spring under tension.

JOHN W. SAMZELIUS.