April 14, 1953 W. R. GALLOWITZ 2,634,997

SPRING LATCH MECHANISM

Filed Nov. 4, 1949

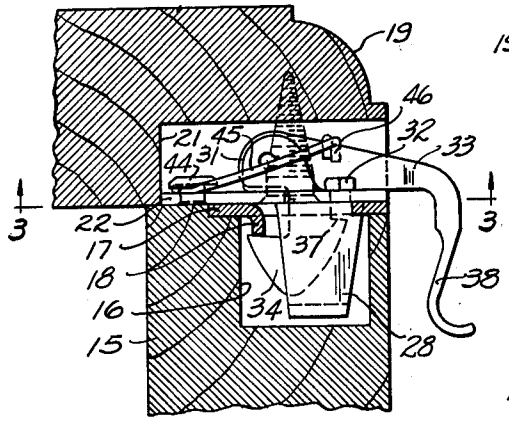

FIG. 1

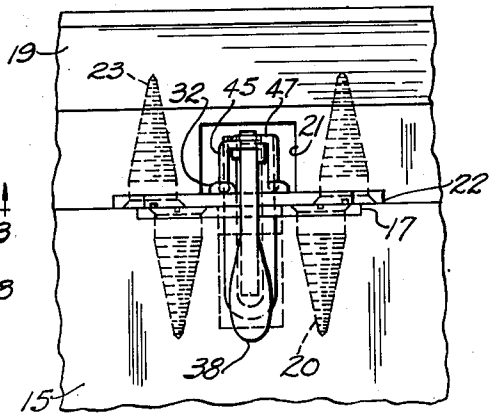

FIG. 2

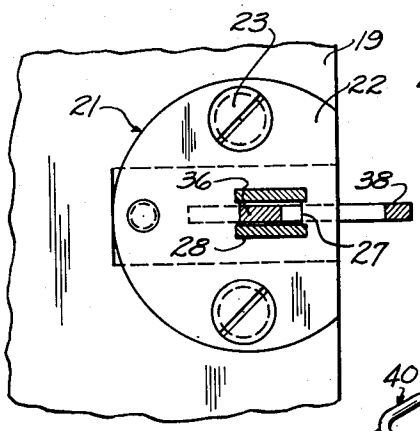

FIG. 3

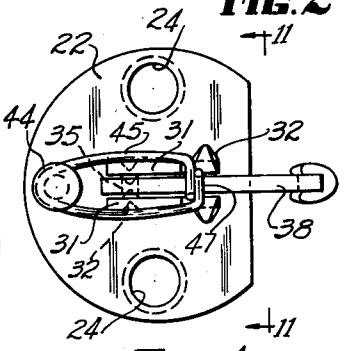

FIG. 4

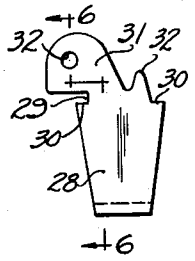

FIG. 5

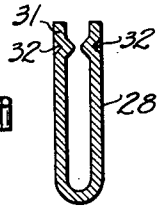

FIG. 6

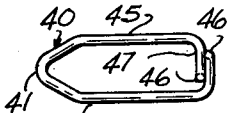

FIG. 7

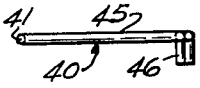

FIG. 8

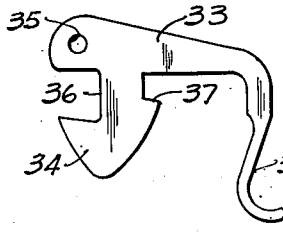

FIG 10

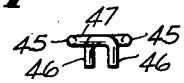

FIG. 9

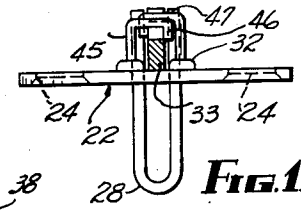

FIG. 11

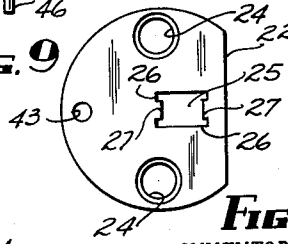

FIG. 12

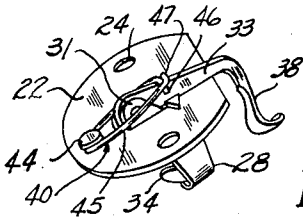

FIG. 13

INVENTOR.
WILLIAM R. GALLOWITZ
BY
Louis W. Schmidt
ATTORNEY

Patented Apr. 14, 1953 2,634,997

UNITED STATES PATENT OFFICE

2,634,997

SPRING LATCH MECHANISM

William R. Gallowitz, Cleveland, Ohio

Application November 4, 1949, Serial No. 125,447

7 Claims. (Cl. 292—128)

1

This invention relates to new and useful improvements in spring latch mechanisms, particularly those designed for latching the covers of burial boxes and caskets. In this field of use, it will be noted that such latch mechanisms must operate quietly to the highest degree of perfection under all conditions with no noises or rattles to mar the tranquility of last rites. Because of the necessary compactness and somewhat standardization of this type of mechanism, limitations on changes to achieve the foregoing are difficult of simple solutions. Lateral play, spring weakness and looseness of the latch lever and handle with resultant noises and inconvenience have long been sources of annoyance and objection, which the present invention satisfactorily overcomes with no added cost of manufacture over present latches.

Thus, an important object of this invention is to provide an arrangement with an improved latch spring which reduces lateral play of the latch and handle in two ways; first, by providing a two arm spring bowed tensionally around the mounting ears of the latch lever to stress these ears into frictional engagement with opposite sides of said lever; and secondly, by hooking the free ends of the spring arms over opposite sides of said lever to be stressed thereagainst and oppose lateral movements thereof, this being augmented by the bow tension imparted to the spring arms in assembly around the mounting ears acting to tension the hooked ends of the spring arms in opposite directions.

Another object of the invention is to securely anchor the bight portion of the two armed spring to the base plate close to the mounting ears, by swedging the periphery of the head of the anchor rivet down over and partially around the bight and adjacent portions of the spring arms near the latch lever pivot to cause greater stress and bending of the spring to firmly hold the latch urged toward its keeper at all times.

The arrangement of the spring anchor close to the latch pivot and the relationship of the parts, makes for an exceedingly compact and desirable latch mechanism; and the die-sinking of the countersunk screw holes at opposite sides of the base plate during an assembly step, keeps the plate in its flat plane to contribute to a precision built mechanism.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawing forming a part of the description of the preferred example of

2

my invention and wherein like numerals are employed to designate like parts throughout the several views,

Fig. 1 is a vertical section through portions of a casket and lid thereof showing the invention applied thereto,

Fig. 2 is a front elevation thereof,

Fig. 3 is a section taken on the line 3—3 of Fig. 1,

Fig. 4 is a top plan of my improved latch mechanism,

Fig. 5 is a side elevation of the latch guard with mounting ears,

Fig. 6 is a vertical section thereof taken on the line 6—6 of Fig. 5,

Fig. 7 is a top plan of my improved spring,

Fig. 8 is a side elevation thereof,

Fig. 9 is an end elevation of the spring,

Fig. 10 is a side elevation of the latch lever,

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 4,

Fig. 12 is a plan view of the bottom of the stamping forming the base plate, and

Fig. 13 is a perspective view of the assembled latch.

Referring now for further details of the invention, the numeral 15 designates the upper edge of a casket having a recess 16 formed therein covered with a slotted escutcheon plate or keeper 17 equipped with a depending catch or lip 18 under which the nose of the latch, to be presently described, catches to hold the lid 19 or cover of the casket closed, when desired. This keeper plate is secured to the casket by screws 20, or in any other suitable manner. The lid 19 of the casket opposite each keeper plate 17 is provided with a substantially semi-circular recess 21 bored or otherwise to run out through the front face of the casket to receive therein a similarly shaped base plate stamping 22 forming the mounting for my improved latch mechanism, which is fastened to the casket by screws 23 or other suitable fasteners, extending through countersunk openings 24 at diametrically opposite sides of the base plate, as shown.

The base plate 22 near its center, is provided with a punched out H shaped slot 25 which forms a pair of spaced slots 26 separated by a pair of opposed stop lugs 27 for limiting swinging movement of the latch lever in both directions of its movement. A guard having a pair of spaced parallel arms 28 is formed from a U shaped stamping with each arm terminating in a reduced neck 29 to extend through its respective slot 26 with shoulders 30 abutting the underside

or exposed face of the base plate. Each neck is provided with an overhanging pivot mounting ear 31, the lower edge of which hooks over the top face of the base plate to be clamped thereon by a lug 32 also extending from each neck 29 and through the same slot 26 to be bent over the top face to lock the guard firmly to the base plate 22. These lugs of the two arms 28 are bent over laterally and swedged down to pull the shoulders 30 up tightly against the base plate. Each ear 31 is formed with an integral inwardly extending boss or pintle 32' aligned with each other to form a pivot for the latch lever to be presently described. The mounting of the latch lever 33 requires spreading apart of the ears 31 after they have been inserted through the base plate, which may be done with the die which swedges down the lugs 32 in one operation; this permitting the hooked end 34 of the lever to be inserted down through the slot 25 of the base plate and between the arms 28 of the guard to bring the pivot hole 35 of the lever down between the ears and pintles 32', after which the ears 31 are pinched toward one another to move their pintles into the pivot hole.

With the latch lever thus mounted, its shank 36 swings in the slot 25 and has a shoulder 37 to engage under one of the shoulders 27 of the base plate when the lever is swung to unlatch the latch and open the lid of the casket. When the lid is closed, the inclined edge of the latch hook 34 rides upon the keeper 17 to snap under the lip 18, while the edge of the shank 36 abuts the other shoulder 27 of the base plate in an edgewise direction to muffle the sound of latching. The underedge of the lever is straight to simultaneously abut the upper face of the base plate to limit downward swing of the lever and the latter is provided with a downwardly extending right-angled handle portion 38 which projects outwardly from the front of the casket as shown in Fig. 1, for unlatching the latch and raising the casket lid. Since the shoulder 37 of the latch lever 33 abuts the outer shoulder 27 when the lever is swung upwardly to raise the casket lid 19, all strain is placed upon these metal shoulders; and the spring 40, now to be described, is not overstrained or overtaxed by lid raising or closing beyond its normal latching and unlatching functions. Thus, its life is protected against abuse.

The novel multi-function spring 40 and its relationship with other parts of the latch mechanism, consists, in the present embodiment, of a single length of tough spring wire formed into generally U shape, or rather a closed loop with a central bight portion 41 anchored securely as though welded to the base plate, by a rivet 42 having its shank extending through a hole 43 closely adjacent the slot 25 and pivot mounting ears 31, and the bight of the spring; so that the rivet head 44 overlaps the bight and has its periphery swedged down around said bight and adjacent portions of the spring. This swedging of the rivet head may be done at the same time that the die forms the countersinking of the openings 24, or the latter may be countersunk when the base plate is being blanked out or stamped from the raw material, or even when the lugs 32 are being bent over and swedged down; the purpose being that the countersinking of the openings be done simultaneously with some other forming or assembling operations, and not necessarily as a separate step or operation.

The spring 40 has its two arms extended in spaced parallel relationship in the same plane as the bight portion 41 and the end of each arm 45 is formed first inwardly toward and beyond the longitudinal center line of spring 40 and then its free end 46 is formed downwardly at right angles to its inwardly formed portion, so that the inwardly extending portions 47 extend in opposite directions across the upper edge of the latch lever and the downwardly formed ends 46 engage opposite sides of the lever 33. Prior to assembly of the spring with the base plate, its arms 45 are parallel as shown in Fig. 7, but when assembled in the latch mechanism, as shown in Fig. 4, these arms are stressed, here shown bowed or flexed outwardly to be arranged or pressed firmly against the outer sides of the mounting ears 31. This stressing or arrangement of the arms causes the free hooked ends 46 of the spring arms to be moved or stressed in opposite directions firmly against the opposite sides of the latch lever. With or without this arm bowing, the hooked ends of the spring oppose any lateral movements of the latch lever to preclude looseness and rattling of the parts, but with it, the spring action tends to hold the ears 31 from spreading apart and into frictional engagement with the latch lever to provide a rattle proof mechanism.

With the bight of the spring anchored by the rivet head 44 closely adjacent the bases of the mounting ears 31, the two arms 45 of the spring will be initially flexed or tensioned by the hooking of their free ends 46 and 47 over the top of the latch lever 33, so that the lever will be held down firmly in latched position to further preclude rattles. If desired, the ends of the spring arms may first be hooked over the lever before the bight of the spring is anchored to the base plate, so that the heading of the rivet over the bight will automatically tension or initially flex the spring arms as shown in Fig. 1. From this figure it will be noted that the two arms 45 of the spring, have portions thereof spanning the indentations forming the pintles 32' in all positions of the spring arms, so that if, instead of the integral pintles, a separate pivot pin may be extended through aligned holes in the ears 31 and latch lever, and the spring arms will extend across the ends of such pin to prevent its accidental displacement.

As best appreciated from Figs. 4 and 6, the depressed pintles 32' are of conical shape to engage in the hole 35 of the latch lever and being pressed inwardly thereof by the pivot ears 31 being urged inwardly by the bowing of the spring arms friction is set up between the conical surfaces of the pintles and the opposed edges of the hole 35 to resist lateral movement of the lever. In addition, this lever is stressed in opposite directions by the hooked ends of the spring arms 45 at points spaced from the pivot to further resist lateral movements and rattling of the latch lever.

From the foregoing description, it will be apparent that an extremely quiet compact and noiseless latch mechanism has been provided, and that various changes in the construction and arrangement of parts may be resorted to without departing from the scope of the appended claims.

I claim:

1. A latch mechanism comprising the combination with a base plate provided with a pair of pivot ears having opposed inwardly facing conical projections, a latch lever pivoted between said ears and having a hole therein, the edges of which engage said conical projections to pivotally mount said lever, of a single length of spring

wire having a bight anchored to said base plate and a pair of spring arms stressed to press inwardly upon said ears to stress said conical projections against the edges of said hole, the ends of said spring arms overlapping said lever from opposite sides thereof and bent to engage opposite sides of said lever from which those ends extend to be pressed inwardly thereagainst in opposite directions against opposite sides of said lever by said stressed portions of said spring arms pressing against said ears to prevent looseness and lateral play of said lever.

2. An improved wire spring for a latch having a base plate having a latch lever pivotally mounted thereon, said spring comprising a single length of spring wire bent at its medial portion to form a pair of parallel spring arms and a U-shaped bight portion through which a fastener extends to fasten said spring to said base plate, said parallel spring arms being adapted to extend in upwardly inclined relation to said base plate on opposite sides of said lever, said spring arms adjacent their ends being bent inwardly and laterally in parallel juxtaposed positions at substantially right angles to the spring arms to extend in the same plane as said arms toward and across the longitudinal center line of said spring and across the upper edge of said lever and away from the arm from which it is bent to resist unlatching movement of said lever, and the right angular lateral ends of said spring arms being bent again at right angles downwardly in such spaced apart parallelism as to be stressed inwardly in opposite directions against opposite sides of said latch lever, whereby said lever is actually gripped between the downwardly bent free ends of the spring arms and its lateral movements are noiselessly restrained.

3. An improved wire spring for a latch, said latch having a base plate having a latch lever pivotally mounted thereon, said spring comprising a single length of spring wire bent at its medial portion to form a pair of spring arms and a U-shaped bight portion through which a fastener extends to fasten said spring to said base plate, said spring arms being arranged on opposite sides of said lever, said spring arms adjacent their ends being bent inwardly and laterally to extend across the edge of said lever and away from the arm from which it is bent to resist unlatching movement of said lever, and the lateral ends of said spring arms being bent downwardly in such spaced apart relation as to be pressed inwardly in opposite directions against opposite sides of said lever, whereby said lever is actually gripped between the downwardly bent free ends of said spring arms and its lateral movements are restrained.

4. A latch mechanism comprising the combination with a base plate provided with a pair of pivot ears and a latch lever pivoted between said ears; of a pair of spring arms anchored to said base plate and extending lengthwise on opposite sides of said lever and contacting said ears, and said spring arms having portions remote from said anchor extending across the longitudinal edge of said lever and formed to provide downwardly extending portions to press in opposite directions against opposite sides of said lever, the contact between said spring arms and ears serving to so space said portions from said lever as to cause them to be pressed in opposite directions against opposite sides of said lever to restrain lateral movement of said lever.

5. A latch mechanism comprising the combination with a base plate provided with a pair of pivot ears and a latch lever pivoted between said ears; of a pair of spring arms anchored to said base plate and extending lengthwise on opposite sides of said lever with the free ends of said arms extending across the edge of said lever and hooked over said edge to engage opposite sides of said lever, and to press upon said sides in opposite directions, said arms intermediate their length having contact with the outer sides of said pivot ears to cause said free hooked ends of said spring arms to press in opposite directions on opposite sides of said lever to restrain lateral movement of said lever.

6. An improved wire spring for a latch, said latch having a base plate having a latch lever pivotally mounted thereon, said spring comprising a single length of spring wire bent at its medial portion to form a pair of spring arms and a bight portion firmly anchored to said base plate, said spring arms being arranged on opposite sides of said lever, said spring arms adjacent their ends being bent inwardly and laterally to extend across the edge of said lever to resist unlatching movement of said lever, and the lateral ends of said spring arms being bent to engage opposite sides of said lever to press inwardly in opposite directions on opposite sides of said lever to restrain its lateral movements.

7. A wire spring for a latch, said latch having a base plate with a latch lever pivotally mounted thereby, said spring including a pair of spring arms anchored to said plate and extending lengthwise of said lever on opposite sides thereof, and said spring arms at points remote from said pivot having portions extended laterally inward across the edge of said lever and bent against opposite sides of said lever, said bent portions being spaced apart a distance less than the thickness of said lever to press in opposite directions against opposite sides of said lever to restrain lateral movement of said lever.

WILLIAM R. GALLOWITZ.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
604,786	Pletcher	May 31, 1898
832,020	Keil	Sept. 25, 1906
1,661,634	Pekar	Mar. 6, 1928
2,394,395	Morand	Feb. 5, 1946
2,448,409	Barnes	Aug. 31, 1948

FOREIGN PATENTS

Number	Country	Date
13,108	Great Britain	July 18, 1892
487,959	France	Mar. 17, 1918