PATENT SPECIFICATION

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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

Improvements relating to Spring-Loaded Hasp Fastenings for Boxes, Travel Bags and the Like

We, C. W. CHENEY & SON LIMITED, a Registered British Company, of Factory Road, Hockley, Birmingham 19, and FRANCIS MARTIN TOMKINSON, of Lombard House, Great Charles Street, Birmingham 3, HOWARD WILLIAM CHENEY, of Aylesmore Farm, Shipston on Stour, Warwickshire, and GORDON MERRICK SHERWOOD, of York House, Great Charles Street, Birmingham 3, all British subjects, the legal representatives of CHARLES WILLIAM CHENEY (deceased), late a British subject of the Company's address, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to spring-loaded hasp fastenings for boxes, travel bags and the like comprising a body part and a lid part, the said fastening being of the toggle kind comprising an attachment plate, a manually operable lever pivoted by a pin to opposite side lugs thereof, and a hasp link pivoted to said lever a spring permitting said lever to have a snap action into two predetermined positions consisting of the release position, and the overcentre fastening position of the hasp link to a catch plate, respectively.

A problem which arises in the mass production of such fastenings, is that the effort exerted by the lever, mainly in bringing the hasp link into fastening engagement with the catch plate, frequently imposes such stresses on the pivot pin as to cause distortion either of the pin or at the bearings for the pin provided in said side lugs. Sometimes the pivot pin becomes bent, or the lugs on the attachment plate which provide the bearings for the pin become distorted from their normal parallel disposition.

The primary object of the invention is to provide a simple and inexpensive solution to this problem in order to increase the strength and reliability of the fastening.

According to the present invention in a fastening of the type referred to, the attachment plate is provided with an integral cross bar extending between the side lugs, said cross bar serving as a tie bar to said lugs for resisting displacement thereof under stresses imposed by the operation of the fastening.

According to a further feature of the invention, the cross bar is slotted for reception of a pilot dowel depending from the catch plate.

In one form of construction of fastening according to the invention, the attachment plate, which is usually secured to a box body, has pierced, coaxial side lugs for the pivot pin of the lever and the lugs are coupled by an integral cross bar. The latter has a central pilot hole for reception of a pilot dowel depending from the catch plate which is usually fixed to the lid of the box.

The spring, which biases the lever is of the blade type and has two prongs which cooperate with spaced, inwardly directed tongues at the pivotal end of the lever. The said spring may be fixed to the attachment plate either by a rivet as described in our application for Letters Patent No. 21464/57 (Serial No. 852,588).

According to a modification, the said blade spring is substituted by a torsion spring which encircles the pivot pin, one tail of the spring being anchored to the attachment plate and the other tail acting on the hasp link, whereby upon an initial movement of the lever in the direction of

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release the energy stored in the spring imparts a rapid movement to the lever and a corresponding releasing movement to the hasp link.

In order that the invention will be thoroughly understood, forms of construction of spring-loaded hasp fasteners are illustrated, by way of example, in the accompanying drawing, wherein:—

Fig. 1 is a perspective view of a hasp fastener in the position of release.

Fig. 2 is a section of Fig. 1 taken on the dotted line 2-2.

Fig. 3 is a section of Fig. 2 taken on the dotted line 3-3.

Fig. 4 is a section similar to Fig. 2 of a modification.

As will be observed in the drawing with reference to Figs. 1-3, the toggle fastening comprises an attachment plate 6 which is intended to be riveted at 7 to the body part of a box or the like 8 or a travel bag, and a catch plate 9 on a further attachment plate 10 adapted to be riveted at 11 to the lid part 12 of the box or the like or travel bag. The attachment plate 6 carries a manually operable lever 13 formed with side flanges 14 which are pivoted by means of a pivot pin 15 to parallel side lugs 16 integral with and extending forwardly of the attachment plate 6. A hasp link 17, also formed with opposite side flanges 18, is pivoted by a pin 19 to the lever 13, the free end of the hasp link 17 having a hooked end 20 for engagement with and disengagement from the catch plate 9. The inner end 21 of the lever 13 is bent into a tongue 22 which engages the tip of a blade spring 23 secured to the front face of the attachment plate 6. These components are mass-produced as sheet metal pressings.

In operation the fastening is capable of having a snap action into two predetermined positions, namely, the release position illustrated in Figs. 1 and 2 and the fastened position between the hooked end 20 and the catch plate 9, consequent upon the downward pivotal movement of the lever 13.

The problem above referred to is avoided according to the present invention by cross coupling the side lugs 16 by means of an integral cross bar 24, the said bar forming a tie between the lugs 16 for resisting displacement thereof under such stresses as occur during the operation of the toggle action of the lever 13 and the hasp link 17. The cross bar 24 is formed with a slot 25 for reception of a pilot dowel 26 depending centrally from the base of the catch plate 9.

The slotted cross bar 24, 25 provides two advantages, first it resists displacement of the side lugs 16 when the operating lever 13 is under load and prevents distortion of the hinge pin 15, and secondly, the slot 25 receives the pilot dowel 26 which ensures that the catch plate 9 is aligned with the attachment plate 6 so that the movement transmitted to the hasp link 17 by the operating lever 13 will efficiently couple the hooked end 20 with the catch plate 9.

The blade spring 23 is preferably secured to the attachment plate 6 by means of an integral tubular eyelet 27 formed integral with the attachment plate 6 as described in our application for Letters Patent No. 21464/57 (Serial No. 852,588).

Alternatively, the spring 21 may be substituted by a torsion spring 28 (Fig. 4), in this construction, the coiled body of the spring 28 encircles the pivot pin 15 and one tail 29 has a hooked end which is anchored in a hole 30 in the attachment plate 6 and the other tail 31 is bent around the pivot pin 19. It will be understood that when the operating lever 13 is initially moved upwardly for disconnecting the hasp link 17 from the catch plate 9, the energy stored in the spring 26 imparts a rapid movement to the lever 13 and a corresponding quick releasing movement to the hasp link 17, these positions being illustrated in Fig. 4.

The side flanges 14 of the lever 13 provide a shallow recess at the back of the lever for reception of a key-operated locking mechanism, the latter not shown, being adapted in the locking position to co-operate with an upwardly turned lug 32 spaced from the outer face of the attachment plate 6.

WHAT WE CLAIM IS:—

1. A spring-loaded hasp fastening of the kind referred to, wherein an integral cross bar is provided between said lugs of the attachment plate, said cross bar serving as a tie bar to said lugs for resisting displacement under stresses imposed by the operation of the fastening.

2. A fastening according to claim 1, wherein the cross bar has a slot for reception of a pilot dowel depending from the catch plate.

3. A spring-loaded hasp fastening according to claim 1 or 2, wherein the inner end of the lever is bent into a tongue which engages the tip of a said spring of the blade type secured to the front of the attachment plate.

4. A spring-loaded hasp fastening according to claim 1 or 2, wherein the lever is biased by a said spring of the torsion type, of which one tail is anchored to the attachment plate and the other is bent round a pivot pin connecting the hasp link to the lever.

5. A spring-loaded hasp fastening according to any of the preceding claims, wherein a key-operated locking mechanism is incorporated at the back of the lever, and is adapted to be brought into locking engagement with a lug on the attachment plate.

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release the energy stored in the spring imparts a rapid movement to the lever and a corresponding releasing movement to the hasp link.

In order that the invention will be thoroughly understood, forms of construction of spring-loaded hasp fasteners are illustrated, by way of example, in the accompanying drawing, wherein:—

Fig. 1 is a perspective view of a hasp fastener in the position of release.

Fig. 2 is a section of Fig. 1 taken on the dotted line 2-2.

Fig. 3 is a section of Fig. 2 taken on the dotted line 3-3.

Fig. 4 is a section similar to Fig. 2 of a modification.

As will be observed in the drawing with reference to Figs. 1-3, the toggle fastening comprises an attachment plate 6 which is intended to be riveted at 7 to the body part of a box or the like 8 or a travel bag, and a catch plate 9 on a further attachment plate 10 adapted to be riveted at 11 to the lid part 12 of the box or the like or travel bag. The attachment plate 6 carries a manually operable lever 13 formed with side flanges 14 which are pivoted by means of a pivot pin 15 to parallel side lugs 16 integral with and extending forwardly of the attachment plate 6. A hasp link 17, also formed with opposite side flanges 18, is pivoted by a pin 19 to the lever 13, the free end of the hasp link 17 having a hooked end 20 for engagement with and disengagement from the catch plate 9. The inner end 21 of the lever 13 is bent into a tongue 22 which engages the tip of a blade spring 23 secured to the front face of the attachment plate 6. These components are mass-produced as sheet metal pressings.

In operation the fastening is capable of having a snap action into two predetermined positions, namely, the release position illustrated in Figs. 1 and 2 and the fastened position between the hooked end 20 and the catch plate 9. consequent upon the downward pivotal movement of the lever 13.

The problem above referred to is avoided according to the present invention by cross coupling the side lugs 16 by means of an integral cross bar 24, the said bar forming a tie between the lugs 16 for resisting displacement thereof under such stresses as occur during the operation of the toggle action of the lever 13 and the hasp link 17. The cross bar 24 is formed with a slot 25 for reception of a pilot dowel 26 depending centrally from the base of the catch plate 9.

The slotted cross bar 24, 25 provides two advantages, first it resists displacement of the side lugs 16 when the operating lever 13 is under load and prevents distortion of the hinge pin 15, and secondly, the slot 25 receives the pilot dowel 26 which ensures that the catch plate 9 is aligned with the attachment plate 6 so that the movement transmitted to the hasp link 17 by the operating lever 13 will efficiently couple the hooked end 20 with the catch plate 9.

The blade spring 23 is preferably secured to the attachment plate 6 by means of an integral tubular eyelet 27 formed integral with the attachment plate 6 as described in our application for Letters Patent No. 21464/57 (Serial No. 852,588).

Alternatively, the spring 21 may be substituted by a torsion spring 28 (Fig. 4), in this construction, the coiled body of the spring 28 encircles the pivot pin 15 and one tail 29 has a hooked end which is anchored in a hole 30 in the attachment plate 6 and the other tail 31 is bent around the pivot pin 19. It will be understood that when the operating lever 13 is initially moved upwardly for disconnecting the hasp link 17 from the catch plate 9, the energy stored in the spring 26 imparts a rapid movement to the lever 13 and a corresponding quick releasing movement to the hasp link 17, these positions being illustrated in Fig. 4.

The side flanges 14 of the lever 13 provide a shallow recess at the back of the lever for reception of a key-operated locking mechanism, the latter not shown, being adapted in the locking position to co-operate with an upwardly turned lug 32 spaced from the outer face of the attachment plate 6.

WHAT WE CLAIM IS:—

1. A spring-loaded hasp fastening of the kind referred to, wherein an integral cross bar is provided between said lugs of the attachment plate, said cross bar serving as a tie bar to said lugs for resisting displacement under stresses imposed by the operation of the fastening.

2. A fastening according to claim 1, wherein the cross bar has a slot for reception of a pilot dowel depending from the catch plate.

3. A spring-loaded hasp fastening according to claim 1 or 2, wherein the inner end of the lever is bent into a tongue which engages the tip of a said spring of the blade type secured to the front of the attachment plate.

4. A spring-loaded hasp fastening according to claim 1 or 2, wherein the lever is biased by a said spring of the torsion type, of which one tail is anchored to the attachment plate and the other is bent round a pivot pin connecting the hasp link to the lever.

5. A spring-loaded hasp fastening according to any of the preceding claims, wherein a key-operated locking mechanism is incorporated at the back of the lever, and is adapted to be brought into locking engagement with a lug on the attachment plate.

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6. A spring-loaded hasp fastening constructed substantially as described with reference to Figs. 1-3 or Fig. 4 of the accompanying drawing.

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PROVISIONAL SPECIFICATION

Improvements relating to Spring-Loaded Hasp Fastenings for Boxes, Travel Bags and the Like

We, C. W. CHENEY & SON LIMITED, a Registered British Company, of Factory Road, Hockley, Birmingham 19, and CHARLES WILLIAM CHENEY, a British Subject, of the Company's address, do hereby declare this invention to be described in the following statement:—

This invention relates to spring-loaded hasp fastenings for boxes, travel bags and the like comprising a body part and a lid part, the said fastening being of the toggle kind comprising an attachment plate, a manually operable lever member pivoted thereto and a hasp link pivoted to said lever member, the pivoted end of the lever member having a tongue which engages a blade spring whereby said member is permitted to have a snap action into two predetermined positions consisting respectively of the release position and the fastening position of the hasp link in relation to a catch plate.

One of the problems which arises in the mass production of such fastenings, is that the effort exerted by the lever in bringing the hasp link into engagement with the catch plate frequently imposes heavy stresses on the pivot pin as to cause either distortion thereof or at the bearings for the pin provided upon the attachment plate. Sometimes the pivot pin becomes bent, or the lugs on the attachment plate which provide the bearings for the pin become bent out of their normal parallel disposition. The primary object of the invention is to provide a simple and inexpensive solution to this problem in order to increase the strengthened reliability of the fastening.

According to the present invention in a fastening of the type referred to, the attachment plate is provided with a cross bar extending between parallel side lugs forming bearings for the hinge pin of the lever, said cross bar operating as a tension bar between said lugs for resisting displacement thereof under stresses imposed by the toggle action of the lever and the hasp link.

According to a further feature of the invention, the cross bar is longitudinally slotted for reception of a pilot dowel depending from the catch plate.

According to a preferred feature of the invention, the cross bar is formed integral with the attachment plate as a sheet metal pressing.

In one form of construction of fastening according to the invention, the attachment plate, which is usually secured to a box body, has pierced, coaxial side lugs for the lever pivot which are coupled by an integral cross bar. The latter has a central pilot spring for reception of a pilot dowel depending from the catch plate which is usually fixed to the lid of the box.

The blade spring, which biases the lever, has two prongs which cooperate with spaced, inwardly directed tongues at the pivotal end of the lever. The said spring may be fixed to to the attachment plate either by a rivet or mechanically secured thereto by bending and pressing inwardly the edges of the attachment plate over the anchorage part of the spring.

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