

PATENT SPECIFICATION

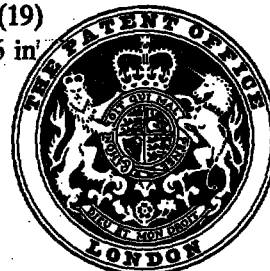
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(54) PADLOCKABLE PAIR OF SLIDERS FOR SLIDE FASTENERS

(71) We, YOSHIDA KOGYO K.K., a corporation duly organized under the laws of Japan and existing at No. 1, Kanda Izumicho, Chiyoda-ku, Tokyo, Japan, 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 sliding clasp fasteners, and more particularly to a sliding clasp fastener of the type comprising a pair of sliders arranged reversely with respect to each other on a pair of fastener stringers so as to be fastened together by means of a padlock upon full closure of the fastener. Still more particularly, the invention is directed to the improved configuration of such a padlockable pair of fastener sliders.

A padlockable pair of sliders for sliding clasp fasteners usually has annular link portions formed on and projecting forwardly from the opposed front ends of their bodies, in such a way that when the sliders are moved into abutment against each other to close the fastener, their link portions assume a side-by-side disposition to permit the shackle of a padlock to be inserted into and through the transversely aligned eyes formed in the link portions. During this padlocking operation, the sliders tend to be swung in opposite directions about the padlock shackle extending through the eyes in their link portions, thereby partly opening the fastener.

In order to prevent such undesired swinging motion of the sliders, the link portion of each slider has heretofore been formed merely so as to abut against the top wing of the body of the other slider. This conventional measure is objectionable, however, in that the top wings of the slider bodies are highly susceptible to localized wear. The useful life of the sliders or of the sliding clasp fastener itself has therefore been not so long as it is expected to be.

According to the invention, there is provided a slider for sliding clasp fasteners which is to be locked together with another slider of identical construction by means of a padlock having a shackle, comprising a body having top and bottom wings and a neck connecting the top and the bottom wings at their front ends to provide a guide channel in the body, a pull tab pivotally mounted on the top wing of the body, and a link formed on the front end of the top wing of the body so as to project forwardly therefrom and having an eye formed transversely therethrough for the insertion of the shackle of the padlock, the link being located closer to one side of the body than to the other side thereof and having formed on its face directed toward said other side of the body a forwardly directed ledge which is disposed radially of the eye in the link, whereby when the two sliders arranged reversely with respect to each other are moved forwardly into abutment against each other, their links interlock so as to hold the eyes therein in axial alignment with each other.

The invention will now be described by way of example, with reference to the accompanying drawings, wherein:-

Figure 1 is a perspective view of a padlockable pair of sliders for sliding clasp fasteners constructed in accordance with this invention, with the sliders being shown unlocked and separated away from each other;

Figure 2 is a top plan view of one of the sliders of Figure 1; and

Figure 3 is a side elevational view of the pair of sliders of Figure 1, with the sliders being shown interlocked and fastened together by means of a padlock.

In the drawings, a padlockable pair of fastener sliders 10 and 11 in accordance with this invention are of identical construction. Only the slider 10, therefore, will be described in detail, and the reference numerals used to denote various parts of this slider

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will be simply primed to designate corresponding parts of the other slider 11, it being understood that the following description of the slider 10 is directly applicable to the other slider 11.

5 With particular reference to Figures 1 and 2, the slider 10 has a body comprising top and bottom wings or plate members 12 and 13, with the top wing having a pair of flanges 14 (one seen in Figure 1) arranged along its marginal edges, and a neck 15 connecting the top and bottom wings at their flared front ends so as to be in parallel spaced relationship to each other. The usual Y-shaped guide channel is thus defined in the slider body. On the external surface of the top wing 12 of the slider body there is mounted a longitudinally extending lug 16 to which there is pivotally and slidably attached a pull tab 17 for manipulating the slider in the well known manner.

10 In accordance with this invention, there is integrally formed on the front end of the top wing 12 of the slider body a link 18 of substantially annular shape having an eye 19 formed transversely therethrough for loosely receiving the shackle 20 of a conventional padlock 21 shown in Figure 3. Approximately one half 22 of the link 18 projects forwardly beyond the front end of the slider body, whereas the other half 23 of the link overlies the slider body.

15 As will be best seen from Figure 2, the link 18 as a whole lies slightly closer to one side of the slider body (disposed upwardly as viewed in Figure 2) than to the other side thereof. It will also be noted that the front half 22 of the link 18 is made less in thickness than its rear half 23, in order to provide a forwardly directed ledge 24 on that face of the link which is directed toward said other side of the slider body (downwardly as viewed in Figure 2).

20 The ledge 24 is disposed in the same plane as the front surface 25 of the slider body neck 15. Further, the ledge 24 extends radially or diametrically of the eye 19 in the link 18 and is thereby divided into upper and lower portions as shown. If desired, only one such ledge portion may be formed either over or under the eye 19, although the illustrated shape of the link 18 is far preferable.

25 Also formed in the top wing 12 of the slider body is a groove 26 which is located on the ledged side of the link 18 and which extends along its rear half 23. In the illustrated embodiment, the groove 26 is defined by and between the rear half 23 of the link 18 and a ridge 27 formed integrally on the top wing 12 of the slider body. The ridge 27 gradually increases in height as it extends rearwardly from the front end of the slider body top wing 12 to the front end of the lug 16 thereon.

30 The link 18 has a recess 28 formed in the

bottom end portion of that face thereof which is directed toward said one side of the slider body. The recess 28 is shaped and sized to suit the shape and size of the ridge 27. By this recess 28 is the bottom end portion of the link 18 formed into a tongue 29 to fit into the groove 26' (not seen in the drawings) of the other slider 11.

35 The fastener slider 10 in accordance with this invention being constructed as in the foregoing, and the other slider 11 being of identical construction, the links 18 and 18' of the sliders 10 and 11 interlock as shown in Figure 3 when the two sliders are arranged reversely with respect to each other on a pair of fastener stringers, not shown, and moved forwardly into abutment against each other to close the sliding clasp fastener. The ledges 24 and 24' of the interlocking links 18 and 18' are in close contact with each other, and their eyes 19 and 19' are in axial alignment in the transverse direction of the sliders 10 and 11.

40 Furthermore, upon abutment of the sliders 10 and 11 against each other as above, the tongues 29 and 29' at the bottom ends of their links 18 and 18' are relatively closely received in the grooves 26' (not seen) and 26, and the ridges 27 and 27' (not seen) on the top wings 12 and 12' of the sliders are also relatively closely received in the recesses 28' and 28 in the links 18' and 18, respectively. The sliders 10 and 11 can thus be prevented from swinging motion with respect to each other in the plane of the unshown fastener stringers.

45 For locking together the abutting pair of sliders 10 and 11, the shackle 20 of the padlock 21 may be inserted into and through the aligned eyes 19 and 19' in the links 18 and 18' and may be closed in the usual manner. Even if, during this padlocking operation, either or both of the sliders 10 and 11 are subjected to forces tending to swing same about the aligned axes of the eyes 19 and 19', the sliders can be effectively restrained from such swinging motion by the contacting ledges 24 and 24' of their interlocking links 18 and 18'.

50 Since the ledges 24 and 24' are disposed radially or diametrically of the eyes 19 and 19', the forces applied thereto as above are substantially perpendicular to their surfaces, so that the ledges will not easily slide with respect to each other. Further, since the forces are substantially equally distributed over the entire surfaces of the ledges, they will not suffer uneven wear. The useful life of the pair of fastener sliders 10 and 11 is thus markedly increased. It is also noteworthy that the sliders 10 and 11 can be interlocked merely by being pulled into abutment against each other, thereby permitting immediate padlocking.

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will be simply primed to designate corresponding parts of the other slider. 11, it being understood that the following description of the slider 10 is directly applicable to the other slider 11.

5 With particular reference to Figures 1 and 2, the slider 10 has a body comprising top and bottom wings or plate members 12 and 13, with the top wing having a pair of flanges 14 (one seen in Figure 1) arranged along its marginal edges, and a neck 15 connecting the top and bottom wings at their flared front ends so as to be in parallel spaced relationship to each other. The usual Y-shaped guide channel is thus defined in the slider body. On 10 the external surface of the top wing 12 of the slider body there is mounted a longitudinally extending lug 16 to which there is pivotally and slidably attached a pull tab 17 for manipulating the slider in the well known manner.

In accordance with this invention, there is integrally formed on the front end of the top wing 12 of the slider body a link 18 of substantially annular shape having an eye 19 25 formed transversely therethrough for loosely receiving the shackle 20 of a conventional padlock 21 shown in Figure 3. Approximately one half 22 of the link 18 projects forwardly beyond the front end of the slider body, whereas the other half 23 of the link 30 overlies the slider body.

As will be best seen from Figure 2, the link 18 as a whole lies slightly closer to one side of the slider body (disposed upwardly as viewed in Figure 2) than to the other side thereof. It will also be noted that the front half 22 of the link 18 is made less in thickness than its rear half 23, in order to provide a forwardly directed ledge 24 on that face of the link 40 which is directed toward said other side of the slider body (downwardly as viewed in Figure 2).

The ledge 24 is disposed in the same plane as the front surface 25 of the slider body neck 15. Further, the ledge 24 extends radially or diametrically of the eye 19 in the link 18 and is thereby divided into upper and lower portions as shown. If desired, only one such 50 ledge portion may be formed either over or under the eye 19, although the illustrated shape of the link 18 is far preferable.

Also formed in the top wing 12 of the slider body is a groove 26 which is located on the ledged side of the link 18 and which 55 extends along its rear half 23. In the illustrated embodiment, the groove 26 is defined by and between the rear half 23 of the link 18 and a ridge 27 formed integrally on the top wing 12 of the slider body. The ridge 27 60 gradually increases in height as it extends rearwardly from the front end of the slider body top wing 12 to the front end of the lug 16 thereon.

65 The link 18 has a recess 28 formed in the

bottom end portion of that face thereof which is directed toward said one side of the slider body. The recess 28 is shaped and sized to suit the shape and size of the ridge 27. By this recess 28 is the bottom end portion of the link 18 formed into a tongue 29 to fit into the groove 26' (not seen in the drawings) of the other slider 11.

The fastener slider 10 in accordance with this invention being constructed as in the foregoing, and the other slider 11 being of identical construction, the links 18 and 18' of the sliders 10 and 11 interlock as shown in Figure 3 when the two sliders are arranged reversely with respect to each other on a pair of fastener stringers, not shown, and moved forwardly into abutment against each other to close the sliding clasp fastener. The ledges 24 and 24' of the interlocking links 18 and 18' are in close contact with each other, and their eyes 19 and 19' are in axial alignment in the transverse direction of the sliders 10 and 11.

Furthermore, upon abutment of the sliders 10 and 11 against each other as above, the tongues 29 and 29' at the bottom ends of their links 18 and 18' are relatively closely received in the grooves 26' (not seen) and 26, and the ridges 27 and 27' (not seen) on the top wings 12 and 12' of the sliders are also relatively closely received in the recesses 28' and 28 in the links 18' and 18, respectively. The sliders 10 and 11 can thus be prevented from swinging motion with respect to each other in the plane of the unshown fastener stringers.

For locking together the abutting pair of sliders 10 and 11, the shackle 20 of the padlock 21 may be inserted into and through the aligned eyes 19 and 19' in the links 18 and 18' and may be closed in the usual manner. Even if, during this padlocking operation, either or both of the sliders 10 and 11 are subjected to forces tending to swing same about the aligned axes of the eyes 19 and 19', the sliders can be effectively restrained from such swinging motion by the contacting ledges 24 and 24' of their interlocking links 18 and 18'.

Since the ledges 24 and 24' are disposed radially or diametrically of the eyes 19 and 19', the forces applied thereto as above are substantially perpendicular to their surfaces, so that the ledges will not easily slide with respect to each other. Further, since the forces are substantially equally distributed over the entire surfaces of the ledges, they will not suffer uneven wear. The useful life of the pair of fastener sliders 10 and 11 is thus markedly increased. It is also noteworthy that the sliders 10 and 11 can be interlocked merely by being pulled into abutment against each other, thereby permitting immediate padlocking.

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1. A slider for slide fasteners which is to be locked together with another slider of identical construction by means of a padlock having a shackle, comprising a body having top and bottom wings and a neck connecting the top and the bottom wings at their front ends to provide a guide channel in the body, a pull tab pivotally mounted on the top wing of the body, and a link formed on the front end of the top wing of the body so as to project forwardly therefrom and having an eye formed transversely therethrough for the insertion of the shackle of the padlock, the link being located closer to one side of the body than to the other side thereof and having formed on its face directed toward said other side of the body a forwardly directed ledge which is disposed radially of the eye in the link, whereby when the two sliders arranged reversely with respect to each other are moved forwardly into abutment against each other, their links interlock so as to hold the eyes therein in axial alignment with each other.

2. A fastener slider as claimed in claim 1, wherein the ledge of the link is disposed in the same plane as the front surface of the

neck of the body.

3. A fastener slider as claimed in claim 1, wherein the top wing of the body has a groove which is located on said other side of the link thereof for receiving the bottom end portion of the link of the other slider.

4. A fastener slider as claimed in claim 3, wherein the top wing of the body has a ridge defining the groove between itself and the link, and wherein the link has a recess formed in its bottom end portion for receiving the ridge on the body of the other slider.

5. A fastener slider as claimed in claim 4, wherein the ridge increases in height as it extends rearwardly, and wherein the recess in the link is shaped correspondingly to relatively closely receive the ridge on the body of the other slider.

6. A fastener slider substantially as herein described with reference to and illustrated in the accompanying drawings.

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