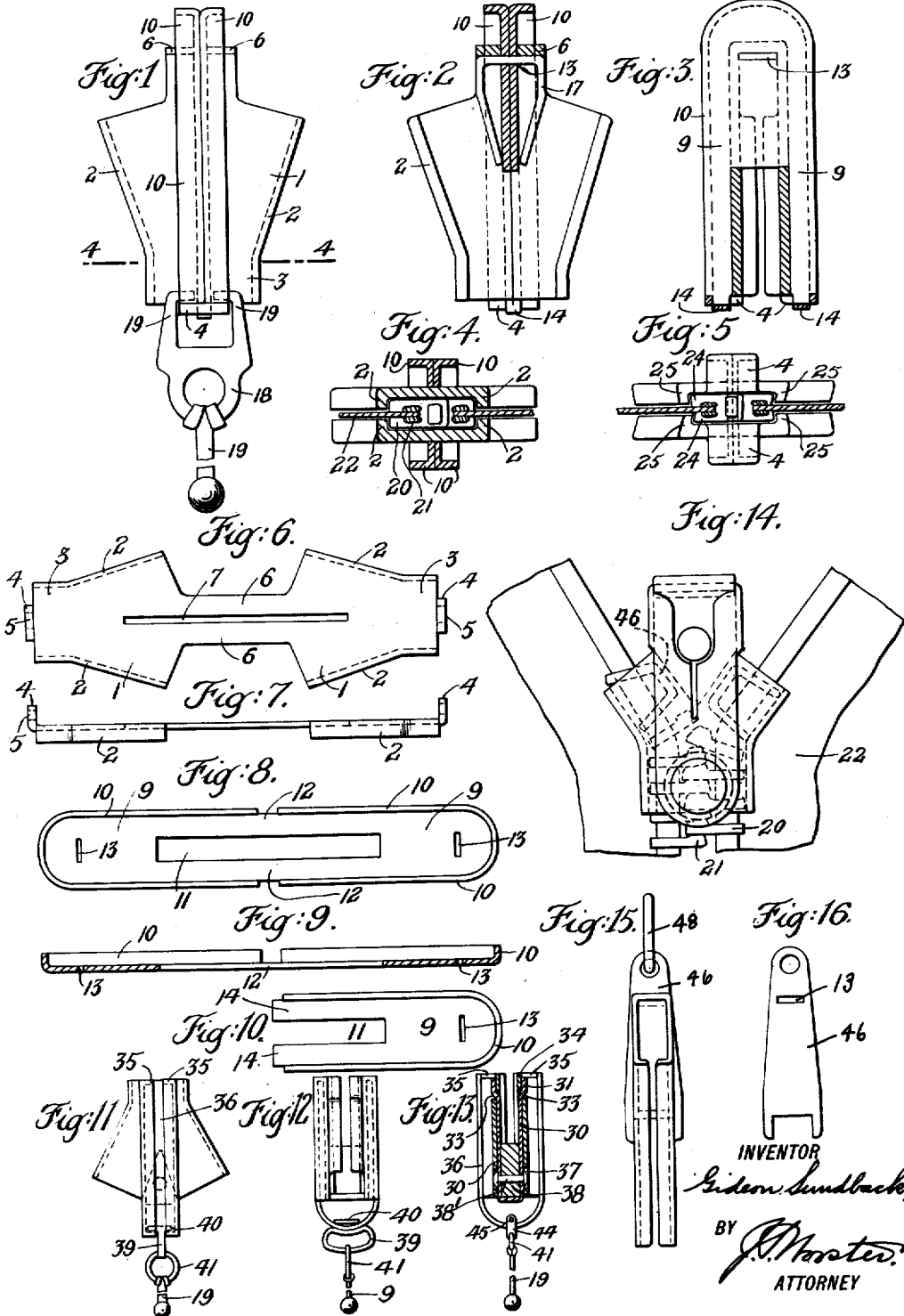


G. SUNDBACK.
SEPARABLE FASTENER SLIDER.
APPLICATION FILED JUNE 20, 1917.

1,302,606.

Patented May 6, 1919.



UNITED STATES PATENT OFFICE.

GIDEON SUNDBACK, OF MEADVILLE, PENNSYLVANIA, ASSIGNOR TO HOOKLESS FASTENER COMPANY, A CORPORATION OF PENNSYLVANIA.

SEPARABLE FASTENER-SLIDER.

1,302,606.

Specification of Letters Patent.

Patented May 6, 1919.

Application filed June 20, 1917. Serial No. 175,737.

To all whom it may concern:

Be it known that I, GIDEON SUNDBACK, a subject of the King of Sweden, and resident of Meadville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Separable Fastener-Sliders, of which the following is a specification.

This invention relates to separable fastener sliders and has for its object to provide a novel form of slider which can be cheaply manufactured, and which will have increased factors of strength and facility of operation, as compared with sliders heretofore constructed.

A separable fastener of the type to which this invention relates is illustrated in my Patent #1,219,881, issued March 20, 1917. The slider shown in this patent is provided with relatively widely divergent curved channels and is operated to close the fastener by means of a pull device located at the upper end, curvature of the slider channels being such as to cause the slider to open the fastener when the edges of the stringers carrying the interlocking members are pulled apart. The slider itself is composed of a single stamping doubled over and connected by a rivet passed through a stiffening member, and gives very satisfactory results when used on fasteners intended for relatively light use. When this fastener is applied to closures involving unusual strains and excessive wear, the slider tends to distort owing to the wedging action of the interlocking members. When it is attempted to apply this type of fastener to closures having stiff edges, such for example as tents, automobile and other vehicle curtains, boned edge corsets, etc., it has been found that the slider must not only be so constructed as to resist the spreading action of the interlocking members under heavy strains, but the slider must also be capable of being conveniently and positively operated in both directions from either side. This is not only because the stiff edges above referred to are frequently too stiff to permit being pulled apart to open the fastener, but also because it is desirable to so construct the fastener that it will stay locked under lat-

eral tension without necessitating the auxiliary fastening such as a hook and eye, button or the like heretofore employed with wide angle curved sliders in order to prevent accidental opening. In a tent or curtain closure for example, which must sometimes be operated from one side and sometimes from the other, in either direction, the provision of an operating device for each side is not only objectionable because of duplication, but is liable to be confusing to the operator.

The particular object of this invention is to provide a slider which will not spread when subjected to a heavy strain, and which can be actuated positively in both directions from either side by a single pull, thus requiring the operator simply to grasp the free end of the operating device and pull the slider in one direction to close the fastener and in the opposite direction to open it.

In the accompanying drawings,

Figure 1 is a vertical elevation of a preferred form,

Fig. 2 is a sectional view,

Fig. 3 is a side view,

Fig. 4 is a section on the line 4, 4 of Fig. 1,

Fig. 5 is a bottom view of the slider shown in Fig. 1, showing a slight modification of the slider and the interlocking members to provide somewhat increased resistance to spreading.

Fig. 6 is a plan view of the partially formed blank for the slider body,

Fig. 7 is an edge view of Fig. 6,

Fig. 8 is a plan view of the partially formed blank for the stiffening and actuating yoke,

Fig. 9 is an edge view,

Fig. 10 is a side view of the stiffening yoke, formed from the blanks of Figs. 8 and 9.

Fig. 11 is a perspective view of a modification,

Fig. 12 is a side view of Fig. 11,

Fig. 13 is a sectional view, and

Fig. 14 shows the slider mounted on a fastener,

Figs. 15 and 16 show another modification. The fastener body is composed of a stamp-

ing having flat wings 1, 1 provided with turned edges 2, 2 turned in at a right angle as shown in Fig. 4, or at an acute angle as shown in Fig. 5. The inturned edges 2 on the wings 1 are straight, but at an acute angle to each other, and end in straight portions 3 forming channels through which the interlocking members pass. At each end of the wings 1 is an upturned lug 4 having a perforation 5, and connecting the wings 1 is a neck 6 having a slot 7. This blank is doubled over on itself so as to bring the inturned wings 2 adjacent and in registry with each other to form diverging channels, and having the lugs 4 projecting outwardly on each face of the slider. The wings thus form a Y-shaped passage through which the interlocking members pass.

The stiffening yoke shown in Figs. 8, 9, and 10 is first stamped from sheet metal in the form shown in Figs. 8 and 9, and comprises a body 9 having flanges 10 around the edge, a slot 11 in the middle forming narrow necks 12, and a key slot 13 near each end. This blank is then doubled over so as to bring the flat faces back to back with the slots 13 registering, as shown in Fig. 10. The necks 12 now form narrow projections or points 14, which fit in the perforations 5 in the lugs 4.

The yoke member shown in Figs. 10, and made by doubling over the blank shown in Figs. 8 and 9 thus consists generally of two channeled or flanged sections placed back to back, and having generally the shape of the letter U. The doubled over slider blank is also similar to the letter U, having the slot 7 at the bend, the slot 7 being of width just sufficient to receive the thicknesses of the yoke body 9. The yoke is slipped on to the doubled slider body until it is stopped by reaching the bottom of the slot 7, at which time the points 14 of the yoke have passed through the perforated lugs 4 of the slider body. The slider is thus held rigidly against spreading by means extending the entire length of the slider and interlocked with the lower end of the slider. The yoke is held against sidewise or lateral shifting by sliding down in the slot 7, and it only remains to lock the yoke against withdrawal. This is done by means of a key or pin 17 composed of a narrow flat strip which is passed through the slots 13 immediately under the bent neck 6 of the slider, thus holding the entire device assembled. The ends of the key 17 are bent down on each side as shown in Fig. 2 and form guiding surfaces for the interlocking stringer members.

In addition to the function of stiffening the entire slider, the yoke has the additional function of forming a convenient means for attaching the pull 18. This consists of a stamping having inturned lugs 19 separated

sufficiently to receive the combined thickness of the two yoke flanges 10 seen in Fig. 1. In assembling, the pull lugs 19 are slid under the flanges 10 of the yoke, and then the yoke is interlocked and keyed to the slider. The single pull device 18 can then travel around on either side of the slider and when the cord 19 is pulled will positively actuate the slider in either direction, on either side. This is of considerable advantage in a device of this character, both because there is only one possible device for the operator to pull and also because the pull will necessarily be exerted longitudinally of the slider, without catching at an intermediate or dead center point.

As shown in Fig. 4, the jaw ends 20 of the interlocking members 21 are fastened on a stringer 22, and the jaw ends 20 are provided with right angled rear edges which cooperate with the right angle edges 2 of the slider without producing any spreading action on the slider. This is an important feature in fasteners intended for heavy service, because heretofore the interlocking members whenever subjected to heavy strain, either in fastening or unfastening, tended to spread the slider and render the entire device inoperative. By the cooperation herein described of the stiffened slider and the jaw members engaging with the inturned edges, such difficulties are entirely obviated.

In Fig. 5, a further modification is shown in which the jaw members have acute angled corners 24 interlocking with acute angled edges 25 of the slider and still further reducing any spreading action of the interlocking members in the slider.

In Figs. 11, 12 and 13 a modified slider construction is shown, wherein the slider wings 30 are provided with offset tongues 31 on each side. The yoke consists substantially of a flattened bent tube having slots 33 to receive the offset tongues 31 of the slider wings, the base of the tube being offset inwardly on each side as at 34 so as to continue the inner surface of the slider. The tube also has side wings 35 which are inturned to close the slider 36. The base of the tube has perforations 37 through which the rivet 38 is passed which holds the slider together on a pointed filler block 38. Mounted to slide in the tubular yoke is a pull 39 having laterally extending branches 40 which engage with the inside of the tube. The ring 41 to which the pull 19 is attached slides in the slot 42 so that the pull 39 will always be operated from one end or else from the middle according to the direction of movement, and thus prevent wedging. In Fig. 13, the pull 44 consists of a flat plate having projecting pins 45, which act in a similar manner to prevent wedging of the pull.

In Fig. 14 is shown a detail of the fastener

assembly similar to that shown in Patent No. 1,219,881. 46 are stop members fastened to one or both of the stringers, which act to stop movement by coming together in the slider, and these stop members have jaws

constructed like the interlocking member jaws 20 or 24 above described, thereby securing a positive stop of the slider without wedging it apart or otherwise distorting it. An inexperienced or careless operator might otherwise seriously damage the fastener by distorting the slider at the end of its closing movement, especially if in closing the fastener, the slider has to exert strong tension on the members to be fastened.

In Figs. 15 and 16, the yoke 46 is single, having shorter legs which do not interlock with the lower end of the slider, but which bear on the slider wings sufficiently far to prevent the wings spreading. The yoke 46 also has a slot 13 which interlocks the yoke and the slider by means of key 17, as before described. The yoke 46 receives a ring 48 to which any desired form of locking pull can be attached. This form has the channels so formed and at such angle as to open when the stringers are pulled apart, as in the patent above referred to.

The present invention is being successfully used on automobile and other vehicle curtains, corsets, aviation clothing, and shoes, and is to be applied to numerous other uses where heavy strains are encountered in locking, and in remaining locked.

What is claimed, is:

1. A slider comprising connected flat wings having inturned edges forming diverging channels, an external stiffening yoke interlocked with the connection between said wings and having ends extending longitudinally in contact with each wing beyond the channel intersection.

2. A slider comprising connected wings forming diverging channels and having actuating means adapted to positively actuate it in either direction on either side.

3. A slider comprising connected wings forming diverging channels and having a single actuating means adapted to travel on either side for positively actuating the slider in both directions.

4. A slider comprising connected wings forming diverging channels and having stiffening means extending beyond the channel intersection on each side, and actuating means carried by said stiffening means.

5. A slider comprising wings forming diverging channels and having a slotted connection, stiffening means inserted in said slotted connection and extending lengthwise on each wing, and means interlocking said stiffening means with the wing connection.

6. A slider comprising connected wings forming diverging channels, and stiffening

means extending lengthwise on each wing and engaged therewith at each end.

7. A slider comprising connected wings forming diverging channels and each wing having a lug at its end, and a U-shaped stiffening member engaged at its ends with said lugs and intermediately with the portion connecting said wings.

8. A slider comprising wings forming diverging channels and connected between the channels by a slotted neck, each wing having a lug at its other end, and a U-shaped stiffening member engaged at its ends with said lugs and intermediately with said slotted neck.

9. A slider comprising wings forming diverging channels and connected between the channels by a slotted neck, each wing having a lug at its other end, and a U-shaped stiffening member formed from a doubled flanged stamping engaged at its ends with said lugs and intermediately with said slotted neck.

10. A slider comprising wings forming diverging channels and connected between the channels by a neck, each wing having a lug at its other end, a U-shaped stiffening member engaged at its ends with said lugs and intermediately with said neck, and a key for locking said neck and stiffening member together.

11. A slider comprising wings forming diverging channels, a U-shaped member attached to and stiffening the wings from end to end, a pull device sliding on said stiffening member, and a key for holding said wings, stiffening member and pull assembled.

12. A slider for flexible interlocking stringers comprising wings forming diverging straight channels meeting at an angle of less than 90° such as to prevent movement of the slider when the stringers are pulled apart and having their edges inturned at least 90° for interlocking with said stringers to oppose distortion of the slider under heavy strains.

13. A slider for flexible stringers having stop means binding in the slider comprising wings forming diverging channels meeting at an angle, and having edges inturned at least 90° to engage and interlock with said stringers and stop means to oppose distortion of the slider under heavy strains.

14. A slider for flexible edgewise interlocking stringers comprising wings forming diverging channels meeting at a definite angle substantially less than 90° such as to frictionally prevent movement of the slider and separation of the stringers when the stringers are pulled apart at a point beyond the junction of said diverging channels.

15. A slider for flexible edgewise interlocking stringers comprising wings forming diverging channels meeting at a definite angle substantially less than 90° such as to

1,802,606

1
frictionally prevent movement of the slider
and separation of the stringers when the
stringers are pulled apart at a point beyond
the junction of said diverging channels, and
5 a single means for positively actuating said
slider in either direction from either side.
Signed at Meadville, in the county of

Crawford and State of Pennsylvania, this
15th day of June, A. D. 1917.

GIDEON SUNDBACK.

Witnesses:

A. F. RUSSELL,
C. I. CLANCY.

DISCLAIMER.

1,302,606.—*Gideon Sundback*, Meadville, Pa. SEPARABLE-FASTENER SLIDER. Patent dated May 6, 1919. Disclaimer filed August 4, 1927, by the assignee, *Hookless Fastener Company*.

Hereby disclaims from the scope of claim 4 of said Letters Patent, any sliders except those wherein the channels diverge between the wings and have opposite surfaces between which both ends of the interlocking members are guided in entering and leaving the wings, and wherein the wings are connected independently of the stiffening means, and the stiffening means is made separately from and assembled with the connected wings.

[*Official Gazette August 16, 1927.*]