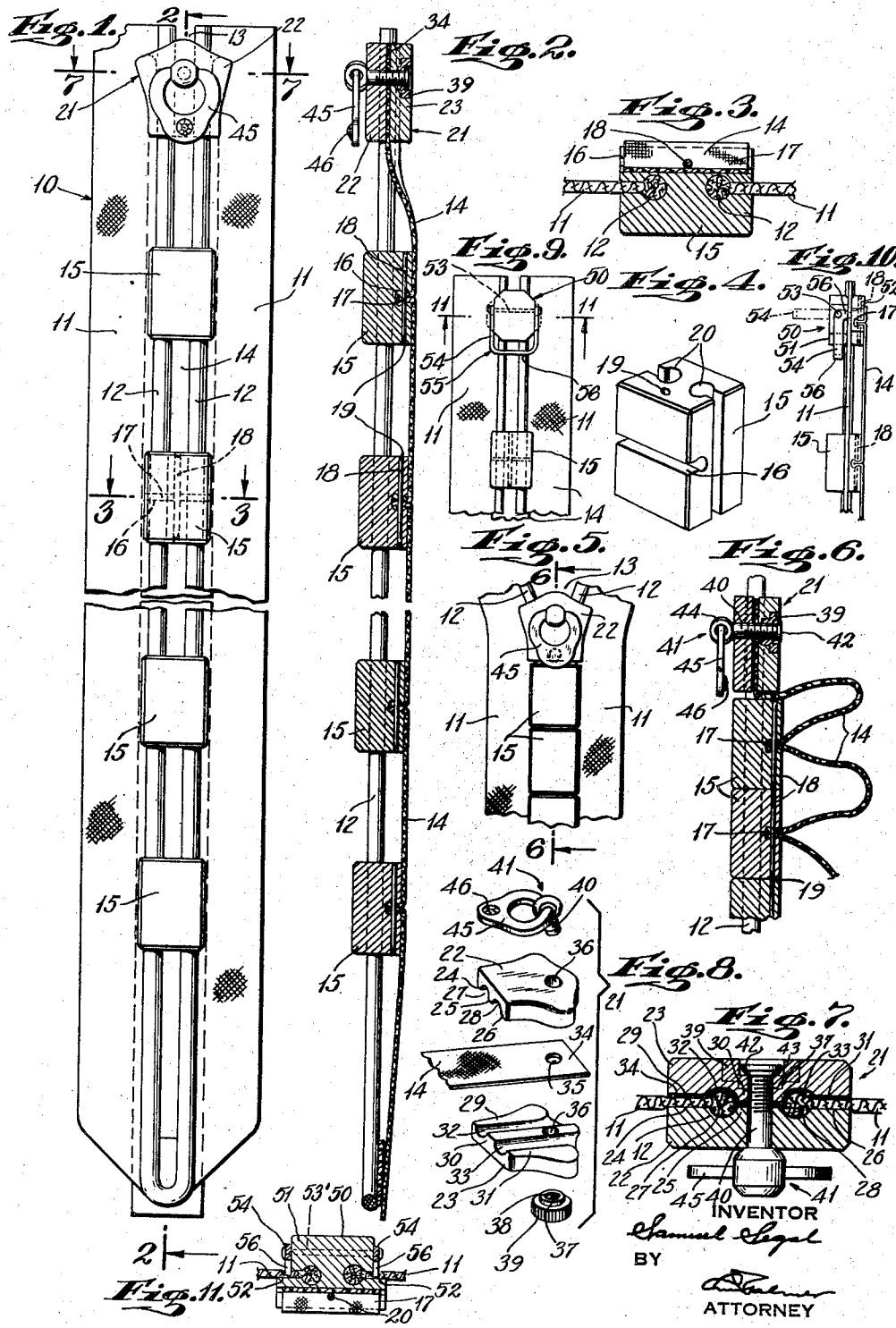
June 18, 1940. S. SEGAL 2,204,627

SLIDE FASTENER

Filed Nov. 17, 1937



Patented June 18, 1940 2,204,627

UNITED STATES PATENT OFFICE

2,204,627

SLIDE FASTENER

Samuel Segal, Brooklyn, N. Y.

Application November 17, 1937, Serial No. 174,932

3 Claims. (Cl. 24—207)

The subject matter of the present invention is a slide fastener of the type having spaced tapes slidably guiding a plurality of runners carrying elongated closure means in the form of a ribbon which may be folded to open the gap defined by the tapes and which may be readily extended to close the gap. In slide fasteners of the type referred to, one of the end runners is generally provided with a suitable loop or manipulator utilized to initially displace the ribbon in respect to the tapes in the matter of opening or closing of the gap. With the gap closed, the ribbon is extended, and the runners are widely separated. In such closed relation of the slide fastener, the loop carrying runner is generally at the upper end of the gap and in actual use however this loop carrying runner has a tendency to slide downwardly and thus start to fold the closure ribbon, consequently opening at least the upper part of the gap whereby the loop carrying runner ultimately strikes against an adjacent lower runner and thereafter in use both of these runners continue to shift and slide downwardly in respect to the spaced tapes, thus further folding the closure ribbon and consequently the extent of the opening of the gap is increased. To a user of this type of slide fastener, involuntary opening thereof at times may result in considerable embarrassment. It is therefore the dominating object of the invention to provide conveniently controlled positive brake means to prevent accidental or involuntary opening of the slide fastener when in a desired closed relation thereof. Other objects, features, and advantages of the invention will be better understood from the following detailed description considered in connection with the accompanying drawing in which:

Fig. 1 is a front elevational and broken view of the slide fastener according to my invention, showing the gap defined by the beaded tapes closed by a ribbon secured to a plurality of runners now shown widely separated and further showing the upper runner in a braking relation in respect to the tapes to prevent involuntary displacement of the ribbon.

Fig. 2 is a longitudinal view taken on the line 2—2 of Fig. 1.

Fig. 3 is a transverse view taken on the line 3—3 of Fig. 1.

Fig. 4 is a perspective view of one of the runners.

Fig. 5 is a fragmentary view of Fig. 1, however illustrating the gap defined by the beaded tapes opened and the several runners brought together and the brake runner frictionally released from the spaced tapes.

Fig. 6 is a sectional view taken along the line 6—6 of Fig. 5.

Fig. 7 is an enlarged sectional view of the brake means, namely, the loop carrying runner taken along the line 7—7 of Fig. 1.

Fig. 8 is an exploded view of the brake means.

Fig. 9 is a fragmentary portion of a slide fastener of the type shown in Fig. 1 but illustrating another form of braking runner.

Fig. 10 is a side view of Fig. 9 and

Fig. 11 is a cross sectional view taken on the line 11—11 of Fig. 9.

Illustrative of the embodiment disclosed the slide fastener generally designated 10 comprises spaced tapes 11 each provided with a beaded edge 12 and defining an elongated gap 13 adapted to be closed or opened by an elongated flexible and foldable ribbon 14 fastened to a series of runners or blocks 15 each provided with a slot 16 extending widthwise thereof adapted to receive a looped or folded portion 17 of the closure ribbon 14 which is arranged in back of the beaded edges 12. More particularly however each of the loops 17 is fixedly retained in a slot 16 of a respective runner by a pointed pin 18 passed into a longitudinally disposed opening 19 which intersects and communicates with a companion slot 16 and is normal thereto.

With a loop portion of the closure ribbon arranged in a slot 16, a pointed portion of a pin 18 is positioned within a companion bore or opening 19. Thereafter pin 19 is forced and moved through bore 18 until its pointed end penetrates the positioned loop or bend 17 within the runner. Having pierced the loop, the pin is further displaced until its outer end is wholly within the runner, for example as shown in Fig. 2. Each pin 18 frictionally coacts with a companion bore 19 and hence after the pin is properly set it is completely within the runner and it cannot be accidentally displaced.

Each runner of the type designated by reference character 15 embodies side grooves 20 of the type shown which receive and are slidably guided on the beaded edges 12 of the spaced tapes. By the present construction, if one of the runners 15 is slidably displaced in respect to the tapes, the closure ribbon carried by this runner is correspondingly displaced.

According to the invention, positive brake means is provided to preclude accidental displacement of the closure ribbon. In this connection, attention is directed to the uppermost

runner generally denoted 21 which includes front and rear but complementary clamping plate members 22 and 23, the front clamping member 22 having depending ribs 24, 25 and 26 forming longitudinally arranged grooves 27 and 28 while the rear clamping plate 23 is provided with the spaced ribs 29, 30 and 31 defining spaced grooves 32 and 33.

Interposed between the clamping members 22 and 23 is the upper end 34 of the foldable ribbon 14 which may be of a suitable cloth. This end 34 is provided with a perforation 35, which in the assembled relation of the ribbon and clamping members is in alinement with openings 36 of the intermediate ribs 25 and 30 thereof, and threaded opening 37 of the collar 39 fixedly and appropriately anchored within the rear clamping member 23.

In assembling, the brake to the ribbon and tapes, the upper end or terminal 34 of the ribbon 14 is placed onto the ribs of the rear clamping member 23. Thereafter beaded edges 12 of the tapes are placed on terminal 34 of the ribbon in such fashion that spaced portion of the latter (Fig. 7) are received in grooves 32 and 33. Subsequently threaded shank 40 of the manipulator broadly denoted 41 is inserted into opening 36 of the front clamping member 22, through opening 35 in ribbon 14, through opening 36 in the rear clamping member 23, and thereafter is rotated to interlock with threads of the bore 37 of the annular flange 38 of collar 39.

Having positioned shank 40 in respect to the clamping members and closure ribbon, this shank is upset to form head 42 receivable in socket 43 of the fixed collar 39. Shank 40 is threaded as shown and includes an eye 44 swingably and loosely supporting the finger piece member or loop 45 carrying signal or indicating means 46.

In the assembled relation of the clamping members 22 and 23 beads 12 of tapes 11 are in part confined in the alined grooves 27 and 32, and 28 and 33, however permitting the clamping members and the ribbon 14 to be bodily and slidably guided longitudinally of the tapes in an unclamped relation of the clamping members 22 and 23 when the finger piece loop 45 is displaced longitudinally of the beaded tapes 11.

For example, in Figs. 5 and 6 the several runners 15 have been brought together to open the gap 13. This is accomplished by grasping loop 45 (Fig. 1) and applying a downward thrust thereto to cause the clutch or brake 21 to move downwardly. However displacement of the brake may only take if the clamping members 22 and 23 are set in an unclamped relation as indicated in Fig. 6 to first relieve the clamping and frictional pressure from beaded edges of the tape previously imparted thereto by the inner ribbed and grooved faces of the companion complementary clamping members 22 and 23.

With the brake released from the tapes, the ribbon (Fig. 6) 14, may be readily extended to close the gap 13. To this end loop 45 is grasped and given an upward thrust causing the previously folded parts of the ribbon between the adjacent runners 15 to be extended and be adjacent the beaded edges 12 however in overlapping relation therewith, for example, as shown in Fig. 1 since the width of the ribbon is greater than the width of the gap 13.

Pursuant to positioning the ribbon in respect to the gap, such position can be retained upon rotating loop 45, in a certain direction for causing shank 40 to rotate, which action causes clamping member 23 to move towards clamping member 22 and thus frictionally clamp and bind the beaded tapes to prevent accidental or involuntary shifting of the brake in respect to the beaded edges 12 and the shank 40 is turned until signal 46 of loop 45 faces outwardly indicating to the wearer that the brake is an operative gripping relation. To release gripping action of the brake, loop 45 is rotated in an opposite direction hence causing the rear clamping member 23 to move away from the clamping member 22.

As shown in Figs. 1 and 2, the lower end of the closure ribbon is fastened to the lower ends of the tapes, and the ribbon may be displaced downwardly upon actuating loop 45 provided brake 41 is released. If released and if the brake is shifted downwardly, the blocks 15 are caused to shift downwardly thus permitting the gap 13 to be opened as indicated in Fig. 5. To close the gap, control loop 45 for the brake is grasped and pulled upwardly, thus actuating the runners and the ribbon is extended to partially or fully close gap 13 as desired after which loop 45 is rotated to cause the brake to grip the tapes.

In the form according to Figs. 9 to 11 inclusive the braking runner 50 is of the type identified by reference character 15 in Fig. 1 however the top 51 thereof is reduced to define marginal shoulders 52. Extending widthwise of the reduced top 51 is an opening 53' in which is arranged a fulcrum pin 53 swingably or pivotally supporting the ends of arms 54 of a U shaped loop generally denoted 55. The fulcrum pin 53 of course has its outer ends upset to prevent removal of the arms 54 from this pin.

As shown the arms 54 of the loop closely straddle reduced top 51 and each arm includes a cam or pointed projection 56 serving as means to slightly penetrate and wedge tapes 11 simultaneously against shoulders 52 of the expanded or lower part of the braking runner 50 when the loop 55 is moved into a closing relation as shown in Fig. 9. In such relation the braking runner 50 is prevented from being accidentally displaced and consequently the ribbon cannot be fully shifted longitudinally of tapes.

When it is desired to disengage loop 55 from the tapes, crown 56 of this loop is grasped and swung away from the beaded tapes 11 and positioned as shown by the dash and dot lines in Fig. 10 consequently, cams 56 release and become free of tapes 11, and hence the braking runner may be displaced to shift the other runners of the slide fastener as well as to open or close the gap defined by the beaded tapes. In other aspects, the slide fastener according to Figs. 9–11 inclusive is along the lines of the form according to Fig. 1 except that in Fig. 9, the upper part of the braking runner 50 has an octagonal contour.

While a certain preferred embodiment of the invention has been illustrated and described, it is to be understood that the invention is not limited thereby but it is susceptible to various changes in form and details of its scope.

I claim:

1. In a fastener comprising spaced tapes having beaded edges defining an elongated gap; a one piece runner including spaced grooves disposed longitudinally thereof and having walls slidably guided by said edges, said runner having a lower expanded and an upper contracted portion integral and in vertical alinement with said expanded portion, said portions defining spaced

shoulders disposed longitudinally of said runner and extending laterally of said contracted portion, a ribbon secured to said expanded portion for closing said gap, a fulcrum pin secured within and extending widthwise of said runner, a loop swingably mounted on said pin and having spaced arms removably straddling said contracted portion, and cam means projecting from said arms for disconnectably clamping portions of said tapes against said shoulders.

2. In a fastener comprising spaced tapes having beaded edges defining an elongated gap; a one piece runner having upper and lower surfaces and including spaced grooves intermediate said surfaces and disposed longitudinally thereof and having walls slidably guided by said edges, said runner having a lower expanded and an upper contracted portion integral and in vertical alinement with said expanded portion, said portions defining spaced shoulders disposed longitudinally and marginally of said runner and extending laterally of said contracted portion above said lower surfaces, a ribbon secured to said expanded portion for closing said gap, a fulcrum pin secured within and extending widthwise of said runner and including terminals projecting laterally of said contracted portion, a loop swingably mounted on said terminals and having spaced arms removably straddling said contracted portion, and cam means projecting from said arms for disconnectably clamping portions of said tapes against said shoulders.

3. In a fastener comprising spaced tapes having beaded edges defining an elongated gap; a one piece runner including spaced grooves disposed longitudinally thereof and having walls slidably guided by said edges, said runner having a lower expanded and an upper contracted portion integral and in vertical alinement with said expanded portion, said contracted portion having spaced sides disposed above said expanded portion, said portions defining spaced shoulders disposed longitudinally and marginally of said runner and extending laterally of said sides, a ribbon secured to said expanded portion for closing said gap, a fulcrum pin secured within and extending widthwise of said runner and including terminals extending beyond said sides, a U-shaped loop pivotally retained on said terminals and above said expanded portion and having spaced arms closely and swingably straddling said sides, and cam means projecting from said arms for disconnectably clamping portions of said tapes against said shoulders.

SAMUEL SEGAL.