July 10, 1934. D. MARINSKY 1,966,255

COUPLING AND LOCKING MEANS FOR FASTENING DEVICES

Original Filed Sept. 22, 1926

Fig. 1

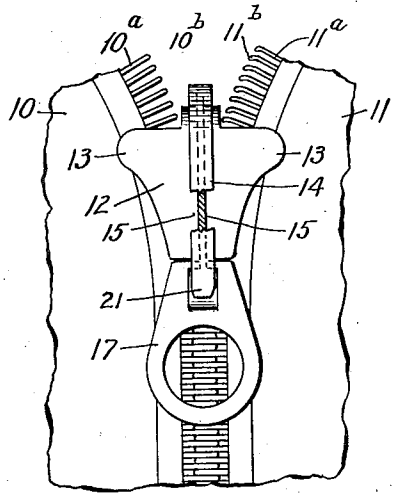


Fig. 2

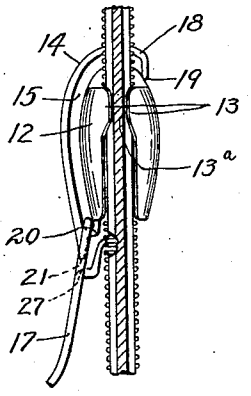


Fig. 3

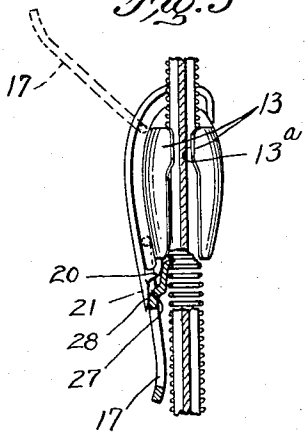


Fig. 4

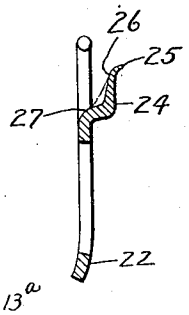


Fig. 5

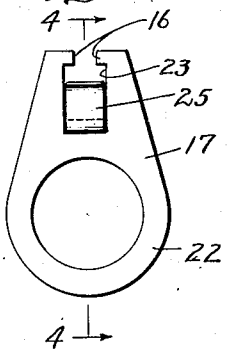
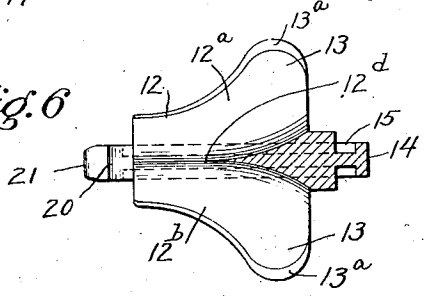


Fig. 6



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COUPLING AND LOCKING MEANS FOR FASTENING DEVICES

Davis Marinsky, New York, N. Y.

Original application September 22, 1926, Serial No. 136,905. Divided and this application September 22, 1926, Serial No. 136,904

19 Claims. (Cl. 24—205)

This invention relates to fastening devices employing flexible stringers adapted to be coupled and uncoupled, and particularly to a slide member engaging said devices for coupling and uncoupling the same and still further to a lock device for retaining the slide member in different positions of adjustment, and the object of the invention is to provide a slide member of the class specified with an operating finger-piece movable relatively to the slide member and by means of which said member may be moved into its several positions; a further object being to provide means on said finger-piece adapted to be automatically moved, by gravity, into position to engage the coupled links or other elements of the stringers of the fastening device and to be positioned adjacent one end of the slide member, whereby lateral pull or stress on the separate stringers or garments parts to which they are attached will operate to automatically move the slide member into position to engage said means to fixedly secure and lock the slider against further movement; a further object of the invention being to provide means on the slide member, engaging said finger-piece in the locking movement above referred to, for retaining said finger-piece and the means thereon in locked position and to prevent accidental displacement of said finger-piece; and with these and other objects in view the invention consists of a device of the class and for the purpose specified which is simple in construction and operation, efficient in use, and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is a plan view of several parts of my device mounted upon a portion of a fastening device;

Fig. 2 is a side and sectional view of the device as seen in Fig. 1;

Fig. 3 is a view similar to Fig. 2 but showing the parts in a different position;

Fig. 4 is a sectional view through a finger-piece and lock device which I employ, the section being on the line 4—4 of Fig. 5;

Fig. 5 is a plan view of the device as seen in Fig. 4; and,

Fig. 6 is a section on the line 6—6 of Fig. 3 with the slide member detached.

In Fig. 1 of the drawing, I have illustrated separate portions 10 and 11 of a garment or two independent garment parts, to each of which are secured stringers 10*a*—11*a* having interlocking links or other element 10*b*—11*b*, such for example as the stringers and links of the fastening device disclosed in my prior Patent No. 1,557,304, dated Oct. 13, 1925, and at 12, I have shown a coupling or slide member mounted upon and movable longitudinally of the stringers 10*a*—11*a*, and by means of which the links 10*b* and 11*b* of said stringers are adapted to be coupled and uncoupled.

The slide member 12, in the construction shown, comprises a die-cast body of unitary construction having diverging channels 12*a*—12*b* intersecting at the contracted end of said body and separated at the enlarged end thereof by a partion wall 12*c* which tapers toward the contracted end of the body and terminates in ribs 12*d* in the upper and lower faces of said body, said ribs extending to the contracted end of said body and adapted to enter the recesses between the links 10*b*—11*b*, when coupled together and to facilitate the coupling and uncoupling of said links in the operation of the slide member.

The enlarged end of the member 12 is provided with laterally extending wings 13 which extend well upon the attached portions of the stringers and prevents any possible displacement of the fastening device from the separate stringers in the operation thereof, and especially when the stringers assume angular positions with reference to the longitudinal plane of the slide member, the inner adjacent faces of the wings 13 are flattened as seen at 13*a* to insure this operation. On one face of the slide member 12 is a projecting rib 14, T-shaped in form in cross section, to provide grooves 15 at the opposite sides of said rib, to receive inwardly projecting fingers 16 at one end of a finger-piece 17 employed for operating the slide member 12. The rib 14 extends around the enlarged end of the slide member 12 to the opposite face of said slide member as seen at 18, and the grooves 15 at this end of the slide member are opened in the initial manufacture of the device, to permit of the attachment of the finger-piece 17 and then closed by forcing the top wall of the rib 14 inwardly as seen at 19.

In the construction shown, the closed end of the channeled or grooved rib 14 projects slightly beyond the contracted or lower end of the slide member 12 to form a cam face 20 spaced slightly from the links 10*b*, 11*b* when the device is in use as seen in Fig. 2 of the drawing, and said end of the rib is also provided with a projecting lock

bar or finger 21. The finger piece 17 has an enlarged apertured end portion 22 which may be curved slightly as seen in Fig. 4 of the drawing, and this end portion is adapted to be grasped by two of the fingers of the hand in the manipulation of the slide member. The contracted end of the finger-piece provided with the inwardly directed fingers or lugs 16 is apertured as seen at 23, the aperture being formed by stamping an L-shaped lock, pawl or member 24 from the material of the finger-piece 17, so that one leg of the L-shaped lock or pawl 24 is in spaced and parallel relation to the finger piece, and the end of said lock member 24 is pointed and curved outwardly, as seen at 25, to form a prong adapted to engage and pass between adjacent links 10*b*—11*b* of the stringers when coupled together, and the rounded outer face 26 of the lock member 24 is adapted to engage the rounded cam face 20 on the slide member 12 to firmly force the prong end 25 of the member 24 into engagement with the links, and also to function as a wedge disposed between the coupled stringers and the slide member 12 to lock said member against displacement, and particularly downward movement or the separation of the stringers.

It will also be noted that in the above described operation, the lock bar 21 on the rib 14, which is positioned within the aperture 23, engages the rounded edge 27 of the member 24 where it joins the finger-piece 17 and passes into the flat surface of the finger-piece, as seen at 28 in Fig. 3 of the drawing, and operates to retain the finger-piece and the lock member 24 in the position seen in Fig. 3 against accidental displacement, and it will also be apparent that this structure will retain the finger-piece against flapping or clattering movement common in other devices of this class, especially when used on galoshes and like apparel.

The above described operation will be more clearly understood from the following description. When the slide member 12 has been moved into a predetermined position to couple the slide members together, entirely and partially, and said finger-piece is released the same, due to its mounting and suspension, drops by gravity into the position shown in Figs. 1 and 2 of the drawing, in which position the lock member 24 is locked beneath and in slightly spaced relation with reference to the cam face 20, and the lock bar 21 is within the aperture 23 of the finger-piece 17, and with the parts in this position, if lateral stress or strain is applied to the parts 10 and 11 or the stringers 10*a*—11*a* thereof, a slight downward movement will be imparted to the slide member 12, and in this operation the cam face 20 will ride upon the rounded face 26 of the lock member 24 to firmly wedge and secure the lock member in position within and between the slide member and the stringers and also definitely stop further downward movement of the slide member 12. In this operation the lock bar or finger 21 slides over the surface 27 and onto the flat face of the finger-piece 17 and operates to retain said finger-piece and lock member 24 against displacement. Of course, it will be understood that a downward pull on the finger-piece 17 alone will disengage the parts to permit further operation of the slide member 12 at will, and it will also be understood that the finger-piece 17 is movable throughout the entire length of the rib 14 in moving the slide member upwardly and downwardly in coupling and uncoupling the stringers.

This application constitutes divisional subject matter of an application Serial Number 136,905. which was copending with this application and has issued in Patent Number 1,702,640, dated February 19, 1929.

It will be understood that my improved locking means by virtue of its automatic operation renders the device fool-proof and positive in function, and while I have illustrated one method of carrying my invention into effect and have illustrated its use on a fastening device employing interlocking links of specific construction, my invention is not limited in this respect, and various other changes in and modifications of the construction herein shown and described may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a slide member of the class described, of a finger piece slidably disposed on said member and by means of which the same is operated, a pawl on said finger piece adapted to be moved into position between said member and the body upon which it is slidably mounted to retain said member against movement in one direction, said member having a cam face engaging said pawl to move the same into operative position, and a lock bar on said member engaging said finger piece to retain it and said pawl against accidental displacement.

2. A fastening device employing stringers adapted to be coupled and uncoupled, a slide member for coupling and uncoupling said stringers, a finger piece supported in connection with said slide member and capable of movement longitudinally thereof and including a pawl adapted in the use of the device to be positioned between an inner surface of said slide member and stringers, means whereby the attempt to separate the stringers under pressure will cause said pawl to slide longitudinally of said member into position to retain the slide member in fixed position preventing the separation of said stringers and said finger piece facilitating the operation of said slide member and the movement of the pawl into inoperative position, and said slide member having a projecting part adapted to engage the finger piece to retain the same and said pawl in locked position.

3. A slider having overlying wings adapted to move along the stringers of a separable interlocking fastener to engage and disengage the interlocking members, a pull attached to move longitudinally of one of said wings, and a projecting finger on said pull adjacent the attached end to act as a wedge interposed between one of the wings and said interlocking members to lock the slider against opening stress.

4. The combination with a slide member for flexible stringers of the class described, of a lock member which when in predetermined position will be automatically moved by gravity into position to engage said stringers intermediate the ends thereof to retain the slide member against movement in one direction on said stringers, said lock member having a finger piece portion and being keyed to and movable longitudinally of the slide member and by means of which said slide member is operated.

5. The combination with a slide member for flexible stringers, said member having a contracted end portion and being movable along the

stringers to couple and uncouple the same, of a lock member movable longitudinally of said slide member and by means of which said slide member is operated, said lock member when moved in the direction of the contracted end of said slide member being adapted to engage said stringers to automatically retain said slide member against movement in one direction on said stringers.

6. A slider having overlapping wings adapted to move along the stringers of a separable interlocking fastener to engage and disengage the interlocking members, one of said wings including an outwardly projecting portion arranged longitudinally of the slider and including a longitudinal recess, a pull having means received in the recess in said projecting portion to permit longitudinal movement of the pull on said wing, and a projecting finger on said pull adjacent the attached end to act as a wedge interposed between one of the wings and said interlocking members to lock the slider against opening stress.

7. The combination with a slide member for flexible stringers of the class described, of a lock member which when in predetermined position will be automatically moved by gravity into position to engage said stringers intermediate the ends thereof, to retain the slide member against movement in one direction on said stringers, said slide member having an outwardly projecting part arranged longitudinally thereof and including a longitudinal recess, and said locking member having a finger piece portion and being keyed to said recessed part and movable longitudinally thereof in the locking engagement of the slide member with the stringers.

8. The combination with a slide member for flexible stringers, said member having a contracted end portion and a recessed part arranged longitudinally and projecting from one side thereof, said member being movable along the stringers to couple and uncouple the same, of a lock member coupled with and movable longitudinally of said recessed part and by means of which said slide member is operated, said lock member when moved on said part in the direction of the contracted end of said slide member being adapted to engage said stringers to automatically retain said slide member against movement in one direction on said stringers.

9. In a fastening device employing stringers adapted to be coupled and uncoupled, a slide member for coupling and uncoupling said stringers and having contracted and flared end portions, means movably supported in connection with said slide member and adapted to move automatically into operative position when the stringers are separated under pressure for retaining the slide member in fixed position, said means comprising a pawl-like member adapted to be positioned between the contracted end portion of the slide member and said stringers, and a finger piece integral with said pawl member and by means of which the slide member is operated, said finger piece being keyed to and movable longitudinally of the slide member.

10. The combination with a slide member for flexible stringers of the class described, of a lock member automatically moved by gravity into position to retain the slide member against movement in one direction on said stringers, said lock member having a finger piece portion and being keyed to and movable longitudinally of the slide member and by means of which said slide member is operated, and means on the slide member adapted to engage said lock member to retain the same against accidental displacement when in operative position.

11. The combination with a slide member for flexible stringers of the class described, of a lock member automatically moved by gravity into position to retain the slide member against movement in one direction on said stringers, said lock member having a finger piece portion and being keyed to and movable longitudinally of the slide member and by means of which said slide member is operated, means on the slide member adapted to engage said lock member to retain the same against accidental displacement when in operative position, and said slide member being provided at the enlarged end thereof with laterally directed wings extending well upon the bodies in connection with which the stringers are mounted to prevent displacement of said slide member from said stringers.

12. The combination with a slide member of the class described, of a finger piece slidably disposed on said member and by means of which the same is operated, and a pawl on said finger piece adapted to be moved into position between said member and the body upon which it is slidably mounted to retain said member against movement in one direction, said member having a cam face engaging said pawl to move the same into operative position.

13. A fastening device employing stringers adapted to be coupled and uncoupled, a slide member for coupling and uncoupling said stringers, a finger piece supported in connection with said slide member and capable of movement longitudinally thereof and including a pawl adapted in the use of the device to be positioned between an inner surface of said slide member and stringers, means whereby the attempt to separate the stringers under pressure will cause said pawl to slide longitudinally of said member into position to retain the slide member in fixed position preventing the separation of said stringers, and said finger piece facilitating the operation of said slide member and the movement of the pawl into inoperative position.

14. A slider for the stringers of a separable fastener adapted to move along said stringers, said slider having contracted and flared end portions and a channel extending therethrough, a pull attached at one end to move relatively to said slider and a locking finger on the pull adjacent the attached end thereof adapted in one position of said pull to enter said channel at the contracted end portion of the slider to lock said slider against movement, said locking finger moving longitudinally of the slider in the locking engagement.

15. A slide member for coupling and uncoupling the stringers of an attaching device of the class described, comprising a die cast body substantially V-shaped in form, said body having diverging channels intersecting at the contracted end of said body and opening outwardly through the opposite sides of the body and the enlarged end thereof, a partition wall subdividing the channels at the enlarged end of said body, the enlarged end of said body having laterally extending wings adapted to extend onto that part of the stringers attached to predetermined supports, a rib integral with said body and extending longitudinally of one side face and around the enlarged end of said body, said rib having channels at the opposite side faces thereof, and said rib projecting beyond the contracted end of said

body to form a cam member between which and the coupling stringers a wedge member is adapted to be placed to secure the slider against movement on said stringers, a finger piece carrying said wedge member and slidably engaging said rib, and a lock bar on said rib and projecting beyond said cam member for engaging said finger piece in one position thereof to retain the same against displacement.

16. A slide member for coupling and uncoupling the stringers of an attaching device of the class described, comprising a die cast body substantially V-shaped in form, said body having diverging channels intersecting at the contracted end of said body and opening outwardly through the opposite sides of the body and the enlarged end thereof, a partition wall subdividing the channels at the enlarged end of said body, the enlarged end of said body having laterally extending wings adapted to extend onto that part of the stringers attached to predetermined supports, a rib integral with said body and extending longitudinally of one side face and around the enlarged end of said body, said rib having channels at the opposite side faces thereof, and said rib projecting beyond the contracted end of said body to form a cam member between which and the coupled stringers a wedge member is adapted to be placed to secure the slider against movement on said stringers, a finger piece carrying said wedge member and slidably engaging said rib, and a lock bar on said rib and projecting beyond said cam member for engaging said finger piece in one position thereof to retain the same against displacement, the channels of said rib being closed at the contracted end of said body and opening outwardly at the opposite end of the rib, and means whereby the open ends of said channels may be closed when the finger piece is mounted on said rib.

17. The combination with a slide member for fastener stringers, the slide member having contracted and flared end portions, of a lock pawl slidably supported on said member and movable longitudinally with respect thereto into position within and between the contracted end portion of the slide member and adjacent interlocked fastener stringers to retain the slide member in fixed position on said stringers.

18. The combination with a slide member for fastener stringers, said member having contracted and flared end portions, of a lock pawl slidable longitudinally of said member, said pawl moving by gravity into engagement with said fastener stringers adjacent the contracted end of said member and means whereby in the separation of the fastener stringers said slide member will move longitudinally of the fastener stringers and pawl into wedging engagement with said pawl to lock said slide member on said fastener stringers and prevent further separation of the stringers.

19. In a slide member of the class described, a finger piece part for actuating said slide member comprising a sheet of metal, one end of which is provided with means for attaching the same to said slide member, and a wedge member offset from and extending in parallel relation to one side face of said part adjacent said end and adapted to cooperate with the slide member, said wedge member having a pronged end extending away from one face thereof.

DAVIS MARINSKY.