May 23, 1933. J. B. FREYSINGER 1,910,891

SEPARABLE FASTENER

Filed March 17, 1932

Fig. 1.

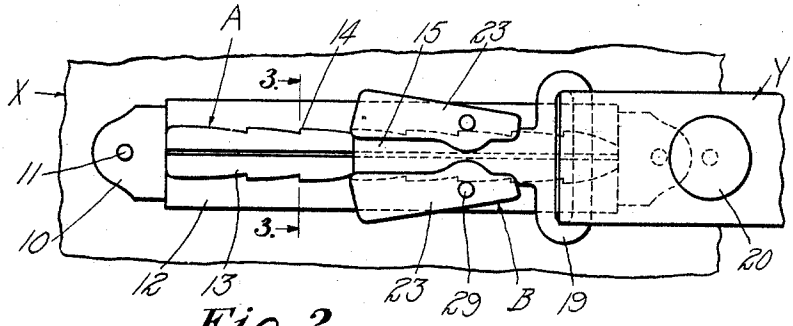


Fig. 2.

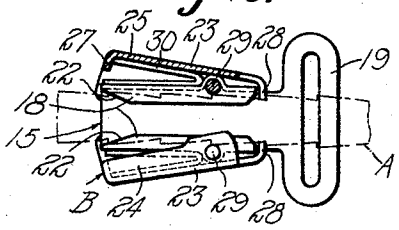


Fig. 3.

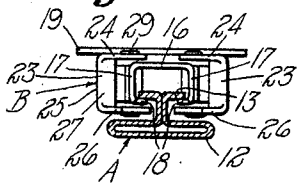


Fig. 4.

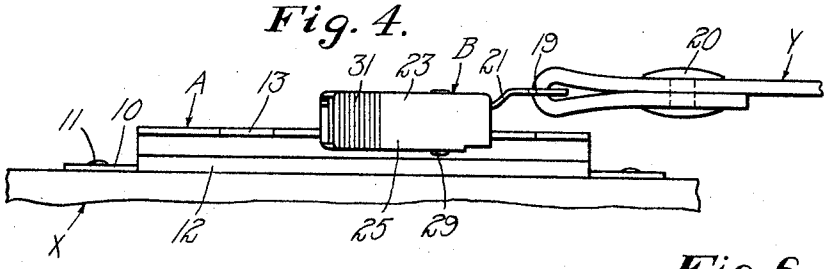


Fig. 5

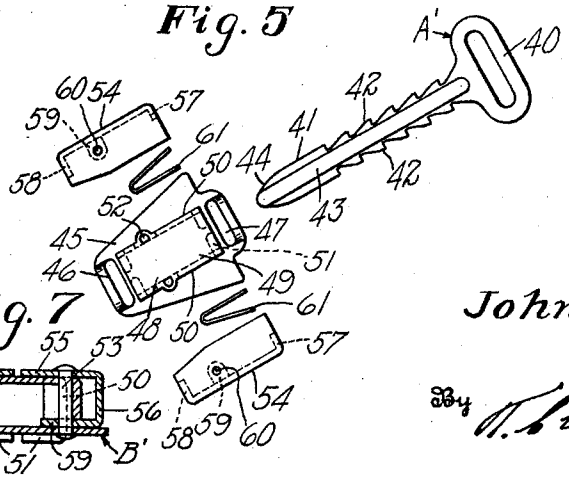


Fig. 6

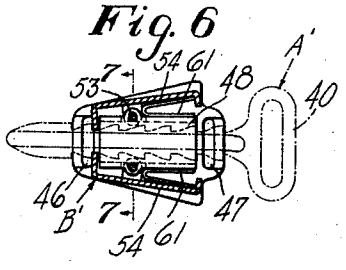
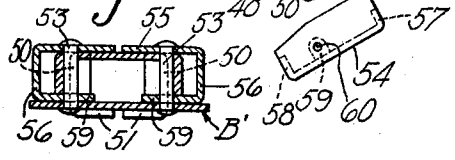


Fig. 7



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UNITED STATES PATENT OFFICE

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SEPARABLE FASTENER

Application filed March 17, 1932. Serial No. 599,483.

The present invention relates to separable fasteners, and has for an object the provision of an improved device of this kind which may be conveniently used in connecting two members or parts of the same member together.

The present invention may be used in connection with belts, wearing apparel, baggage, such as brief bags, et cetera.

A further object of the present invention is to provide a simple, strong, durable and inexpensive fastening device which may be quickly and easily operated.

Other objects will be in part obvious, and in part pointed out more in detail hereinafter.

The invention accordingly consist in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing, wherein is shown, by way of illustration, one of the embodiments which the present invention may take,

Fig. 1 is a front view of a fastening device constructed according to the present invention;

Fig. 2 is a rear view of the same with parts broken away;

Fig. 3 is a view taken on the line 3—3 of Fig. 1 and looking in the direction of the arrows;

Fig. 4 is a side elevation of a fastening device constructed according to the present invention;

Fig. 5 is a view of another embodiment of the present invention showing the various parts in dis-assembled relation;

Fig. 6 is a front view of the same with parts broken away; and

Fig. 7 is a view taken on the line 7—7 of Fig. 6 and looking in the direction of the arrows.

Referring more particularly to the drawing, and more particularly to the embodiment shown in Figs. 1 to 4, inclusive, A designates, generally, a bar member, and B designates, generally, a catch member of the fastening device. The bar member A may be in the form of a strip of sheet metal provided with suitable means for securing the same to an element intended to be connected to another element. For example, the bar member is shown as having, at each end, a tongue 10, and these tongues may be secured by means of rivets 11 to the element X which may be one end of a strap or belt, the body of a brief bag, et cetera. The body portion of the bar member is made in the form of an I-beam, as clearly shown in Fig. 3, having the enlarged base 12 and the flanges 13 which provide a track. The outer edge of each flange 13 is provided with a series of teeth 14. Each of the teeth 14 is provided with a squared end or abutment and an inclined side edge. While the bar member is here shown as being straight, it obviously may be longitudinally curved.

The catch member B of the fastening device has a frame member 15 preferably formed of sheet metal and provided with an outer wall 16 and parallel and rearwardly extending side walls 17. The free rearward ends of the side walls 17 are provided with inturned flanges 18 adapted to engage behind the flanges 13 of the bar member A when the parts of the fastener are in operative position. At one end of the frame member 15, and preferably formed integrally with the outer wall 16 thereof, is a transversely extending loop 19 which affords means for securing the frame member to the other element Y which may be the end of a belt or the strap with which a brief bag is usually provided. The end of the strap Y may be threaded through the loop 19, folded back upon the main part of the strap and then secured thereto by the rivet 20. The connection between the loop 19 and the wall 16 is outwardly bent as at 21 so that the loop is outwardly offset from the wall 16.

As may be seen in Fig. 2, the flanges 18 of the frame member 15 at one end are cut away as at 22 to facilitate the threading of the frame member 15 upon the bar member A.

Pivotally mounted upon the frame member 15 is a pair of spring pressed catches 23,

each of which is provided with a front wall 24, a side wall 25, a rear wall 26 and an end wall 27. Each of the catches 23 is provided at its end opposite to the end wall 27 with an inturned nose 28 adapted to take in behind the teeth 14 on the bar member A. The catches 23 are disposed outwardly of, on opposite sides of, and spaced from, the frame member 15 on which they are pivotally mounted by means of pivot pins 29 received by the frame member 15 and the catches 23 adjacent the noses 28 of the catches 23.

The noses 28 of the catches 23 are normally urged into engagement with the teeth 14 on the bar member A by means of V-shaped springs 30 bearing against the walls 17 and 25 of the frame member 15 and the catches 23, respectively. The springs 30 are restrained from longitudinal movement since they are confined between the end walls 27 of the catches 23 and the pivot pin receiving portions of the frame member 15.

The wall 25 of each catch 23, adjacent its end wall 27, is roughened as at 31 to provide a good gripping surface for the thumb and forefinger of the user of the fastener.

When it is desired to assemble the catch member of the fastener on the bar member, it is merely necessary for the user to grip the catch member B and thread it upon the bar member A, or the bar member may be threaded through the catch member. The noses 28 of the catches 23 will ratchet over the teeth 14 and, when the catch member B has been moved to the desired position, upon release of the catch member, the noses 28 of the catches 23 will engage behind the adjacent teeth of the bar member, and the fastener will be locked in the desired position. It is apparent that, as long as the catch member B is in position upon the bar member A, the flanges 18 of the slide member 15 will engage behind the flanges 13 on the bar member, whereby any accidental disengagement of the catch member B from the bar member A is obviated. In order to remove the catch member B from the bar member, it is merely necessary for the user to grip the roughened portions of the walls 25 of the catches 23 between his thumb and finger and press the walls 25 toward one another against the tension of the springs 30. The noses 28 of the catches 23 will thus be disengaged from the teeth 14, and the catch member B may be slid along and off the bar member A.

Referring to the embodiment illustrated in Figs. 5 to 7, A′ designates, generally, a bar member and B′ designates, generally, a catch member of the fastening device. The bar member comprises a strip of metal having a loop 40 at one end thereof which is adapted to be secured to an element which is intended to be connected to another element. The bar member also comprises an elongated track portion 41 extending from the loop 40, and each edge of the track portion is provided with a series of teeth 42. The track portion 41 is also provided with a longitudinally extending reinforcing rib 43 which imparts strength and rigidity to the teeth 42. Each tooth is provided with a squared end or abutment and an inclined side edge. The bar member, at the end opposite to the loop 40, has each of its side edges beveled, as at 44, to facilitate threading the bar member through the catch member.

The catch member B′ has a base portion 45 which is provided with loops 46 and 47 by means of which the catch member is adapted to be fastened to an element such as the element X disclosed in Figs. 1 and 4. The base 45 is formed of a piece of metal which gradually increases in width towards the loop 47. Carried by the base 45 is a frame 48 which is of channel shape and has an outer wall 49 and side walls 50. Adjacent the ends and extending from the free edges of these side walls 50 are tongues 51 which are adapted to be inserted in suitable openings in the base 45 and clenched over, as shown in Figs. 5 to 7, beneath the base in order to secure the frame 48 upon the base 45. The frame 48 is also provided with apertured ears 52 which are adapted to receive pivot pins 53. Pivotally mounted upon the frame 48 is a pair of catches 54 each of which is provided with an outer wall 55 and a side wall 56. Each catch 54 has a heel 57 extending inwardly from one end of the side wall 56. At the opposite end of each side wall 56 of each catch 54 is disposed an inwardly extending detent 58 which overlies the adjacent end of the frame 48 and is adapted to cooperate with the series of teeth 42 on the bar member A′. Each catch 54 is provided with an apertured ear 59, and each outer wall 55 is provided with an opening 60 which is in alignment with the aperture in the ear 59. These apertures in the catches 54 are adapted to receive the pivot pins 53 by means of which they are pivotally secured to the frame 48. Confined between the wall 56 of each catch 54 and the respective adjacent side wall 50 of the frame 48 is a V-shaped spring 61, the closed end of which abuts against the ear 52 of the frame 48 and has one of its legs engaging against the adjacent inturned heel 57 of the catch 54. Each of the springs 61 is thus restrained against escaping from between its respective catch 54 and the frame 48.

It will be noted that the widened portion of the base 45 provides a bearing surface for the catches 54, not only during their pivotal movement, but also while they are at rest.

The operation of this embodiment of the invention is substantially the same as that

disclosed in Figs. 1 to 4. The bar member may be threaded through the frame 48 and the detents 58 of the catches 54 will ratchet over the teeth of the bar member until the desired position has been reached, at which time each detent 58 will engage behind an adjacent tooth. In order to disengage the bar member from the catch member, it is only necessary to engage the side walls 56 of the catches 54 with the fingers and move the catches so that the heels 57 will approach each other, whereby the detents 58 are disengaged from the teeth of the bar member and the latter may be withdrawn from the catch member.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. In a separable fastener, a bar member provided with a series of teeth on each of its outer edges, a catch member comprising a frame embracing said bar member, a pair of spring pressed catches pivotally mounted outwardly of and on opposite sides of said frame and adapted to cooperate with said teeth, and springs confined between the frame member and the catches for normally urging the catches into gripping relation with the teeth of the bar member.

2. In a separable fastener, a bar member having a track provided with series of teeth on both of its outer edges, a frame embracing said bar member, said bar member and frame adapted to have relative sliding movement, catches pivoted to said frame, each having a nose and an end wall, and a spring bearing against said frame and each catch remote from said nose, whereby said nose is normally urged into gripping relation with said teeth, said spring also being confined between said frame and the end wall of said catch.

3. In a separable fastener, a bar member having a track portion with a series of teeth on at least one of its outer edges, a catch member completely encircling said bar member and including a base plate, an inverted U-shaped frame detachably secured to said base plate, said base plate and frame defining a passageway for slidably receiving said bar member, the legs of the U-shaped frame being adapted to limit the lateral movement of said bar member, and a catch pivoted to said frame.

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