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2,418,410

FASTENING DEVICE

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Fig. 1

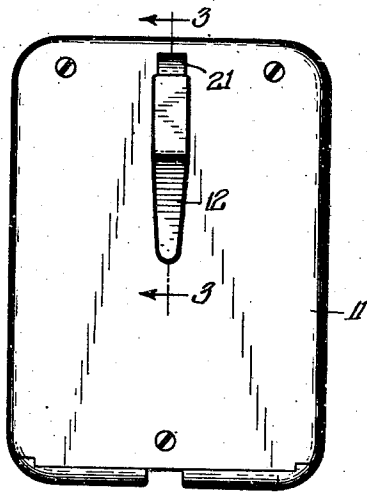


Fig. 2

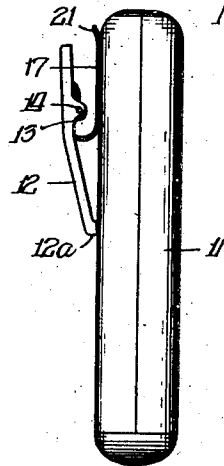


Fig. 3

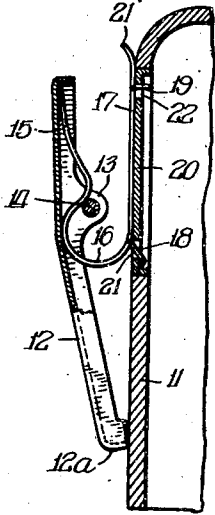


Fig. 4

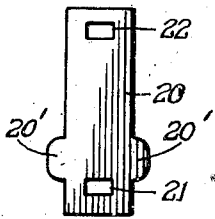


Fig. 5

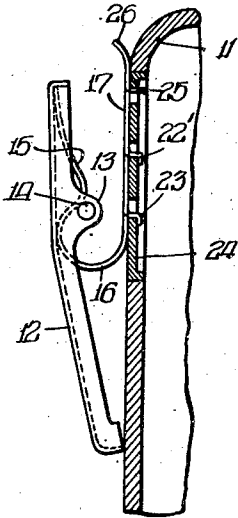


Fig. 7

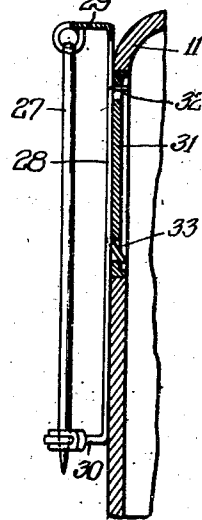


Fig. 6

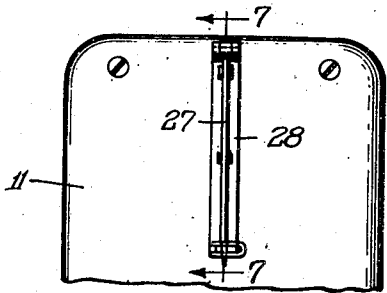
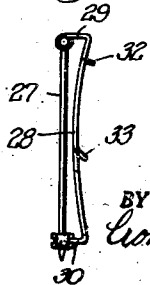


Fig. 8



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UNITED STATES PATENT OFFICE

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FASTENING DEVICE

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2 Claims. (Cl. 24-3)

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The present invention relates to fastening devices which are particularly adapted for use in connection with articles attached to the clothing, such as hearing aids.

Some articles, such as hearing aids, cannot be satisfactorily secured to the wearer of such device by the ordinary type of spring clip for the reason that such devices are often worn with clothing that has no convenient place to which the ordinary clip can be attached, in which case it is necessary to employ a pin for securing the device to the wearer. It is desirable, therefore, to provide such devices with fastening means that are simple in construction and that may be readily changed from one form to another, depending upon the desire of the user.

The primary object of the invention is the provision of a fastening device which is simple in construction and which may be readily attached to and removed from an article to be attached to clothing.

A further object of the invention is the provision of a fastening device which may be embodied either in the form of a spring clip or a pin and which is so constructed that one form of the device may be readily substituted for the other.

A still further object of the invention is the provision of a fastening device in which a spring applies pressure at both ends of said device in the same direction and in the middle in the opposite direction, whereby a locking member positioned at the middle of said device will securely retain the same in place on the article to which it is attached.

A still further object of the invention is a spring clip fastening device in which a common spring is employed both to put the clip under tension and to removably secure the clip to an associated article.

Other objects and advantages of the invention will be apparent from the accompanying drawings, which show a preferred embodiment thereof.

In the drawings,

Fig. 1 is a view in elevation of a spring clip embodying the invention as it may be applied to a hearing aid;

Fig. 2 is a view in side elevation of the structure shown in Fig. 1;

Fig. 3 is an enlarged sectional view taken on the line 3-3 of Fig. 1;

Fig. 4 is a view in elevation of a socket member which may be molded into the case of the

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device to which the fastening device is attached;

Fig. 5 is a sectional view of a modified form of the device, being in section generally corresponding to Fig. 3;

Fig. 6 shows the invention as applied to a pin which may be substituted for the clip, the view being a fragmentary view otherwise similar to Fig. 1;

Fig. 7 is a sectional view taken on the line 7-7 of Fig. 6, being somewhat enlarged with respect thereto; and

Fig. 8 is view in side elevation of the pin employed in the form shown in Figs. 6 and 7.

In the drawings the numeral 11 indicates the case of a hearing aid or similar device. In Figs. 1, 2, 4 and 5, inclusive, the body portion of the clip is indicated by the numeral 12. The body portion of the clip is channel shaped, as shown in Figs. 3 and 5, and is provided near the central portion thereof with projecting lugs 13 that support a pin 14. A spring member 15 is provided in the body portion of the clip and holds itself in place in the clip by being so shaped, as shown in Figs. 3 and 5, that it bears against the pin 14 and against the body portion of the clip 12 and is held under tension between the pin 14 and the body portion of the clip 12, thereby being self-secured to the body portion of the clip. The spring is provided at the base thereof with a loop 16 and with a substantially straight leg portion 17.

In the embodiment shown in Fig. 3 the leg portion 17 is provided with two punched out projecting lug portions 18 and 19, respectively. The lug 18 extends from the leg 17 at an angle of approximately 45°. The lug 19 extends from the leg 17 at an angle of approximately 90°. A socket member 20 is molded into the body of the device 11, the socket member being preferably made of metal, although it can be of the same material as the body portion and an integral part of it.

The socket member 20 in the form of the device shown in Fig. 3 is provided with openings 21 and 22, these openings being spaced a short distance from each end of the socket member. The latter is of generally rectangular outline, as illustrated in Fig. 4, and may or may not be provided with a pair of laterally projecting ears 20' serving as stops to prevent rocking of the socket member on the casing. Said socket member may be frictionally fitted within the opening in the casing or molded therein during the production of the casing or, as stated above, it may be made integral

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with the casing. As appears in Fig. 3, the lug 18 passes into the opening 21 and the end thereof extends beneath and under the socket member 20 so as to interlock therewith. The lug 19 extends through the opening 22 in the socket member and prevents lengthwise movement of the device in relationship to the body case 11. The spring 15 exerts pressure on the tip end 12a of the clip 12 when it engages the case 11 and likewise exerts pressure at the opposite end of the device tending to force the lug 19 into the opening 22. The lug 18 lying near the middle of the device would normally tend to move away from the case 11 but due to the fact that the lug 18 underlies a portion of the socket member, the central portion is held securely in place. Thus the action of the spring 15 secures the device in place. The device is readily removable from the case 11 by lifting the end 21' of the spring 15 and removing the lug 19 from the socket and then moving the clip so that the lug 18 disengages from the socket member.

In the device shown in Fig. 5, the leg 17 of the clip is provided with two downwardly projecting lugs 22' and 23, respectively, which lugs are bent so as to underlie the socket 24. In this device there is provided a straight lug 25 which is at a right angle to the leg 17 of the spring member and which passes through the socket member 24. The tip end 26 of the spring may be raised away from the body of the device so as to release the lug 25 and permit removal of the clip. The action of the spring in the device of Fig. 5 is the same as that described in connection with Fig. 3.

In Figs. 6 and 7 there is shown a pin member 27 which may be substituted for the clip. The socket member in Figs. 6 and 7 is of the same construction as that shown in Figs. 3, 4 and 5. In fact the same socket member is employed for either the pin or clip form of the device in order that one may be substituted for the other. The pin member 27 is provided with a member 28 which is a spring that has outwardly projecting end portions 29 and 30 to which the pin 27 is pivotally secured at one end and locked in place at the other end by a suitable safety catch.

As shown in Fig. 8, when the pin is not attached to the device and the spring is not under tension it has a somewhat arcuate shape. Punched out of the spring member 28 near the central portion thereof are a lug member 33, which is adapted to pass into an opening in the socket 31 and underlie a portion of the socket, and a lug member 32 which is bent at substantially right angles to the spring portion of the pin and adapted to pass into an opening in the socket near the other end thereof. When the pin is attached to the socket, the downwardly projecting lug 33 passes beneath the socket and the tension of the spring holds the lug 32 in place so that the pin is firmly

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secured to the body of the device and can only be removed by raising the end of the pin near which the lug member 32 is positioned. In this form of the device the pressure of the spring is exerted in one direction at the ends of the device and in the opposite direction at the central portion thereof where the lug underlying the socket member is located.

Obviously, the spring 28 may be constructed with two central lugs like those shown in connection with Fig. 5.

The device has the advantage that it is extremely simple in construction, economical to manufacture and may be readily removed and replaced in various forms to suit the convenience of the user.

I claim:

1. In a supporting device of the character described for suspending a small casing from a person's clothing, means for attaching the device to an article of clothing, and a strip of thin resilient spring material connected with said attaching means, said strip being provided inwardly of its side edges with two rearwardly struck tongues, which tongues diverge angularly relative to each other at their extremities and wedgingly fit within correspondingly spaced openings in the casing, said strip when positioned against the casing being resiliently flexed to maintain the tongues in engagement with the edges of the openings.

2. In a supporting device of the character described for suspending a small casing from a person's clothing, means for attaching the device to an article of clothing, a resilient member secured to said attaching means, lugs secured to said resilient member adapted to fit into corresponding openings in the casing, said resilient member before being secured to the casing being arched between the lugs and when positioned against the casing being resiliently flexed between the lugs into a substantially flat condition to exert pressure in one direction against one of said lugs and pressure in the opposite direction against another of said lugs, whereby to maintain the lugs in engagement with the edges of the openings in the casing.

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