

[54] SUPPORT FOR CARRYING CASE

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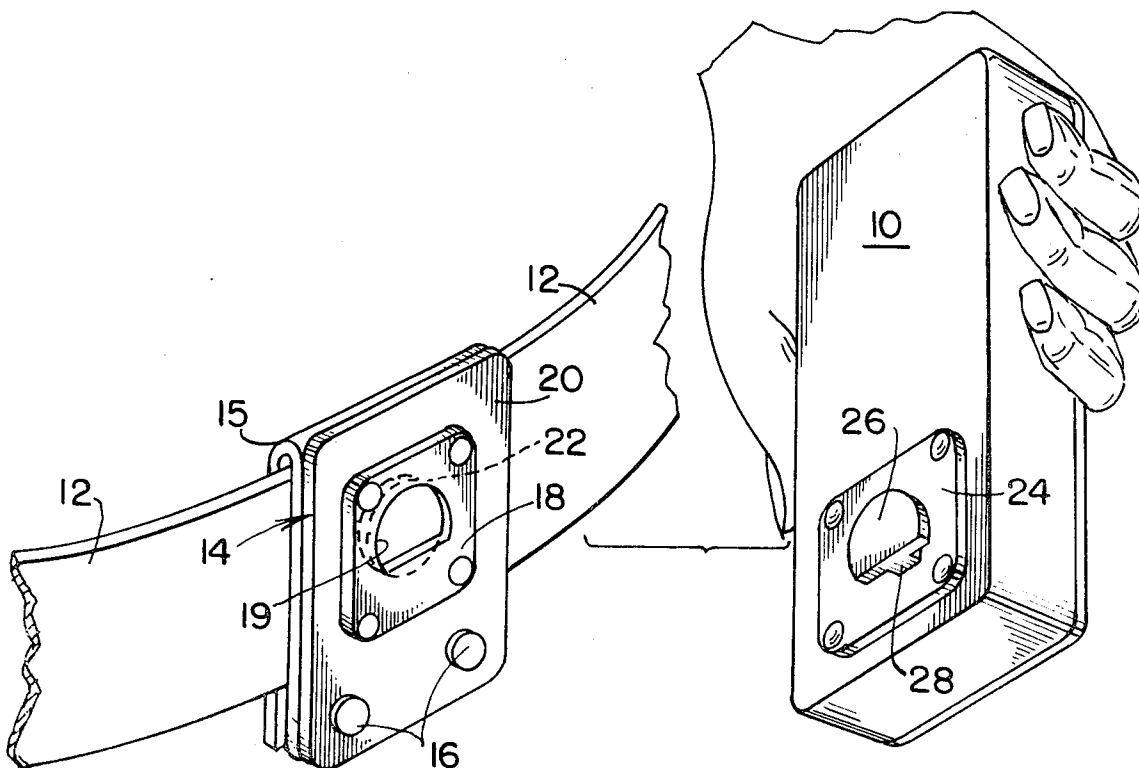
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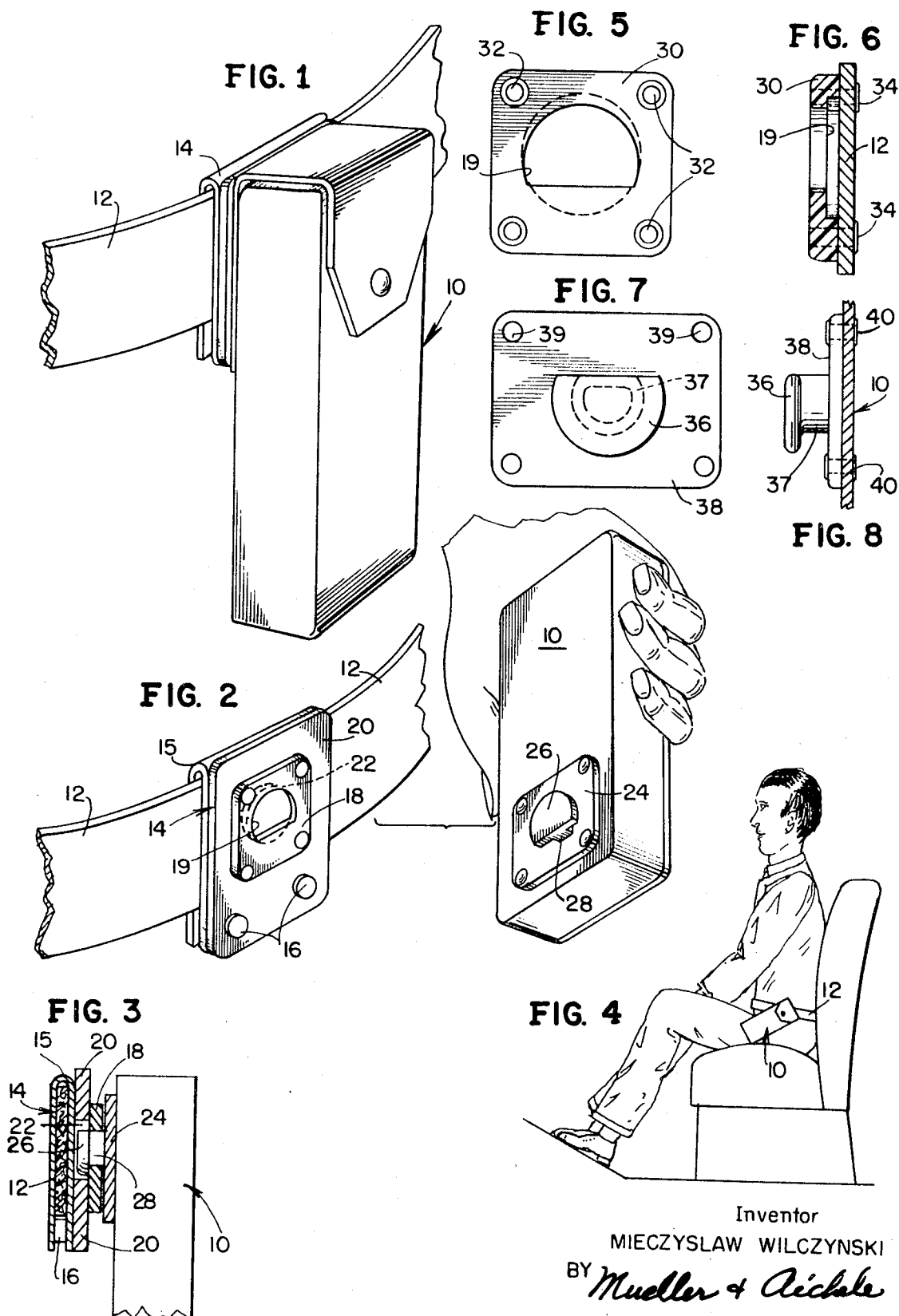
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[57] ABSTRACT

A support for a carrying case for apparatus to be carried by a person supports the case on a belt, or the like, and permits the same to pivot with respect to the belt and to be easily and quickly connected thereto and detached therefrom. This support can be used for apparatus such as a personal radio paging receiver, or any other device which is to be carried by a person. The support includes a receptacle secured to the belt having a nonsymmetrical opening therein. The carrying case has a plate thereon with a button projecting therefrom having the same shape as the opening in the receptacle. The button can be inserted into the opening when the carrying case is in a position it will not assume during normal use, and will be retained when pivoted to other positions which it may assume during use.

5 Claims, 8 Drawing Figures





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SUPPORT FOR CARRYING CASE

BACKGROUND OF THE INVENTION

It is common practice to carry personal devices on a belt, so that the device is always present when needed. Carrying cases for various different types of apparatus have been provided, which are supported on belts worn by the user. There has been a substantial demand for personal radio receivers so that the user can receive a message at any time, thus being in continuous communication with some other person. For example, repair men frequently carry radio paging receivers to receive instructions from their office as to further calls to be made.

It is desired that the carrying case for the radio receiver or other device be easily and quickly detachable from the belt and that it can be worn comfortably thereon. Paging receivers are commonly constructed in rectangular configuration and may have a length of 5 inches or more. It is customary to carry the pager on a belt in vertical position, as the speaker of the pager is commonly mounted at the top and the sound therefrom will thus be easily heard. However, when an elongated device is so supported on a belt, a problem is presented when the user attempts to sit down as the lower end of the device may engage the seat. For example, radio receivers are frequently carried by police officers who must at different times be standing, walking or riding in a car. It is, therefore, desired that the carrying case for the paging receiver or other device be arranged to be movable in position for the comfort of the user.

SUMMARY OF THE INVENTION

It is an object of this invention to provide an improved support for a carrying case for apparatus to be carried on the person.

Another object of the invention is to provide an improved device for connecting a carrying case to a belt, which provides quick and easy attachment and detachment.

A further object of the invention is to provide a device for securing a carrying case to a belt which permits pivotal movement of the carrying case and quick detachment thereof, while preventing unintentional detachment.

A still further object of the invention is to provide a device for pivotal mounting of a carrying case to a belt which can be constructed of simple and inexpensive plastic parts.

The connecting structure of the invention supports a carrying case on the belt worn by a person. The carrying case may be used for a personal radio paging receiver or any other device to be continuously available to the person. The device includes a receptacle to be secured to the belt, either by direct detachment thereto or by use of a holder about the belt, which receptacle has an opening therein of nonsymmetrical configuration, such as D-shaped. The carrying case has a plate secured thereto with a button extending therefrom which has the same configuration as the opening in the receptacle (D-shaped). The opening in the receptacle is positioned so that the button can be inserted there-through when the carrying case is in a position not encountered during normal use, such as upside down. After the button is inserted, the case can be pivoted and the nonsymmetrical shape of the opening will prevent withdrawal of the button to prevent unintentional

removal of the case from the belt. The case can be pivoted through a relatively wide range of angles as may be caused by motion of the user, without being disconnected from the belt. This has the advantage that a relatively long case can be pivoted when the person wearing the same sits down, so that the person can be more comfortable. The connecting parts can be molded of plastic to provide an inexpensive construction.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a carrying case supported on a belt by the connecting structure of the invention;

FIG. 2 shows the connecting structure with the carrying case removed from the belt;

FIG. 3 is a cross-sectional view through the connecting structure;

FIG. 4 illustrates the carrying case pivoted with respect to the belt;

FIGS. 5 and 6 show a connecting receptacle molded of plastic material; and

FIGS. 7 and 8 show the button of the connector and the support therefor constructed of plastic material.

DESCRIPTION OF THE STRUCTURE SHOWN IN THE DRAWINGS

Referring now to the drawing, FIG. 1 shows a carrying case 10 which may be used for a radio paging receiver or other device which is secured to a belt 12 by a holder 14. The structure for connecting the carrying case to the belt is shown more clearly in FIGS. 2 and 3. It will be seen that the holder 14 includes a loop 15 around the belt 12, with the bottom ends of the sides thereof fastened together with snaps 16. Alternately a continuous loop can be used through which the belt is threaded when it is put on. A retainer plate 18 on the holder has an opening 19 therein which is of D-shape. The plate 18 is secured to a supporting plate 20, which may be of leather or other suitable material, and which is secured to the loop 15 about the belt. The supporting plate 20 has an opening 22 therein back of the opening 19 in the retainer plate 18, and of a larger diameter, forming a recess behind the retainer plate 18.

Connected to the carrying case 10 is a plate 24 on which a button 26 is secured. The button 26 is also D-shaped and is of a size that will pass through the opening 19 in the retainer plate 18. The button 26 is secured to the plate 24 by a post or stud 28 of smaller size than the button, and having a flat surface aligned with the flat side of the D of the button 26. The button 26, therefore, forms a flange with a recess therebehind.

It will be apparent from FIG. 2 that when the carrying case is in the position shown, the button can be inserted through the opening 19 in the retainer plate 18 into the recess in supporting plate 20, and then pivoted to the position shown in FIGS. 1 and 3. The center of gravity of the case 10 and the device therein is below the pivot, so that the case will be held in this position. In this position the flange formed by button 26 is held by the flat side of the opening in the plate 19, so that the carrying case cannot be detached. However, the carrying case can be easily detached by rotating the same to the position shown in FIG. 2.

It will be obvious that the carrying case 10 when supported on the belt 12 by the holder 14 can pivot to various positions as the person wearing the belt moves. FIG. 4 shows the carrying case 10 pivoted so that it

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rests at an acute angle with respect to the belt 12, when the person wearing the same is in a seated position, as in an automobile. The carrying case is retained during such movement, and is not detached until it is pivoted almost 180°, as shown by FIG. 2.

Instead of using a holder 14 which has a loop 15 surrounding the belt, the holder can be attached directly to the belt 12. Also, the retainer plate 18 and the supporting plate 20 can be provided as a single integral member. This is shown in FIGS. 5 and 6 wherein the combined receptacle member 30 can be molded of plastic material. This member has holes 32 in the corners thereof which can be used to directly fasten the same to a belt 12, as by rivets 34 (FIG. 6). Alternately the retainer member 30 can be fastened to a loop which surrounds the belt, as illustrated in FIGS. 1, 2 and 3. As shown in FIGS. 5 and 6, the member 30 has a recess with a first part back of the flat side of the D-shaped opening 19 and a second part back of the opposite curved side of the opening 19.

FIGS. 7 and 8 show an alternate construction of the button and supporting plate which can also be molded of plastic material. The button 36, mounting stud 37 and plate 38 are molded as a single member. The mounting plate 38 has opening 39 therein for receiving rivets 40, or the like, for securing the same to the carrying case 10 (FIG. 8). Alternately, the plate 38 (and similarly the plate 24 in FIGS. 2 and 3) can be directly secured to the device to be carried, such as the housing of a paging receiver. By connecting the plastic retainer of FIGS. 5 and 6 directly to a belt or other supporting member, and by directly connecting the button member of FIGS. 7 and 8 directly to the device to be carried, a very simple and inexpensive connecting structure is provided.

The supporting structure described has been found to be highly satisfactory in tests which have been made. The quick attachment and detachment provided is very desirable, and the pivoting action which is permitted is advantageous.

I claim:

1. A case and connecting structure for detachably securing the case to a belt and providing pivotal movement thereof, including in combination,

a case for apparatus, wherein said case with the apparatus therein has a predetermined center of gravity, a receptacle adapted to be secured to the belt including a retainer portion having a first D-shaped opening therein, and a portion back of said retainer portion having a second opening therein larger than said first opening and forming a recess back of said

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retainer portion adjacent said first opening therein, said recess having a first part back of the flat side of said D-shaped opening and a second opposite part back of the curved side of said D-shaped opening, and

a connector having a mounting portion secured to said case at a point above said center of gravity, said connector having a stud extending from said mounting portion and a button at the end of said stud, said button having the same configuration as said first opening and being of a size to pass through said first opening into said recess when said connector is in a first position with respect to said receptacle, said stud having a cross-section of a size smaller than said button so that said button forms a flange with a recess back of said flange, said stud being rotatable within said first opening so that said connector is pivotal with respect to said receptacle when said button is inserted through said opening, said button being of a size and shape to rotate in said recess of said receptacle and being retained by said retainer portion thereof in response to pivotal movement of said connector with respect to said receptacle to a position displaced from said first position,

the weight of said case and the apparatus therein tending to hold said case in a normal position wherein said connector is pivoted substantially 180° with respect to said first position so that said button is held by said retainer portion to prevent disengagement of said connector from said receptacle, said case being rotatable from said normal position to move said connector to said first position for engagement with, and disengagement from, said receptacle.

2. The connecting structure of claim 1 further including a loop adapted to be placed around the belt, and wherein said receptacle is secured to said loop.

3. The connecting structure of claim 2 wherein said receptacle includes a first supporting plate secured to said loop and a separate retainer portion secured to said supporting plate.

4. The connecting structure of claim 1 wherein said receptacle is formed as a molded plastic member having a supporting portion and a retainer portion.

5. The connecting structure of claim 1 wherein said connector is formed as a molded plastic member including a supporting plate with said button and said stud molded integrally therewith.

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