Title of the Invention: An identity card holder, system and coupling device

Application No: 1709814.6
Date of Filing: 20.06.2017
Date of A Publication: 26.12.2018

Documents Cited:
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Field of Search:
As for published application 2563607 A viz:
- INT CL A44B, A45C, A45F, G09F
- Other: WPI, EPDOC, Patent Fulltext
  updated as appropriate

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Additional Fields
Other: None
AN IDENTITY CARD HOLDER, SYSTEM AND COUPLING DEVICE

TECHNICAL FIELD

This disclosure relates to a coupling device for coupling an identity (ID) card holder to a wearable item. This disclosure also relates to an identity (ID) card holder and identity (ID) card holder system for use with such a coupling device.

BACKGROUND

In environments such as hospitals, schools, construction sites, etc., those present on site are often required to wear identity cards to show they are authorised to be there. There are many different wearable items that can be used to enable such identity cards to be worn by a person. For example, identity cards can be worn about a person's neck by way of a lanyard. The lanyard is coupled to the identity card/identity card holder by way of a lanyard coupling arrangement. Alternatively, identity cards can be worn using a lapel clip or belt clip, for example.

Further, ID card holders have become increasingly more sophisticated, and are known to include wireless communications abilities to allow data and voice communications with supporting computer networks and human operators, camera functionality, geolocation services, and are able to allow a user to raise an alarm, or to automatically raise an alarm in certain predefined circumstances.

Consequently, ID card holder devices with such functionality are becoming more challenging to design and manufacture, and hence more expensive than before. Increasing the sophistication of identity card holders often results in an increase in weight of the ID card holder as a result of the added functionality.

There is therefore the need for secure and versatile means for wearing such ID card holders. An aim of this disclosure is to address this need.

SUMMARY

Aspects and embodiments of the invention provide a coupling device, an ID card holder, and an ID card holder system as claimed in the appended claims.
In a first aspect, a coupling device for coupling an identification (ID) card holder to a wearable item is provided in accordance with claim 1.

In other words, the coupling device has a universal attachment element which is shaped to receive at least a portion of a variety of wearable items, such that a variety of wearable items can be coupled to the coupling device.

In this way, the coupling device can be used with any one of a plurality of different types of wearable items. It will be appreciated that only one shape of universal attachment element is necessary to permit any one of a plurality of wearable items to be used. Consequently, it will also be appreciated that wearable items which can be coupled to the universal attachment portion are interchangeable.

Put another way, the universal attachment element is shaped to receive at least a portion of a first wearable item and also shaped to receive at least a portion of a second wearable item, wherein the first wearable item is different to the second wearable item. For example, the first wearable item may be a lanyard cord and the second wearable item may be a lapel clip. The universal attachment element may be shaped to receive at least a portion of a first and second wearable item at the same time or at different times.

The universal attachment element thereby enables a user to connect a preferred type of wearable item to the coupling device, the coupling device then being connected to an ID card holder. This is particularly advantageous where the ID card holder is used by more than one user. Use of an ID card holder by multiple users is increasingly likely as ID card holders become more expensive.

The universal attachment element also enables a wearable item to be used which is appropriate for a certain task, whilst not requiring a different ID card holder to be used. For example, in some circumstances use of a lanyard to wear the ID card holder may be dangerous due to risk of strangulation. This may be where a user is working with particular machinery or in an environment where the lanyard may be grabbed by an aggressor. In such circumstances a lapel clip or belt clip, for example, may be used to wear the ID card holder. The same ID card holder can then be worn via a lanyard when there is no longer the increased risk of strangulation. This is beneficial where the ID card holder is expensive and so used by multiple users and/or for multiple tasks.
In addition to the versatility of use of an ID card holder afforded by the universal attachment element, the coupling device also provides versatility via the connection element.

The connection element is configured to releasably connect to a complimentary connection element on an ID card holder. In this way, the coupling device connects the ID card holder to a wearable item so that the ID card holder can be worn by a user. The releasable connection between the coupling device and the ID card holder permits the coupling device, for example together with a wearable item connected thereto, to be removed from the ID card holder. This is particularly advantageous where the ID card holder is used by more than one user, since this facilitates each user having their own personal wearable item that can be coupled to the ID card holder via the coupling device.

In addition, where the ID card holder comprises a plurality of complimentary connection elements, the coupling device can be engaged with and released from a given complimentary connection elements as necessary. This is advantageous, for example where different complimentary connection elements enable the ID card holder to be worn in different orientations.

Accordingly, the coupling device enhances the versatility of an ID card holder for use by different users and for different purposes.

Optionally the universal attachment element is shaped to receive at least a portion of each one of a lanyard cord, a lapel clip, and a dog clip. In other words, the universal attachment element of the coupling device is shaped to receive at least a portion of a lanyard cord, is shaped to receive at least a portion of a lapel clip, and is shaped to receive at least a portion of a dog clip. In this way, any of a lanyard cord, a lapel clip and a dog clip can be used to enable an ID card holder, connected to the coupling device, to be worn by a user.

In some embodiments, the universal attachment is also shaped to receive at least a portion of a clothing and/or uniform attachment.

Optionally the connection element is configured to disengage from a complimentary connection element of an ID card holder upon application of a force acting to separate the coupling device from the ID card holder.
In other words, the coupling device can be released from the ID card holder simply by relative movement of the coupling device away from the ID card holder. For example, by pulling the ID card holder away from the coupling device, or by pulling the coupling device away from the ID card holder.

This benefits the safety of users wearing the ID card holder, since application of force to the ID card holder will release the holder from the wearer. This is particularly advantageous in circumstances where the ID card holder is worn via a lanyard and where there is an increased risk of strangulation.

This arrangement also enables simple removal of the ID card holder from the wearable item.

Optionally the connection element is configured to disengage from a complimentary connection element of an ID card holder upon application of a pre-determined release force.

In this way, the coupling device is designed to release from the ID card holder only when a force greater than or equal to a pre-determined release force is applied.

Consequently, the coupling device can be designed such that the coupling device is only released from the ID card holder following a trigger event which results in application of the predetermined release force. This ensures that the ID card holder does not simply fall off the coupling device under its own weight when worn or in normal use, but only under predetermined conditions. This is particularly advantageous as ID card holders become increasingly heavy and expensive.

The predetermined release force may be set, for example, by varying the thickness of the material of the connection element to an appropriate amount, and/or by selecting an appropriate type of material used to form the connection element.

Optionally the universal attachment element is configured such that a force required to break the universal attachment element is greater than the predetermined release force. In this way, when the wearable item and the ID card holder are pulled apart, the coupling device will release from the ID card holder before the universal attachment portion is broken. Therefore, separation of the coupling device and the ID card holder is controlled to ensure release of the coupling device from the ID card holder.
Optionally the universal attachment element is reinforced such that the force required to break the universal attachment element is greater than the predetermined release force. In this way, the break force can be increased such that it is greater than the predetermined release force.

Optionally the universal attachment element comprises a reinforcement component configured such that the force required to break the universal attachment element is greater than the predetermined release force.

In some embodiments the universal attachment element is reinforced by a strengthening component formed on the body of the coupling device. In some embodiments, the universal attachment element is reinforced by a region formed from a different material as compared to the rest of the coupling device. In some embodiments, the universal attachment element is reinforced by a region of increased thickness. In some embodiments, the universal attachment element is reinforced by a reinforcement component embedded in the material of the universal attachment element.

Optionally the universal attachment element comprises an elongate aperture shaped to receive at least a portion of each one of a plurality of wearable items.

An elongate aperture is particularly suited to accommodating a typical lapel pin or belt clip.

In addition, when the ID card holder, coupled to the coupling device, is worn it is configured to hang under gravity from the wearable item. Hanging the ID card holder from an elongate aperture facilitates retaining the ID card holder in a desired orientation when worn, due to the relatively wide base from which the ID card holder is hanging. Consequently, only a single connection point between the wearable item and the ID card holder is required.

Optionally the elongate aperture comprises a pair of shoulders, spaced apart from one another, and configured such that, when a wearable item is coupled to the coupling device and the coupling device is in use (i.e. when the wearable item is worn by a user), the wearable item bears against the shoulders. For example, the wearable item may be a lapel clip. It will be appreciated that the spacing apart of the shoulders facilitates the ID card holder hanging in a desired orientation when worn, due to the relatively wide base from which the ID card holder is hanging.
Optionally the elongate aperture comprises a central recess shaped to receive at least a portion of a wearable item, for example a lanyard cord. Where a narrow clip, lanyard cord or dog clip is the wearable item, for example, the central recess provides a central location from which the ID card holder can hang, thereby facilitating the ID card holder hanging in the desired orientation when worn.

In some embodiments, the pair of shoulders slope towards one another to form the central recess.

In embodiments of the coupling device having both an elongate shaped aperture and a central recess, a wide variety of wearable items can be coupled to the ID card holder, whilst facilitating retaining a desired orientation of the card holder. This is particularly advantageous where it is required to read information provided on an ID card carried by the ID card holder.

Optionally, when the device is connected to an ID card holder, at least a portion of the body protrudes from the ID card holder to form a grip portion which is configured to be grippable by a user.

In this way, a manual grip portion is provided to facilitate manual removal of the coupling device from an ID card holder. Consequently, the ID card holder can be easily shared by removing a wearable item (connected to a coupling device) of one user and connecting the ID card holder to the wearable item of another user. Also, in the case where the ID card holder has a plurality of complimentary connection elements to which the coupling device can be engaged, coupling device can be easily connected to the required complimentary connection element as necessary.

Optionally the connection element comprises a male component for releasably engaging, respectively, with a female component of an ID card holder.

The connection element is configured for snap-fit or friction-fit engagement with a complimentary connection element provided on an ID card holder. In this way, a simple connection mechanism is provided.

The connection element comprises a pair of resilient legs extending from the body of the device, wherein the pair of resilient legs are spaced apart from each other on the body, and wherein the pair of resilient legs are configured for snap-fit or friction-fit engagement with a complimentary connection element of an ID card holder.
Spacing apart the legs of the connection element aids retaining the ID card holder in the desired orientation when worn. Accordingly only a single point of connection between the wearable item and the ID card holder is required.

In some embodiments, the pair of resilient legs are configured to set the predetermined release force. For example, the thickness of the legs may be selected to adjust the release force. Additionally or alternatively, the material used to form the legs may be selected to adjust the release force.

Optionally each of the legs is provided with a projection or barb for snap-fit engagement with a complimentary connection element of an ID card holder.

The coupling device comprises a magnetic component which is configured such that, when the connection element is connected to a complimentary connection element of an ID card holder, the magnetic component is connected to a safety detection circuit for determining coupling/decoupling of the coupling device to an ID card holder.

In this way, when the coupling device is released from the ID card holder, a signal is sent to a remote location to trigger an alarm. This alerts human operators at the remote location that the ID card holder has been detached from the user, and accordingly that the user wearing the ID card holder may be in a risk situation.

In the case where the coupling device is only removed from the ID card holder when a predetermined force has been applied, this ensures that the ID card holder is removed, and therefore an alarm triggered, only in the event that the predetermined force is applied. Accordingly, where the predetermined force is selected to correspond to a trigger event, such as the ID card holder being forcibly removed from the coupling device, the alarm is triggered in response to such an event. Consequently, the number of false alarms resulting from accidentally decoupling the coupling device from the ID card holder is reduced.

Further, in the case where the universal attachment element is reinforced such that the force required to break the universal attachment element is greater than the predetermined release force, pulling of the ID card holder will cause the coupling device to be released before the attachment element is broken. Consequently, the magnetic component will be disconnected from the safety detection circuit, triggering the alarm. If the universal attachment element were to break, the coupling device may not be
released from the ID card holder and so the alarm may not be triggered. Accordingly, this feature enhances the safety of users wearing the ID card holder.

Optionally the predetermined release force required to decouple the coupling device from an ID card holder is selected based on the conditions of an intended use of the ID card holder.

In some embodiments, the intended use may be the type of wearable item which the ID card holder is intended to be coupled to.

In some embodiments, the intended use may be a position on the user at which an ID card holder is intended to be worn.

In other words, the predetermined force may be selected based on the type of wearable item and/or the location at which a wearable item would be worn. For example, where the wearable item is a belt clip, it may be more likely for an ID card holder to become caught or accidentally pulled. Accordingly, it may be desirable for the predetermined release force to be relatively high. On the other hand, where an ID card holder is intended to be worn on a lanyard around a user’s neck, it may be desirable for the predetermined release force to be relatively low in order to reduce the risk of strangulation.

In some embodiments, the intended use may be the environment in which a user is working, i.e. the predetermined release force is selected based on the environment in which a user is working. For example, where the user is a police officer, security staff or prison staff, for example, the likelihood of the ID card holder being pulled may be higher. Accordingly it may be desirable in such circumstances to increase the predetermined release force.

In this way, a coupling device having a tuneable retention force is provided.

In some embodiments the predetermined release force is approximately 20N. In some embodiments, a predetermined release force of 1N, 5N, or 15N is provided. It will appreciated that any suitable predetermined release force can be used.

In a further aspect an identification (ID) card holder for retaining an ID card in a visible configuration is provided in accordance with claim 13.
Optionally the housing is configured to receive and retain an ID card, for example in a visible orientation.

In an alternative, the identity card holder may in addition or exclusively use electronic means for identifying a wearer or holder of the identity card holder, in which case a means for receiving and retaining an ID card may not be needed as long as the identity card is in range of an electronic interface of the ID card holder.

Optionally the housing comprises a plurality of complimentary connection elements. For example, 2, 3, 4, 5, 6, or more complimentary connections.

Optionally the housing is substantially rectangular in shape, wherein a first complimentary connection element is provided at a short side of the substantially rectangular housing, and a second complimentary connection element is provided at a long side of the substantially rectangular housing. In some embodiments, a third complimentary connection element is provided at the second short side of the substantially rectangular housing. In some embodiments, a fourth complimentary connection element is provided at the second long side of the substantially rectangular housing.

In some embodiments, the housing comprises a side wall and the complimentary connection elements are provided in the side wall.

It will be appreciated that a housing of any suitable shape may be provided.

Optionally the or each complimentary connection element comprises a male component for releasably engaging, respectively, with a female component of a coupling device disclosed herein.

The or each complimentary connection element comprises a safety detection circuit for connecting to a magnetic component of a coupling device disclosed herein, for determining coupling/decoupling of the coupling device to an ID card holder.

In a further aspect an ID card holder system is provided in accordance with claim 17.

In this way, when the complimentary connection element of the ID card holder is not coupled to a coupling device, the complimentary connection element may be coupled to
a blank connection device. This prevents or reduces the ingress of debris or dirt into the complimentary connection element of the ID card holder. This is particularly important where the ID card holder comprises a safety detection circuit for connecting to a magnetic component of a coupling device for determining coupling/decoupling of the coupling device to an ID card holder.

Optionally, when the blank connection device is connected to the ID card holder, a surface of the body of the blank connection device is configured to be flush with a surface of the ID card holder housing.

In this way, the blank connection device does not protrude from the surface of the housing of the ID card holder, thereby creating an aesthetically pleasing finish.

Optionally the ID card holder comprises at least two complimentary connection elements, the system further comprising a coupling device as disclosed herein. Accordingly, the complimentary connection element(s) which is (are) not coupled to the coupling device can be coupled to and covered over by the blank connection device(s).

Within the scope of this application it is expressly intended that the various aspects, embodiments, examples and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings, and in particular the individual features thereof, may be taken independently or in any combination. That is, all embodiments and/or features of any embodiment can be combined in any way and/or combination, unless such features are incompatible. The applicant reserves the right to change any originally filed claim or file any new claim accordingly, including the right to amend any originally filed claim to depend from and/or incorporate any feature of any other claim although not originally claimed in that manner.

BRIEF DESCRIPTION OF THE DRAWINGS

One or more embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figures 1a and 1b shows perspective views of a coupling device in accordance with the present disclosure;

Figure 1c shows a front view of the coupling device of Figures 1a and 1b;
Figures 2a and 2b show, respectively, front and back views of an ID card holder in accordance with the present disclosure;

Figure 2c shows a perspective view of the ID card holder of Figures 2a and 2b;

Figure 3a shows a front view of the ID card holder of Figures 2a to 2c connected to the coupling device of Figures 1a to 1c;

Figure 3b shows a perspective view of the ID card holder of Figures 2a to 2c connected to the coupling device of Figures 1a to 1c;

Figure 3c shows a close-up cross-sectional view of the ID card holder of Figures 2a to 2c connected to the coupling device of Figures 1a to 1c;

Figure 4 shows a close-up cross-sectional view of the ID card holder of Figures 2a to 2c connected to a blank connection device in accordance with the present disclosure; and

Figures 5a to 5c shows a perspective view of a wearable item coupled to an ID card holder of Figures 2a to 2c via a coupling device as shown in Figures 1a to 1c

DETAILED DESCRIPTION

An example embodiment of the invention is now described.

With reference to Figures 1a-c, a coupling device is generally indicated at reference numeral 2. As will be described in further detail below and as is illustrated in Figures 5a-c, the coupling device 2 is configured for coupling an identification card holder 4 to a wearable item 6a, 6b, 6c. The wearable item may be a lanyard cord 6a or coupling arrangement, a lapel clip 6b, a dog clip 6c or other clothing or uniform attachment means.

The coupling device 2 has a body 8 including a connection element 8a and a universal attachment element 8b. As shown in Figures 5a-c, when in use, the coupling device 2 hangs from a wearable item 6a, 6b, 6c via the attachment element 8b at an upper end 2a of the coupling device 2, and is connected to an ID card holder 4 at a lower end 2b of the coupling device 2. In this way, the upper end 2a of the coupling device 2 is located above the lower end 2b when in use.
The coupling device 2 is formed of a plastics material, for example a polycarbonate and acrylonitrile butadiene styrene (ABS) blend. Alternatively, the coupling device 2 may be formed of any suitable material.

The connection element 8a is configured to releasably engage a complimentary connection element 26 (described below) provided on an ID card holder 4 to releasably connect the coupling device 2 to an ID card holder 4. The connection element 8a comprises a pair of resilient legs 10 extending from the lower end 2b of body 4 of the coupling device 2. The pair of resilient legs 10 are substantially parallel to each other when at rest. However, other configurations are possible.

The resilient legs 10 are configured to flex towards and away from each other upon application of a force. The degree to which the pair of resilient legs 10 flex under a given force is controlled based on the thickness of the legs 10 and/or the material from which the legs 10 are made. In this way, the resilient legs 10 are designed to have a predetermined flexion.

Each resilient leg 10 is provided with a projection or barb 12, extending from the respective leg 10. Each barb is provided with an upper surface 12a configured to engage a complimentary portion of the ID card holder 4 to retain the coupling device 2 and ID card holder 4 together. The upper surface 12a comprises a curved profile. In alternative embodiments, the upper surface 12a comprises a straight profile. The degree of curvature of the upper surface 12a can be selected to provide a desired engagement with the complimentary connection element 26 of the ID card holder 4.

The coupling device 2 also comprises a magnetic component 14 embedded in the body 8 at a position between the pair of resilient legs 10 and proximal the lower end of the body 8. The magnetic component 14 is configured to connect to a safety detection circuit (described below) of the ID card holder 4 for determining coupling/decoupling of the coupling device 2 to an ID card holder 4.

The universal attachment portion 8b of the coupling device is shaped to receive at least a portion of each one of a plurality of wearable items 6a,b,c, to couple the wearable item 6a,b,c to the coupling device 2.

The universal attachment portion 8b comprises an elongate aperture 16, which is shaped to receive at least a portion of the wearable item 6a, 6b, 6c. The aperture 16 is defined by a wall having an upper portion 16a proximal the upper end 2a of the coupling device.
2 and a lower portion 16b proximal the lower end 2b of the device 2. In the illustrated embodiment, the elongate aperture 16 is substantially rectangular in shape and the upper and lower portions 16a,b of the wall are located along the long edges of the rectangular shape.

The upper portion of the wall 16a is shaped to define a pair of shoulders 18a,b which are spaced apart from each other at either end of the upper portion 16a of the wall 16. The pair of shoulders 18a,b are arranged such that a wearable item, e.g. a lapel clip 6b, located in the elongate aperture 16 can bear against the pair of shoulders 18a,b when the coupling device 2 is hanging from the wearable item (as shown in Figure 5b).

The upper portion of the wall 16a also comprises sloped wall portions 20a,b extending towards each other from the pair of shoulders 18a,b and defining a central recess 22, which is equidistant from each of the shoulders 18a,b. The central recess 22 is located on an axis of symmetry A of the coupling device 2, wherein the axis intersects the centre of gravity of the coupling device 2.

The universal attachment element 8b comprises a reinforcement structure 24. The reinforcement structure 24 extends from the upper portion 16a of the wall defining the aperture 16, towards the upper end 2a of the coupling device 2. The reinforcement structure 24 is configured to provide additional strength to the universal attachment element 8b, particularly the upper portion 16a of the wall defining the aperture 16. In this way, the force required to break the universal attachment element 8b is increased. Further, by adjusting the dimensions and/or the material from which the reinforcement structure is made, the force required to break the upper wall portion 16a of the aperture 16 is selected.

As can be seen in Figure 3a, when the coupling device 2 is connected to the ID card holder 4, a portion of the body 8 of the coupling device 2 is configured to project from a housing 28 (described below) of the ID card holder 4. This projecting portion forms a grip portion 8c which a user can grip to pull the coupling device 2 away from the ID card holder 4.

With reference to Figures 1a to 1c, when the coupling device 2 is in use, the upper end 2a is positioned above the lower end 2b. The connection element 8a is provided at the lower end 2b of the coupling device 2 and the grip portion 8c is provided at the upper end, as can be seen from the figures.
With reference to Figures 2a-c, an ID card holder 4 is generally indicated by reference numeral 4. The ID card holder 4 comprises a substantially rectangular housing 28 having a front face 30, a back face 32, and a substantially rectangular side wall 34 connecting the front face 30 to the back face 32.

The front face 30 has a physical interface to hold an ID card (not shown). The physical interface includes four protruding tabs 36 configured to hold an ID card in place on the ID card holder 4, each tab 36 projecting from a long or short edge of the rectangular side wall 34. In some embodiments, a slot and window arrangement may also be used, or any other arrangement for holding an identity card in place for display.

The back face 32 of the ID card holder 4 includes a screen 38 for display of information to a user. The ID card holder 4 may also include a processor, a memory, a communication device for sending signals to a remote location, and/or other electronic components as required.

The ID card holder 4 comprises a complimentary connection element 26 on each of the long and short sides of the rectangular side walls 34. The complimentary connection element 26 is shown in detail in Figure 3c. Each complimentary connection element 26 comprises a socket of complimentary shape to the connection element 8a of the coupling device 2.

The socket 26 comprises a pair of recesses 40 shaped to engage the respective barbs 12 of the resilient legs 10 of the coupling device 2. The pair of recesses 40 define a corresponding pair of projections 42 configured to mate with the barbs 12 of the coupling device 2.

The socket 26 also comprises a complimentary connection element (not shown) for coupling with the magnetic component 14 of the coupling device 2. The complimentary connection element is connected to a safety detection circuit (not shown) housed in the housing of the ID card holder 4 for determining coupling/decoupling of the coupling device 2 to an ID card holder 4.

When in use, a portion of a wearable item 6a,b,c is connected to the universal attachment portion 8b of the coupling device 2. As shown in Figure 5a, when the wearable item is a lanyard cord 6a, the cord 6a is passed through the aperture 16 of the coupling device 2 to couple the lanyard cord 6a to the coupling device 2.
As the coupling device 2 hangs from the lanyard cord 6a under gravity, the lanyard cord 6a is positioned to occupy the central recess 20 of the aperture 16. In this way, the coupling device 2 is balanced such that the axis A is substantially vertical.

As shown in Figure 5b, when the wearable item is a lapel clip 6b having a tape which folds to form a loop 54, the loop 54 is passed through the aperture 16 of the coupling device 2 to couple the lapel clip 6b to the coupling device 2.

As the coupling device 2 hangs under gravity, the loop 54 bears against the shoulders 18a,b of the elongate aperture 16. Since the shoulders 18a,b are spaced apart, the coupling device 2 is balanced such that the axis A is substantially vertical. It will be appreciated that this arrangement will also be achieved when any wearable item, configured to be coupled to the coupling device 2 via a loop of sufficiently wide tape, is used.

As shown in Figure 5c, when the wearable item is a dog clip 6c, the clip 6c is passed through the aperture 16 of the coupling device 2 to couple the clip 6c to the coupling device 2.

As the coupling device 2 hangs from the dog clip 6c under gravity, the dog clip 6c is positioned to occupy the central recess 20 of the aperture 16. In this way, the coupling device 2 is balanced such that the axis A is substantially vertical. It will be appreciated that this arrangement will also be achieved when any wearable item, configured to be coupled to the coupling device 2 via sufficiently narrow portion, is used.

It will be appreciated that any other suitable wearable item may be connected to the coupling device 2.

The coupling device 2 is connected to the ID card holder 4 via the connection element 8a. With reference to Figure 3c, the resilient legs 10 of the connection element 8a are introduced into the socket 26 of a complimentary connection element on the ID card holder 4. As the coupling device 2 is pushed into the socket 26, the resilient legs 10 flex towards each other as the barbs 12 engage the projecting portions 42 of the socket 26. As the coupling device 2 continues to be pushed into the socket 26, the barbs 12 enter the corresponding recesses 40 of the socket 26 and the resilient legs 10 spring back to their at rest position.
In this way, the barbs 12 engage an underside of the projecting portions 42 in a snap-fit interaction. Engagement of the barbs 12 with the projecting portions 42 ensures that the coupling device 2, and a wearable item 6a,b,c attached thereto, remains connected to the ID card holder 4.

When the connection element 8a is in place in the socket 26, the magnetic component 14 of the coupling device 2 connects to the safety detection circuit (not shown) of the ID card holder 4. When the magnetic component 14 is connected to the safety detection circuit, it is determined that the coupling device 2, and hence wearable item 6a,b,c attached thereto, is connected to the ID card holder 4.

In the illustrated embodiment, the ID card holder 4 has a rectangular housing 28. Should it be desirable for the ID card holder 4 to hang from the coupling device in a portrait orientation, the coupling device 2 is connected to a complimentary connection element on a short side wall of the rectangular housing 28. If on the other hand, the ID card holder 4 is required to hang from the coupling device in a landscape orientation, the coupling device 2 is connected to a complimentary connection element on a long side wall of the rectangular housing 28.

Should a user wish to swap the wearable 6a,b,c device for another one, or connect the coupling device 2 to an alternative complimentary connection element 26, the coupling device 2 can be disconnected from the ID card holder 4. To remove the coupling device 2, a user grips the grip portion 8c and applies force to pull the coupling device 2 and ID card holder 4 apart.

The force required to separate the coupling device 2 from the ID card holder 4 is predetermined force. The predetermined force is set by the thickness and/or material of the resilient legs 10 and/or barbs 12. The predetermined force is also set be the degree of curvature of the upper surface 12a of the barbs 12 since this will impact the force required to release the barbs 12 from engagement with the projecting portions 42.

In the illustrated embodiment, the coupling device 2 has a predetermined release force of 20N. In the coupling device 2 according to the illustrated embodiments, the resilient legs have a depth d, as shown in Figure 1b, of 4.4mm. In alternative embodiments the resilient legs have a depth d of 3-6mm, for example 4-5mm.
In the coupling device 2 according to the illustrated embodiments, the resilient legs have a length l, as shown in Figure 1c of 6.0mm. In alternative embodiments the length l is 3-15mm, for example 3-10mm, for example 4-8mm.

In the coupling device 2 according to the illustrated embodiments, the resilient legs have a width w, as shown in Figure 1c, of 1.5mm. In alternative embodiments the width w is 1-3mm, for example 1-2mm.

In the coupling device 2 according to the illustrated embodiments, the upper surface 12a of the barbs 12 has a radius of curvature of 1.0mm. In alternative embodiments the radius of curvature is 0.5mm to 10mm, for example 0.5mm to 5mm, for example 0.5mm to 2mm. In alternative embodiments the upper surface 12a is flat.

In the coupling device 2 according to the illustrated embodiments, the overall height h of the coupling device from the upper end 2a to the lower end 2b is 16.96mm. In alternative embodiments, the overall height h is 10-30mm, for example, 12-25mm, for example 15-20mm.

In the coupling device 2 according to the illustrated embodiments, the overall width v of the coupling device, as shown in Figure 1c, is 17.2mm. In alternative embodiments, the overall width v is 10-30mm, for example, 12-25mm, for example 15-20mm.

It will be appreciated that the dimensions provided above are given by way of example only. It will be understood that any suitable dimensions can be used to achieve a desired release force.

In some embodiments, the predetermined release force is 1N, 5N, 10N, 15N, 30N, 40N, 50N or higher.

By selecting a predetermined separation force, the coupling device 2 is designed such that it is only released from the ID card holder 4 following a trigger event which results in application of the predetermined release force. For example, this predetermined force may correspond to an aggressor pulling on the ID card holder 4. This ensures that the ID card holder 4 does not simply fall off the coupling device under its own weight when worn or in normal use, but only under predetermined conditions. This is particularly advantageous where the ID card holder 4 is relatively heavy and expensive.
In some embodiments, the predetermined release force is selected based on the intended conditions of use of the ID card holder.

As the coupling device 2 is separated from the ID card holder 4, the barbs 12 are withdrawn from the recesses 40 and ride up over the projecting portions 42 of the socket 26. Consequently, the resilient legs 10 are flexed towards each other as the coupling device 2 is removed. Once released, the resilient legs 10 spring back to their at rest position.

As the coupling device 2 is removed from the ID card holder 4, a force may be applied by the wearable item 6a,b,c to the upper wall 16a of the elongate aperture 16. For example, if the ID card holder 4 or wearable item 6a,b,c is pulled. When the applied force is sufficiently high, the upper wall 16a will break.

The reinforcement structure 24 acts to reinforce the upper wall 16a such that a larger force is required to break the upper wall 16a than the predetermined force required to release the coupling device 2 from the ID card holder 4. In this way, when a force is applied to separate the coupling device 2 from the ID card holder 4, the coupling device will release from the ID card holder 4 before the upper wall 16a breaks.

Consequently, the magnetic component 14 will always disengage from the safety detection circuit (not shown) of the ID card holder 4 when the predetermined force is applied to separate the wearable item 6a,b,c and the ID card holder 4. When the magnetic component 14 is disconnected from the safety detection circuit, it is determined that the coupling device 2, and hence wearable item 6a,b,c attached thereto, has been removed from the ID card holder 4 and an alarm is triggered at a remote location to indicate a risk event. A human operator at the remote location can then contact the wearer to determine their situation. Consequently, the safety of the wearer is improved.

Further, the releasable nature of the coupling device 2 also has the advantage of reducing the strangulation risk to a wearer when worn with a lanyard around the user’s neck.

In use, only one of the complimentary connection elements 26 of the ID card holder 4 is connected to a coupling device 2 for connecting to a wearable item 6a, 6b, 6c. In order to prevent ingress of debris and dirt which may impede the functioning of the remaining
complimentary connection elements 26, blank connection elements 44 are provided, as shown in Figure 5.

The blank connection element 44 comprises a body 46 having a surface 50. The body 46 also comprises a pair of resilient legs 48 extending therefrom. The resilient legs 48 of the blank connection element 44 are similar to those of the coupling device 2. The pair of resilient legs 48 are substantially parallel to each other when at rest. The resilient legs 48 are configured to flex towards and away from each other upon application of a force.

Each resilient leg 48 is provided with a projection or barb 52, extending from the respective leg 48, and configured to mate with the pair of projections 42 of the complimentary connection element 26 of the ID card holder 4.

The blank connection element 44 is fitted to the socket 26 in the same manner as described above in relation to the coupling device 2. When fitted into the socket 26, the surface 50 of the blank connection element 44 lies flush with a surface of the housing 28 of the ID card holder 4. This maintains an aesthetically pleasing outer appearance and also protects the socket 26 from ingress of dirt.

To remove the blank connection element 44, a thin bladed screw-driver or similar tool is inserted into an aperture 56 provided at a periphery of the socket 26. The blank connection element 44 can then be prised out of the socket 26.

Although the invention has been described above with reference to one or more embodiments, it will be appreciated that various changes or modifications may be made without departing from the scope of the invention as defined in the appended claims.
CLAIMS

1. A coupling device for coupling an identification (ID) card holder to a wearable item, the coupling device having a body comprising:

   a connection element configured to releasably engage a complimentary connection element provided on an ID card holder, to releasably connect the coupling device to an ID card holder, wherein the connection element comprises a pair of resilient legs extending from the body of the device, wherein the pair of resilient legs are spaced apart from each other on the body, and wherein the pair of resilient legs are configured for snap-fit or friction-fit engagement with a complimentary connection element of an ID card holder; and

   a universal attachment element shaped to receive at least a portion of each one of a plurality of wearable items, to couple the wearable item to the coupling device;

   wherein the coupling device comprises a magnetic component which is configured such that, when the connection element is connected to a complimentary connection element of an ID card holder, the magnetic component is connected to a safety detection circuit for determining coupling/decoupling of the coupling device to an ID card holder.

2. A coupling device according to claim 1, wherein the universal attachment element is shaped to receive at least a portion of each one of a lanyard cord, a lapel clip, and a dog clip.

3. A coupling device according to claim 1 or 2, wherein the connection element is configured to disengage from a complimentary connection element of an ID card holder upon application of a force acting to separate the coupling device from the ID card holder.

4. A coupling device according to any preceding claim, wherein the connection element is configured to disengage from a complimentary connection element of an ID card holder upon application of a pre-determined release force.

5. A coupling device according to claim 4, wherein the universal attachment element is configured such that a force required to break the universal attachment element is greater than the predetermined release force.
6. A coupling device according to claim 5, wherein the universal attachment element comprises a reinforcement component configured such that the force required to break the universal attachment element is greater than the predetermined release force.

7. A coupling device according to any preceding claim, wherein the universal attachment element comprises an elongate aperture shaped to receive at least a portion of each one of a plurality of wearable items.

8. A coupling device according to claim 7, wherein the elongate aperture comprises a pair of shoulders spaced apart from one another and configured such that, when a wearable item is coupled to the coupling device and the wearable item is worn by a user, the wearable item bears against the shoulders.

9. A coupling device according to any of claims 7 or 8, wherein the elongate aperture comprises a central recess shaped to receive at least a portion of a wearable item, for example a lanyard cord.

10. A coupling device according to any preceding claim, wherein when the device is connected to an ID card holder, at least a portion of the body protrudes from the ID card holder to form a grip portion which is configured to be grippable by a user.

11. A coupling device according to any preceding claim, wherein the connection element comprises a male component for releasably engaging, respectively, with a female component of an ID card holder.

12. A coupling device according to any preceding claim, wherein each of the resilient legs is provided with a projection or barb for snap-fit engagement with a complimentary connection element of an ID card holder.

13. An identification (ID) card holder for retaining an ID card in a visible configuration, the ID card holder comprising:
   a housing comprising a complimentary connection element configured to releasably engage a connection element of a coupling device according to any of claims 1 to 12, to releasably connect the ID card holder to a coupling device;
   wherein the ID card holder comprises a safety detection circuit for connecting to a magnetic component of said coupling device, for determining coupling/decoupling of the coupling device to an ID card holder.
14. An ID card holder according to claim 13, wherein the housing comprises a plurality of complimentary connection elements.

15. An ID card holder according to claim 14, wherein the housing is substantially rectangular in shape, wherein a first complimentary connection element is provided at a short side of the substantially rectangular housing, and a second complimentary connection element is provided at a long side of the substantially rectangular housing.

16. An ID card holder according to any of claims 13 to 15, wherein the or each complimentary connection element comprises a female component for releasably engaging, respectively, with a male component of a coupling device accordingly to any of claims 1 to 12.

17. An ID card holder system, comprising:

   an ID card holder according to any of claims 13 to 16; and

   a blank connection device, the blank connection device having a body comprising a connection element arranged to engage the complimentary connection element the ID holder to couple the blank connection device to the ID card holder.

18. An ID card holder system according to claim 17, wherein, when the blank connection device is connected to the ID card holder, a surface of the body of the blank connection device is configured to be flush with a surface of the ID card holder housing.

19. An ID card holder system according to claim 17 or 8, wherein the ID card holder comprises at least two complimentary connection elements, the system further comprising a coupling device according to any of claims 1 to 12.

20. An ID card holder system according to claim 21, wherein when the connection element of the coupling device is configured to disengage from the complimentary connection element of an ID card holder upon application of a pre-determined release force, the predetermined release force required to decouple the coupling device from the ID card holder is selected based on the conditions of an intended use of the ID card holder.