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3,261,067

STICKPIN

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FIG. 1

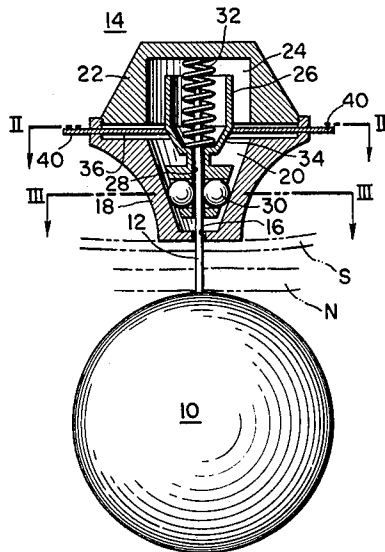


FIG. 2

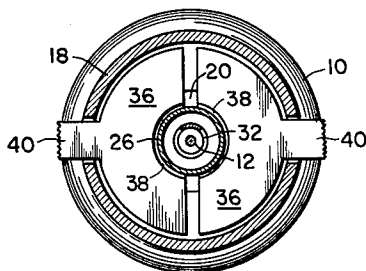
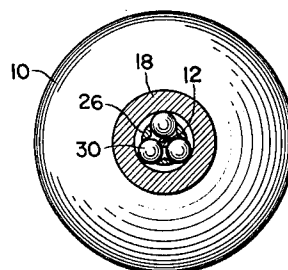


FIG. 3



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1

3,261,067

STICKPIN

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This invention relates to a tie pin or a stickpin of the type including a pearl or any other suitable ornament, a pin projecting from the pearl or ornament and adapted to extend through the associated necktie and shirt, and a gripping member for releasably gripping the free end portion of the pin projecting beyond the shirt.

The stickpins of the type referred to each have been heretofore required to be engaged by and disengaged from the associated necktie and shirt by moving either its gripping member or an operating element therefor longitudinally of the pin. This results in the inconvenience of disengagement of such a stickpin from the necktie and shirt.

It is, accordingly, an object of the invention to provide an improved stickpin capable of being engaged by and disengaged from the associated necktie and shirt in a simple manner.

It is another object of the invention to provide an improved stickpin including a pin having an ornament secured at one end and a gripping member for releasably gripping the other end portion of the pin by a simple operation.

These and other objects of the invention are accomplished by the provision of a stickpin including a gripping member having an improved construction for releasably gripping a pin projecting from an ornament. The gripping member is, in addition to the conventional hole through which the pin extends into the same, provided in the interior with a longitudinal hollow space tapered down toward that side thereof having the abovementioned hole formed thereon, and a chuck element disposed coaxially in the longitudinal hollow space for longitudinal movement and having a central bore extending therethrough and aligned with the hole. The chuck member includes one end portion adjacent the hole cooperating with the tapered wall surface of the hollow space to hold a plurality of grippers such as spherical balls in such a manner that, when the chuck element is in its first position nearer to the reduced end of the hollow space the balls tightly grip that portion of the pin extending through the through bore. However, when the chuck element is moved to its second position far away from the reduced end of the hollow space the balls release the pin to permit the same to be freely withdrawn from the gripping member. In order to normally urge the chuck element to its first position, a helical spring is disposed between the other end portion of the chuck element and the enlarged end of the hollow space. The chuck element includes an intermediate portion between both end portions having an external periphery in the form of a truncated cone reduced toward the one end portion of the chuck element. A pair of releasing elements are movably disposed in opposing relationship such that the respective inner end portions thereof diametrically sandwich the adjacent portion of the conical surface of the chuck member. The releasing elements have respectively short operating projections loosely extending outwardly of the gripping member and the inner end portions abutting against the conical wall surface of the chuck member with the projections and

2

the abutting inner end portions aligned with one another. The projections can be moved toward each other to urge the chuck element to its second position thereby to disengage the pin from the balls.

The invention will become more readily apparent from the following detailed description taken in conjunction with the accompanying drawing in which:

FIG. 1 shows an enlarged front elevational view, partly in longitudinal section of a stickpin constructed in accordance with the teachings of the invention;

FIG. 2 shows a section taken along the line II—II of FIG. 1; and

FIG. 3 shows a section taken along the line III—III of FIG. 1.

Referring now to the drawing and more particularly to FIG. 1, there is illustrated a tie pin or a stickpin constructed in accordance with the teachings of the invention. The stickpin illustrated comprises a spherical body of any suitable ornament 10 such as a pearl, a pin 12 projecting from the spherical body 10, and a gripping member generally designated by the reference numeral 14 and having a central hole 16 formed on one end face of the same. The pin 12 is adapted to be normally inserted into the central hole 16 and can be removed from the same when desired.

The invention contemplates to provide means whereby the gripping member 14 can grip and release the pin 12 in a simple and easy manner.

As shown in FIG. 1, the gripping member 14 is preferably formed of two parts each of which may be of a truncated conical shape and which are maintained in a unitary construction by having their larger ends screwed into each other. According to the teachings of the invention, the gripping member 14 is provided in the interior with a longitudinal hollow space tapered down toward that side thereof having the hole 16 bored thereon. To this end, one half 18 of the fastening member 14 having the hole 16 formed on the reduced end face is preferably provided in the interior with a hollow longitudinal, truncated conical space portion 20 tapered down toward the reduced end thereof and open at the larger end, and the other half 22 is provided in the interior with a hollow space which may be preferably a cylindrical hollow space portion 24 substantially equal in diameter to the larger end of the truncated conical space portion 20 and consecutive to the latter to form the hollow longitudinal space when assembled.

In order to releasably grip that portion of the pin 12 inserted into the gripping member 14 through the hole 16, a chuck element generally designated by the reference numeral 26 is disposed coaxially in the hollow space 20—24 for longitudinal movement. The chuck element 26 includes a central bore 28 extending therethrough and aligned with the hole 16, one end portion adjacent the hole 16 similar in shape to the truncated conical space portion 20, and the other end portion in the form of a tube open at that end opposing to the bottom of the cylindrical space portion 24. The one end portion of the chuck element 26 cooperates with the adjacent portion of the internal wall surface of the truncated conical space portion 20 to hold a plurality of grippers such as spherical balls 30 of a common diameter radially movable with respect to the one end portion. For this purpose, the one end portion just described may include a pair of holding disks disposed one over another to sandwich the balls 30 therebetween for radial movement. The longitudinally spaced disks are connected to each other by any

suitable means (not shown) not impeding the function of the balls as will be apparent hereinafter. While FIG. 3 illustrates three balls 30 it is to be understood that more than three of balls may be used if desired.

Interposed between the closed end of the tubular end portion of the chuck element 26 and the bottom of the cylindrical space portion 24 is a helical spring 32 tending to normally urge the chuck element 26 to its first position or toward the reduced end of the truncated conical space portion 20 until the plurality of balls 30 are in contact with each other thereby to tightly grip the pin 12 extending through the hole 16 and the bore 28. The pin 12 can be released from the balls 30 by releasing means as will be subsequently described.

As shown in FIG. 1, the chuck element 26 is provided with a truncated conical surface 34 tapered down toward the abovementioned one end portion on the external periphery of the intermediate portion located adjacent the junction of the space portions 20 and 24. A pair of releasing elements 36 which may be of a semicircular shape are disposed in opposing relationship and adjacent a plane in which both gripping halves 18 and 22 are connected to each other. The releasing element 36 has formed on one end portion adjacent the conical surface 34 of the chuck element 26 a tilted portion 38 directed toward the one end portion of the chuck element 26 and complementary in shape to the opposed conical surface 34 and an operating projection 40 on the other end portion loosely extending through an opening formed on the larger end portion of the clutch half 18 with the openings diametrically formed on the periphery of the larger end portion of the gripping half 18. Thus the projections 40 and the tilted portions 38 are aligned with one another.

It is now assumed that the gripping member 14 has been removed from the pin 12 projecting from the ornament 10. The pin 12 can first pierce the associated necktie N and shirt S from the front face of the necktie and that portion of the pin 12 projecting beyond the rear side of the shirt is then inserted into the central hole 16 and then into the central bore 28. During this insertion operation, the free end portion of the pin 12 urges the balls 30 and hence the chuck element 26 toward the bottom of the longitudinal hollow space 20-24 while forcing the balls 30 radially and outwardly until the same will assume its position illustrated in FIG. 1. This results in the pin 12 being tightly gripped by the balls 30 which, in turn, are pressed against the conical wall surface of the space portion 20 because the clutch element 26 tends to be urged toward the reduced end of the conical space portion 20 under the action of the spring 32.

If it is desired to remove the stickpin from the associated necktie and shirt, the pair of releasing elements 36 can be forced inwardly by having the operating projections 40 grasped as by the fingers. This causes the tilted portions 38 of the releasing elements 36 opposing to the conical surface 34 to move toward the bottom of the hollow space 20-24 against the action of the spring 32 thereby to separate the balls 30 away from each other resulting in release of the pin 12 from balls 30. This permits the pin 12 to withdraw freely from the fastening member 18-22.

From the foregoing it will be appreciated that the gripping member can releasably engage the pin only by forcing the pin into the gripping member while the pin can easily disengage from the gripping member only by forcing the pair of releasing elements into the gripping members.

While the invention has been described in conjunction with a preferred embodiment thereof it is to be understood that various changes in the detail of construction and the arrangement and combination of parts may be resorted to without departing from the spirit and scope of the invention. For example, instead of the balls 30, a plurality of rods may be arranged to radially slide along

the retaining disk such as illustrated. Also the releasing element 36 may be the form of a strip.

What I claim is:

1. A stickpin including an ornament, a pin projecting from the ornament, and a gripping member for releasably gripping the free end portion of the pin and having formed therein a central hole through which the pin extends, wherein said gripping member includes therein a longitudinal hollow space tapered down toward that side thereof having the hole formed therein, a chuck element disposed coaxially in said longitudinal hollow space for longitudinal movement and having a central bore extending therethrough, a plurality of spherical balls held by one end portion of said chuck element adjacent said hole and the adjacent portion of the tapered wall surface of the hollow space in such a manner that, when the chuck element is in its first position nearer to the reduced end of the hollow space, the balls tightly grip that portion of said pin extending through said central bore and that, when the chuck element is moved to its second position far away from said reduced end of said hollow space, the balls release the pin, a helical spring disposed between the other end portion of said chuck element and the bottom of said hollow space to tend to urge said chuck element to its first position, said chuck element including an intermediate portion having an external periphery in the form of a truncated cone reduced toward said one end portion thereof, and a pair of releasing elements each including an inner end portion abutting against said intermediate conical portion and a short operating projection loosely extending outwardly of said gripping element and aligned with said inner end portions, said releasing elements being movably disposed in opposing relationship such that the respective inner end portions thereof diametrically sandwich the adjacent portion of said conical surface of said chuck element.

2. A stickpin including an ornament, a pin projecting from the ornament, and a gripping member for releasably gripping the free end portion of the pin and having formed therein on one side a central hole through which the pin extends, wherein said gripping member consists of two parts in the form of a truncated cone maintained by having the larger ends thereof screwed into each other, one half of said gripping member having said central hole being provided in the interior with a hollow longitudinal, truncated conical space portion tapered down toward the reduced end thereof and open at the larger end, the other half of said gripping member being provided in the interior with a hollow longitudinal cylindrical space portion substantially equal in diameter to the larger end of the truncated conical space portion and consecutive to the latter to form a hollow longitudinal space, said gripping member including a chuck element disposed coaxially in said longitudinal hollow space for longitudinal movement and having a central bore extending therethrough, said chuck element including one end portion adjacent the reduced end of said hollow space similar in shape to the latter, an intermediate portion located adjacent the junction of said gripping halves and having an external periphery in the form of a truncated cone reduced toward said one portion, and the other end portion in the form of a tube open at one end, three spherical balls held by said one end portion of said chuck element and the adjacent portion of the internal wall of said truncated conical space in such a manner that, when the chuck element is in its first position nearer to the reduced end of the hollow space, the balls tightly grip that portion of said pin extending through said central bore and that, when the chuck element is moved to its second position far away from said reduced end of said hollow space, the balls release the pin, a helical spring disposed within said tubular end portion of said chuck element and having an end resting on the bottom of said hollow space to tend to urge said chuck element to its first position, and a pair of releasing elements in the form of a semi-circle

each having formed on the inner end portion abutting against said intermediate conical portion a tilted surface directed toward said one end portion of said chuck element and complementary in shape to said intermediate conical surface and formed on the other end portion a short operating projection loosely extending outwardly of said gripping member through an opening formed on the larger end portion of said one half of said gripping member, said releasing elements being movably disposed in opposing relationship such that the tilted surfaces thereof diametrically sandwich the adjacent portion of said conical surface of said chuck element, movement of said releasing elements toward each other causing said

chuck element to move to its second position thereby to release the pin from the three balls.

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