Aug. 4, 1936. J. E. RÖHRS 2,049,869

BUTTON

Filed Feb. 25, 1935

Fig.1

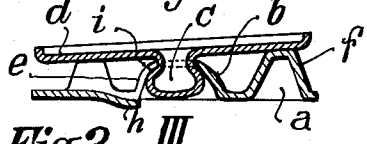


Fig.4

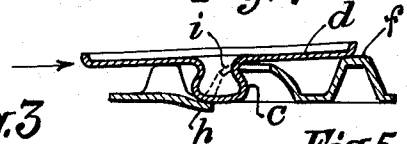


Fig.2

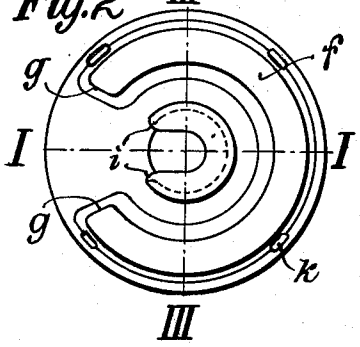


Fig.3



Fig.5

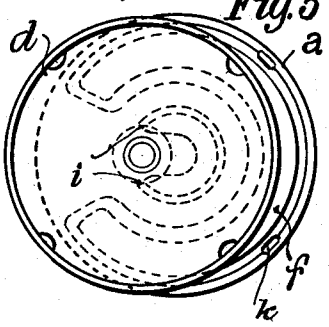


Fig.6

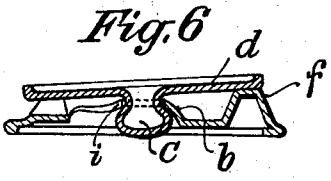


Fig.9

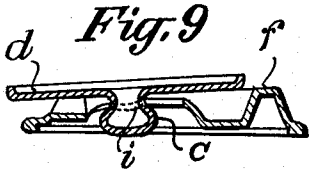


Fig.7

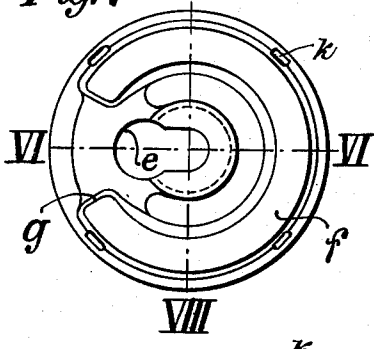


Fig.8

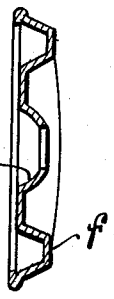


Fig.10

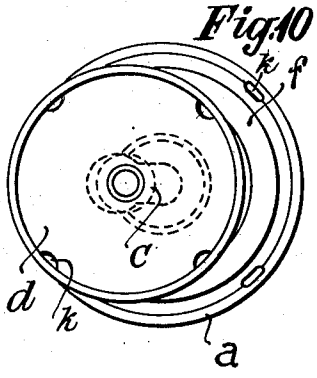
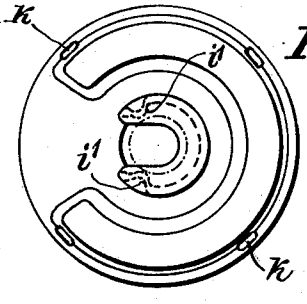


Fig.11



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Patented Aug. 4, 1936 2,049,869

UNITED STATES PATENT OFFICE

2,049,869

BUTTON

John Ernst Röhrs, Schenefeld, Germany

Application February 25, 1935, Serial No. 7,953
In Germany March 1, 1934

5 Claims. (Cl. 24—224)

This invention relates to new and useful improvements in buttons, and more particularly to a button of the type which comprises two separate members adapted to be brought in locking engagement with each other by pushing action. The principal object of the invention is to provide a button of this kind, of which the one member, the female one, is centrally formed in the shape of a spherical projection designed for the reception of the head of the other member, the male one, locking engagement of both members being afforded solely by the particularly suitable shape given to the projection of the female member, without the employment of any spring member. Owing to this construction, manufacture of buttons of such kind is simplified; moreover, use of parts which will get worn out or which will finally become unfit for operation, are completely avoided.

According to the invention, the spherical projection of the female member (which projection might also be of oval shape) is surrounded by a path of travel having its surface inclined with respect to the base and being constituted for instance by an annular rib, this path which is ascending like the surface of a wedge from the opening of leading-in provided for, having for its function to secure, in cooperation with notches disposed in front of and close to, or within said opening of leading-in, locking engagement of both members. The male and female members may be given various forms of construction; but however may be the position of the opening of leading-in, whether close to the spherical projection, or within the projection itself in lateral arrangement, the main point is that the male member, after being moved beyond the notches, will be forcibly pressed into the projection of the female member, and this owing to the wedge-shaped path.

Several practical embodiments of the invention are illustrated in the accompanying drawing forming a part of the specification, in which similar characters of reference indicate corresponding parts in all the views, the said invention being more fully described hereinafter and then pointed out in the appended claims.

In the drawing:—

Fig. 1 is a sectional view of the button, taken on line I—I of Figure 2;

Fig. 2 is a plan view of the female member;

Fig. 3 is a sectional view taken on line III—III of Figure 2;

Figure 4 is a sectional view similar to Figure 1 and showing the head of the male member engaged in the opening ready for insertion;

Fig. 5 is a plan view of both button members at the beginning of the locking action;

Fig. 6 is a sectional view of a modified form of arrangement of the opening of leading-in, the section being taken on line VI—VI of Figure 7;

Fig. 7 is a plan view of the female member;

Fig. 8 is a sectional view taken on line VIII—VIII of Figure 7;

Fig. 9 is a sectional view similar to Figure 6 and showing the head of the male member engaged in the opening ready for insertion;

Fig. 10 is a plan view of both button members at the beginning of the locking action; and

Fig 11 is a plan view of a female member with the securing notches occupying a different position.

Referring to the drawing:—

The female member, as at *a*, has a projection *b* of spherical shape centrally disposed, this projection being open at top and having an entrance, and the male member, as at *d*, has a head *c* likewise centrally arranged, the said head being shaped so as to be adapted for locking engagement with said spherically made projection. Close to the entrance to said projection *b*, there is situated an opening *e* for leading-in purposes. An annular rib *f* having an obliquely ascending surface or path and disposed concentrically to said spherical projection, is provided. Said rib is in front and within reach of said opening *e* interrupted so as to leave a free space between its ends. Owing to this interruption, lateral guide faces or guide walls are being formed, adapted to facilitate insertion of the head of the male member into the said spherical projection.

According to Figs. 1 to 5 of the drawing, the opening of leading-in *e* is constituted by a depression made in the material of the female member *b* at the point designated by the reference character *h*. The edges which are thereby produced, and left, and which form part of the spherical projection, are lying within reach of said opening of leading-in and are in the nature of notches, as at *i*, along which the head *c* and its neck have to pass by force. During this operative movement, a pull or tension in downward direction is being exerted upon the head which, at the moment when the final locking engagement is taking place, is owing to the cooperating action of the obliquely ascending annular rib, forcibly pressed into the spherical projection *b*. In this position of the engaging parts, and the pulling action having come to an end, the head of

the male member is secured against accidental disengagement.

The reverse movement will separate the parts; to this end, a pressure is to be exerted from above in oblique direction, or a lateral movement of slight importance is to be imparted, and said pressure or said movement will cause the head *c* to pass underneath the notches *i* and to be pushed back into the cavity *e*.

In the modified form of construction shown in Figs. 6 to 10 of the drawing, the wedge shaped path also cooperates, for the purpose in view, with the notches *i*; still, these notches are in this instance produced by the lateral edges of the cavity *e* being extended in up-direction, and when so formed, they are adapted to embrace the neck of the head of the male member already partly within the said cavity *e*.

Locking engagement then takes place in the same manner as hereinbefore described, the only difference being that the way for accomplishing the said locking engagement, is of somewhat greater length.

For the notches as securing means may be substituted bosses to be disposed within the spherical projection *b* in opposite arrangement and in such a height as to correspond to the largest diameter of the head *c*. These bosses, which are illustrated in Figure 11 and designated by the reference character i^1, are in similar manner effective as the notches *i*.

To bring the members of the button in locking engagement, or to have them separated, will require but slight force. In all of the cases described, the particularity is that the base of the male member *d* comes in close contact with the guide surface *f*.

Any suitable means for fastening the button members to an object, may be employed. In the present instance, the button parts are provided with apertures *k* for attaching the said parts by the use of stitches. Further, plates carrying ornamental designs, may be employed in connection with such buttons. The base members of the male and female parts may have a round, square, or any other polygonal shape, according to requirement.

What I claim is:—

1. A button comprising a male member with a centrally arranged head, and a female member with a centrally arranged spherical projection having an entrance opening, for the reception of said head, said female member comprising a cavity in front of and close to said entrance opening, an annular rib concentrically surrounding said centrally disposed spherical projection, a wedge-shaped path ascending from said projection up to said rib, notches formed by edges left between entrance opening and cavity, and along which the head of the male member has operatively to pass by force, the said wedge shaped path causing pressing-in of said head into said spherical projection and securing, in cooperation with said notches, locking engagement of both members.

2. A button comprising a male member with a centrally arranged head, and a female member with a centrally arranged spherical projection having an entrance opening, for the reception of said head, said female member comprising a cavity in front of and close to said entrance opening, an annular rib concentrically surrounding said centrally disposed spherical projection, a wedge-shaped path ascending from said projection up to said rib, an interruption in the nature of an open space in the circumferential surface of the rib, situated in front and within reach of said cavity, walls formed and left at either side of said open space, said walls serving as a guide for the head of the male member when operatively inserted, notches formed by edges left between entrance opening and cavity, and along which the head of the male member has operatively to pass by force, the said wedge-shaped path causing pressing-in of said head into said spherical projection and securing, in cooperation with said notches, locking engagement of both members.

3. A button comprising a male member with a centrally arranged head, and a female member with a centrally arranged sperical projection having an entrance opening, for the reception of said head, said female member comprising a cavity disposed within the said spherical projection and in lateral arrangement so as to lie underneath the said entrance opening, notches formed by edges left between entrance opening and cavity, and along which the head of the male member has operatively to pass by force, an annular rib concentrically surrounding said centrally disposed spherical projection, a wedge-shaped path ascending from said projection up to said rib, an interruption in the nature of an open space in the circumferential surface of the rib situated in front and within reach of said cavity, walls formed and left at either side of said open space, said walls serving as a guide for the head of the male member when operatively inserted, the said wedge-shaped path causing pressing-in of said head into said spherical projection and securing, in cooperation with said notches, locking engagement of both members.

4. A button comprising a male member with a centrally arranged head, and a female member with a centrally arranged spherical projection having an entrance opening, for the reception of said head, said female member comprising a cavity close to said entrance opening, notches formed by edges left between entrance opening and cavity and extending up to said spherical projection, said notches being adapted to operatively embrace the neck of the head of the male member already partly within said cavity, an annular rib concentrically surrounding said centrally disposed spherical projection, a wedge-shaped path ascending from said projection up to said rib, an interruption in the nature of an open space in the circumferential surface of the rib, situated in front and within reach of said cavity, walls formed and left at either side of said open space, said walls serving as a guide for the head of the male member when operatively inserted, the said wedge-shaped path causing pressing-in of said head into said spherical projection and securing, in cooperation with said notches, locking engagement of both members.

5. A button comprising a male member with a centrally arranged head, and a female member with a centrally arranged spherical projection having an entrance opening, for the reception of said head, said female member comprising a cavity close to said entrance opening, an annular rib concentrically surrounding said centrally disposed spherical projection, a wedge-shaped path ascending from said projection up to said rib, an interruption in the nature of an open space in the circumferential surface of the rib, situated in front and within reach of said cavity, walls formed and left at either side of said open space,

said walls serving as a guide for the head of the male member when operatively inserted, bosses within said spherical projection, said bosses projecting in inward direction and being disposed in opposite arrangement in such a height as to correspond with the largest diameter of the head of the male member, along which bosses the head on its entering the spherical projection, has forcibly to pass, the said wedge-shaped path causing pressing-in of said head into said spherical projection and securing, in cooperation with said bosses, locking engagement of both members.

JOHN ERNST RÖHRS.