

【DESCRIPTION】**【Invention Title】****EYEGLOSS NOSE SUPPORT****【Technical Field】**

5 The present invention relates to a nose support for glasses, which comprises of a silicon tube that is most reasonable and has scientific structure, which does not slide from the user's bridge of the nose and provides softness and flexibility so that the pressure applied to the nose is distributed and absorbed to minimize irritation and create
10 comfort to any type of nose shapes.

【Background Art】

 The device is an enhancement of prior Patent 2009-62282, which relates to a silicon tube type from the same inventor.
15 The previous invention was a straight silicon tube that was shortly cut with a diameter of 2.2Ø and bore of 0.6Ø. The unique softness of the silicon brings a soft touch to the nose with the nose engaging surfaces, however issues existed where it slid from the nose bridge while wearing heavy
20 glasses or exercising. According to the drawings of the device, tears occur when the T-type fixation bridge (40) fixed by welding and inserts (30) and the T-type fixed jaw (51) of the prefabricated insert (50) is inserted, or force is applied by pulling or changing directions when the T-type
25 fixation bridge (40) and T-type fixed jaw (51) are both inserted.

 According to utility model registration #0429511, a nose column (30), which should be expressed as connection bridge, is fixed onto the nose bridge (20) supporting the glasses
30 frame, which should be expressed as fixation insert, and a connection rod (41) combined with an insert tube (42) is formed, and a insert tube (42) can be inserted into the nose

column (30). The nose support (40) and connection rod (41) and insert tube (42) is formed to be one body and is made of soft synthetic resins. The end of the nose column (30) forms an insert protrusion (31) and an insert jaw (44) is formed around the inside floor of the insert tube (42) so that the insert tube (42) is fixed into the nose column (30) and does not easily slip out.

However, the technology of utility model registration #20-0429511 has already been tested and has the following defects to become a product. Thus, the components of glasses must be light in weight and have a clean exterior and aesthetic qualities, also the blockage of sight must be minimized, which makes the diameter of the support to become very small. Therefore, the nose column (30) has a 0.5mm standard for diameter and must be measured in a minute measurement. So, the outer diameter of the insert tube (42) inserted into the nose column (30) must not exceed 2.5~3.5 $\emptyset$ or else will looked away from the opticians due to the blunt look.

For this reason, the insert tube (42) diameter must be within the range of 2.5~3.5 $\emptyset$ and the length must not be excessively long or else will lose merchantable quality. Therefore, the connection rod (41), which connects the nose support (40) and the insert tube (42) into one body, should have a smaller diameter than the insert tube (42). To be compatible with current glasses frames the length of the insert tube (42) must not exceed 6mm like the device.

On the other hand, the present inventor has manufactured a product that has the nose support (40), connection rod (41) and the insert tube (42) as one body through molding. The connection rod (41) is only a few mm of length and has a diameter of 1~2mm, which needs to be made up of reasonable

flexible and soft material, however, considering all existing synthetic resins, including urethane, such material with hard and soft qualities cannot coexist. Thus, flexibility and softness features are inversely proportional for connection
5 rod (41), which needs a small diameter and short length. In other words, when the flexibility is emphasized the nose support (40) gives irritation and a blunt touch to the nose, while when the softness is emphasized the nose support (40) slips easily from the bridge of the nose when the glasses is
10 heavy or while exercising.

To solve the issue, a connection rod (41), which has both qualities of flexibility and softness should be developed, however from the limitations of molding and technology it is close to impossible to develop such
15 synthetic resins material with the physical features. Furthermore, molding the connection rod (41), nose support (40) and the insert tube (42) into one body makes it almost impossible to manufacture an ideal body which is both flexible and soft.

20 Moreover, when the insert tube (42) is made of soft synthetic resins the insert protrusion (31) of the nose column (30) easily slips out from the nose column (42) even when the insert jaw (44) of the insert tube (42) tries to fix the insert protrusion (31), which makes it hard to have
25 merchantable qualities.

Therefore, the inventor finally used a prefabricated insert (50) as the previous product to fix the nose support (60) with a screw (61), and located a silicon tube (20) in between the fixation insert (30), which is welded onto the
30 glasses frame (5), and the nose support prefabricated insert (50) to produce a proper featured product. The silicon tube (20) should have a new structure having both be flexible and

soft features, and is also must endure pulling and should not slip out from the insert (30) and nose support prefabricated insert (50).

Next, observing the drawing of Japan public utility
5 model registration 57-45625, a pipe (7) exists that looks similar to the silicon tube (20) of the device, however, the pipe (7) does not exist to provide the identical features of the silicon tube (20) and is an assembly-use pipe to insert the bed frame (6) that connects two pipes (7) and the
10 fixation pins (3) via molding onto the glasses frame. Also, this pipe must be made out of hard material, such as, metal or hard plastics. Furthermore, to stabilize the insert status of the pin (3) and bed frame (6) inside the pipe (7), a board spring (10) is welded and the holes (11) formed on the side
15 of the pipe (7) insert the arms (8) to connect with the nose support (5). As a result, the invention shows different structures, applications and effects, which departs from the features of the device.

Once again, observing the drawing of Japan public
20 utility model registration 63-33125, an example of bending the silicon coated tube that is mounted on the surface of the plastic main piece (1) into a "^" shape and insert onto the fixed protrusion pin (3) and later on fixing with screws and fixing with insert (4) that is welded onto the glasses frame
25 was shown. The plastic main piece (1) is coated with silicon on the surface and is bent into a "^" shape and then fixed onto the glasses frame for use. The wearing sensation is more comfortable than existing hardened nose support, however, the invention shows different structures, applications and
30 effects, which departs from the features of the device.

【Disclosure】

【Technical Problem】

Accordingly, the present invention has been made in view of the above-mentioned problems occurring in the prior art, and it is an object of the present invention to provide a nose support for glasses that enhances and solves the previous issues of the prior patent and provides a better product.

【Technical Solution】

To accomplish the above object, according to the present invention, there is provided a diagnostic cartridge including: fixation insert (30) welded onto the glasses frame and T-type fixation bridge (40) that is inserted into the second hole (11-1) and first insert groove (11-3) of the silicon tube (10); gusset plate (31) that is brought close to the silicon tube (10) top surface when the T-type fixation bridge (40) formed between the insert (30) and the T-type fixation bridge (40) is inserted into the second hole (11-1) and first insert groove (11-3) of the silicon tube (10); the second hole (11-1) and first insert groove (11-3) forms a T-type shape so that the whole T-type fixation bridge (40) can be adhered and inserted to the upper center; the third hole (11-2) and second insert groove (11-4) formed so that the whole T-type fix jaw of the nose support prefabricated insert (50) can be adhered and inserted to the lower center; first hole (11) is punctured in between the first insert groove (11-3) and second insert groove (11-4) with identical diameter of the second hole (11-1) and third hole (11-2); protrusion enforcement unit (12) (12a) with the largest diameter formed on the exterior of both the first insert groove (11-3) and second insert groove (11-4); dent unit (13) formed on the silicon tube (10) that has a smaller diameter than the protrusion enforcement unit (12) (12a) and located between the protrusion enforcement units (12) (12a); nose

support prefabricated insert (50) has a T-type fix jaw (51) is a one-body or welded type that is adhered and inserted into the third hole (11-2) and second insert groove (11-4) of the silicon tube (10) to fix the nose support (60) that is
5 inserted with screws (61).

To accomplish the above object, according to a second aspect of the present invention, there is provided a nose support for glasses including: fixation insert (70) welded onto the glasses frame and metal cap (80) that protects the
10 top of the silicon tube (20); hole (21) penetrates through the center and as a standard a protrusion enforcement unit (22) (22a) with the largest diameter is formed symmetric to the center; dent unit (23) formed on the silicon tube (20) that has a smaller diameter than the protrusion enforcement
15 unit (22) (22a); cap (91) formed to protect the lower portion of the silicon tube (20) in a one-body form and a nose support prefabricated insert (90) to insert the nose support (60) and fix with screws (61); first fixation pin (81) that fixes the silicon tube (20) and metal cap (80) by
20 penetrating the top portion of the silicon tube (20) and fixed metal cap (80) of the insert (30); second fixation pin (92) that fixes the silicon tube (20) and cap (91) by penetrating the bottom portion of the silicon tube (20) and cap (91) of the nose support prefabricated insert (90).

25 **【Advantageous Effect】**

According to the present invention, the nose support for glasses comprises of a silicon tube that is most reasonable and has scientific structure, which does not slide from the user's bridge of the nose and provides softness and
30 flexibility so that the pressure applied to the nose is distributed and absorbed to minimize irritation and create comfort to any type of nose shapes.

【Description of Drawings】

Figure 1 illustrates the standard usage status front view of the first preferred embodiment.

Figure 2 illustrates the standard usage status reference
5 perspective view of the first preferred embodiment.

Figure 3 illustrates the reference view of the actual measurement of the silicon tube.

Figure 4 illustrates the plan view of the first preferred embodiment.

10 Figure 5 illustrates the cross-sectional view of the first preferred embodiment.

Figure 6 illustrates the A-A expansion cross-sectional view of figure 5.

Figure 7 illustrates the B-B expansion cross-sectional
15 view of figure 5.

Figure 8 illustrates the standard usage status reference perspective view of the second preferred embodiment.

Figure 9 illustrates the D-D expansion cross-sectional view of figure 11.

20 Figure 10 illustrates the cross-sectional view of the second preferred embodiment.

Figure 11 illustrates the C-C expansion cross-sectional view of figure 10.

Figure 12 illustrates the cross-sectional view of the
25 silicon tube structure.

【Mode for Invention】

From observing the drawings of the device, the silicon tube (10) (20) introduced in the first preferred embodiment and second preferred embodiment shares identical shape and
30 size, however differs in the inner structure, and the insert (30) (70) that is welded onto the glasses frame is just an example and can be modified into various shapes.

From the first preferred embodiment, the silicon tube (10), which is the main component, must be explained and Figure 12 can be referenced.

In Figure 12, the drawing shows the actual measurements of the designed and complete silicon tube (10) (20), which have gone through several trial and error processes and the silicon tube (10) has a length of 5.8mm and the diameter is 2.5 $\emptyset$ and the protrusion enforcement unit (12) (12a) holds a diameter of 3.5 $\emptyset$.

Also, the diameter for the second hole (11-1), third hole (11-2) and first hole (1) is 0.6 $\emptyset$, the diameter for the first insert groove (11-3) and second insert groove (11-4) is 1.2 $\emptyset$, furthermore, the depth for the second hole (11-1), third hole (11-2) is 1.5mm and the width (vertical) for the first insert groove (11-3) and second insert groove (11-4) is 0.5mm. Also, the dent unit (13) diameter is 2 $\emptyset$ and the distance from the top surface of the silicon tube (10) to the protrusion enforcement unit (12) is 1.7mm, and the lower surface of the silicon tube (10) to the protrusion enforcement unit (12a) is also 1.7mm.

On the other hand, the silicon tube (20) of the second preferred embodiment shows an identical size from the first preferred embodiment, where the first insert groove (11-3) and second insert groove (11-4) of the first preferred embodiment is omitted and the hole (21) is completely penetrated and the diameter of the hole (21) is around 20% smaller than the diameter of the first hole (11), second hole (11-1) and third hole (11-2) and will be later explained.

The T-type fixation bridge (40) welded onto the insert (30) inside of the second hole (11-1) of the silicon tube (10) and first insert groove (11-3) was adhered and fixed. A hardener was added to the silicon tube (10) [identical to

silicon tube (20)] to provide both flexible and soft features, so that no rip was made when the second hole (11-1) was forced into the T-type fixation bridge (40).

Next, the T-type fix jaw (51) of the nose support prefabricated insert (50) is also adhered and fixed onto the first insert groove (11-3) and second insert groove (11-4) of the silicon tube (10) with the same method used above. Then, the screw (61) is used to assemble nose support (60) onto the nose support prefabricated insert (50) to complete the composition as illustrated in Figure 2.

The first preferred embodiment seeks the same location of the nose support from the prior glass frame and provides compatibility to size so that when the nose support (60) is laid on the bridge of the nose, the dent unit (13) can be slightly bent and deliver soft and flexible features to the nose. Such characteristics prevent the glasses from slipping when walking or exercising and also when the lens of the glasses use heavy material like glass lens. Also, the coexistence of flexibility and softness improves the wearing sensation. The device has a silicon tube (10) that does not bend the whole but certain parts up to the protrusion enforcement unit (12) (12a) inserted between the T-type fixation bridge (40) and the T-type fix jaw (51) and only the dent unit (13) to bend due to flexibility.

From the experiments operated on the device, the nose support (60) slips or the protrusion enforcement unit (12) may not touch the nose bridge because of excessive bending due to exercising activities or heavy materials used in glasses; however this issue is solved in the device and shows the standard measurements in Figure 12. In Figure 12, the diameter of the dent unit (13) is, when standardized to use plastic lens and light glass frames, 2 Ø, and when the

glasses use heavier lens like glass lens the diameter of the dent unit (13) can increase from 2.1 Ø to 3.0 Ø to optimize the application.

In the first preferred embodiment, the gusset plate (31) touching the top surface of the silicon tube (10) is fixed by the insert (30) and T-type fixation bridge (40). Also, when the dent unit (13) of the silicon tube (10) is being bent the upper protrusion enhancement unit (12) limits the T-type fixation bridge (40) from bending any further and helps the T-type fixation bridge (40) to find its place so that insert can be easily done. Furthermore, considering the exterior aspect the invention is not necessary. Therefore, gusset plate (31) is not mandatory.

In the first preferred embodiment, other than the force the protrusion enforcement unit (12) (12a) tries to flexibly erect the silicon tube (10) applies, when the T-type fixation bridge (40) and T-type fix jaw (51) is being inserted the thickness becomes thicker to prevent rip and to maintain durability of the T-type fixation bridge (40) and T-type fix jaw (51) status. Therefore, it plays an important role in fixing the T-type fixation bridge (40) and T-type fix jaw (51) from the silicon tube (10).

In the complete state illustrated in Figure 2, the device can endure ripping when the silicon tube (10) is pulled or the nose support (60) is pulled down with a weight of 1.5Kg. At the same time, the T-type fixation bridge (40) and T-type fix jaw (51) does not slip out from the silicon tube (10). This is a great difference from the previous introduced examples, which showed ripping or slipping out of the silicon tube or insert tube even with a weight of 500g.

The second preferred embodiment of the device is as below.

Figure 11 illustrates the second preferred embodiment, where the exterior of the silicon tube (20) is identical to the silicon tube (10) of the first preferred embodiment and only has a difference of a hole (21) that penetrates through the silicon tube (20).

As shown in Figure 11, a first fixation pin (81) that fixes the silicon tube (20) and metal cap (80) by penetrating the 3mm below the top portion of the silicon tube (20) and fixed metal cap (80) of the insert (30) with a diameter of 1 Ø. Also, a second fixation pin (92) that fixes the silicon tube (20) and cap (91) by penetrating the bottom portion of the silicon tube (20) and cap (91) of the nose support prefabricated insert (90).

Here, a hole is drilled before the first fixation pin (81) and second fixation pin (92) is inserted and the fixation pins are inserted into the hole. Using adhesives is suitable in this process and also suitable when inserting the metal cap (80) and cap of the nose support prefabricated insert (90).

Like this, in the second preferred embodiment, the hole in the center has a diameter that is around 20% smaller than the diameter of the first hole (11), second hole (11-1) and third hole (11-2). The reason for this is that the T-type fixation bridge (40) and T-type fix jaw (51) in the first preferred embodiment is inserted in the vertex of the protrusion enforcement unit (12) (12a), so when the diameter of the first hole (11) is 0.6 Ø the device is achievable, however, in the second preferred embodiment, when the diameter of the first hole (11) is 0.6 Ø, it is likely to bend and be uncomfortable compared to the first preferred embodiment, since the hole (21) penetrates throughout the body. Therefore, the diameter of the hole (21) should be

around 4.8 Ø, which makes it suitable as lightweight glasses for women and children.

Certainly, the silicon tube (20) of the second preferred embodiment does not have the protrusion enforcement unit (22) (22a) to bend when worn and has a thick structure with a metal cap (8) and cap (91) of the nose support prefabricated insert (90), along with first fixation pin (81) and second fixation pin (92) that firmly performs holding so that the dent unit (23) only bends and the protrusion enforcement unit (22) (22a) is maintained flexibly.

On the other hand, the material used in the first fixation pin (81) and second fixation pin (92) should be plastic rather than metal in manufacturing terms, and it does not matter if wood is used. As illustrated in Figure 11, when the silicon tube (20) is pulled down or the nose support (90) is pulled down with a weight of 1.5Kg, the device does not have any ripping effects and the first fixation pin (81) and second fixation pin (92) are not separated from any ripping.

From the experiments of the first preferred embodiment and second preferred embodiment, the silicon tube (10) used in the first preferred embodiment should not exceed 45 degrees even when heavy glasses are used and the upper portion of the protrusion enforcement unit (12) should not touch the nose and provide both flexible and soft features. The silicon tube (20) used in the second preferred embodiment should not exceed 45 degrees when applying heavy glasses that are 10% lighter than the first preferred embodiment and also should not touch the nose and provide both flexible and soft features.

Furthermore, the silicon tube (10) (20) should not rip or slip out even when a heavy weight of 1.5Kg is applied or when exercising. Also, the issue of silicon tube (10) (20)

bending so that the tube body touches the nose bridge or slips down it was solved. The silicon tube (10) (20) has passed a durability test in enduring temperatures of 200 degrees Celsius and 60 below zero degrees Celsius.

CLAIMS

1. A nose support for glasses, comprising:

a fitting adapted to be fixed to a glass frame by means of welding;

a T-shaped fixing leg adapted to be fixed to the fitting by means of welding in such a manner as to be fittingly inserted into a first hole and a first insertion groove of a silicone tube;

a reinforcing plate disposed between the fitting and the T-shaped fixing leg in such a manner as to be brought into close contact with the top periphery of the T-shaped fixing leg when the T-shaped fixing leg is fittingly inserted into the first hole and the first insertion groove of the silicone tube;

the silicone tube having the first hole and the first insertion groove formed on the upper side from the center thereof so as to fittingly insert the T-shaped fixing leg thereinto, a second hole and a second insertion groove formed on the lower side from the center thereof so as to fittingly insert a T-shaped fixing projection of a nose pad-coupling fitting thereinto, a third hole formed to be penetrated into the first insertion groove and the second insertion groove and having a diameter equal to the first hole and the second hole, reinforcement protruding portions formed outside the first insertion groove and the second insertion groove and having a substantially large diameter, and a depressed portion formed between the reinforcement protruding portions and having a relatively smaller diameter than the reinforcement protruding portions;

the nose pad-coupling fitting having the T-shaped fixing projection formed as a unitary body thereto or by means of welding in such a manner as to be fittingly inserted into the second hole and the second insertion groove of the silicone tube; and

a nose pad adapted to be fixed to the nose pad-coupling fitting by means of a screw.

2. A nose support for glasses, comprising:

a fitting adapted to be fixed to a glass frame by means of welding;

a metal cap adapted to be fixed to the fitting by means of welding in such a manner as to tightly cover the top periphery of a silicone tube;

a first fixing pin disposed to be penetrated into the top sides of the metal cap and the silicone tube so as to fix the metal cap and the silicone tube thereto;

the silicone tube having a through-hole formed to be penetrated along a center thereof, reinforcement protruding portions formed symmetrically on the upper and lower portions from the central portion thereof and having a substantially large diameter, a depressed portion formed between the reinforcement protruding portions and having a relatively smaller diameter than the reinforcement protruding portions;

a nose pad-coupling fitting having a cap formed as a unitary body thereto so as to tightly cover the underside periphery of the silicone tube;

a second fixing pin disposed to be penetrated into the bottom sides of the cap formed on the underside of the silicone tube and the silicone tube so as to fix the cap and the silicone tube thereto; and

a nose pad adapted to be fixed to the nose pad-coupling fitting by means of a screw.