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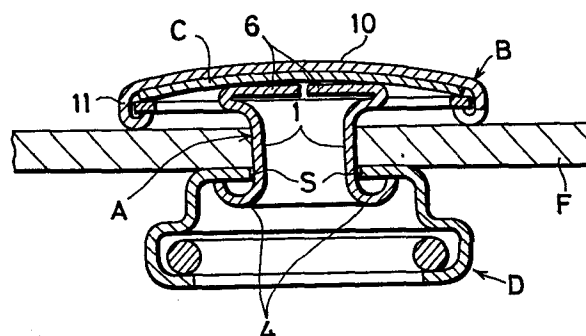
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57) A capped eyelet (100, 100', 100'') for attachment of a snap fastener member (D) to a garment fabric (F) has a double shock-absorbing means comprising a plurality of resiliently deformable buffer wings (6, 26, 36) projecting from a flange (2) of an eyelet body (A, A', A'') and a plastically deformable buffer plate (C) sandwiched between the buffer wings (6, 26, 36) and a cap (B) covering the flange. When axial pressure is applied to the capped eyelet (100, 100', 100'') to join with the snap fastener member (D) in clinched condition, the buffer wings (6, 26, 36) and the buffer plate (C) work together to absorb an excessive amount of the axial pressure so as not to impair the cap (B).



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A CAPPED EYELET FOR ATTACHMENT
OF A SNAP FASTENER TO A GARMENT

The present invention relates to an eyelet for a snap fastener composed of a male and a female member, and more particularly to a capped eyelet for attaching such a fastener member to a garment fabric or the like.

5 Known capped eyelets for the concerned purposes generally comprise an eyelet body with a flange and a cap covering thereover, the flange extending outwardly from one end of a cylindrical or tubular shank. In attachment of a snap fastener member to a garment
10 fabric, the eyelet body is fastened to the fastener member by deforming a free end of the shank to engage a coupling portion of the fastener member. During the attachment, an endwise pressure is necessarily applied to the shank toward the cap with the result that the
15 latter is dented to have a marring marking on the outer surface thereof. This is due to the pressure applied to the shank which in turn acts on the inner surface of the cap.

In U.S. Patent 3,333,306 and Japanese Utility

Model Pre-examination Publication 56-174509, there is proposed an eyelet having a pair of reinforcing wings punched from the flange and folded over to project radially inwardly in such a manner that the under
5 surface of the respective folded-over wing is flush with the top surface of the flange. The two wings coact with a wall of the shank to deliberately absorb the riveting pressure applied thereto; however, the wings themselves act directly on the inner surface of
10 the cap so as to cause a marring marking on the top surface of the cap.

Another prior eyelet as proposed in U.S. Patent 2,028,703 includes a reinforcing plate of metal disposed between the cap and the flange portion of the
15 eyelet body. As an endwise pressure is applied to the shank, the shank is forced to dent the metal plate which in turn acts to mar the cap due to a relatively poor plasticity of the metal plate.

According to the present invention, there is
20 provided a capped eyelet for attachment of a snap fastener member to a garment, comprising:
an eyelet body having a hollow shank and a flange extending outwardly from one end of said hollow shank, said flange having a plurality of buffer wings
25 projecting outwardly from said flange; a cap having a convex top wall and a peripheral edge clinched over a periphery of said flange; and a buffer plate disposed

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between said top wall of said cap and said flange and engaging top surfaces of said wings; characterized in that said buffer wings have under surfaces disposed above said flange and lying substantially

5 perpendicularly to the axis of said shank, and that said buffer wings and said buffer plate are deformable resiliently and plastically, respectively, to thereby absorb an endwise pressure applied to said shank of said capped eyelet when the latter is axially

10 compressed for fastening the same to the fastener member.

The present invention seeks to provide a capped eyelet which is free from any marring marking on the cap when the eyelet is axially compressed to join with

15 a snap fastener member.

Many other advantages, features and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of

20 drawings in which three preferred structural embodiments incorporating the principles of the present invention are shown by way of illustrative example.

Figure 1 is a cross-sectional view of a capped eyelet embodying the invention;

25 Figure 2 is a plan view of an eyelet body of Figure 1;

Figure 3 is a cross-sectional view taken along

line III-III of Figure 2;

Figure 4 is a cross-sectional view of a cap, showing the same before having been joined with the eyelet body;

5 Figure 5 is a cross-sectional view showing the capped eyelet having been joined with a snap fastener member;

Figure 6 is a cross-sectional view similar to Figure 1, showing a modified form;

10 Figure 7 is a plan view of an eyelet body of Figure 6;

Figure 8 is a cross-sectional view showing another modified form of the capped eyelet;

Figure 9 is a plan view of an eyelet body of
15 Figure 8; and

Figure 10 is a cross-sectional view taken along line X-X of Figure 9.

As shown in Figure 1, a capped eyelet 100 comprises an eyelet body A of metal, a cap B of metal
20 secured thereto, and a buffer plate C disposed between the eyelet body A and the cap B.

The eyelet body A includes a hollow shank 1 and a circular flange 2 projecting outwardly horizontally from a flared base portion 3 which is contiguous to an
25 upper or one end of the shank 1. The flange 2 has a pair of buffer wings 6, 6 projecting outwardly therefrom. As better shown in Figures 2 and 3, the two

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buffer wings 6 are punched from the flange 2 and are then folded over the top surface of the flange 2 in such a manner that distal edges of the two wings 6, 6 face each other. Thus the two buffer wings 6, 6 are disposed in a symmetrical relation (Figure 2) with respect to the axis X of the eyelet body A, the under surfaces of the wings 6, 6 being disposed slightly above the top surface of the flange 2 and lying substantially perpendicularly to the axis of the shank

1. Each buffer wing 6 is of a rectangular shape having an inner edge extending substantially diametrically of the circular flange 2.

Figure 4 shows the cap B before having been assembled with the eyelet body A. In such initial form, the cap B has a circular top wall 10 and a peripheral wall 11 extending downwardly from the periphery of the top wall 10. Preferably, the outer surface of the top wall 10 has a radius of curvature larger than the outside diameter of the top wall 10, and the inside diameter of the top wall 10 is larger than the outside diameter of the flange 2 of the eyelet body A.

The buffer plate C is in the form of a circular disk made of plastically deformable material, such as soft synthetic resin, cardboard, cloth or rubber. The buffer plate C, which is sandwiched between the flange 2 of the eyelet body A and the top wall 10 of the cap

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B, has opposite surfaces contacting the under surface of the top wall 10 of the cap B and the upper surfaces of the buffer wings 6, 6.

In assembling the capped eyelet 100, the cap B, with the buffer plate C received therein or placed over the flange 2 of the eyelet body A, is joined with the eyelet body A by forcing the peripheral wall 11 inwardly to provide an annular curled edge tightly engaging the periphery of the flange 2. In the thus assembled eyelet 100 (Figure 1), the upper surface of the buffer plate C is entirely in contact with the inner surface of the top wall 10 of the cap B, while the lower surface of the buffer plate C is partially in contact with the upper surfaces of the two buffer wings 6, 6.

In use, the shank 1 of the assembled capped eyelet 100 of Figure 1 is inserted through a garment fabric F into a hole S of a snap fastener member D, and is then axially compressed against the buffer plate C to deform at its free end portion into an annular curled edge 4 so as to tightly engage the peripheral portion of the hole S of the snap fastener member D. Thus the snap fastener member D has been attached to the garment fabric F. In this embodiment, the snap fastener member D includes a female body adapted to receive a male body of a mating snap fastener member (not shown). Alternatively, the snap fastener member D

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may include a male body so as to be coupled with a female fastener member.

During this attachment, the endwise or axial pressure acts on the shank 1 so as to cause the two
5 buffer wings 6, 6 to push the buffer plate C against the inner surface of the top wall 10 of the cap B. The buffer wings 6 are deformed resiliently, while the buffer plate C is deformed plastically. As a result, an excessive amount of the pressure applied to the
10 shank 1 is absorbed so as not to cause any marring mark on the outer surface of the top wall 10 of the cap B. Thus one capped eyelet 100 has a double shock-absorbing means which enables the snap fastener member D to be attached to the garment fabric F firmly and accurately
15 without impairing the face of the cap B.

Figure 6 shows another capped eyelet 100' including a modified eyelet body A' in which the flange 2 has three buffer wings 26, 26, 26 punched therefrom and folded over the upper surface of the flange 2, with
20 three corresponding apertures 27, 27, 27. As shown in Figure 7, the three buffer wings 26, 26, 26 are arranged about the axis X of the shank 1 at uniform angular distances. Each buffer wing 26 is of a generally pentagonal shape having two inner edges
25 disposed at an angle of 120° to each other and extending radially of the circular flange 2. The under surfaces of the three buffer wings 26, 26, 26 are

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disposed above the upper surface of the flange 2 and lie substantially perpendicularly to the axis of the shank 1. The triple buffer wings 26, like the double buffer wings 6 of Figures 1, 2, 3, 5, coact with the 5 buffer plate C to serve as a double shock-absorbing means.

Figure 8 shows still another capped eyelet 100" including a modified eyelet body A" in which the flange 2 has four buffer wings 36, 36, 36, 36 punched 10 therefrom with four corresponding apertures 37, 37, 37, 37. As shown in Figure 9, the four buffer wings 36, 36, 36, 36 are arranged about the axis X of the shank 1 at uniform angular distances. Each buffer wing 36 is of an arcuate shape extending near and along the 15 periphery of the flange 2. The flange 2 also has an annular rib 35 projecting downwardly therefrom and disposed concentrically with the shank 1. The arcuate buffer wings 36 have the same function as the 20 rectangular buffer wings 6 of Figures 1, 2, 3, 5 and the pentagonal buffer wings 26 of Figures 6 and 7.

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CLAIMS:

1. A capped eyelet (100, 100', 100") for attachment of a snap fastener member (D) to a garment (F), comprising:
- 5 an eyelet body (A, A', A") having a hollow shank (1) and a flange (2) extending outwardly from one end of said hollow shank (1), said flange (2) having a plurality of buffer wings (6, 26, 36) projecting outwardly from said flange (2); a cap (B) having a
- 10 convex top wall (10) and a peripheral edge (11) clinched over a periphery of said flange (2); and a buffer plate (C) disposed between said top wall (10) of said cap (B) and said flange (2) and engaging top surfaces of said wings (6, 26, 36); characterized in
- 15 that said buffer wings (6, 26, 36) have under surfaces disposed above said flange (2) and lying substantially perpendicularly to the axis (X) of said shank (11), and that said buffer wings (6, 26, 36) and said buffer plate (C) are deformable resiliently and plastically,
- 20 respectively, to thereby absorb an endwise pressure applied to said shank (11) of said capped eyelet (100, 100', 100") when the latter is axially compressed for fastening the same to the fastener member (D).
2. A capped eyelet (100) according to claim 1,
- 25 characterized in that the number of said buffer wings is two, and such two buffer wings (6) are disposed in a symmetrical relation with respect to the axis (X) of

said shank (1).

3. A capped eyelet according to claim 2,
characterized in that each of said two buffer wings (6,
6) is of a rectangular shape having an inner edge
5 extending substantially diametrically of said flange.

4. A capped eyelet (100') according to claim 1,
characterized in that the number of said buffer wings
is three , and such three buffer wings (26', 26', 26')
are arranged about the axis of said shank (1) at
10 uniform angular distances.

5. A capped eyelet (100') according to claim 4,
characterized in that each of said three buffer wings
(26') is of a generally pentagonal shape having two
inner edges disposed at an angle of 120° to each other
15 and extending radially of said flange (2).

6. A capped eyelet (100") according to claim 1,
characterized in that the number of said buffer wings
is four, and such four wings (36, 36,
36, 36) are arranged about the axis (X) of said shank
20 (1) at uniform angular distances.

7. A capped eyelet (100") according to claim 6,
characterized in that each of said four wings (36) is
of an arcuate shape extending adjacent to and along the
periphery of said flange (2).

25 8. A capped eyelet (100") according to claim 7,
characterized in that said flange (2) has an annular
rib (35) projecting downwardly therefrom and disposed

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concentrically with said shank (1).

9. A capped eyelet (100, 100', 100") according to claim 1, characterized in that said buffer plate (C) is made of soft synthetic resin.

5 10. A capped eyelet (100, 100', 100") according to claim 1, characterized in that said buffer plate (C) is made of cardboard.

11. A capped eyelet (100, 100', 100") according to claim 1, characterized in that said buffer plate (C)
10 is made of cloth.

12. A capped eyelet (100, 100', 100") according to claim 1, characterized in that said buffer plate (C) is made of rubber.

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FIG. 2

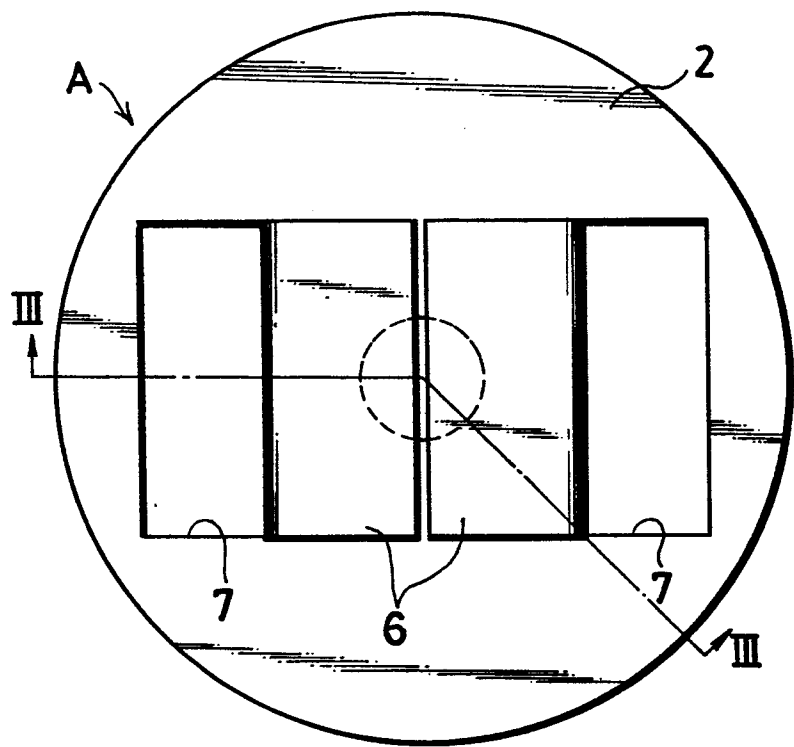


FIG. 3

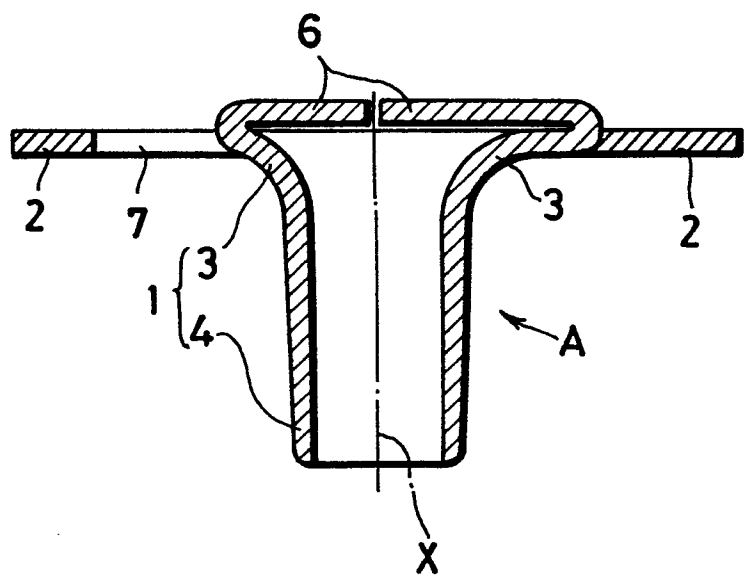


FIG. 5

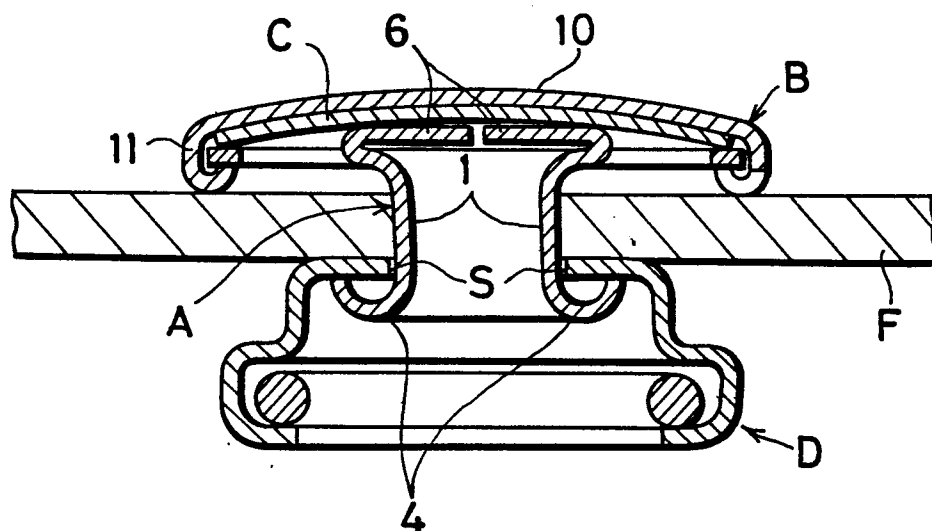


FIG. 6

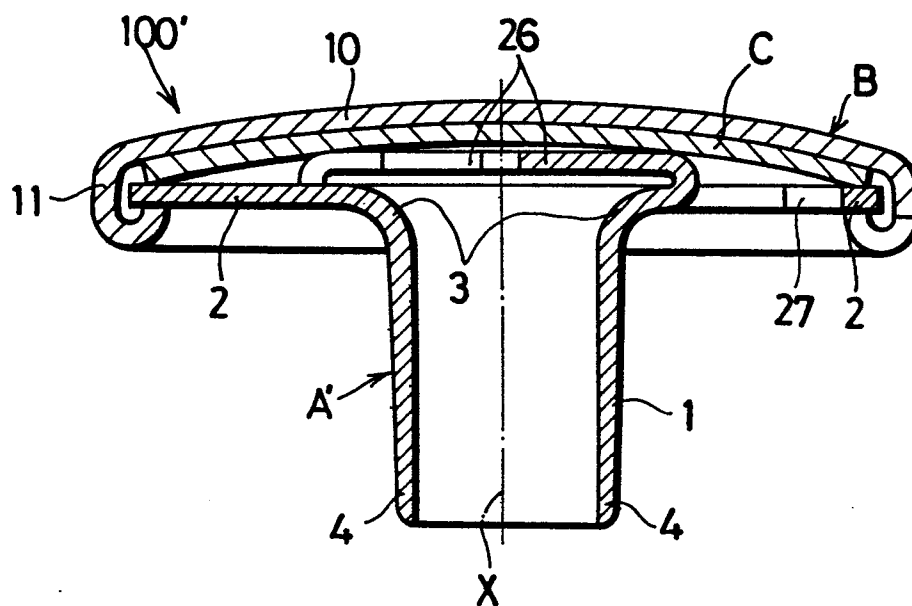


FIG. 7

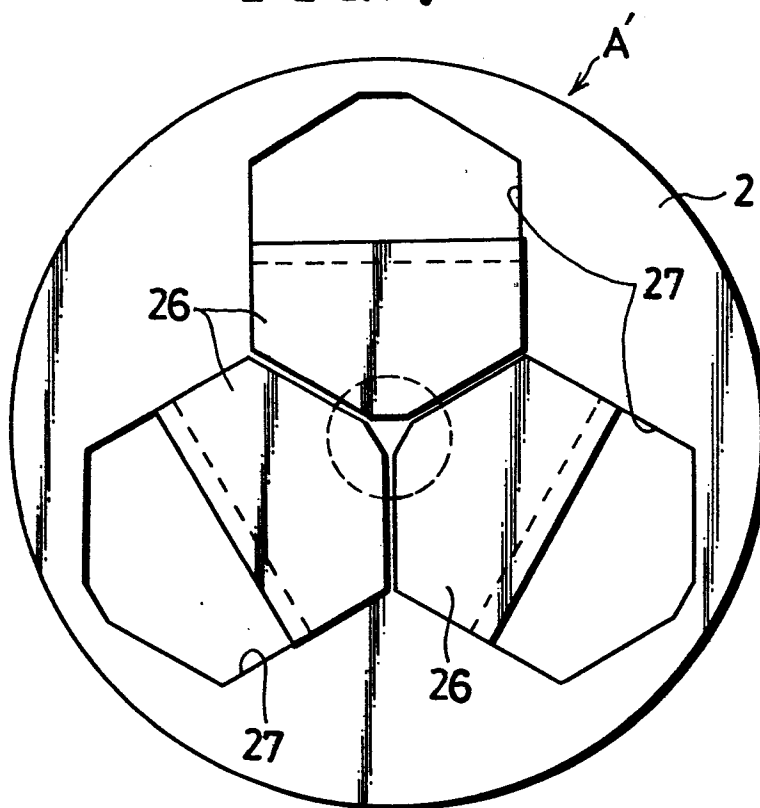


FIG. 8

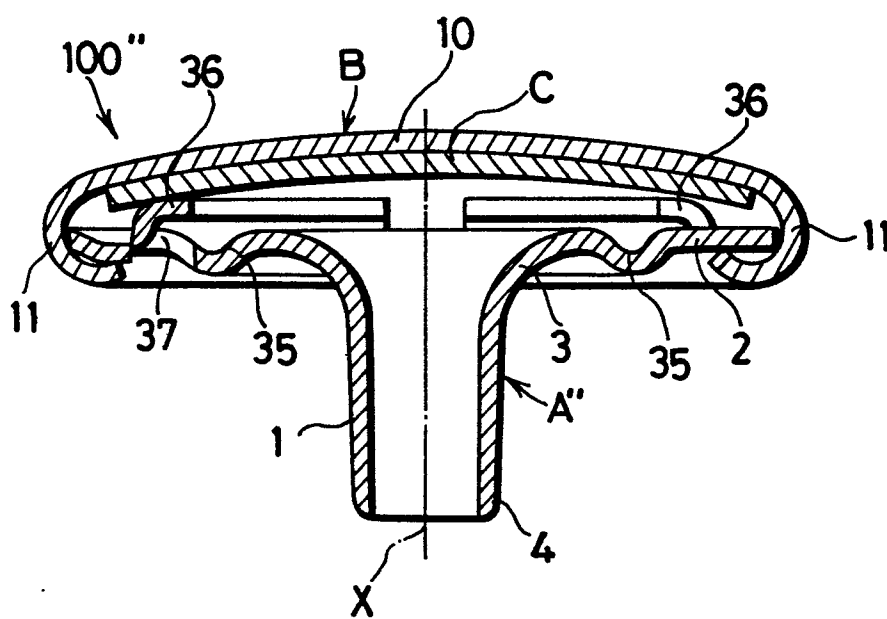
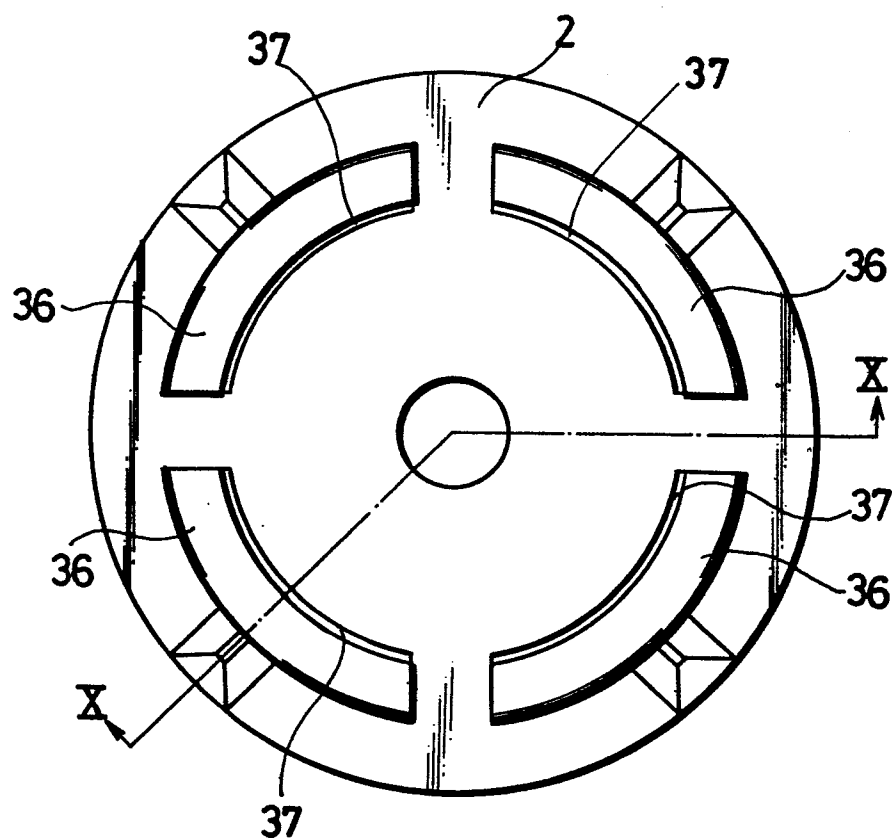


FIG. 9**FIG. 10**