Abstract Title: **Chewable toy for animals.**

A chewable toy for an animal is formed of moulded plastics or elastomeric material, and is generally elongate in form. The toy is formed over a substantial part of its elongate length with a pattern of alternating channels and ridges extending generally about the toy in a direction generally perpendicular to its elongate length. The pattern of alternating ridges and channels provides tooth-cleaning and gum massage for a dog chewing the toy, and facilitates manipulation of the toy by the dog with its paws. The ridges and channels are preferably formed by a helical groove (2). Holes (18) may be formed to hold treats or pieces of food.
CHEWABLE TOYS FOR ANIMALS

This invention relates to chewable toys for animals and more particularly, though not necessarily exclusively, to chewable bone-shaped toys for dogs.

Chewable toys for dogs are often bone-shaped and formed from plastics or elastomeric material with a smooth surface. They are generally made from relatively durable materials so that, although regularly chewed, they still exhibit a useful life. The intention (not always realised) is that they maintain the animal’s interest while exercising the jaws. Sometimes they are provided with small hemispherical tooth massaging bumps with a diameter of the order of 3mm.

A chewable generally bone-shaped toy for an animal, in particular a dog, is disclosed in EP-A-0181980 Edwards, and has a generally elongate bone-shaped form which in cross section is substantially heart-shaped, thereby defining a groove which extends generally along the length of the chew and facilitates flexing of the chew on opposite sides of the groove to provide a crunching effect to an animal chewing the bone even though the bone is fabricated from a comparatively hard elastomer, specifically polyurethane.

Dogs, in particular, seem to have a preference for holding a bone, whether natural or an artificial chewable toy, between their paws while chewing.

The present invention has arisen from our work seeking to provide improved chewable toys for animals with surface configurations which facilitate manipulation and holding of the toy by an animal with its paws and at the same time provide substantially enhanced effects on the teeth and gums, including control of tartar and plaque and control of gum disease, as compared with the conventional small hemispherical bumps.

In accordance with one aspect of the present invention, there is provided a chewable toy for an animal formed of moulded plastics or elastomeric material,
being generally elongate in form (preferably generally bone-shaped), and being
formed over a substantial part of its elongate length with a pattern of alternating
channels and ridges extending generally about the toy in a direction generally
perpendicular to its elongate length.

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In a second and alternative aspect thereof, the invention provides an artificial
dog-bone formed of plastics or elastomeric material with a pattern of alternating
ridges and channels in its surface adapted both to provide tooth-cleaning and gum
massage for a dog chewing the toy and to facilitate manipulation of the bone by the
dog with its paws.

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The pattern of alternating channels and ridges may be provided by grooves in
its surface forming complete rings about the toy or by one or more grooves
extending helically about the toy. Whether formed as individual rings or by one or
more helices, the grooves need not be complete; they may be interrupted.
Alternatively, or in addition, patterns of ridges and channels may be formed by
parallel upstanding ridges on a portion of the surface of the toy.

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In addition, the toy may have a region with a pattern of upstanding bumps,
preferably either hemispherical in form or multi-lobed (star shaped in section) in
form, thereby providing regions with a different textural feel for the dog’s mouth.
One or more shaped shallow receptacles or through openings may be defined in the
surface of the toy to enable insertion of a treat (a tasty piece of food).

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Conventional dog bones are generally oval in section apart from the wider
lobe-shaped ends of the bone (or generally heart-shaped in section in the case of EP-
A-0181980, though that shape is also generally rounded in form, apart from the
longitudinal groove, as can be seen in Fig. 3 of EP-A-0181980). In contrast, our toy
may be provided with a generally rectangular shape in section, which we have found
facilitates manipulation of the toy by an animal making it easier for them to hold it
between their paws while chewing.
The invention is hereinafter more particularly described by way of example only with reference to the accompanying drawings, in which:-

Fig. 1 is an overall perspective view of an embodiment of chewable toy constructed in accordance with the present invention seen from one side;
Fig. 2 is an elevational view of that one side;
Fig. 3 is a side elevational view as seen from the direction A in Fig. 2;
Fig. 4 is an overall perspective view of the toy as seen from the other side;
Fig. 5 is an elevational view of that other side;
Fig. 6 is a side elevational view as seen from the direction B in Fig. 5; and
Figs. 7 and 8 are end elevational views as seen from the directions C and D in Fig. 6.

The drawings illustrate a generally bone-shaped chewable toy for an animal, in particular a dog. The illustrated toy is moulded from a relatively tough plastics or elastomeric material that is sufficiently inert not to damage the animal if ingested. A suitable such material is Nylon 6 which is a hard durable, generally translucent plastics material. Another commercially available class of mouldable plastics material is ionomer. This material has the advantage over Nylon 6 that it floats in water, is transparent and also more flexible. A further possibility is polyurethane, which is also a relatively tough and inert elastomeric material. As explained in EP-A-0181980 Edwards, referred to above, polyurethane has the advantage that the polyurethane composition is formed from a two-part liquid composition that is mixed in the mould and cured in situ. A flavouring composition may be incorporated in the liquid in the mould before curing is complete.

Dogs, in particular, have quite sensitive mouths. The chewable toy illustrated in the drawings has a variety of surface features which provide interest to a dog chewing the toy. In particular, over the greater part of its length the toy has a
pattern of alternating grooves 2 and ridges 3 extending generally about the toy in a
direction perpendicular to its longitudinal length. The grooves and ridges need not
be complete. In the illustrated embodiment, a central section is interrupted by a
panel 4 which may bear a trademark, here DOG MATE (a Registered Trademark of
Pet Mate Ltd). The grooves are preferably provided at a spacing of 4mm to 16mm
and have a depth of between 2mm and 8mm. We have found that not only does the
alternating pattern of grooves and ridges massage the gums but with this particular
spacing the grooves and ridges have a tooth cleaning effect. Specifically, the recited
dimensions allow the design of a bone that will facilitate tooth cleaning, but will not
trap a dog’s tooth. We have also found that the provision of such a pattern of
grooves and ridges makes it much easier for a dog to manipulate the toy with its
paws.

Although the grooves and ridges here form complete individual rings about
the toy (apart from the interrupted section 4), those skilled in this art will readily
appreciate that other arrangements are possible. Specifically, the pattern of
alternating grooves and ridges could be provided by one or more helically extending
grooves.

At its respective ends 5 and 6 the toy is formed with a pair of lobes 7 so as to
mimic a bone-shape. These widened lobe-shaped regions are beneficial in that they
present an obstacle to swallowing the bone and provide a lot of material to be
chewed at the ends – the favourite chewing area – thereby extending chew life. As
shown in the case of end 6, this surface may be provided with an upstanding pattern.
On one side 8 of the bone, as shown in Figs. 1 and 2 the upstanding pattern
comprises ridges 9 separated by channels 10 in one half of surface 8 and with a
number of generally hemispherical bumps 11 in the other half of surface 8.

The other side 12 of the toy is also provided with a pattern of alternating
upstanding ridges 13 and intervening channels 14 in one portion and a pattern of
upstanding bumps 15 in its other portion. In this case, the bumps are substantially
star shaped in plan view (see Fig. 5) and are arranged in rows aligned with
individual upstanding ridges 13, the whole being reminiscent of the stars and stripes on the flag of the United States.

Surfaces 16 and 17 at the opposite lobed end of the bone-shaped chewable toy, respectively corresponding to surfaces 8 and 12, are quite differently formed. They include relatively flat and wide depressions 18 defined in the material of the toy and each having a bottom surface 19 and a circumextending wall 20. Depression 21 on side 16 of the toy takes the general form of a paw print, the palm of which provides the depression proper with its circumextending wall 20. Depressions 22 on the opposite side 17 of the toy take the form of stars 23. Into these depressions may be impressed a small treat or piece of food. In the case of a solid piece of food such as a piece of biscuit or the like, the treat makes a force fit with circumextending wall 20, which will flex slightly, given the plastic or elastomeric nature of the material from which the toy is made, aiding the fitting of the foodstuff in the depression. If the toy is then presented to an animal, they will taste the foodstuff even though they are not immediately able to remove it from the depression, thereby enhancing the experience for the animal.

As can best be seen in the perspective views of Figs. 1 and 4 and in the end elevational views of Figs. 7 and 8, the profile of the toy is relatively flat so that it has in effect two relatively extensive sides, namely those visible in the elevational views of Figs. 2 and 5 and a relatively shallow wall connecting these two sides. To put it another way, the toy has a section that is generally rectangular, though slightly rounded off as best seen in Figs. 7 and 8. We have found that this particular configuration assists in manipulation of the toy by a dog using its paws. The pattern of upstanding ridges and bumps (both hemispherical 11 and star shaped 15) enables the animal to get a grip on the toy, as does the alternating pattern of grooves and ridges in the centre longitudinal section of the toy.

As will be understood, the invention is not restricted to the specific patterns of channels, ridges, upstanding bumps and shallow treat-receiving depressions illustrated in the specific embodiment. Given the teaching herein, persons skilled in
this art will readily be able to design alternative patterns in the surface of a moulded plastics toy for an animal which will serve similar functions of providing an interesting texture and feel for its mouth, providing tooth cleaning and gum massage, and facilitating manipulation of the toy by an animal using its paws, and the invention is to be regarded as encompassing all such alternative patterns.
Claims

1. A chewable toy for an animal formed of moulded plastics or elastomeric material, being generally elongate in form (preferably generally bone-shaped), and being formed over a substantial part of its elongate length with a pattern of alternating channels and ridges extending generally about the toy in a direction generally perpendicular to its elongate length.

2. A toy according to Claim 1, wherein the said pattern is provided by a plurality of parallel grooves formed in the surface of the toy forming rings about the toy.

3. A toy according to Claim 2, wherein some of the rings are interrupted.

4. A toy according to Claim 1, wherein the said pattern is provided by one or more grooves extending helically about the toy.

5. A toy according to any preceding Claim, wherein the channels have a depth of 2 to 8 mm and a spacing of 4 to 16 mm.

6. A toy according to any preceding Claim that is generally rectangular in section.

7. An artificial dog-bone formed of plastics or elastomeric material with a pattern of alternating ridges and channels in its surface adapted both to provide tooth-cleaning and gum massage for a dog chewing the toy and to facilitate manipulation of the bone by the dog with its paws.

8. A dog-bone according to Claim 7, comprising a centre longitudinal section and generally lobe-shaped end regions, the dog-bone having a generally flattened configuration defining two opposite sides connected by a relatively shallow wall.
9. A dog-bone according to Claim 8, wherein the said centre longitudinal section has a said pattern of ridges and channels defined by grooves extending about the said centre longitudinal section.

10. A dog-bone according to Claims 8 or 9, wherein at least one of said opposite sides is formed with a pattern of upstanding parallel ridges in a lobe-shaped region.

11. A dog-bone according to Claims 8 or 9, wherein at least one of said opposite sides is formed with a pattern of upstanding parallel ridges and a pattern of upstanding bumps in a lobe-shaped region.

12. A dog-bone according to any of Claims 8 to 11, wherein a surface of at least one of said opposite sides defines a depression in a lobe-shaped region, the depression having a bottom and a circumextending wall into which a portion of foodstuff is adapted to be force-fit.

13. A dog-bone according to any of Claims 8 to 11, wherein a through opening is defined extending from one of the opposite sides to the other, the through opening being defined by a circumextending wall, and being adapted for a portion of foodstuff to be force-fit therein.

14. A chewable toy for an animal substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

15. An artificial dog-bone substantially as hereinbefore described with reference to and as shown in the accompanying drawings.
Documents considered to be relevant:

<table>
<thead>
<tr>
<th>Category</th>
<th>Relevant to claims</th>
<th>Identity of document and passage or figure of particular relevance</th>
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<tbody>
<tr>
<td>X</td>
<td>1 to 15</td>
<td>US 5647302 A (SHIPP) See whole document.</td>
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- Online: EPODOC, PAJ, TXTE, WPI.