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54 **Assembly comprising a set of articulated elements able to form figures which take shape in the space.**

57 The assembly comprises a pair of plates (1, 3) solid to and spaced from one another, between which two pivots (5, 7) are interposed on which shaped elements (10, 14, 16, 17) are mounted to rotate about them; said shaped elements are able to be housed within the space between said two plates in closed position and are taken out from said space by a rotation about said pivots, thereby taking up relative positions defined to form, together with said plates, a predetermined figure.

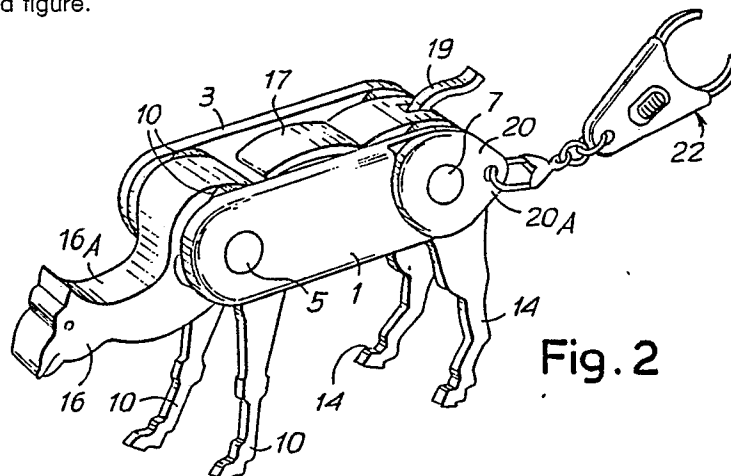


Fig. 2

EP 0 368 815 A2

ASSEMBLY COMPRISING A SET OF ARTICULATED ELEMENTS ABLE TO FORM FIGURES WHICH TAKE SHAPE IN THE SPACE

The invention relates to an assembly comprising a pair of plates solid to and spaced from one another, between which at least one pivot is interposed on which pivot shaped elements are mounted for their rotation about it, said elements being able to be received in the space between said two plates in closing position and be taken out from said space by a rotation about said at least one pivot, thereby taking up relative positions defined to form, together with the above plates, a predetermined figure.

In practice, the assembly may comprise two pivots about which said shaped elements rotate, and said elements are so shaped and mutually positioned as to be received in said space without mutual interference.

According to an embodiment of the invention, said elements reproduce animal figures, when they are disposed in open position by a rotation about said pivot(s).

About the first one of said pivots, shaped elements may be articulated reproducing the head and the forelegs and, about the second of said pivots, elements are articulated reproducing the hindlegs and possibly the tail of the animal represented by said assembly, said plates making up the body of the said animal.

In order to form more complex figures it may be provided that at least one of said shaped elements be combined with articulation means for one or more additional shaped elements not directly articulated to said pivots.

One or more of said shaped elements may have cam profiles, in the vicinity of the respective pivot, able to facilitate the extraction of opposite shaped elements.

In a further development of the invention, one or more of said shaped elements may be engaged to the relevant pivot by an eyelet allowing rotary and displacement movements of said element with respect to said pivot.

Means such as an openable ring or equivalent may be combined with the assembly according to the invention for retaining keys or similar, which means can in practice be engaged to one of said plates. To this end, a member may be articulated to one of said pivots which is provided with an eyelet for the engagement of said ring means, the same member being housed in a seat on the outer surface of one of said plates.

The pair of plates and the shaped elements interposed therebetween are connected by means of screws friction-engaged by Belleville springs combined with said pivot(s).

The drawing shows feasible equivalent embodiments of the invention and in particular:

Figs.1 to 3 show in perspective view a first embodiment of the invention, in closed position, in fully open position and in partially open position, respectively;

Fig.4 shows a plan view of the invention in closed position, according to line IV-IV of Fig. 5;

Figs.5 to 7 show section views on lines V-V, VI-VI and VII-VII of Fig.4, respectively;

Figs.8 and 9 show a perspective view and a side view with some parts removed of a second embodiment of the invention in open position;

Fig.10 shows a plan view of the invention of Fig.8 in closed position according to line X-X of Fig.11;

Figs.11 to 14 show sections according to lines XI-XI, XII-XII, XIII-XIII and XIV-XIV of Fig.10, respectively;

Figs.15 and 16 show a perspective view and a side view with some parts removed of a third embodiment of the invention in open position;

Fig.17 shows a plan view on line XVII-XVII of Fig.18; and

Figs.18 and 20 show sections on lines XVIII-XVIII, XIX-XIX and XX-XX of Fig.17 respectively.

With reference to what is illustrated in the attached drawing and by referring first to Figs.1 to 7, an assembly according to the invention comprises two side plates 1 and 3 connected to one another by means of two pivots 5 and 7, a plurality of shaped elements being disposed between said plates and articulated about said pivots 5 and 7. The shaped elements, the pivots and the plates are connected to each other by means of screws friction-engaged by Belleville springs. In Fig.4 two screws 6, 12 are shown in combination with pivots 5, 7 respectively. On pivot 5, a Belleville spring 8 is fitted having friction function. A similar spring may be provided on pivot 7.

The shaped elements have such a shape as to be received in the space between said two plates 1 and 3, as shown in Fig.1, when the assembly is in closed position. Vice-versa, when the assembly is in open position, the shaped elements make up, together with the pair of plates 1 and 3, an animal figure or similar. In particular, in Figs.1 to 7, the shaped elements comprise two elements 10 articulated about pivot 5 and shaped to form forelegs of a quadruped, whose body is formed by plates 1 and 3 and whose hindlegs consist of two other shaped elements 14 articulated about pivot 7. About pivot 5 a further shaped element 16 is articulated having greater thickness and disposed be-

tween the two elements 10, representing the neck and head of the quadruped. A further shaped element 17 makes up the back of the quadruped.

Fig.3 shows how these elements 10, 14 and 16 are taken out from the space between plates 1 and 3. In particular, the hindlegs are taken out by rotation according to f14 (Fig.3), on the same side from which element 16 is taken out by rotation according to f16. The forelegs represented by elements 10, are instead taken out from the side opposite to that from which the hindlegs are taken out, and are rotated according to f10.

Fig.5 shows clearly the shaping of legs 10 and 14. It should be noted, in particular, that these legs-featuring elements 10 and 14 are provided with cam profiles 10A and 14A in the vicinity of pivots 5 and 7 which profiles allow, on one hand, the correct housing of the ends of the opposite shaped elements and, on the other, an easier extraction thereof. In fact, when elements 14 are rotated according to f14, to be taken out from the receiving space between plates 1, 3, the cam profiles 14A act onto the ends of elements 10 causing a limited rotation thereof according to f10 and thus an initial extraction as well. Vice-versa, if elements 10 are firstly taken out, the cam profiles 10A act on the ends of elements 14 and cause a partial extraction thereof. The initial opening of the assembly is eased by the presence of a bend 16A within element 16, which allows the insertion of a finger between plates 1, 3 to seize one of elements 14 and cause the extraction thereof according to f14.

The shaped element 17 is engaged to pivot 7 through an eyelet 17A which allows it not only to rotate about the said pivot 7, but also to translate with partial lifting of same element 17 out of the space between plates 1 and 3 in imitation of a hunch or the like of the quadruped back. Element 17 carries also an articulation 18 for a further small shaped element 19 representing the tail of the quadruped.

According to what is illustrated in the drawing, plate 1 is provided with a lowered zone formed around pivot 7, which makes up a seat for receiving a member 20 having an appendix 20A with an eyelet for the engagement of means 22 - such as an openable ring or equivalent - for retaining keys or the like.

Figs.8 to 14 show an embodiment of the invention equivalent to the embodiment of Figs.1 to 7. In this case, between plates 1 and 3 which are connected to each other by pivots 5, 7, there are housed shaped elements which, when disposed in open position, are able to represent a small mammal such as - in the illustrated example - a squirrel. The articulated elements comprise also a pair of elements indicated by 23, representing the forelegs of the animal and articulated about pivot 5 which

also provides articulation for a mid shaped element 25 of greater thickness, disposed between elements 23 and reproducing the head. Two small elements 29, which represent the ears, are pivotally engaged at 27 to head 25; these elements are housed - in closed position of the assembly - within seats 30 formed by recesses of element 25. Two shaped elements 32 representing the hindlegs of the animal area articulated around pivot 7 and between these elements two further elements 34 are articulated, which form the first portion of the tail. Between elements 34 is disposed an element 36 which makes up a spacer between said elements 34 and comprises an annular slot 36A where pivots 34A of elements 34 are housed (see in particular Fig.12). Between elements 34, two further shaped elements 38 are articulated at 40 and join one to the other at the opposite end with respect to articulation 40 by means of a spacer 42. In open position, elements 34 and 38 are disposed as shown in Figs.8 and 9 to form a wide tail, while in closed position, elements 38 are housed between elements 34 and these are in turn disposed between the shaped elements 32 representing the hindlegs, which are the most external elements articulated about pivot 7. The head represented by element 25 is housed - in closed position - between elements 38 (see in particular Figs.10 and 12).

Figs.15 to 20 show a further embodiment of the invention which is equivalent to the previous ones. In this case, the shaped elements articulated about pivots 5 and 7, which join plates 1 and 3 to each other, represent a bird, and in particular a penguin. A pair of elements 44 representing the forelegs of the bird is articulated about pivot 5 and, between these elements, there is articulated a central shaped element 46 of greater thickness which makes up the head of the bird.

Two shaped and more external elements 48 representing the hindlegs are articulated about pivot 7, and between these two elements 48 there are articulated two further side shaped elements 50 and a central shaped element 52 making up the tail.

It should be understood that with a different number of shaped elements and by suitable shapings of same elements it is possible to obtain, in a manner equivalent to what has been described with reference to the three illustrated embodiments, different figures of animals and of objects as well.

In all cases, as described with reference to Figs.1 to 7, associated to plate 1 there may be provided a member 20 rotating about pivot 7 (or in equivalent way about pivot 5) which carries an eyelet for engaging openable rings or similar means for the retention of keys or similar objects.

On plates 1 and 3 and/or on shaped elements,

advertising messages and the like may be printed, and the same shaped elements may be so shaped as to form, in open position, a reproduction of distinctive marks and the like able to act as advertising vehicles and means of trading promotion or of similar use.

Claims

1. Assembly comprising a pair of plates (1, 3) solid to and spaced from one another, between which at least a pivot (5; 7) is interposed on which shaped elements (10, 14, 16, 17; 23, 32, 34; 44, 48, 50, 52) are mounted to rotate about it, said shaped elements being able to be housed within the space between said two plates in closed position and be taken out from said space by a rotation about said at least a pivot, thereby taking up relative positions defined to form, together with said plates, a pre-determined figure.

2. Assembly according to claim 1, characterized in that it comprises two pivots (5, 7) about which said shaped elements rotate, which elements are so shaped and mutually positioned as to be received within said space without mutual interference.

3. Assembly according to claim 1 or 2, characterized in that said elements reproduce figures of animals when disposed in open position by a rotation about said pivot(s).

4. Assembly according to claim 3, characterized in that about a first (5) one of said pivots, shaped elements (10, 16; 23, 25; 44, 46) are articulated reproducing the head and the forelegs, and about the second (7) of said pivots elements (14; 32, 34; 48, 50, 52) are articulated reproducing the hindlegs and possibly the tail of the animal represented by said assembly, said plates (1, 3) making up the body of the same animal.

5. Assembly according to any of the preceding claims, characterized in that with at least one of said shaped elements articulation means (18; 27; 40) are combined for one or more further shaped elements (19; 29; 38) not directly articulated to said pivots (5, 7).

6. Assembly according to any of the preceding claims, characterized in that one or more of said shaped elements exhibit cam profiles (10A, 14A), in the vicinity of the relevant pivot, able to facilitate the extraction of opposite shaped elements.

7. Assembly according to any of the preceding claims, characterized in that one or more of said shaped elements is engaged to the relevant pivot through an eyelet (17A) able to allow rotation and translation movements of said element relative to said pivot.

8. Assembly according to any of the preceding

claims, characterized in that an openable ring or equivalent means (22) is combined therewith for the retention of keys and the like.

9. Assembly according to claim 8, characterized in that said openable ring or equivalent means (22) is engaged to one of said plates.

10. Assembly according to claim 8, characterized in that to one of said pivots (5, 7) a member (20) is articulated carrying an eyelet for the retention of said ring means (22), said member being housed within a seat on the outer surface of one of said plates.

11. Assembly according to any of the preceding claims, characterized in that the pair of plates (1, 3) and the shaped elements interposed therebetween are connected to each other by means of screws (6, 12) friction-engaged by Belleville springs (8) combined with said pivot(s) (5, 7).

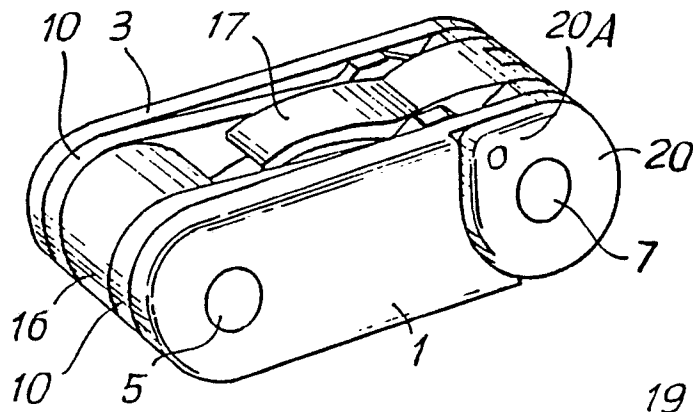


Fig. 1

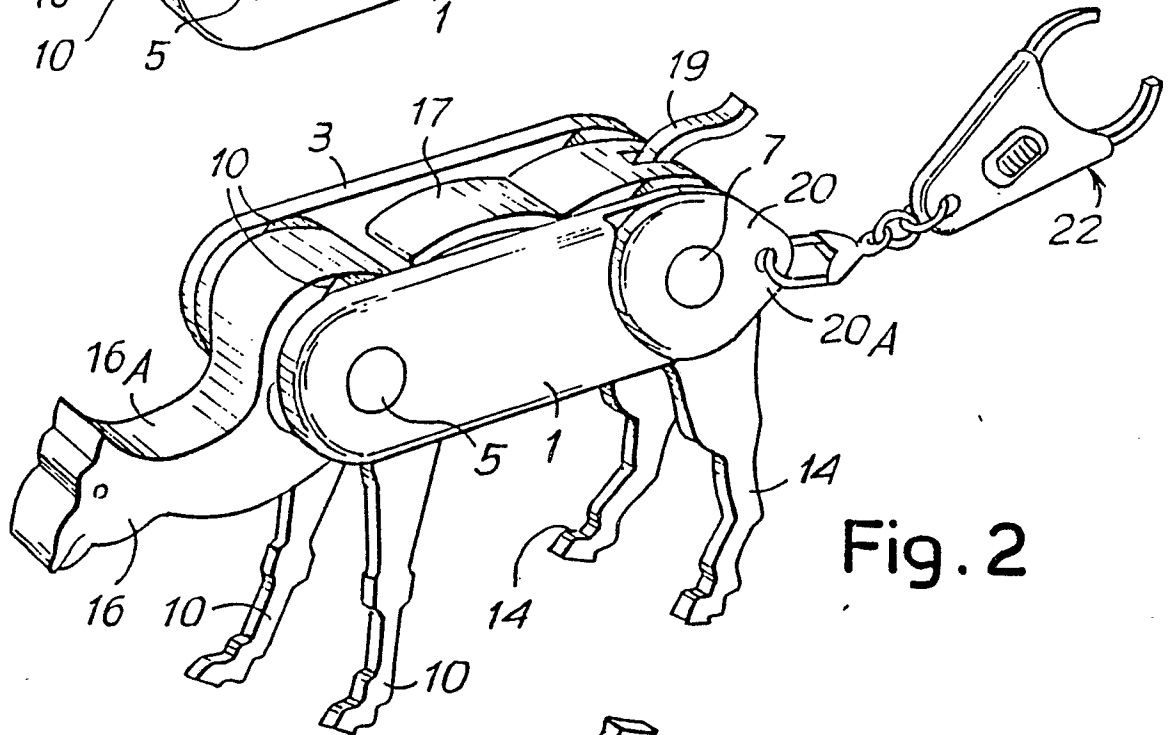


Fig. 2

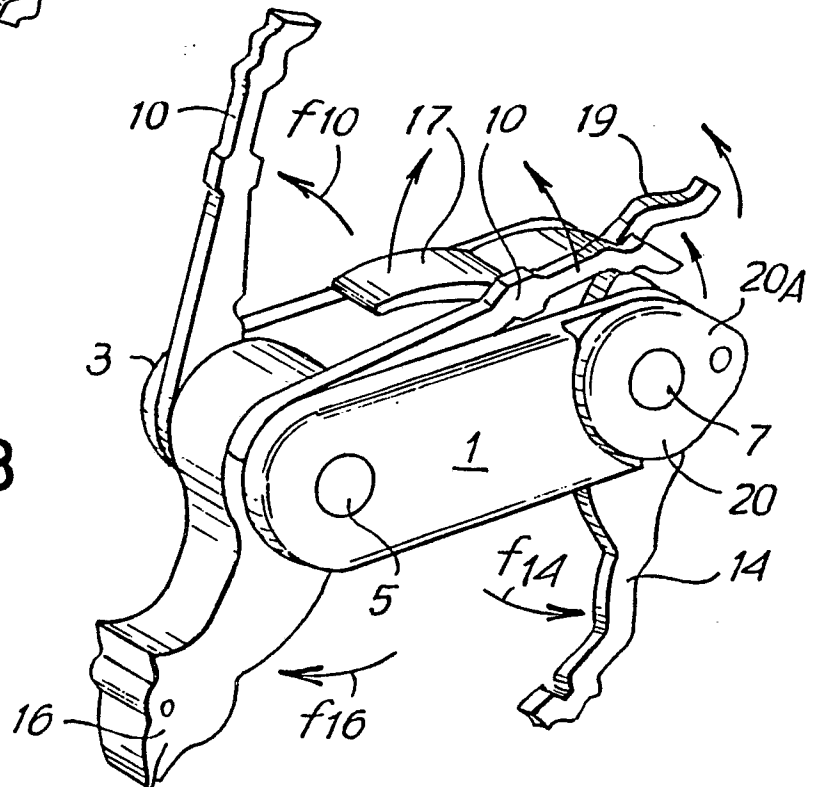


Fig. 3

Fig.4

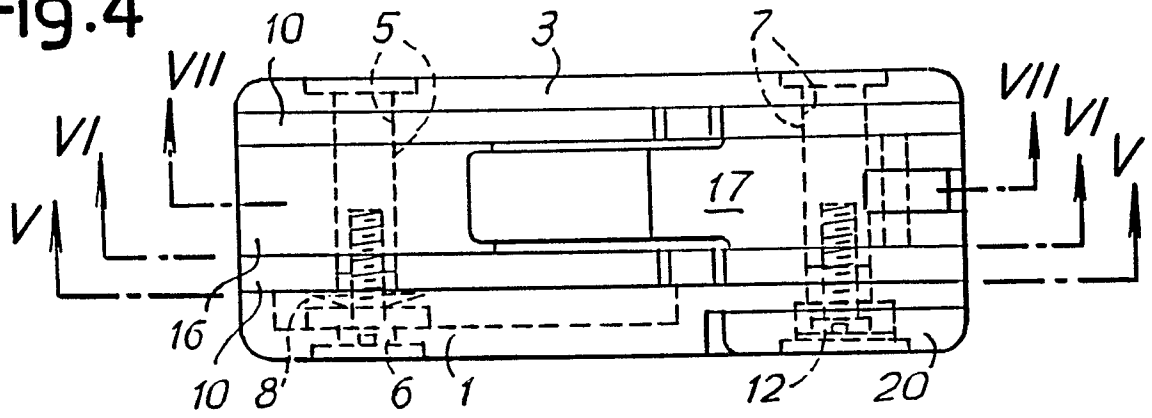


Fig.5

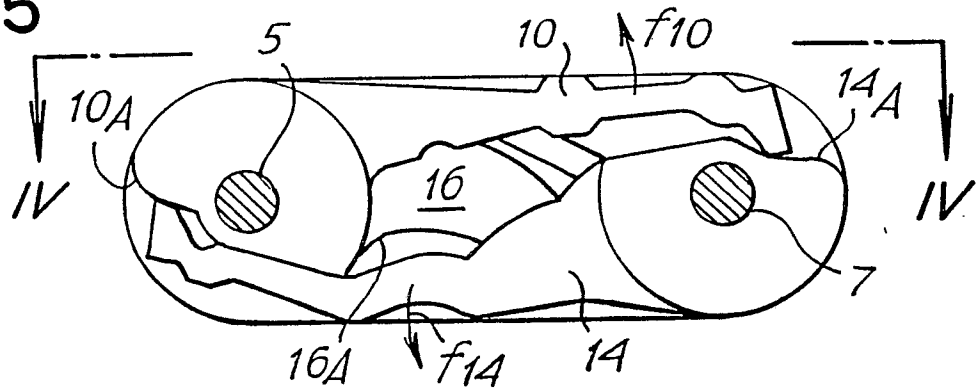


Fig.6

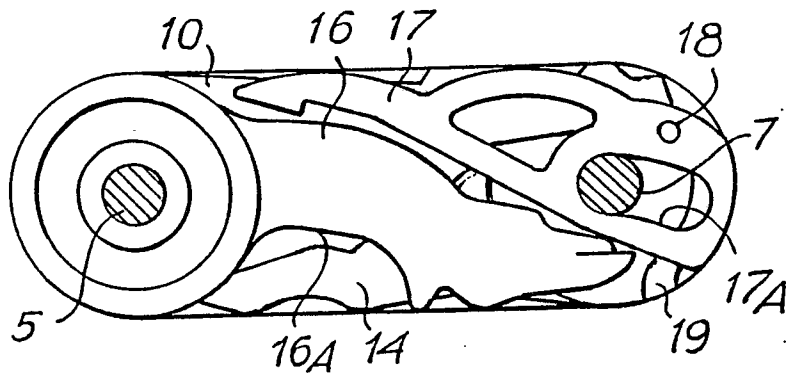


Fig.7

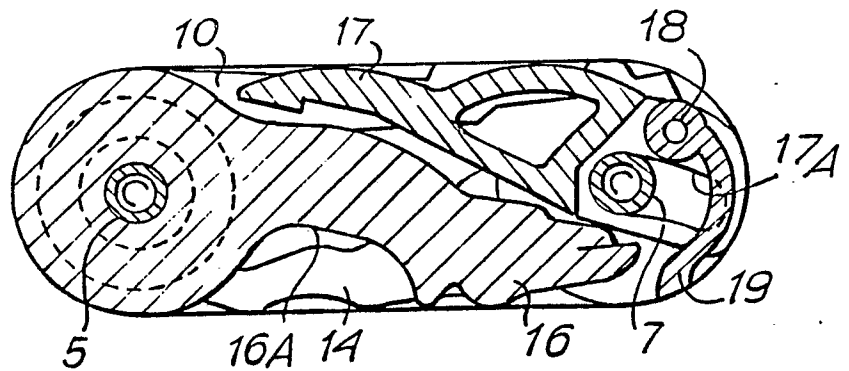


Fig. 8

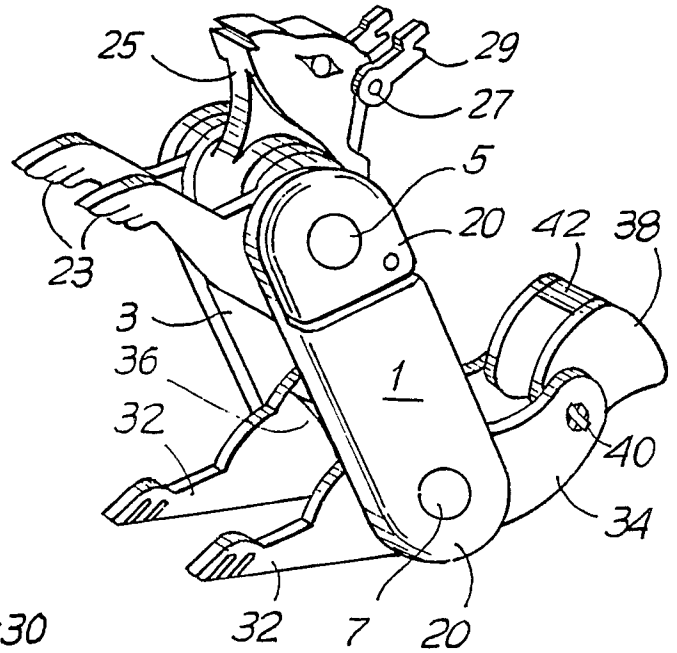


Fig. 9

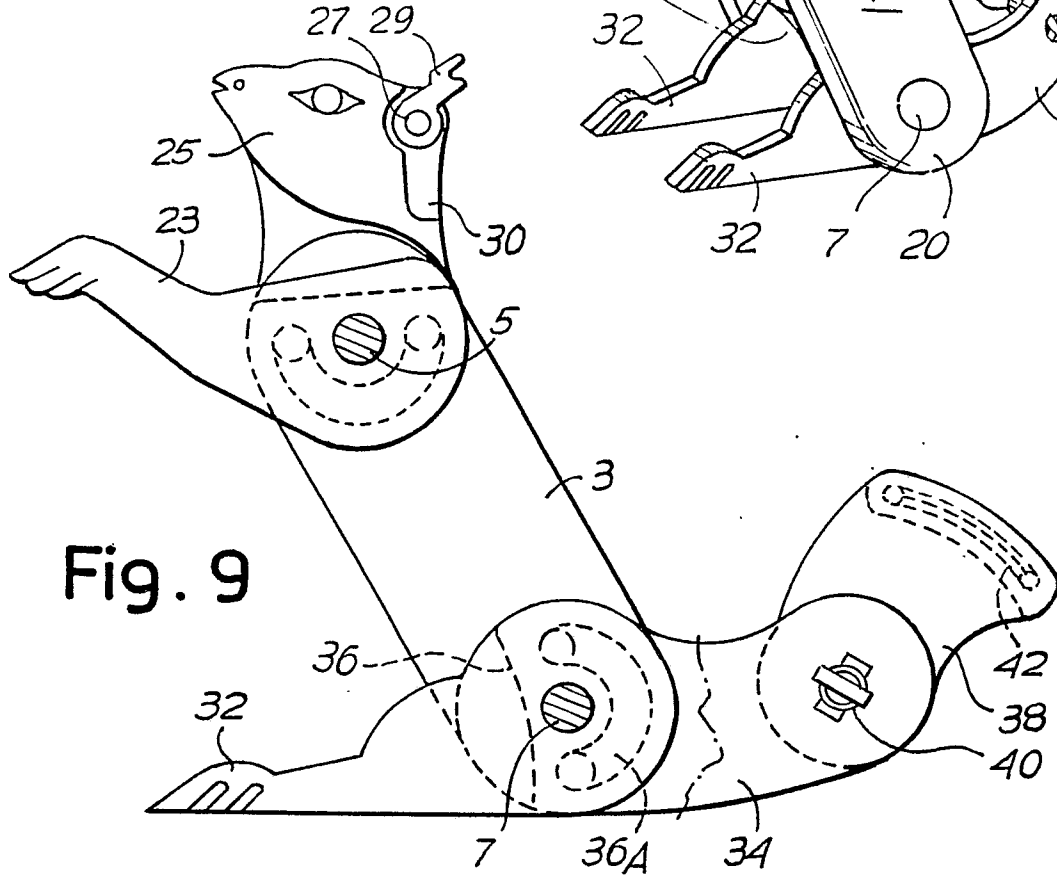


Fig. 10

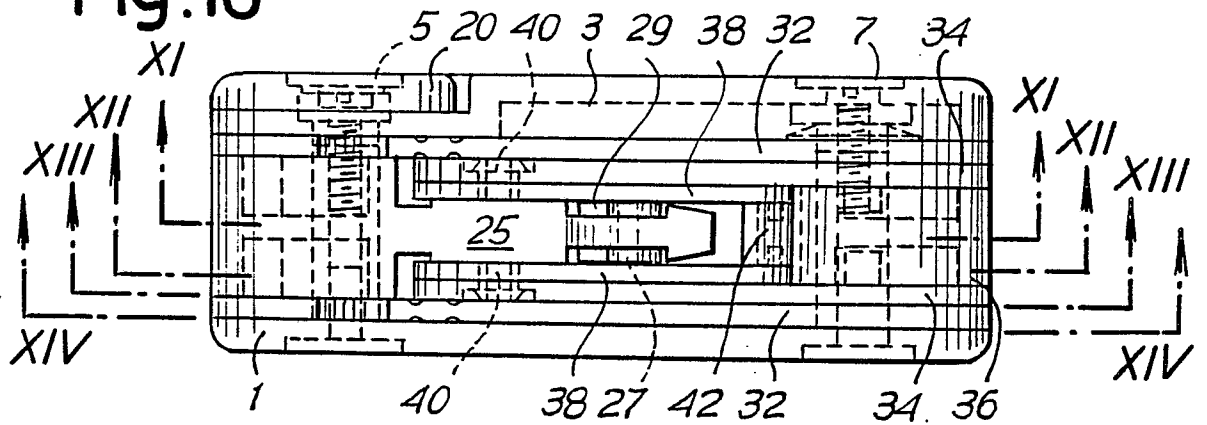


Fig.11

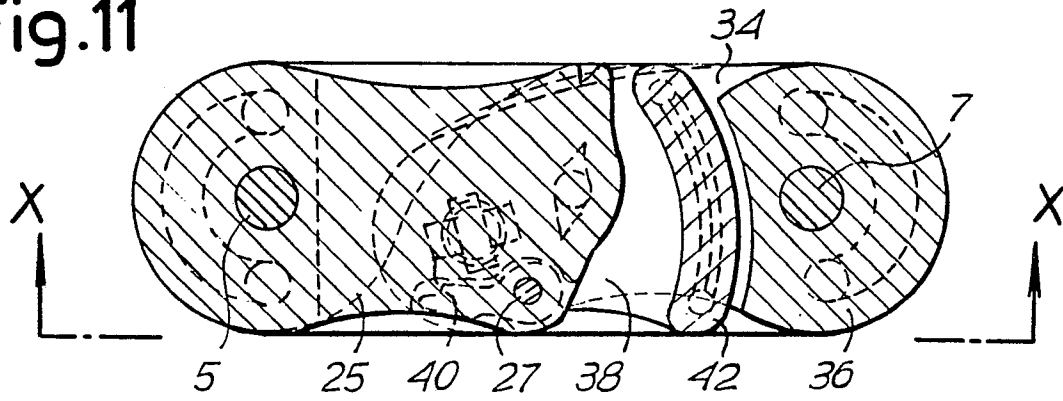


Fig.12

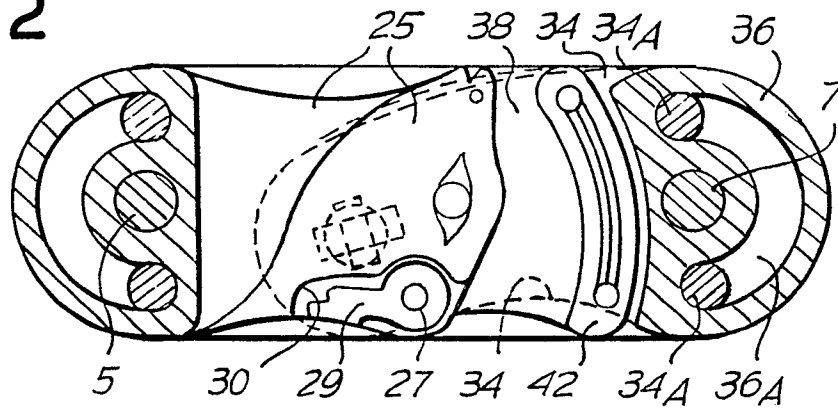


Fig.13

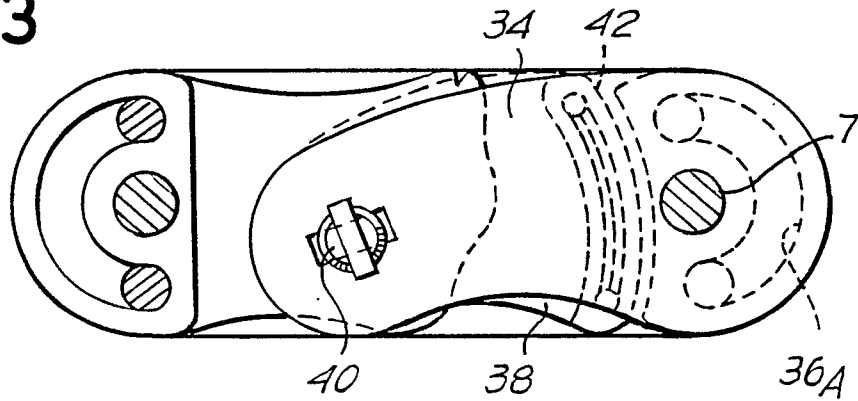


Fig.14

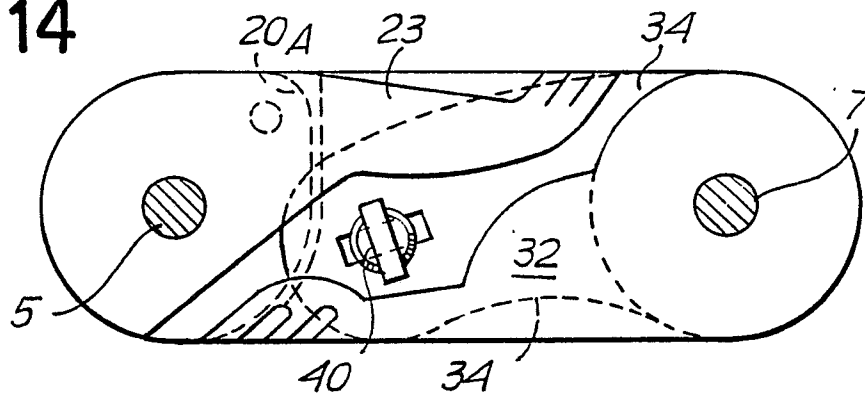


Fig. 15

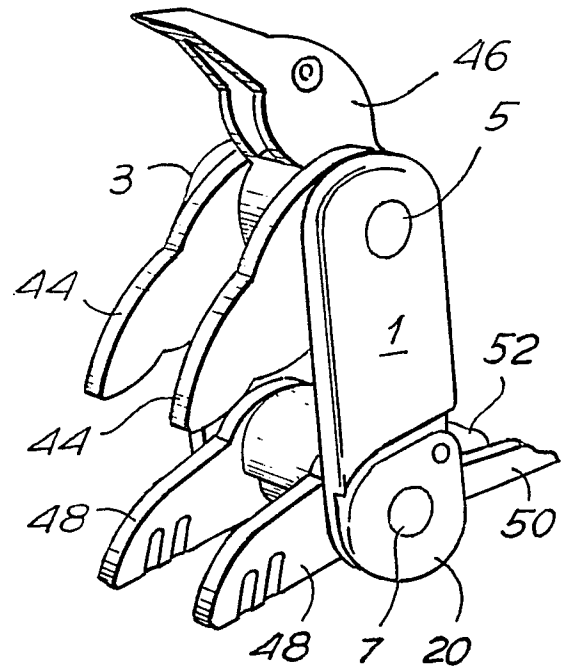


Fig. 16

