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(54) **APPARATUSES AND METHODS FOR STRETCHING A PELT ON A PELT BOARD**

(57) An apparatus for fixating a stretched pelt on a pelt board by means of a tubular plastics sleeve which has two outwardly extending flanges. The pelt has a substantially tubular shape which defines an inwardly orientated leather side, an outwardly orientated fur side, a nose end and a rear end. The pelt board defines a top end for accommodating and fixating the nose end of the pelt, a circumferential wall for facing the inwardly orientated leather side of the pelt and a base end located opposite the top end. The apparatus comprises a holding device for holding the base end of the pelt board, and a fixating device having a pair of gripping members. Each of the gripping members are adapted for gripping a respective flange of the tubular plastic sleeve, as the sleeve is loosely positioned in a first position at the top end of the pelt board on the pelt at the nose end thereof, and for pulling the flanges apart for widening the tubular plastics sleeve, moving the sleeve from the first position at the top end to a second position at the base end of the pelt board and disengaging the gripping members from the flanges for allowing the sleeve to reform towards its original shape and in doing so, firmly engaging with the outwardly orientated first side of the pelt at the rear end thereof.

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Description

[0001] The present invention relates to apparatuses and methods for stretching a pelt on a pelt board

Background of the invention

[0002] In the fur industry, animal pelts are often stretched in a non-destructive way in order to maximize the size of the pelt. The pelts define a substantially tubular shape and have an outwardly oriented fur side and an inwardly oriented leather side. The stretching is taking place after skinning the animal and scraping off the layer of fat on the leather side of the pelt and before the drying of the pelt. In the present context, the word pelt is understood to encompass pelts of minks, foxes and similar small mammals. The pelts are often stretched on a pelt board, which is nowadays made of plastic. Normally, the leather side of the pelt is facing the surface of the pelt board and the pelt board may in addition be provided with a fat absorbing material such as a paper bag or sleeve, which is in contact with the leather side of the pelt. The fur side of the pelt is thereby facing outwardly during the stretching and drying of the pelt.

[0003] The stretching procedure and the use of pelt boards are known per se and both are disclosed in e.g. WO 2005/028682 A1. Therein is disclosed the use of a gripping element which is brought in engagement with the whole periphery of the pelt and the drawing of a fixing bag over the outside of the pelt in order to maintain the pelt in a stretched configuration during the drying of the pelt. Thereby, the previous use of staples and the thus produced elongated holes in the pelts may be avoided.

[0004] In relation to the above terminology, the word bag which in its normal understanding may describe a sleeve with a closed off bottom should in the present circumstances and further along in the present patent application be understood to also encompass sleeves which are not closed off and which have a tubular or cylindrical shape without a closed off bottom.

[0005] WO 2006/026986 A1 discloses a help arrangement for clamping the nose end of a pelt to a pelt board.

[0006] WO 2007/033681 A2 discloses a method and machine for the folding out of the tail part of the pelt in connection with the stretching of the pelt on the pelt board.

[0007] WO 2008/025364 A1 relates to a method and machine for performing water brushing of taned pelts in order to achieve a more presentable appearance of the pelt.

[0008] WO 02/44428 A1 relates to another method and machine for stretching of a pelt on a pelt board. The pelt is secured in the stretched positing by means of a sleeve or bag which is drawn over and around the pelt board, so that the pelt is pressed and locked against the pelt board. This method, which is also described above, is nowadays used as standard method for fixing the pelt in the stretched position in a non-damaging way.

[0009] DK 169 525 B1 discloses a machine for stretching a pelt. The machine includes a gripping mechanism for holding the pelt. Magnetic sensors are used for controlling the extent of stretching of the pelt by the gripping mechanism.

[0010] DK 2000 01174 L discloses another method in which the stretched pelt is held in place in a non-destructive way by the use of a pelt bag or sleeve.

[0011] EP 2 818 563 A1 discloses a hair controller for mounting on a stretching machine. The controller utilizes a nozzle or orifice for providing a stream of air.

[0012] US 2003/0019255 A1 discloses yet another method for fastening a pelt on a pelt board after stretching by the use of a sleeve or bag, and a corresponding sleeve for use with the method.

[0013] WO 2008/022644 A1 discloses a tube-shaped holding bag, which is drawn over the fur side of the pelt for holding the pelt in a stretched position.

[0014] WO2005/080607 discloses a method and an apparatus for fastening a fur on a pelt board by the use of a stretchable wrapping foil supplied from a single foil reel.

[0015] WO 2012/126467 discloses a technique of determining the maximum force to which a pelt may be exposed by measuring the initial lengths of the pelt prior to applying a stretch force to the pelt and predicting the maximum allowable force to be applied to the pelt from the initial length.

[0016] WO 2015/024788 discloses an apparatus and a method for stretching a pelt according to which method and in which apparatus the speed with which the pelt is stretched is gradually reduced during the stretching of the pelt.

[0017] It has been realized that by stretching of the pelt according to the above prior art technologies by gripping the lower end of the pelt, i.e. the tail end of the pelt, most of the stretching force is applied to the lower part of the pelt, i.e. the part of the pelt closest to the tail end of the pelt, and less force is applied to the upper part of the pelt, i.e. the part of the pelt which is closest to the nose part of the pelt. This is contrary to the anatomy of the pelt since the upper part of the pelt would normally be capable of withstanding a larger force than the lower part of the pelt. The pelt will thus not be stretched in an optimal way by applying the stretching force is applied to the lower part of the pelt. It is thus an object according to the present invention to provide technologies for properly stretching of both the upper part of the pelt as well as the lower part of the pelt.

[0018] Further, in connection with the stretching of the lower part of the pelt it has been realized that placing the pelt board including the pelt in a proper stretching position is difficult due to the fact that the gripping mechanism, which is intended to fasten the pelt about its complete contour, i.e. both the back side contour and leg side contour, obstructs the access of the user. Thus, it is an object according to the present invention to provide technologies for simplifying the access of the user to the stretching

apparatus.

[0019] Yet further, it has been realized that the stretching operation and in particular the fine tuning of the gripping mechanisms require the user to hold one hand on the pelt which the other hand is operating the user interface of the stretching apparatus. This is disadvantageous in relation to the alignment of the pelt in the stretching apparatus and it would be advantageous if the user could be able to use two hands holding the pelt instead of only one hand. Thus, it is an object according to the present invention to provide technologies for allowing the user to operate the stretching apparatus while keeping both hands on the pelt.

[0020] Still further, it has been realized that the wrapping operation performed by using a single stretchable wrapping foil is suffering from serious drawbacks, in particular in relation to the speed of the operation and the physical impact on the pelt board and the fixation of the pelt board by stretching the wrapping foil during the wrapping operation. Thus, it is an object of the present invention to provide technologies for allowing an improved fixation of the pelt relative to the pelt board in relation to speed and fixation strength as compared to the prior art single foil wrapping technology.

[0021] Still further, it has been realized that the non-symmetrical structure of a pelt, in particular a pelt from a mink or similar skinned animal is inhomogeneous and for this reason, the difference in strength of the pelt when exposing the pelt to the stretching operation may cause bending of the pelt board, which in the first place exposes the pelt board to excessive forces and in addition, may cause an incorrect stretching of the pelt, which incorrect stretching does not establish the intended shift of the length from one class to another.

[0022] Still further, it has been realized that the stretching of the pelt may advantageously be combined with a fur processing step such as a step of brushing the fur side of the pelt, using rollers for properly orientating the hair of the pelt, or a comb for orientating the hair of the pelt in an intentional and proper orientation prior to or after the stretching of the pelt by using the pelt stretching apparatus.

[0023] Still further, it has been realized that the prior art technique of fixating the pelt relative to the pelt board after the stretching of the pelt by the use of a wrapping foil or alternatively, a so-called fixation bag actually constituted by a sleeve of a plastics material may cause serious damage to the pelt by firstly tearing off hair from the pelt and secondly, ruin the pelt at the location of the position of the fixation bag or the wrapping foil.

Summary of the invention

[0024] At least the above object or at least one of the numerous further objects, which will be evident from the below description of the present invention, is according to one aspect of the present invention obtained by an apparatus for fixating a stretched pelt on a pelt board by means of a tubular plastics sleeve having two outwardly extending flanges, said pelt having a substantially tubular shape defining an inwardly orientated leather side, an outwardly orientated fur side, a nose end and a rear end, said pelt board defining a top end for accommodating and fixating said nose end of said pelt, a circumferential wall for facing said inwardly orientated leather side of said pelt and a base end located opposite said top end, said apparatus comprising:

a holding device for holding said base end of said pelt board, and

a fixating device having a pair of gripping members, each of said gripping members being adapted for gripping a respective flange of said tubular plastic sleeve, as said sleeve is loosely positioned in a first position at said top end of said pelt board on said pelt at said nose end thereof, and for pulling said flanges apart for widening said tubular plastics sleeve, moving said sleeve from said first position at said top end to a second position at said base end of said pelt board and disengaging said gripping members from said flanges for allowing said sleeve to reform towards its original shape and in doing so, firmly engaging with said outwardly orientated first side of said pelt at said rear end thereof.

[0025] According to the technique of fixating a stretched pelt on a pelt board by means of a tubular plastics sleeve, the plastics sleeve is widened or expanded by the pulling of the outwardly extending flanges and in doing so, opening up a wider central passage through the tubular plastics sleeve, which allows for the easy mounting of the sleeve without causing the sleeve to tear off hairs from the pelt and on the other hand providing a tight fixation due to the recovering properties of the tubular plastics sleeve. It is to be realized that most polymer materials, such as HD and LE, PE materials or combinations thereof provide a substantive ability to regain its original form, provided the material has been stretched, which technical feature is known as recovering or crimping. In addition, the recovering ability may be improved by utilizing e.g. further processing tools, such as ultrasonic processing and the sleeve as such may be made breathable by the use of a steam transparent material such as the material commonly known as Gore-Tex®, which is for providing the recover feature combined with strands or threads of the recoverable polymer material.

[0026] According to a presently preferred embodiment of the apparatus for fixating a stretched pelt, the gripping members each comprises a pair of gripping jaws for contacting opposite sides of a respective flange of said tubular plastics sleeve and firmly maintaining said respective flange between said gripping jaws while moving said gripping means from said first position to said second position.

[0027] The apparatus for fixating a stretched pelt on a pelt board preferably constitutes an apparatus, which in

itself also includes the well-known tanning technique of stretching the pelt and by the use of a fastening device for fastening said rear end of said pelt, while stretching said pelt by moving said base end of said pelt board towards said nose end.

[0028] In accordance with a further embodiment of the apparatus according to the present invention, the base end of said pelt board being moved by means of a pneumatic drive, a hydraulic drive or a spin drive.

[0029] At least the above object or at least one of the numerous further objects, which will be evident from the below description of the present invention is according to one aspect of the present invention obtained by a method of fixating a stretched pelt on a pelt board comprising performing the steps of:

providing said pelt and said pelt board, said pelt having a substantially tubular shape defining an inwardly orientated leather side, an outwardly orientated fur side, a nose end and a rear end, said pelt board defining a top end for accommodating and fixating said nose end of said pelt, a circumferential wall for facing said inwardly orientated leather side of said pelt and a base end located opposite said top end,
providing an apparatus comprising a holding device and a fixating device, said fixating device having a pair of gripping members,
further providing a tubular plastics sleeve having two outwardly extending flanges,
holding said base end of said pelt board by means of such holding device,
positioning said sleeve in a first position at said top end of said pelt board on said pelt at said nose end thereof,
gripping each of said flanges of said tubular plastics sleeve by a respective gripping member,
pulling said flanges apart by means of said gripping members for widening said tubular plastics sleeve,
moving said sleeve from said position to a second position at said base end of said pelt board by means of said gripping members, and
disengaging said gripping members from said flanges for allowing said sleeve to reform towards its original shape and in doing so, firmly engaging with said outwardly orientated fur side of said pelt at said rear end thereof.

[0030] The method of fixating a stretched pelt on the pelt board may advantageously be implemented the use of the apparatus according to the present invention and having any of the additional features of the apparatus as discussed and described above.

Brief description of the drawings

[0031]

FIG. 1A is a perspective view of a pelt.
FIG. 1B is a perspective view of the pelt when mounted on a pelt board.
FIG. 1C is a perspective view of the pelt board and a stretching apparatus.
FIG. 1D is a perspective view of the stretching assembly when the pelt is mounted.
FIG. 1E is a perspective view of the stretching assembly when the stretching starts.
FIG. 1F is a perspective view of the stretching assembly and of an adapter.
FIG. 1Ga is a perspective view of the stretching assembly including a pair of gripping members and a tubular plastics fixation sleeve,
FIG. 1 Gb is a sectional view of the nose end of the pelt and the tubular plastics fixation sleeve,
FIG. 1Ha is a perspective view of the stretching assembly illustrating the gripping members gripping prior to catching the tubular plastics fixation sleeve,
FIG. 1 Hb is a sectional view of the nose end of the pelt and the gripping members prior to the gripping members gripping the sleeve,
FIG. 1Ia is a perspective view of the stretching apparatus and the gripping members positioned for gripping the tubular plastics fixation sleeve,
FIG. 1Ib is a sectional view of the gripping members gripping the tubular plastics fixation sleeve,
FIG. 1Ic is a sectional view of the gripping members pulling the tubular plastics fixation sleeve in opposite directions for widening the sleeve,
FIG. 1Ja is a perspective view of the stretching apparatus and the gripping members, maintaining the fixation of the tubular plastics fixation sleeve and moving the sleeve towards the rear end of the pelt,
FIG. 1Jb is a sectional view of the gripping members, the sleeve and the pelt at the position of the sleeve at the end of the pelt,
FIG. 1 Ka is a perspective view of the stretching assembly and the gripping members illustrating the tubular plastics fixation sleeve tightening round the rear end of the pelt,
FIG. 1Kb is a sectional view of the gripping members, the sleeve and the pelt after the gripping members have released their grip of the sleeve,
FIG. 1La is a sectional view of an alternative embodiment of the gripping members and the sleeve, while stretching the sleeve,
FIG. 1Lb is a sectional view of the alternative embodiment of the gripping members and the sleeve after the gripping members releasing their grip of the sleeve,
FIG. 1 Ma is a sectional view of a further alternative embodiment of the gripping members and the sleeve, while stretching the sleeve,
FIG. 1Mb is a sectional view of the further alternative embodiment of the gripping members and the sleeve after the gripping members releasing their grip of the sleeve,

Detailed description of the drawings

[0032] FIG. 1A shows a perspective view of a pelt 10. The pelt 10 shown here is of a mink, however, it will be anatomically similar for other small furred mammals such as fox etc. The pelt 10 has a tubular shape and comprises an inwardly oriented leather side 12, an outwardly oriented fur side 14, a nose end 16 and a rear end 18. The rear end 18 defines a contour 20 along the circumference of the tubular pelt 10. The contour 20 may be divided into a leg side contour onto which the rear legs 22 of the pelt is attached and a back side contour onto which a tail part 29 of the pelt 10 is attached.

[0033] FIG. 1B shows a perspective view of the pelt 10 when mounted on a pelt board. The pelt 20 is mounted on the pelt board 26 such that a top end 28 of the pelt board 26 is accommodating and fixating the nose end 16 of the pelt 10 and the inwardly oriented leather side 12 of the pelt 10 is facing a circumferential wall 30 of the pelt board 26. The pelt board 26 extends in a longitudinal direction from a base end 32 to the top end 28. The base end 32 may be provided with a connecting element 34. The front leg parts have been inverted and are accommodated between the pelt 10 and the pelt board 26, thereby establishing a pair of front leg cavities 24' of the pelt 10 between the nose end 16 and the rear end 18. The pelt board 26 may typically be provided with a fat absorbing and preferably also water absorbing paper (not shown) between the circumferential wall 30 and the inwardly oriented leather side 12.

[0034] FIG. 1C shows a perspective view of a stretching assembly comprising a pelt board 26 and a stretching apparatus 35. During use, the pelt board 26 is provided with a pelt 10 as described above. The stretching apparatus 35 comprises a stretching device 36 for stretching the upper part of the pelt defined between the nose end 16 and the front leg cavities 24'. The stretching device 36 comprise a pair of cylindrical stretching members 38 which are adapted to be inserted into the front leg cavities 24'.

[0035] The stretching apparatus 35 additionally comprises a holding device 40 adapted for holding the base end 32 of the pelt board 26 by fixating the connecting element 34 such that the pelt board 26 extends in a longitudinal direction in the stretching apparatus 35. The stretching apparatus 35 further comprises a first fastening mechanism 42 for fastening the rear end 18 of the pelt 10 along the contour 20, a second fastening mechanism 44 for fastening the tail end 29 of the pelt 10, and a third fastening mechanism 46 for fastening the nose end 16 of the pelt 10. The first fastening mechanism 42 is used for stretching the lower part of the pelt 10 extending between the front leg cavities 24' and the rear end 18 of the pelt. At least the second fastening mechanism 44 and the third fastening mechanism 46 are considered to be optional in the present setup.

[0036] FIG. 1D shows a perspective view of a stretching assembly when the pelt 10 has been mounted. All of the holding device 40, stretching device 36, first fastening mechanism 42, second fastening mechanism 44 and third fastening mechanism 46 are movable along the longitudinal direction defined by the pelt board 26 in order to adapt the stretching apparatus 35 to different pelt boards 26 and different pelts 10. This is shown by the arrows.

[0037] FIG. 1E shows a perspective view of a stretching assembly when the stretching of the pelt 10 starts. The pelt 10 is thereby stretched by causing the stretching device 36, first fastening mechanism 42 and second fastening mechanism 44 to move toward the holding device 40 by means of appropriate drive mechanisms which will be discussed further below. The third fastening mechanism 46 may be caused to move in the opposite direction for relieving the pelt board 26 of pressure. The forces involved for each of the stretching device 36, first fastening mechanism 42, second fastening mechanism 44 and third fastening mechanism 46 are typically in the range of 100-200N. The forces may be applied at a steady magnitude, or alternatively a vibration or oscillation is induced in the pelt, or yet alternatively a combination of the above where e.g. a time period of oscillations are followed by a steady stretching force in order to first loosed the fibers of the pelt 10 and thereafter stretching the fibers of the pelt 10.

[0038] FIG. 1F shows a perspective view of a stretching assembly and the optional provision of an adapter 48 which is used for allowing pelt boards 26 having a different sized connecting element 34' to be used in the present stretching assembly 34. The adapter 48 is thereby connected to the different sized connecting element 34' whereby the adapter is provided with the proper sized connecting element 34 for use with the holding device 40 of the stretching apparatus 35.

[0039] FIG. 1Ga shows a perspective view similar to the views 1C, 1D, 1E and 1 F of the stretching assembly including a pair of fixation gripping members 138, which serve to fixate a tubular plastics sleeve 150 at the rear end of the pelt 14 for fixating the pelt 14 relative to the pelt board 26 after the stretching has been carried out as described above or performed in accordance with the prior art techniques used in commercially available stretching and tanning apparatuses, such as the commercial product named FIX-2 manufactured and sold by the applicant company and described in Danish patent DK 177012 B1. The gripping members 138 are constituted by two horizontal arms, which are vertically movable relative to the central frame 130, as is indicated in FIG. 1 Ha and will be described below. The gripping members 138 each have a pair of front plates 140, on which are mounted a pair of actuators 142, which serve to move in a reciprocating motion a pair of gripping jaws 144 relative to a pair of gripping jaws 146, which are stationary relative to the plates 140.

[0040] The tubular plastics sleeve comprises a central tubular part, from which two outwardly extending flanges 152 extend, which are provided symmetrically relative to

the central tubular part of the tubular plastics sleeve 150.

[0041] In FIG. 1Gb, a sectional view of the pelt board 26, the pelt 14 and the tubular plastics sleeve 150 is shown, also illustrating the outwardly extending flanges 152. In FIG. 1Ga and 1Gb, the tubular plastics sleeve 150 is positioned loosely at the nose end of the pelt 14 and as illustrated in FIG. 1Gb, the tubular plastics sleeve fits loosely around the pelt, which prevents that the tubular plastics sleeve may damage the pelt.

[0042] In FIG. 1 Ha, two arrows indicate the lowering of the gripping members 138 into a position adjacent the flanges 152 of the tubular plastics sleeve 150, which positioning is controlled by an optical detector or a similar positioning device based on well-known positioning detection techniques including proximity detection, capacitive or similar detection.

[0043] In FIG. 1 Hb illustrating a sectional view similar to the view of FIGS. 1 Gb, the two sets of gripping jaws 144, 146 of the gripping members 138 are positioned juxtaposed the outwardly extending flanges 152 of the tubular plastics sleeve 150.

[0044] In FIG. 1Ia, the two sets of gripping jaws 144, 146 are as illustrated in FIG. 1Ib pressed against the flanges 152 of the tubular plastics sleeve 150 for firmly gripping the flanges 152 and as indicated by sets of arrows indicating the movement of the two sets of gripping jaws 144, 146.

[0045] In FIG. 1Ic, the gripping members 138 and consequently also the two sets of gripping jaws 144, 146 are moved in opposite directions for separating the two sets of gripping jaws 144, 146 from one another as indicated by two further sets of arrows and in doing so, the tubular plastics sleeve 150 is widened for providing an enlarged central tubular section.

[0046] In FIG. 1Ja, the gripping members 138 are, as indicated by two arrows, lowered from their initial position shown in FIG. 1Ha at the nose end of the pelt 14 towards the rear end of the pelt 14, while keeping the separated sleeve widening positions of the sets of gripping jaws 144, 146 shown in FIG. 1Ic to the intentional position at the rear end of the pelt, which positioning is controlled by the apparatus based on the initial positioning of the fastening mechanisms 42, 44 and 46. While lowering the gripping members 138, the sets of gripping jaws 144, 146 are maintained in their gripping position as is illustrated in FIG. 1Jd for keeping the tubular plastics sleeve in the widened position for allowing the tubular plastics sleeve to be moved along the pelt 14 and positioned at the rear end of the pelt without damaging the pelt as the widened tubular plastics sleeve 150 is only slightly contacting the pelt during the movement of the gripping members 138 from their initial position shown in FIG. 1 Ha and FIG. 1 Hb to the position shown in FIG. 1Ja and FIG. 1Jb.

[0047] After the proper positioning of the tubular plastics sleeve 150 relative to the rear end of the pelt, the two sets of gripping jaws 144, 146 are separated from one another for releasing the grip of the flanges 152 of the tubular plastics sleeve, as is illustrated in FIG. 1 Ka, in which the tubular plastics sleeve 150 is firmly pressing against the pelt for maintaining the pelt 14 in its intentional position relative to the pelt board 26.

[0048] In FIG. 1 Kb is a sectional view similar to the above sectional views of FIGS. 1 Gb, 1 Hb, 1Ib, 1Ic and 1Jb illustrating in greater details the reforming or contraction of the plastics material of the tubular plastics sleeve 150 as indicated by a plurality of solid line arrows, which in comparison with the sectional view of FIG. 1Jb clearly illustrate the tight fit of the tubular plastics sleeve after releasing the sleeve from the sets of gripping jaws 144, 146.

[0049] In FIGS. 1 La and 1 Lb, a variant of the gripping members and the tubular plastics sleeve is shown, which sleeve is designated the reference numeral 150'. The alternative and modified embodiment differs from the above described embodiment in that the tubular plastics sleeve 150' is provided with a total of four orthogonally arranged flanges 152', which are cooperating with a total of four sets of gripping jaws 144, 146. By using a total of four sets of gripping jaws 144, 146, the widening of the central tubular part of the tubular plastics sleeve 150 is accomplished providing an increased separation of the foil material of the sleeve from the pelt and in doing so, improves the apparatus in allowing an even wider separation of the tubular plastics sleeve for preventing any damage of the pelt while moving the tubular plastics sleeve downwards as illustrated in FIG. 1Ja.

[0050] In FIGS. 1 Ma and 1 Mb, a further alternative embodiment is shown, in which a tubular plastics sleeve 150" is caused to be widened into a substantially rectangular cross sectional configuration by the provision of four non-symmetrically arranged outwardly extending flanges 152".

[0051] In the above described tubular plastics sleeve, the plastics sleeve may be manufactured from any relevant polymer material, such as HD or LE, PE or combinations of two or more reformable polymer materials, the reforming of which may be even increased by the usage of e.g. and ultrasonic crimping tool or similar crimping improving or accelerating device. Regarding the foil material, the foil material commonly used in wrapping round a pelt in a tanning machine may be used and in addition, more refined or dedicated structures including e.g. breathable materials, such as Gore-Tex® supported by stretchable threads or the like may be used.

[0052] The flanges 152, 152' and 152" may easily be produced from the foil material of the tubular plastics sleeve assembly by welding a two layer part of the foil material of the sleeve together or alternatively, by welding or likewise fixating longitudinally extending flanges to a central tubular part, which is then cut into separate sections constituting the tubular plastics sleeve 150, 150' and 150".

[0053] As said above, the control of the motion of the gripping members 138 is advantageously performed by optical or similar positioning detecting elements and likewise, the sleeve 150 may be arranged in its intentional

position at the nose end of the pelt as is illustrated in FIG. 1Ga by the use of a pair of gripping arms similar to the gripping members 138, which serve to position the sleeve in its intentional position at the nose end of the pelt prior to the widening of the sleeve as described above with reference to the drawing's FIGS. 1G-1K. In a further alternative embodiment, the gripping members 138 are themselves used for catching initially the tubular plastics sleeve 150 from a storage device positioned overhead relative to the tanning or stretching apparatus and then preferably operated in a continuous mode from a catching of the tubular plastics sleeve to the widening of the sleeve as is illustrated in FIG. 1Ic at the time the sleeve 150 is approaching the position shown in FIG. 1Ga.

[0054] Although the present invention has above been described with reference to a specific and presently preferred embodiment of the invention together with schematically illustrated variants of the apparatus according to the present invention, the invention may, as will be evident to a person having ordinary skill in the art, readily be modified without deviating from the scope of the present invention as defined in the appending claims.

Claims

1. An apparatus for fixating a stretched pelt on a pelt board by means of a tubular plastics sleeve having two outwardly extending flanges, said pelt having a substantially tubular shape defining an inwardly orientated leather side, an outwardly orientated fur side, a nose end and a rear end, said pelt board defining a top end for accommodating and fixating said nose end of said pelt, a circumferential wall for facing said inwardly orientated leather side of said pelt and a base end located opposite said top end, said apparatus comprising:

   a holding device for holding said base end of said pelt board, and
   a fixating device having a pair of gripping members, each of said gripping members being adapted for gripping a respective flange of said tubular plastic sleeve, as said sleeve is loosely positioned in a first position at said top end of said pelt board on said pelt at said nose end thereof, and for pulling said flanges apart for widening said tubular plastics sleeve, moving said sleeve from said first position at said top end to a second position at said base end of said pelt board and disengaging said gripping members from said flanges for allowing said sleeve to reform towards its original shape and in doing so, firmly engaging with said outwardly orientated first side of said pelt at said rear end thereof.

2. The apparatus according to claim 1, said gripping members, each comprising a pair of gripping jaws for contacting opposite sides of a respective flange of said tubular plastics sleeve and firmly maintaining said respective flange between said gripping jaws while moving said gripping means from said first position to said second position.

3. The apparatus according to any of the preceding claims, said apparatus further comprising a fastening device for fastening said rear end of said pelt, while stretching said pelt by moving said base end of said pelt board towards said nose end.

4. The apparatus according to claim 3, said base end of said pelt board being moved by means of a pneumatic drive, a hydraulic drive or a spin drive.

5. A method of fixating a stretched pelt on a pelt board comprising performing the steps of:

   providing said pelt and said pelt board, said pelt having a substantially tubular shape defining an inwardly orientated leather side, an outwardly orientated fur side, a nose end and a rear end, said pelt board defining a top end for accommodating and fixating said nose end of said pelt, a circumferential wall for facing said inwardly orientated leather side of said pelt and a base end located opposite said top end,
   providing an apparatus comprising a holding device and a fixating device, said fixating device having a pair of gripping members,
   further providing a tubular plastics sleeve having two outwardly extending flanges,
   holding said base end of said pelt board by means of such holding device,
   positioning said sleeve in a first position at said top end of said pelt board on said pelt at said nose end thereof,
   gripping each of said flanges of said tubular plastics sleeve by a respective gripping member,
   pulling said flanges apart by means of said gripping members for widening said tubular plastics sleeve,
   moving said sleeve from said position to a second position at said base end of said pelt board by means of said gripping members, and
   disengaging said gripping members from said flanges for allowing said sleeve to reform towards its original shape and in doing so, firmly engaging with said outwardly orientated fur side of said pelt at said rear end thereof.

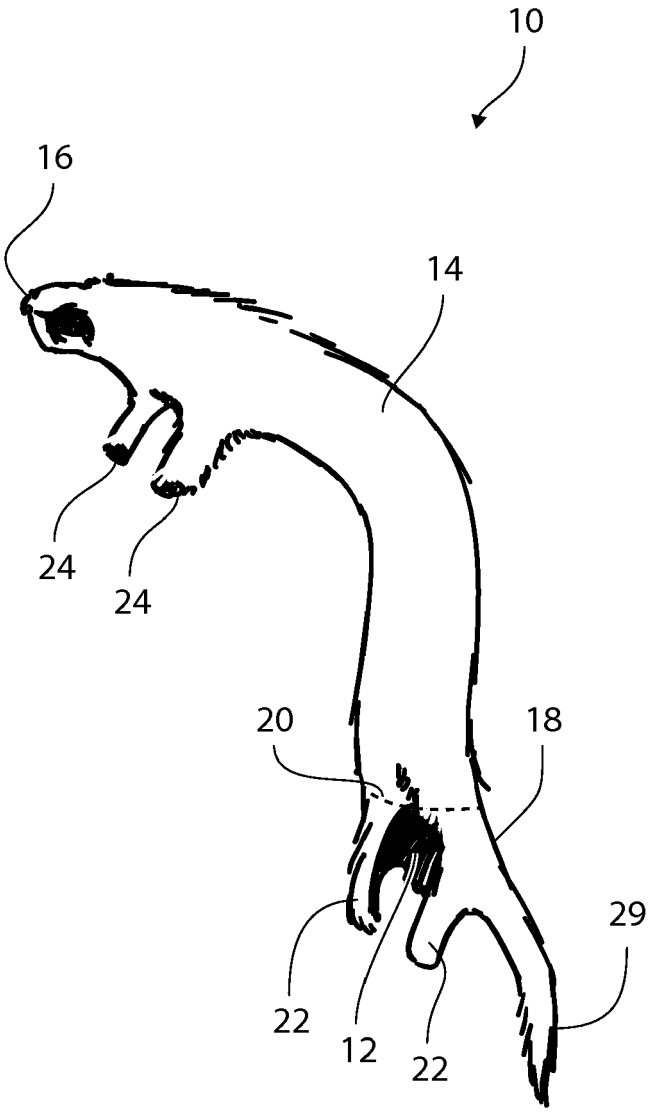

FIG. 1A

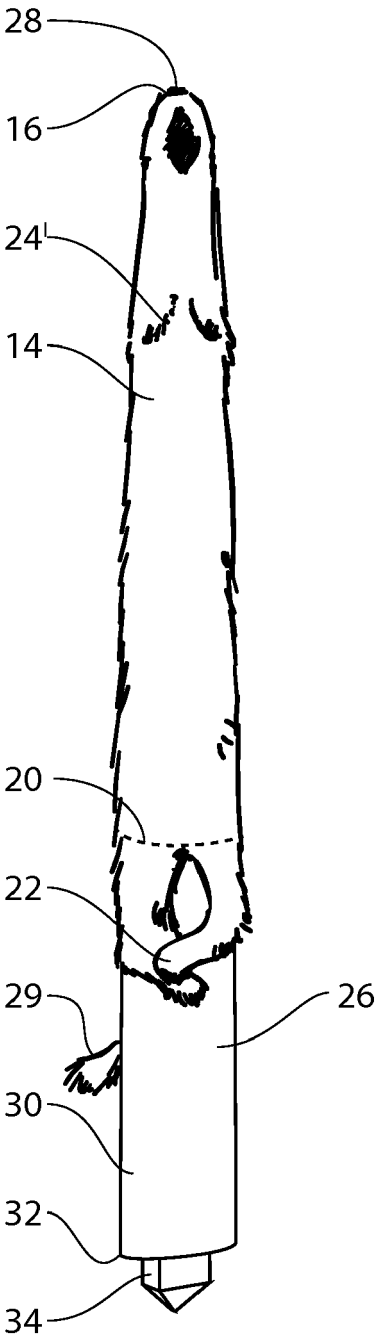

FIG. 1B

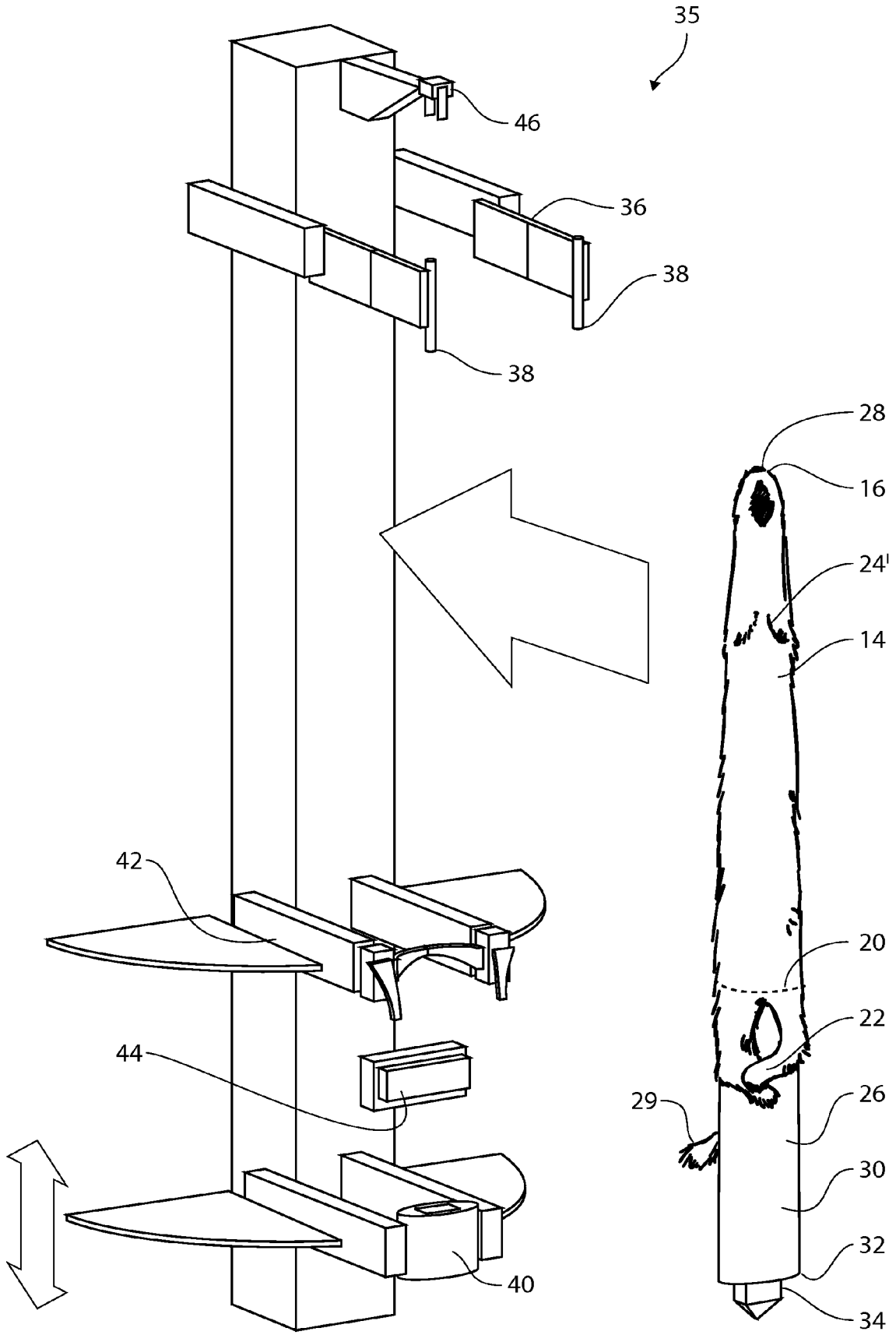

FIG. 1C

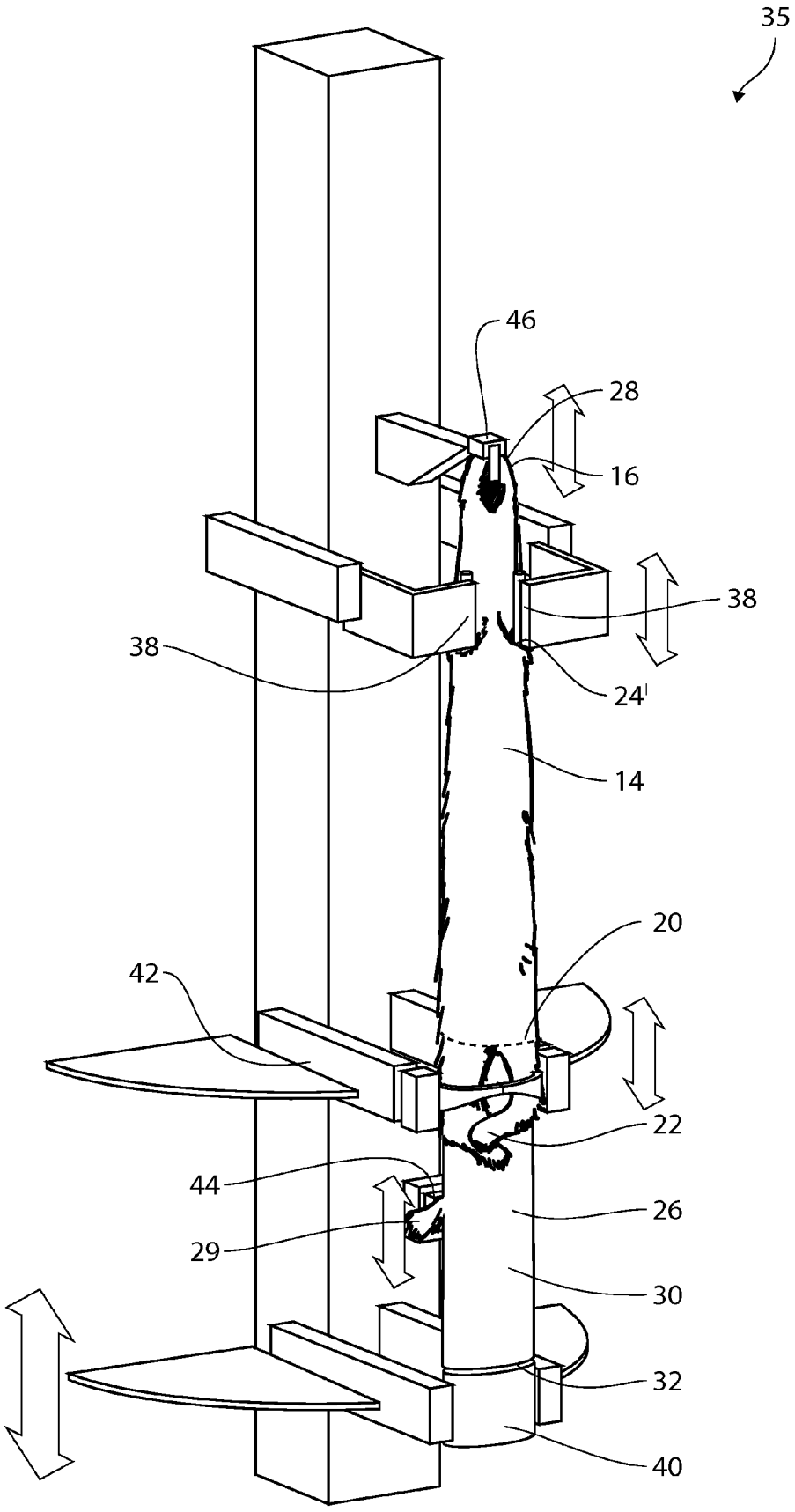

FIG. 1D

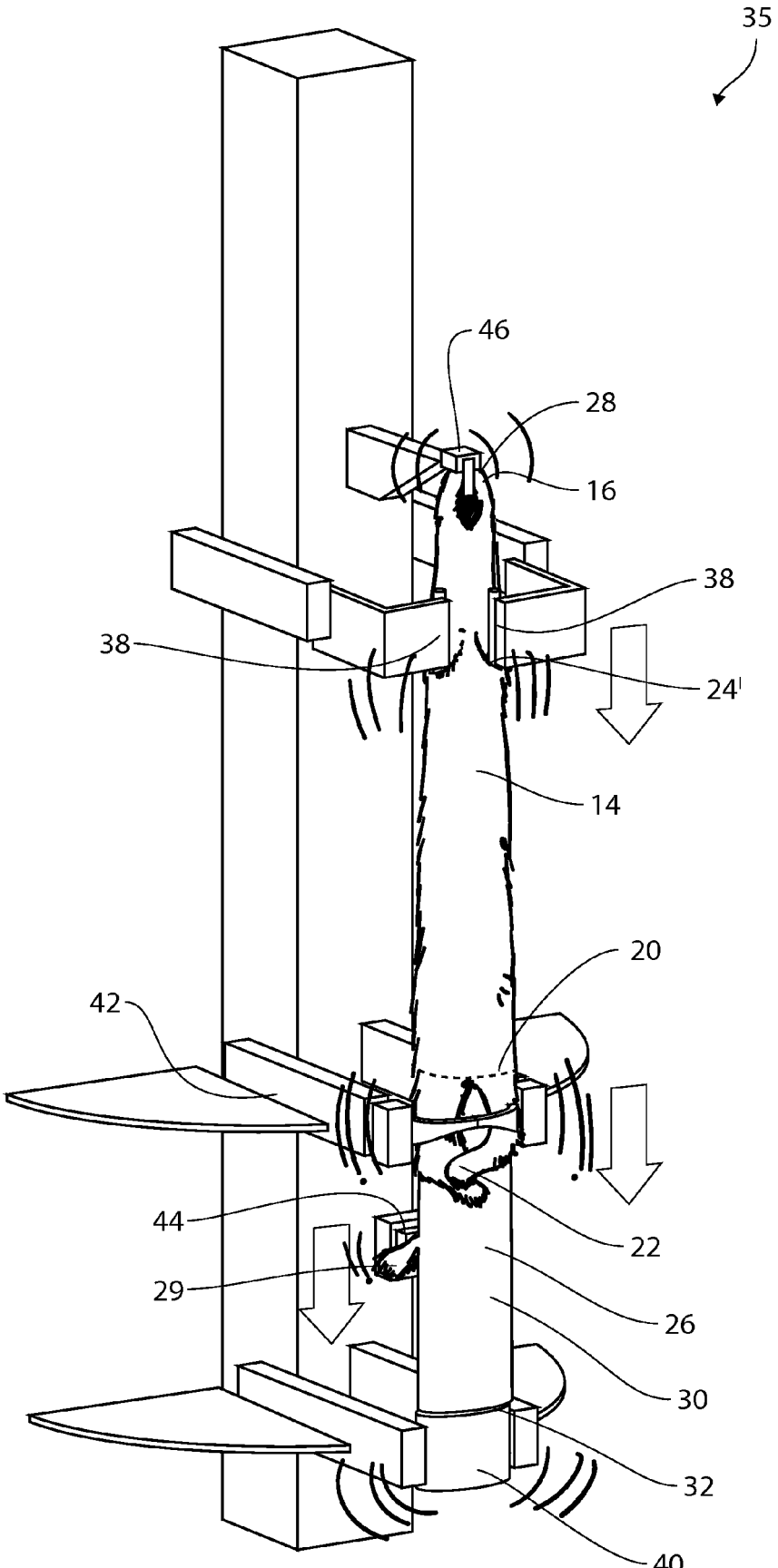

FIG. 1E

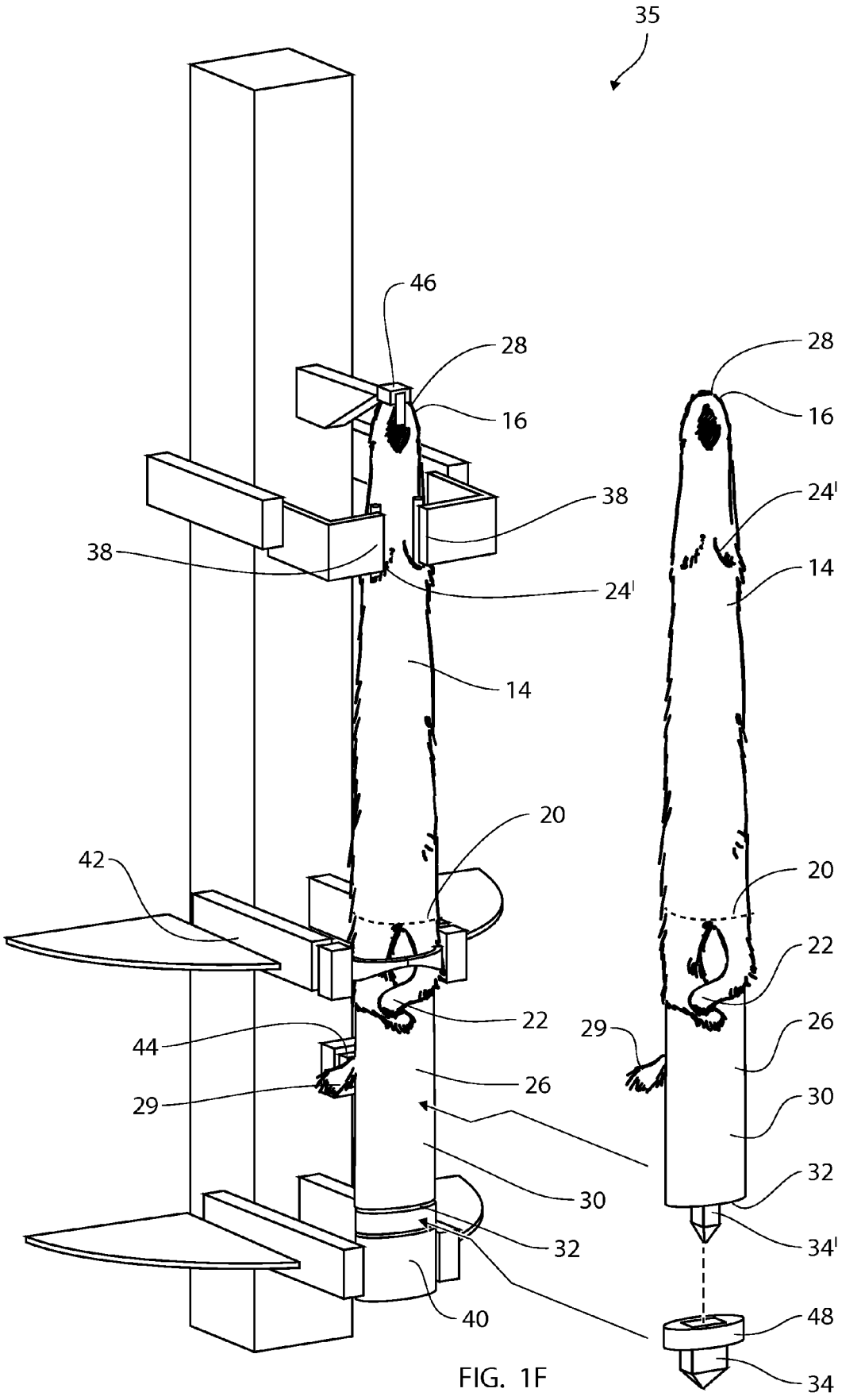
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FIG. 1F

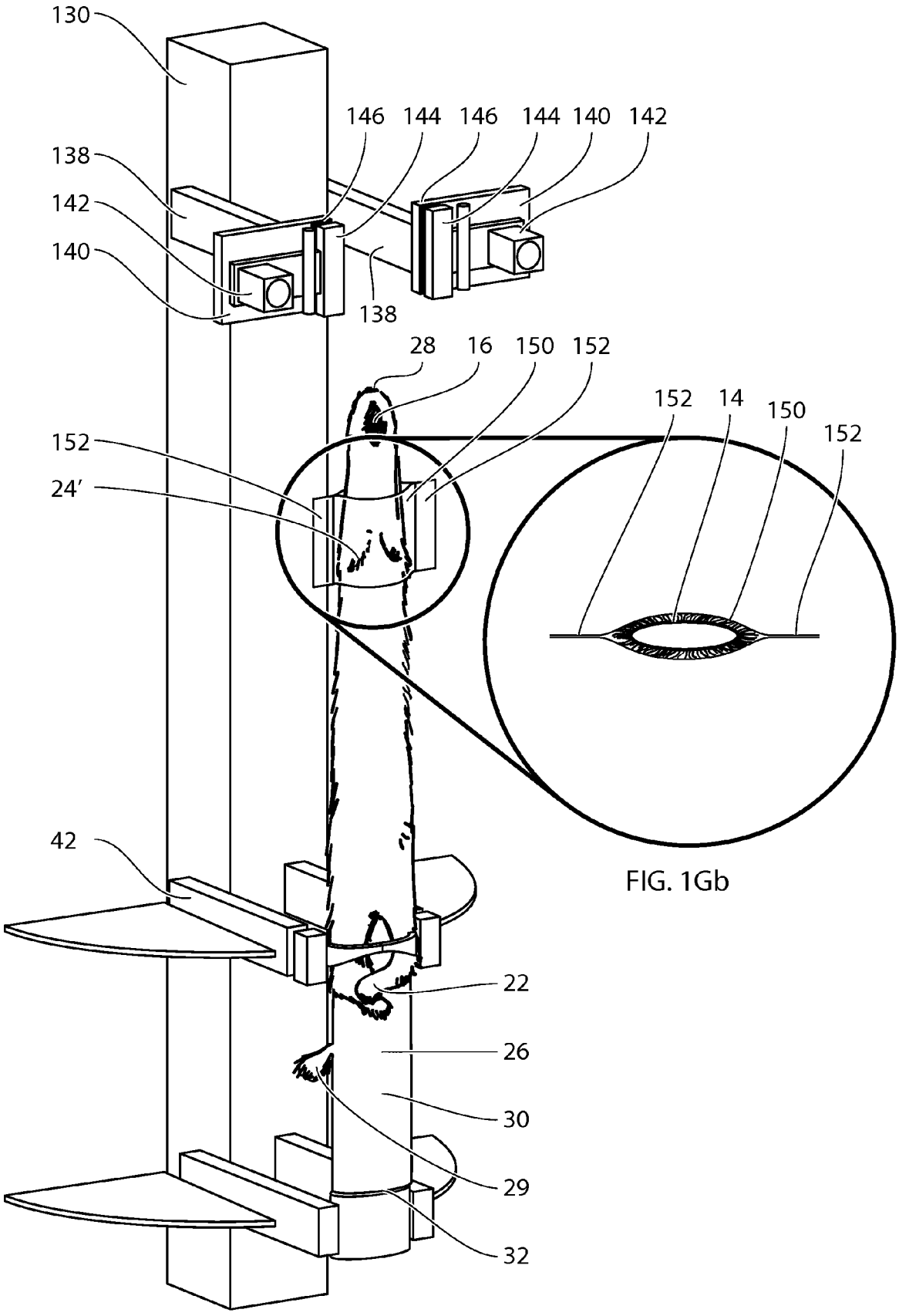

FIG. 1Gb

FIG. 1Ga

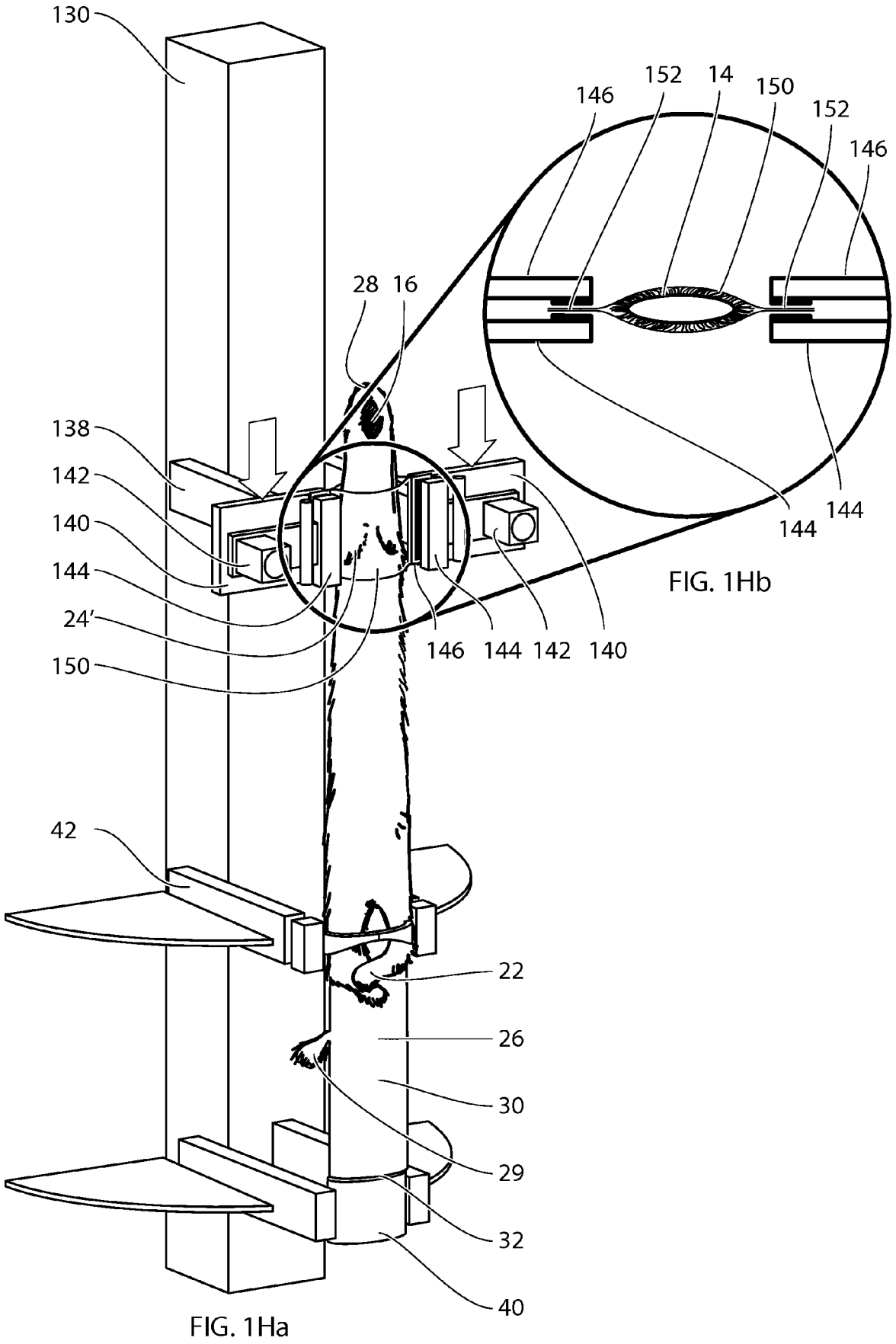

FIG. 1Hb

FIG. 1Ha

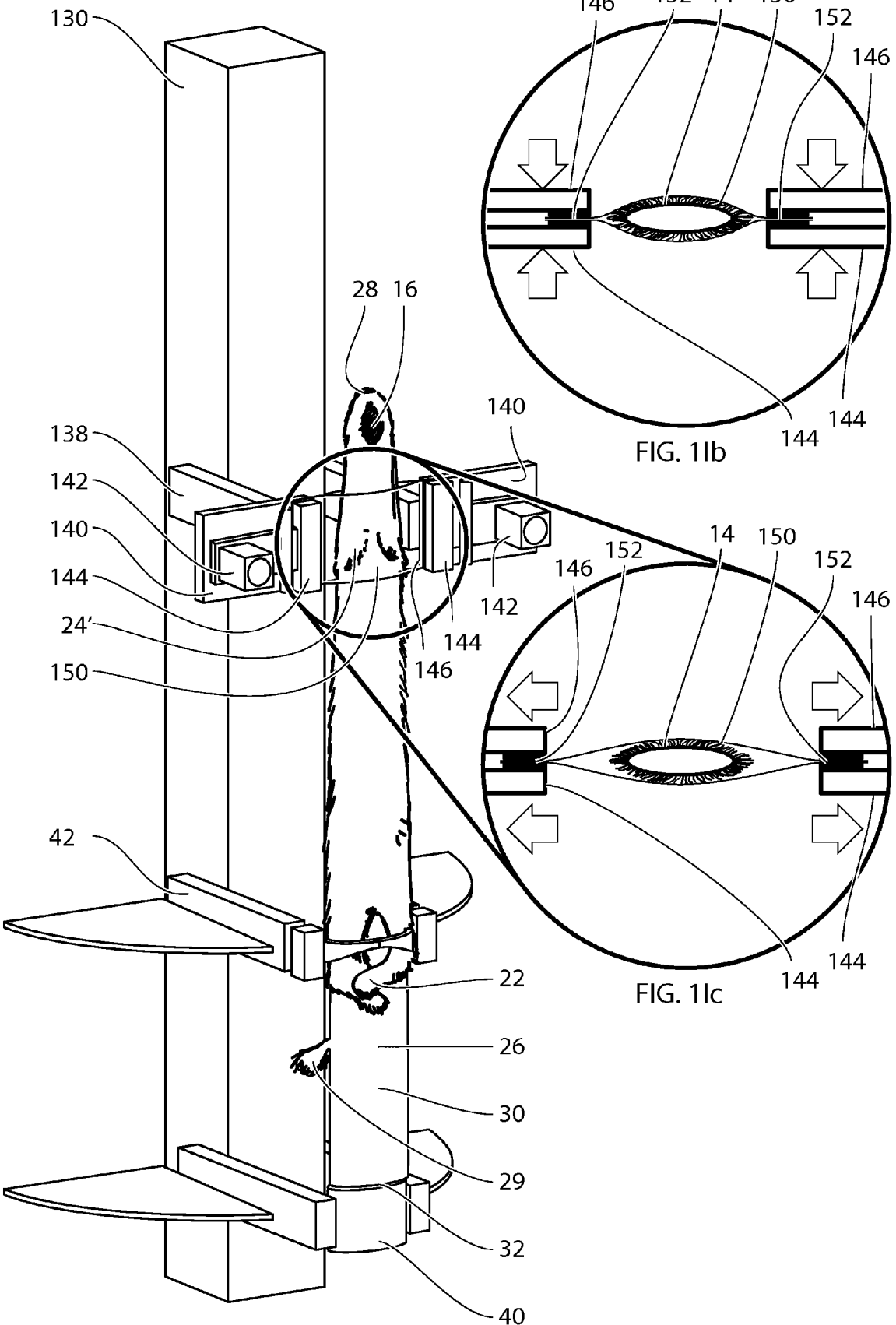

FIG. 1Ib

FIG. 1Ic

FIG. 1Ia

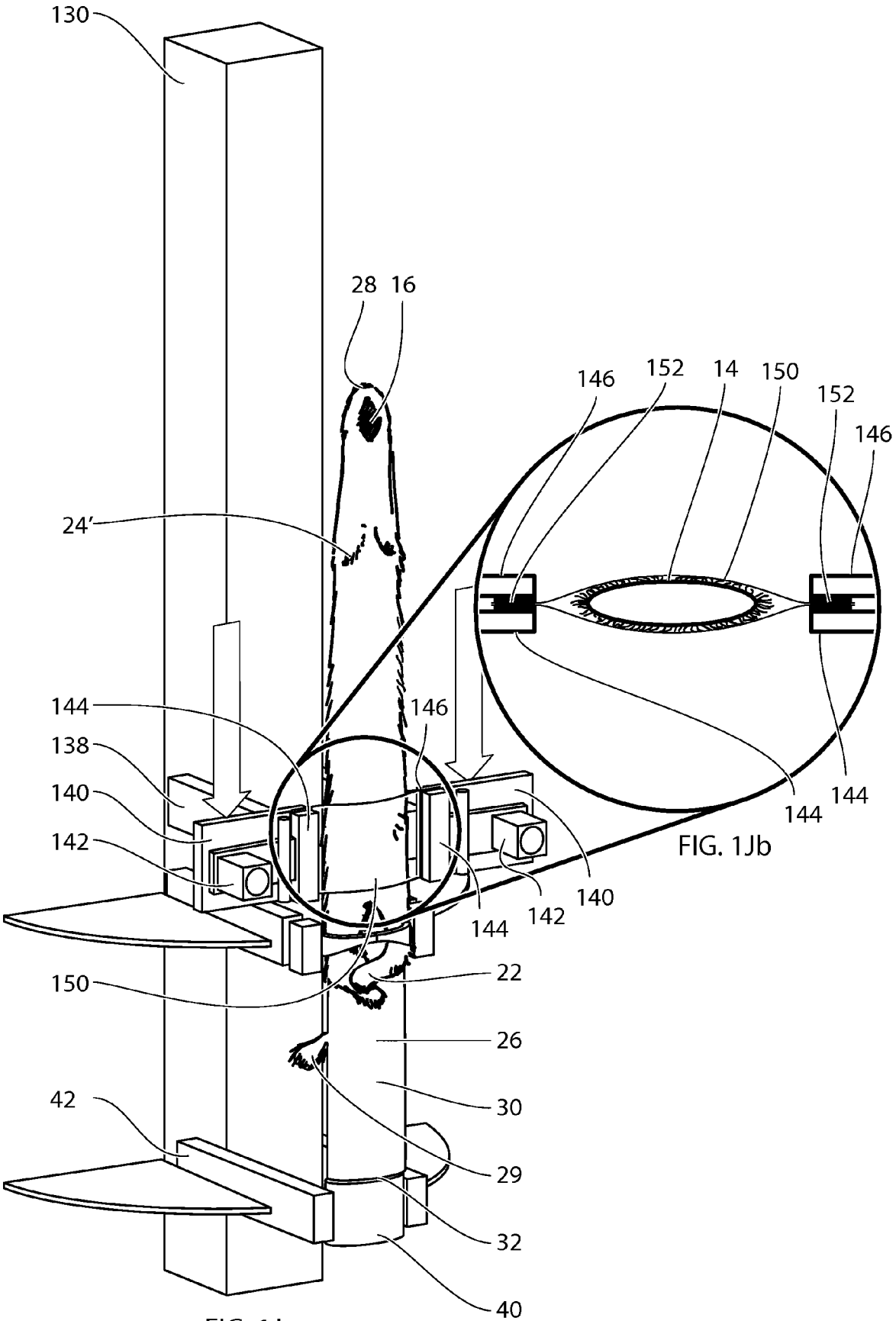

FIG. 1J a

FIG. 1Jb

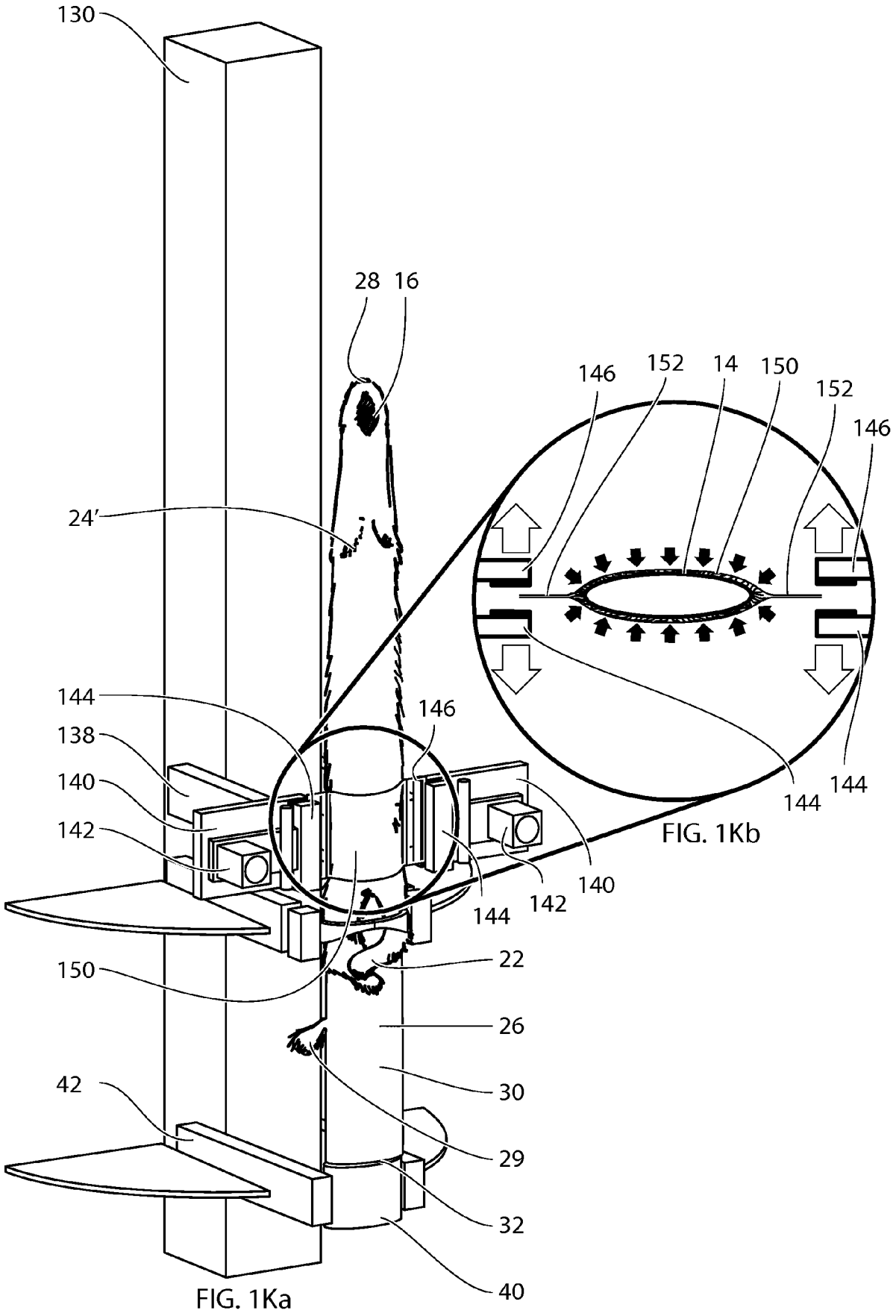

FIG. 1Ka

FIG. 1Kb

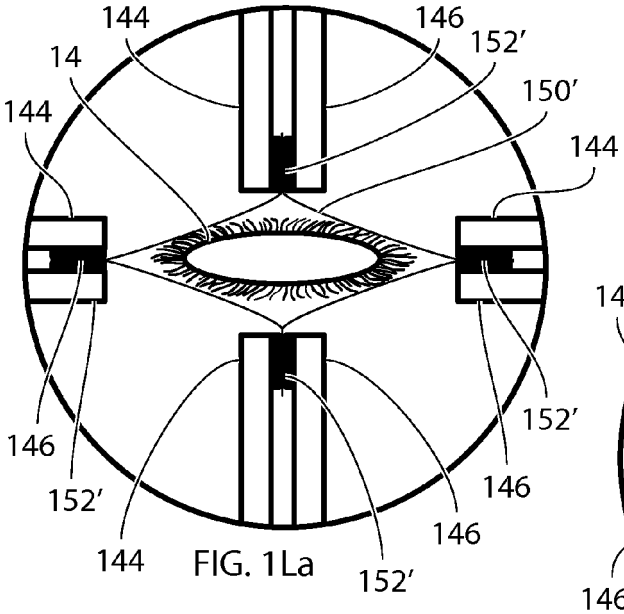

FIG. 1La

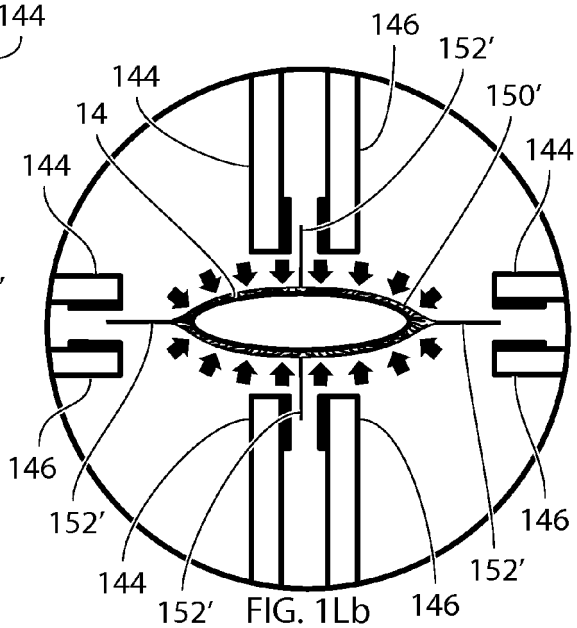

FIG. 1Lb

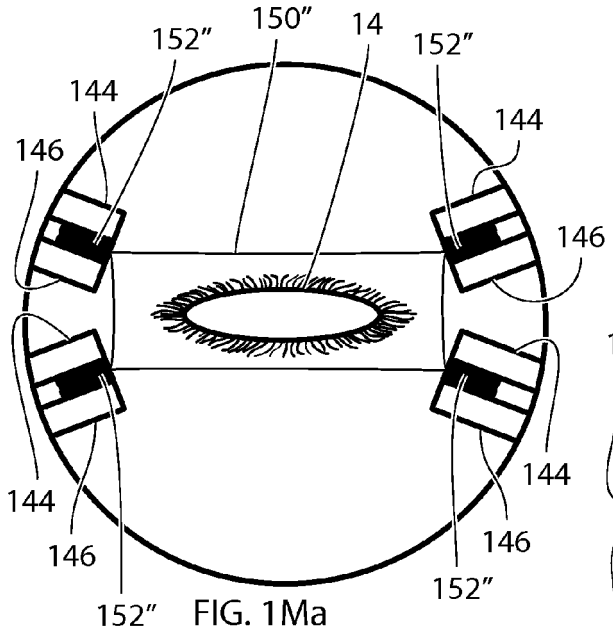

FIG. 1Ma

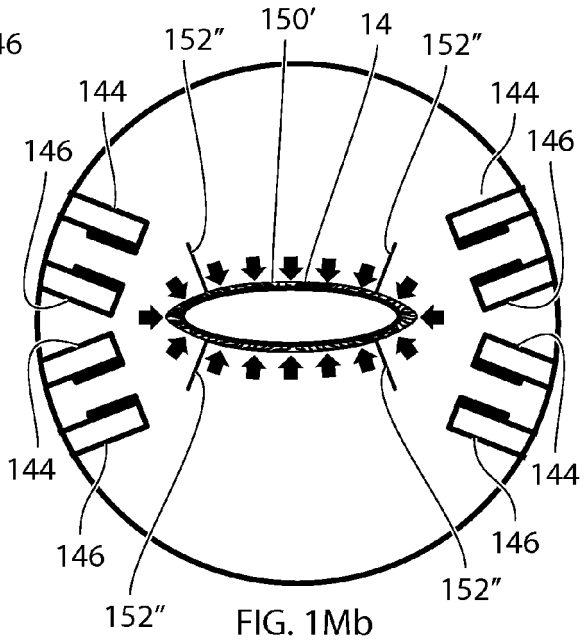

FIG. 1Mb

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	8 January 2018	Iamandi, Daniela

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