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(54) **HAIR TWISTER**

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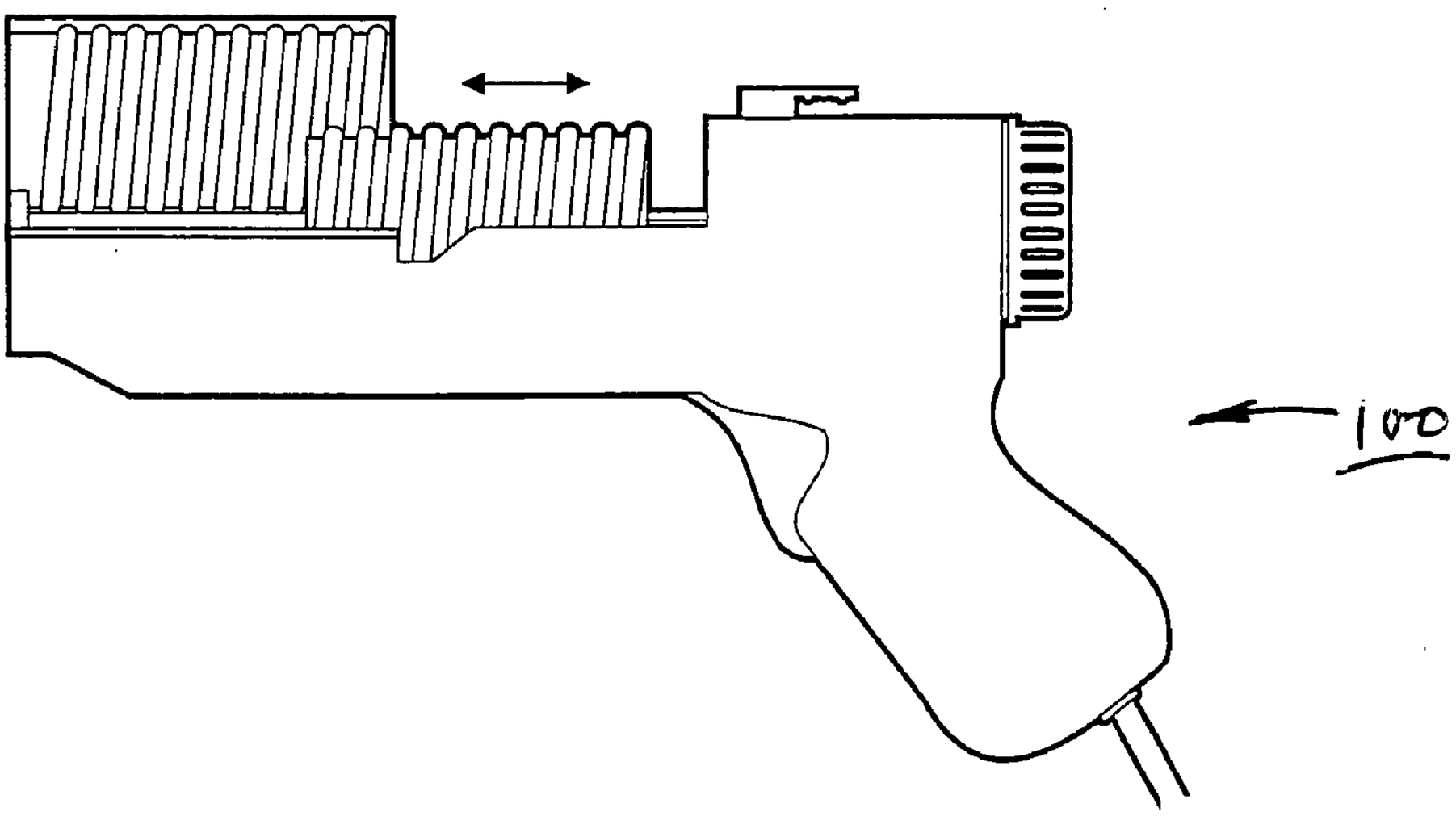
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(57) **ABSTRACT**

The present invention a hair twister includes a spool for twisting hair thereon; a drum mounted within a cylinder, the drum rotatably mounted within the cylinder for operatively winding hair onto the spool said drum and cylinder together for simultaneously winding hair onto the spool and for compressing the hair on the spool; and a method for releasing the twisted hair from the spool. Preferably wherein the drum including outer drum threads and a cylinder top including cooperating cylinder top threads for threadably engaging with the drum, such that rotating the drum threadably urges the drum along a longitudinal direction within the cylinder.



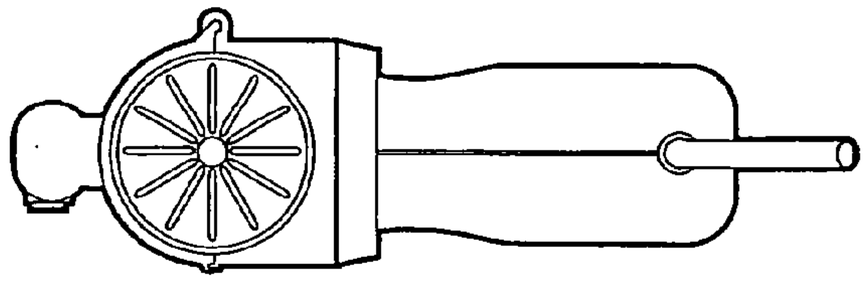


FIG. - 4

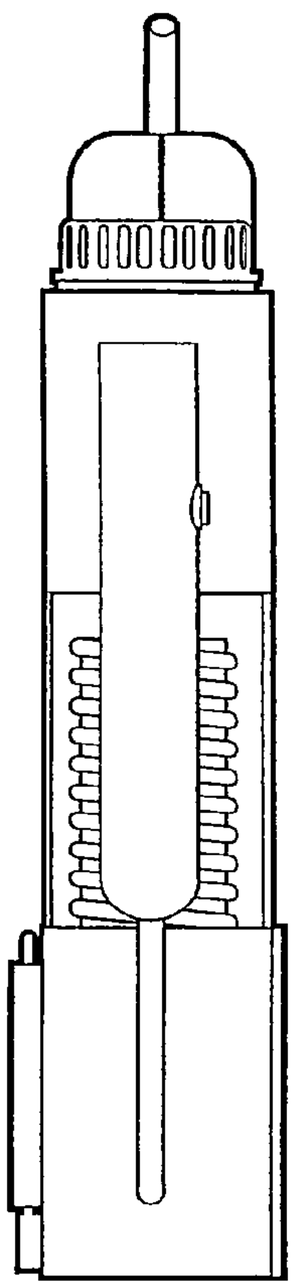


FIG. - 1

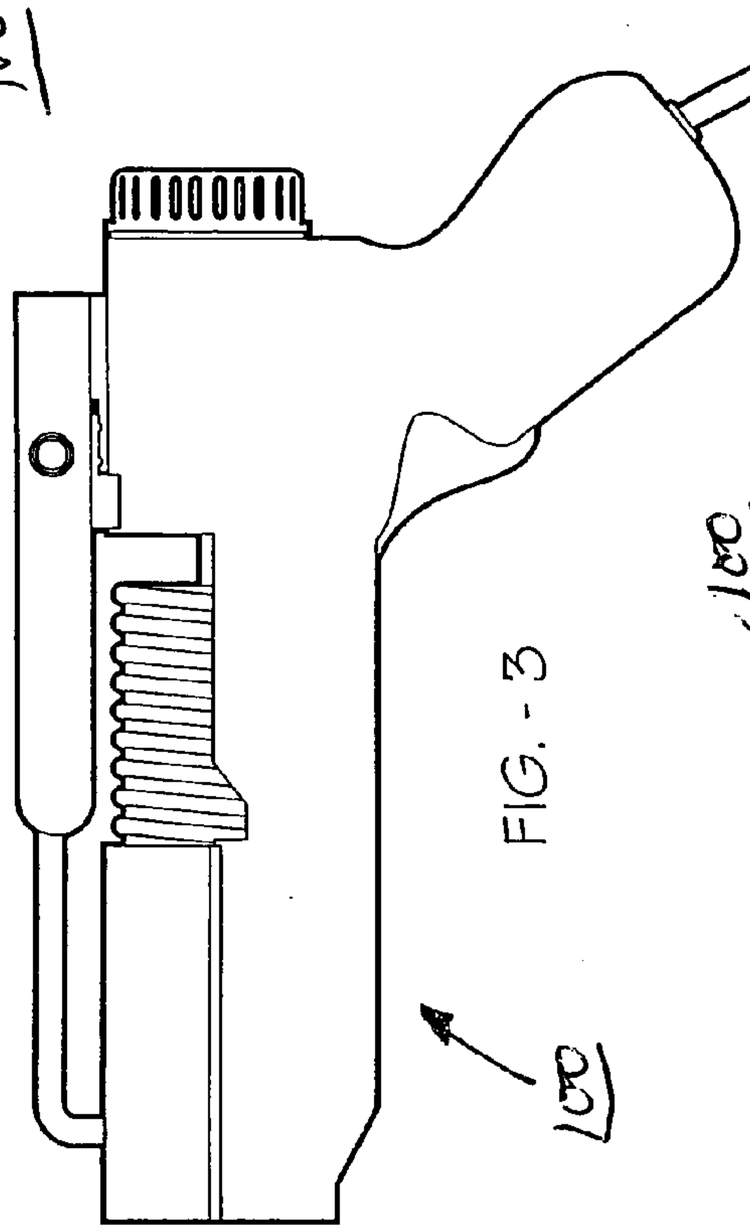


FIG. - 3

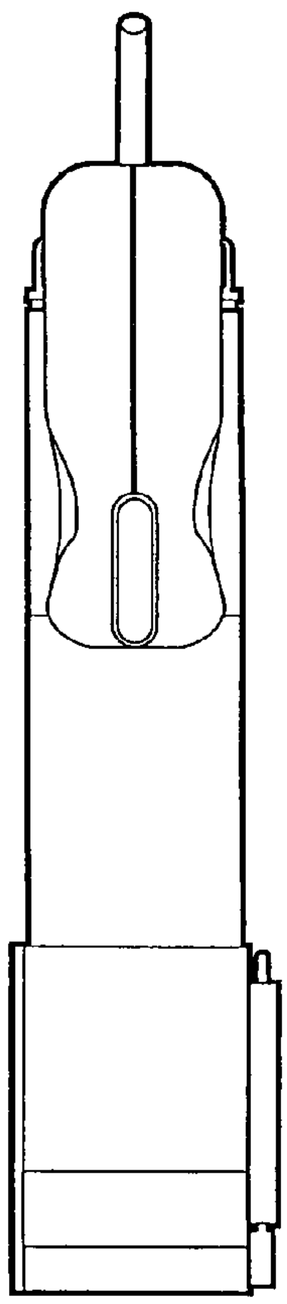


FIG. - 5

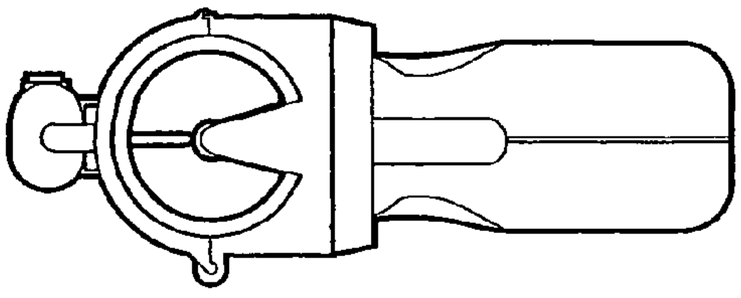


FIG. - 2

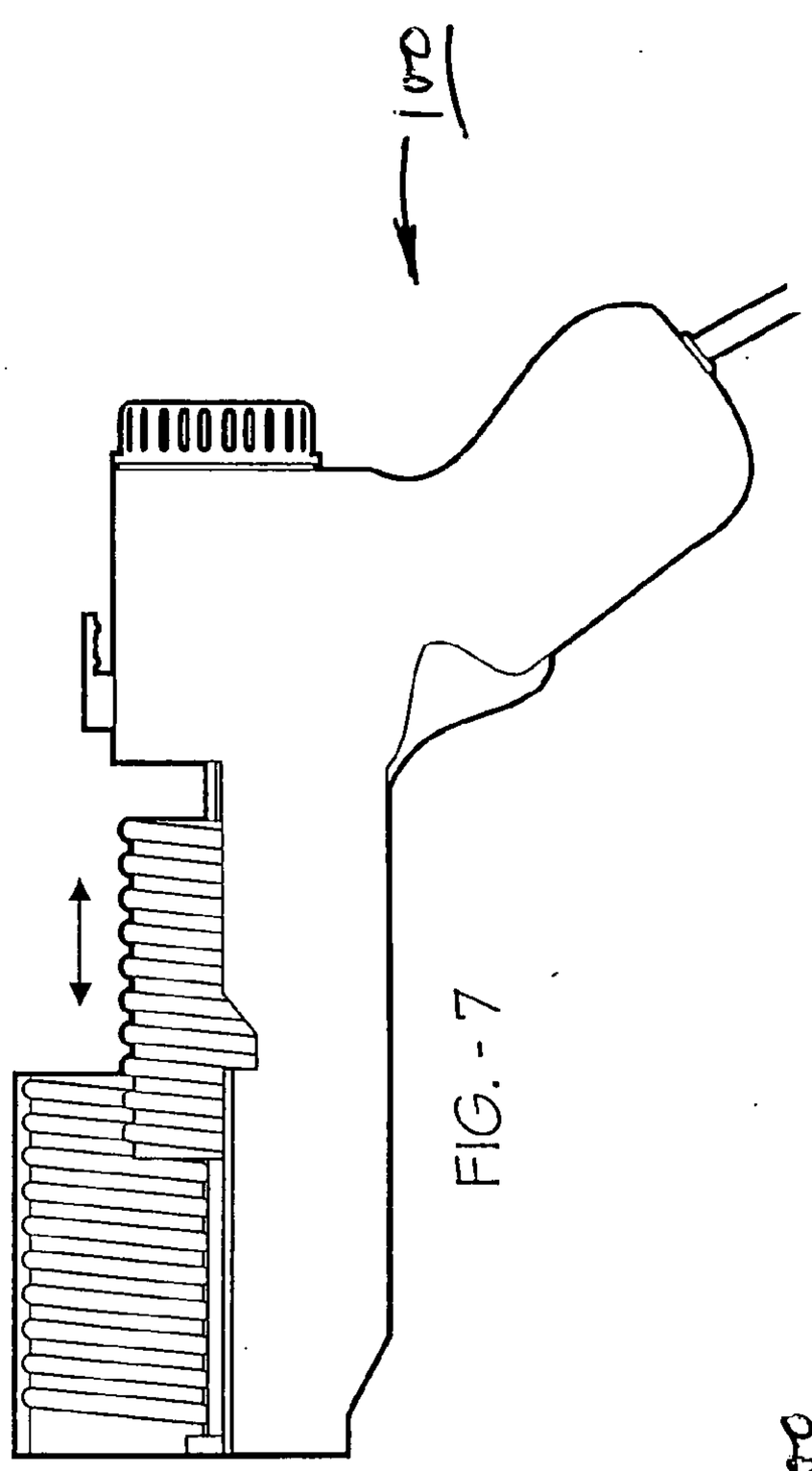


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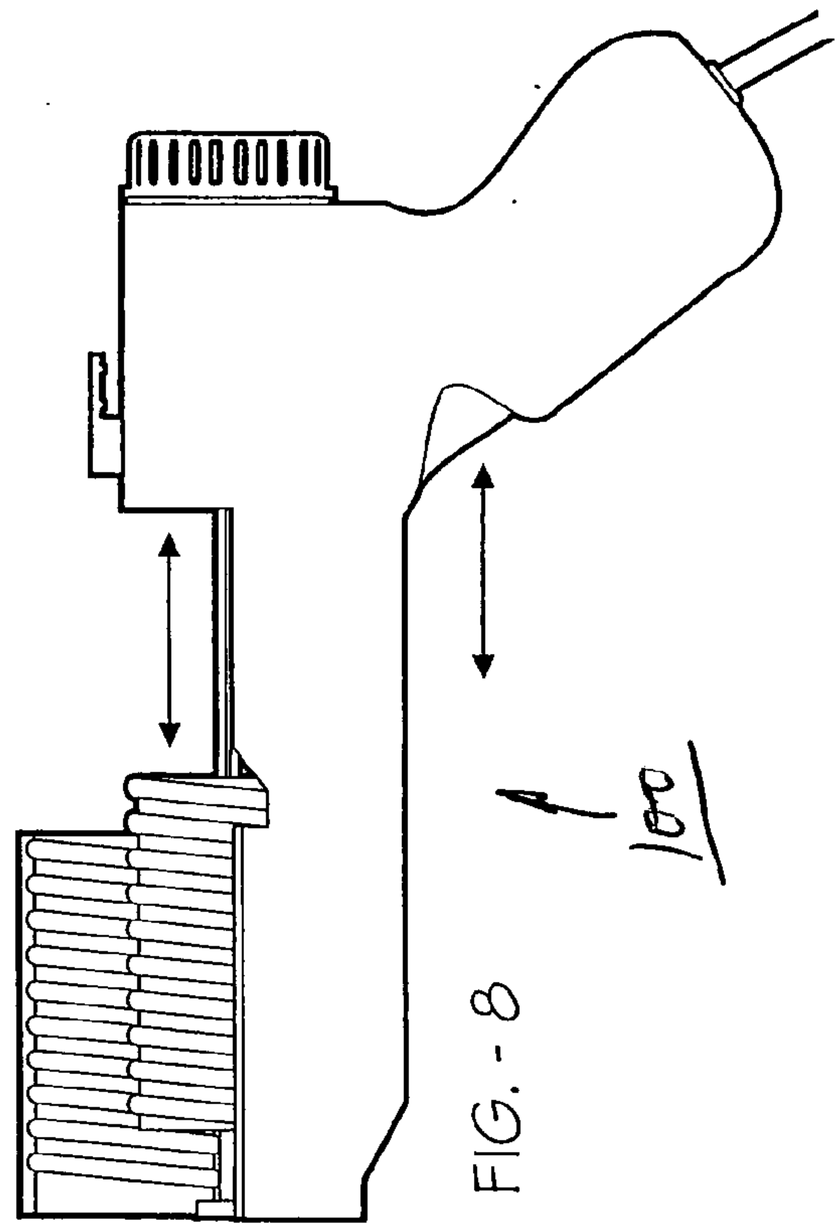


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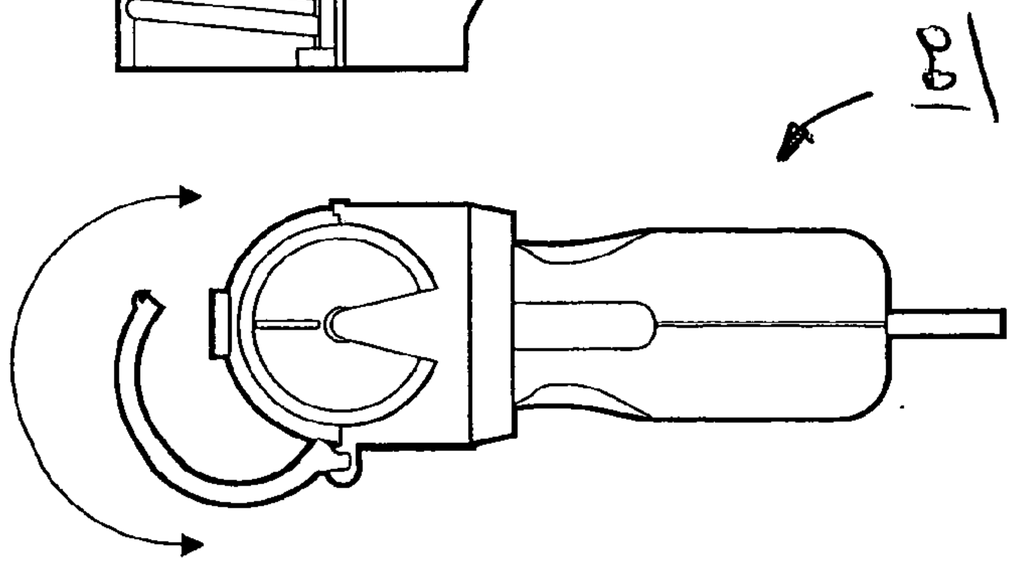


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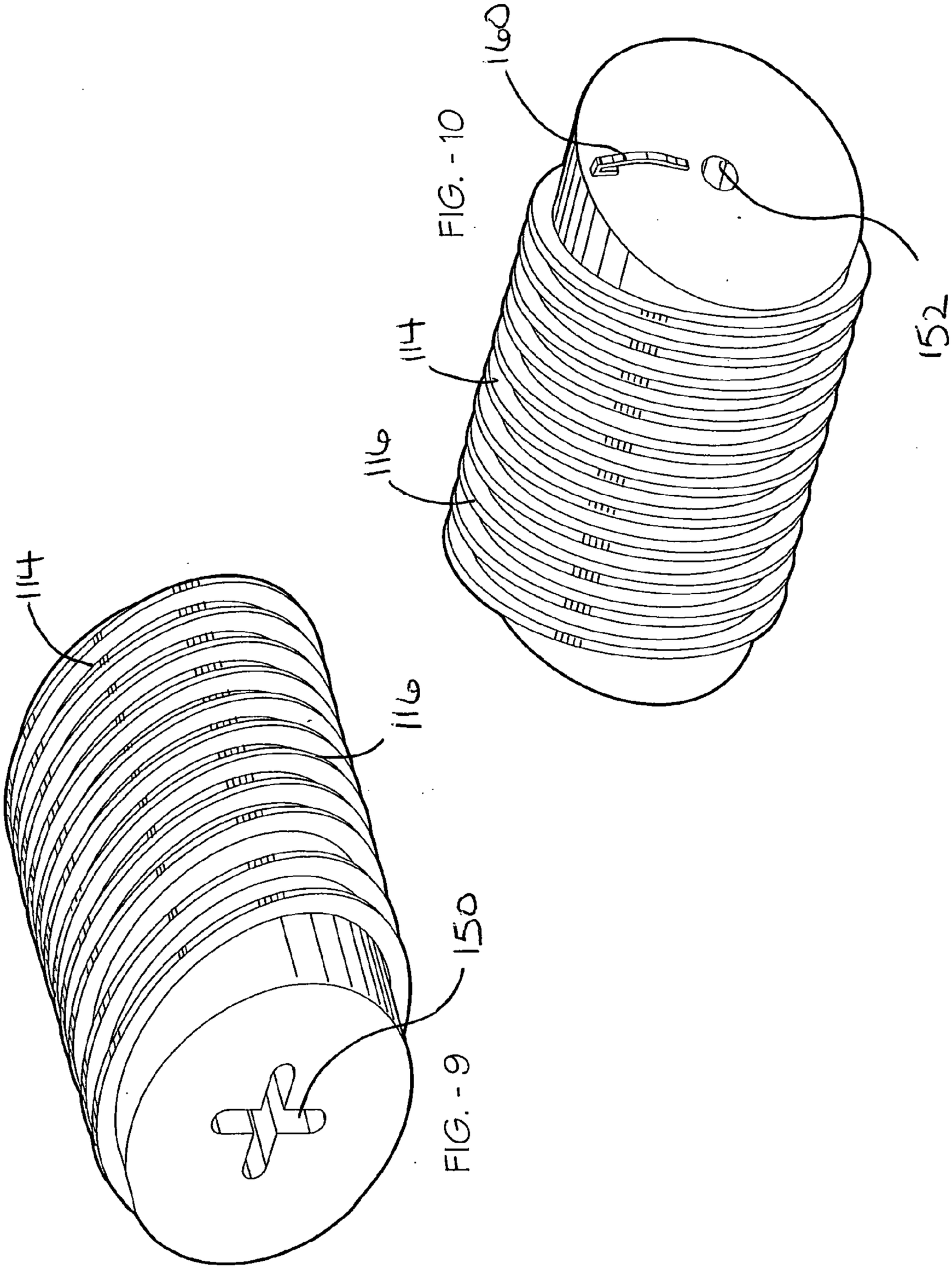


FIG. - 9

FIG. - 10

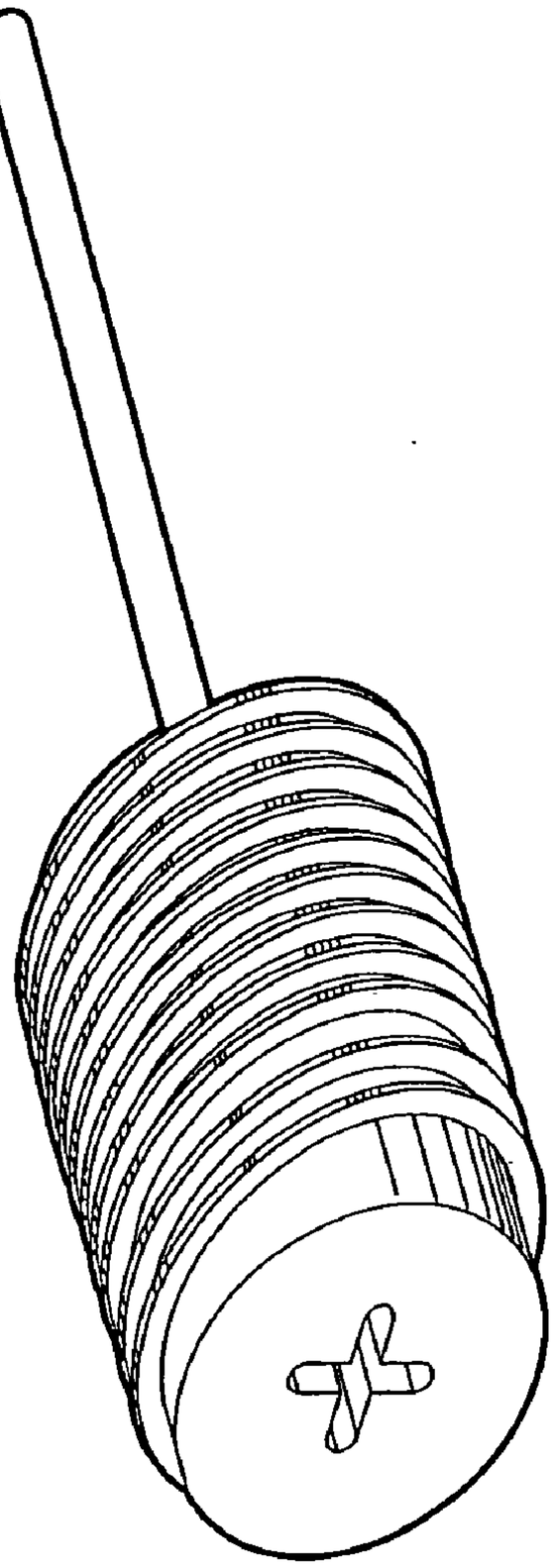


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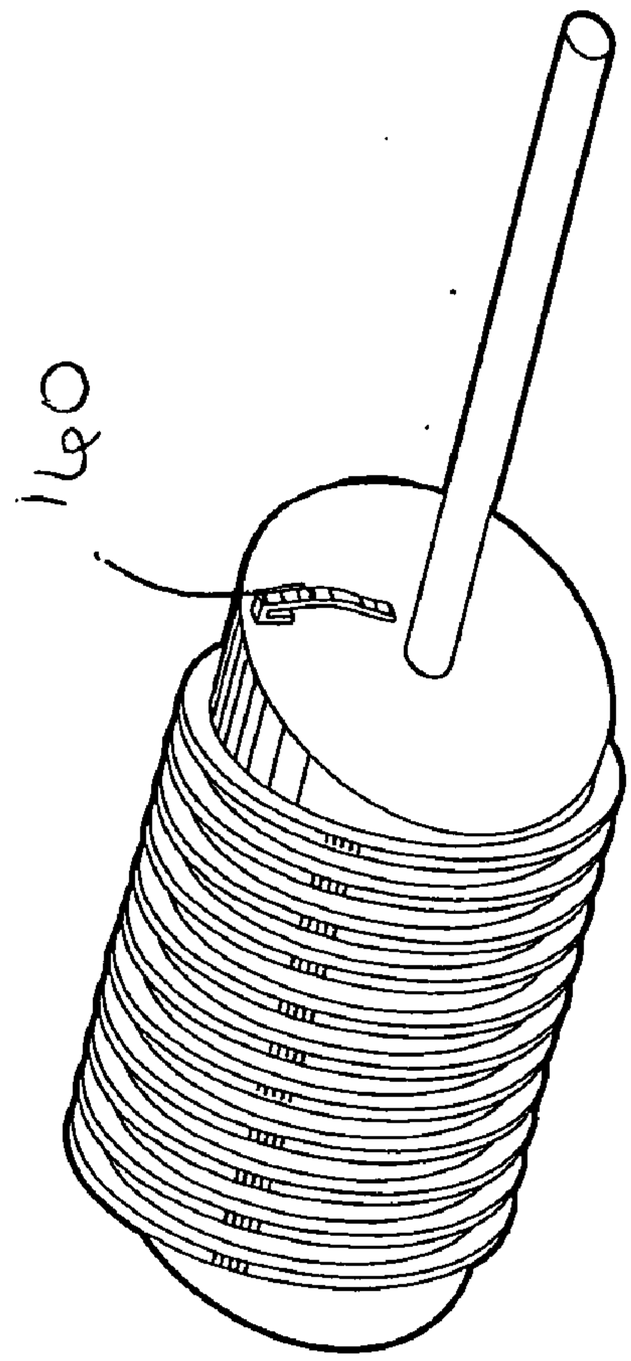


FIG. - 12

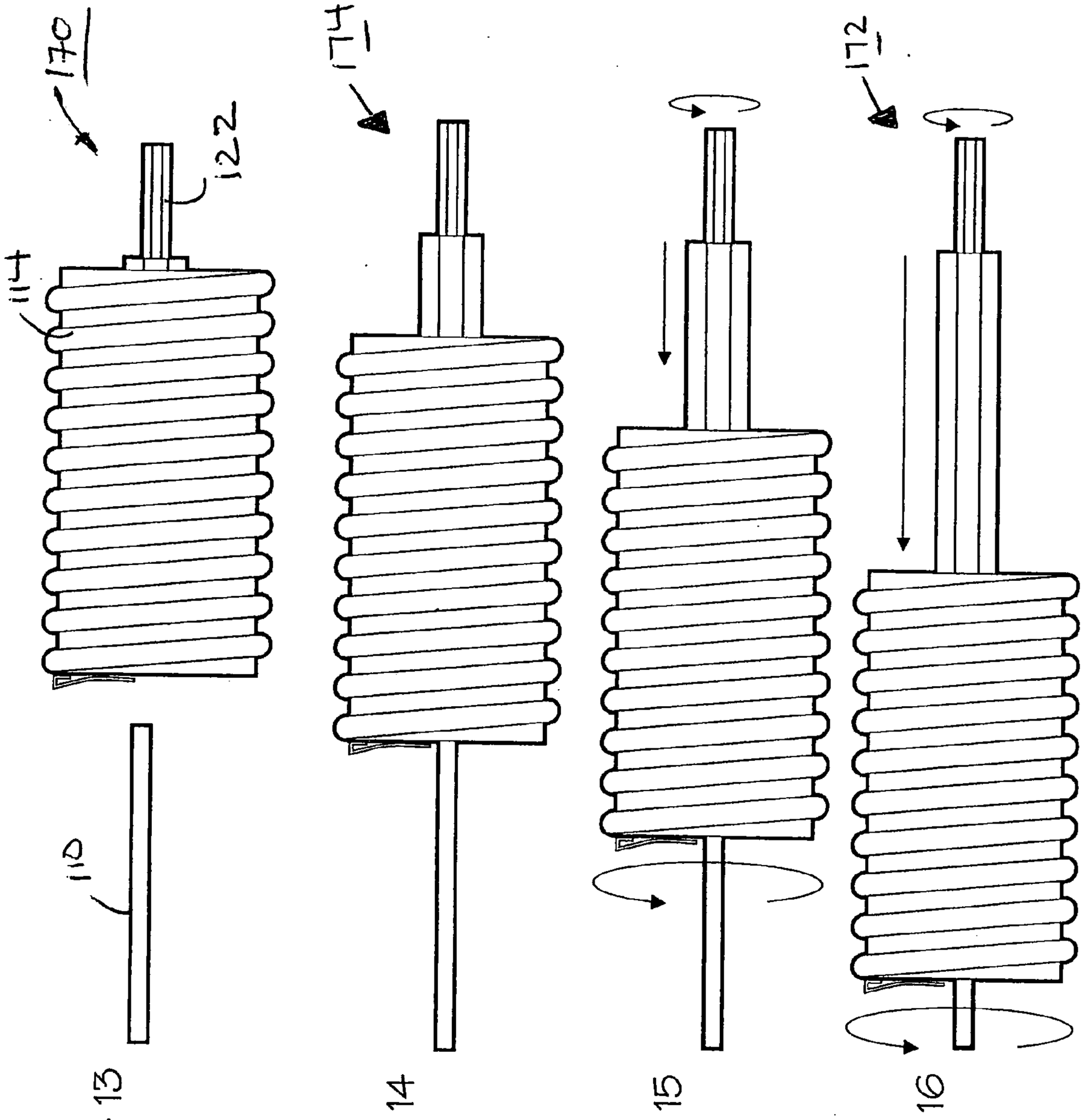


FIG. - 13

FIG. - 14

FIG. - 15

FIG. - 16

FIG. - 17

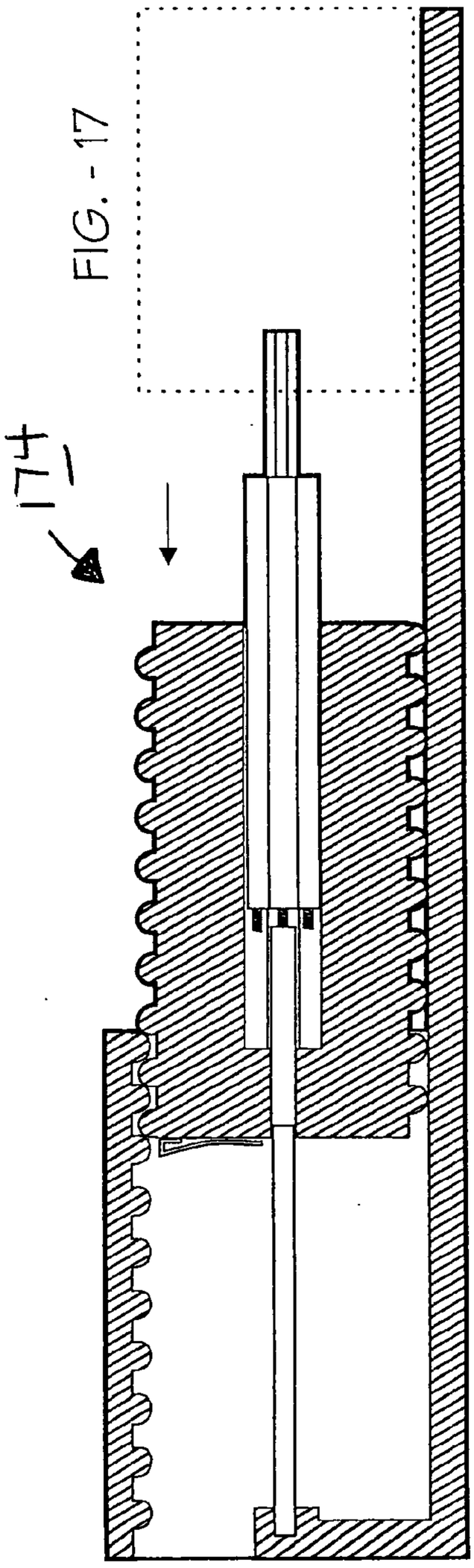


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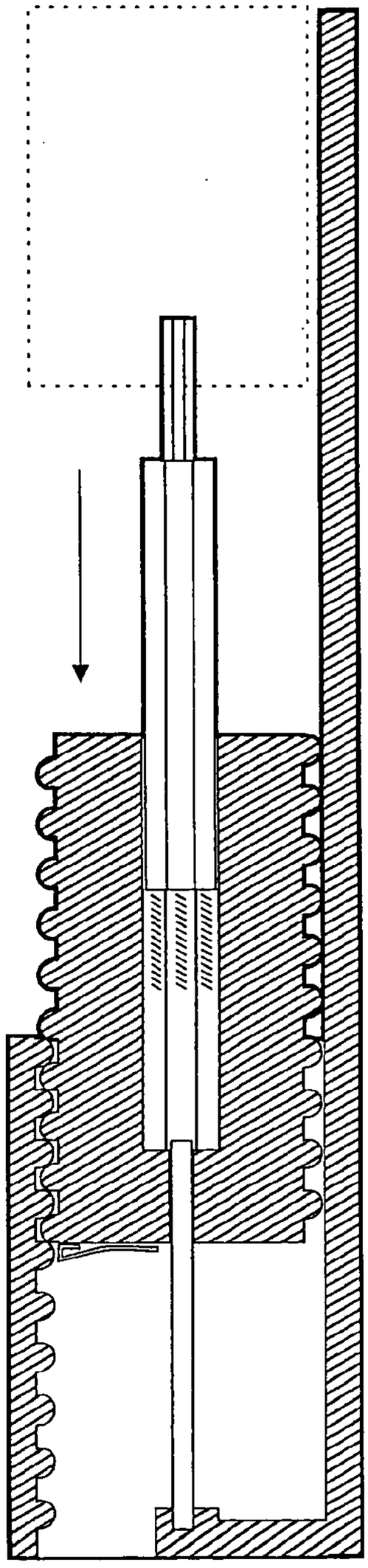
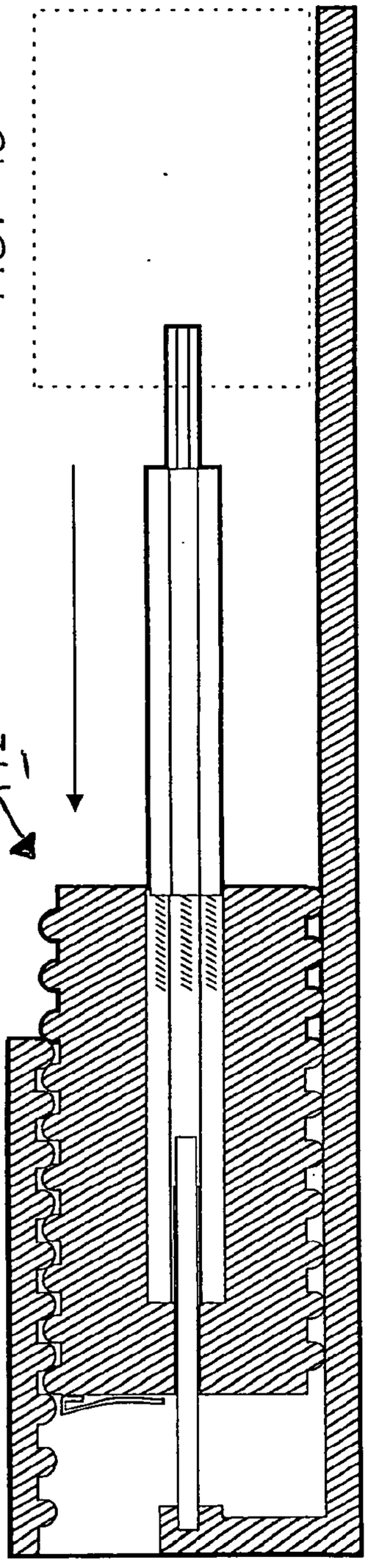


FIG. - 19



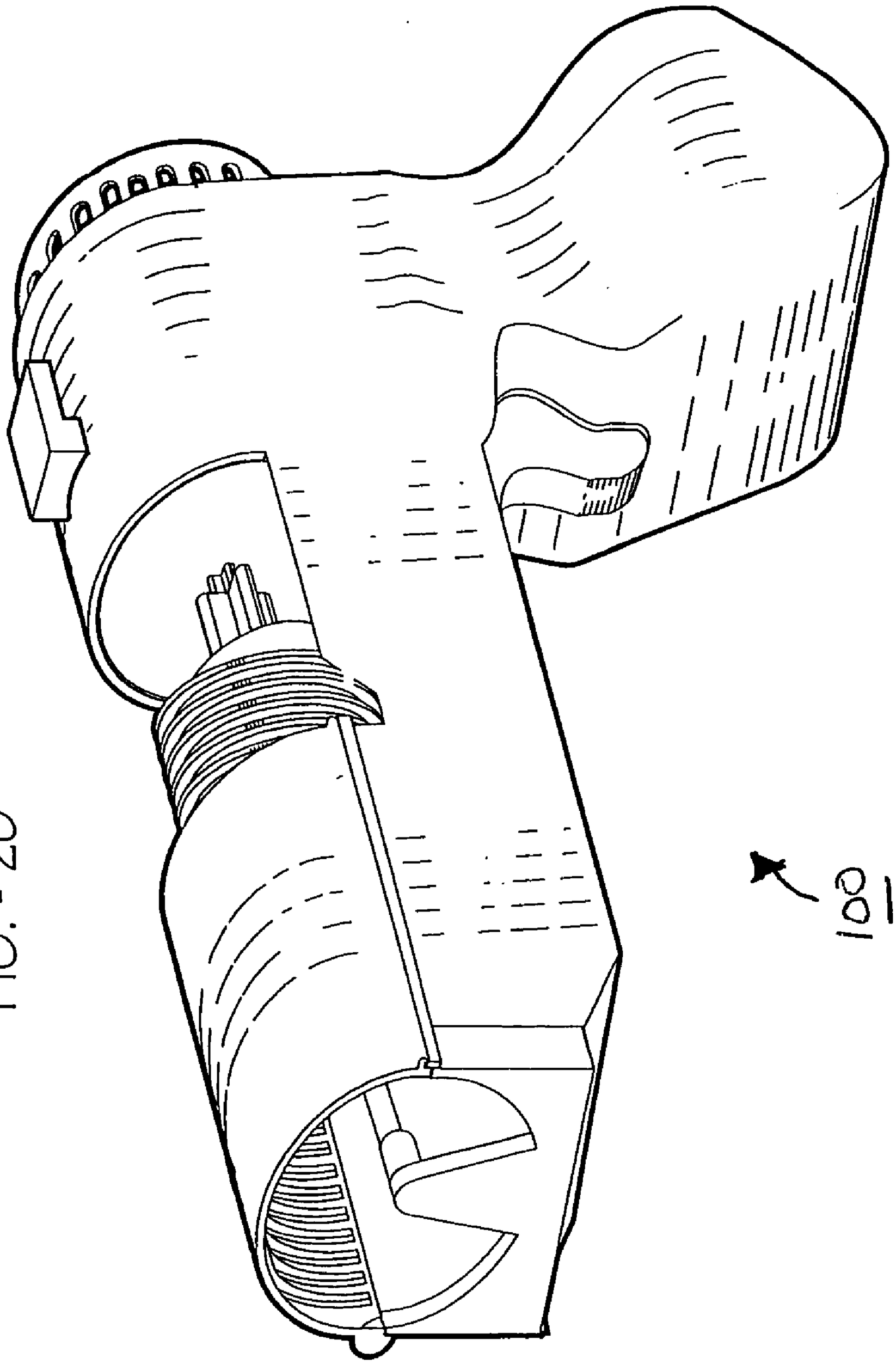


FIG. - 20

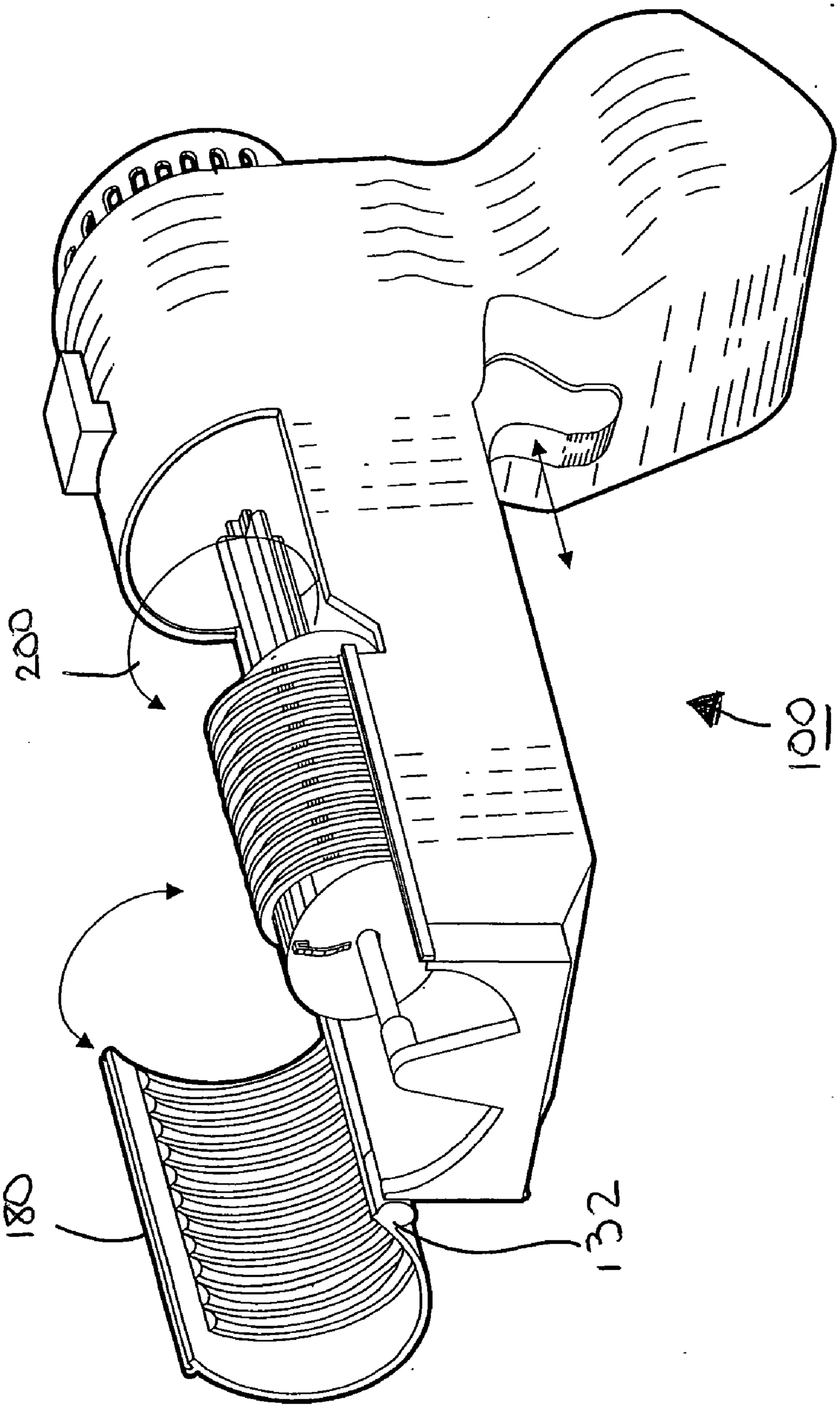


FIG. - 21

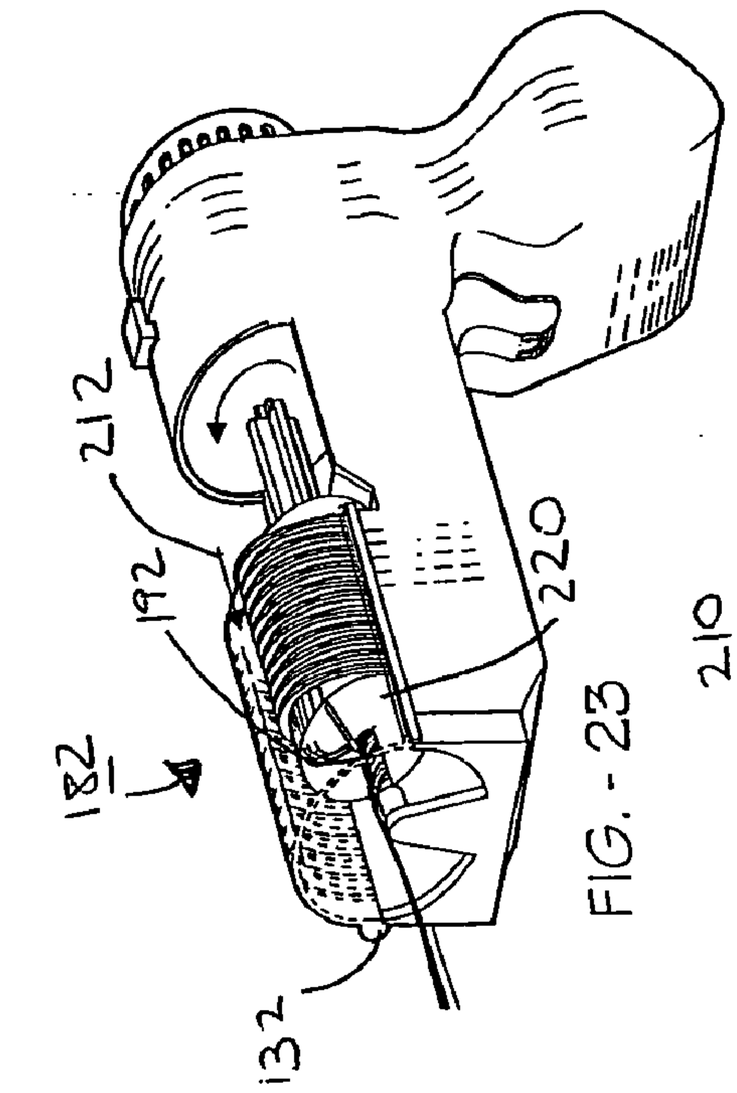


FIG. - 23

FIG. - 22

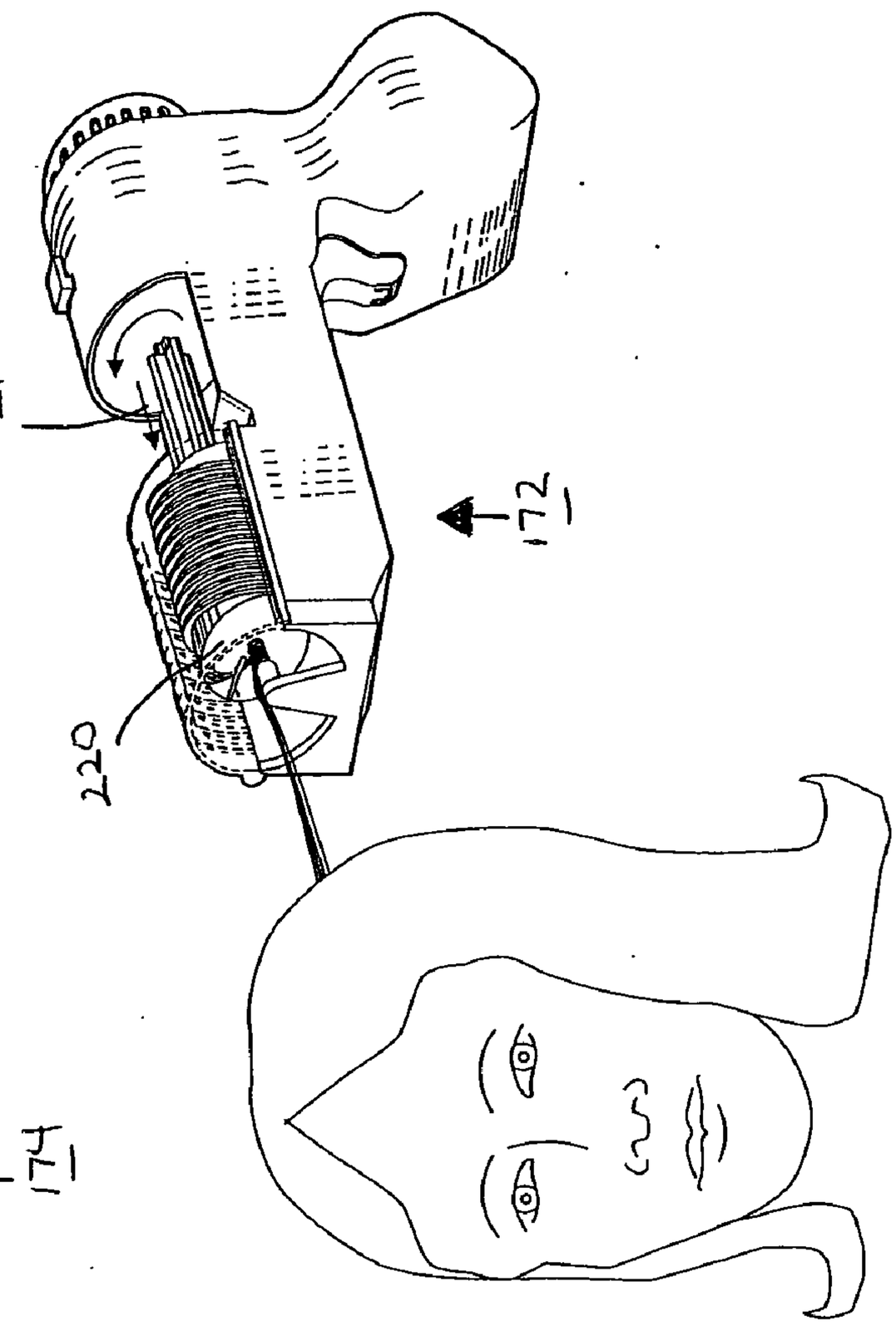


FIG. - 24

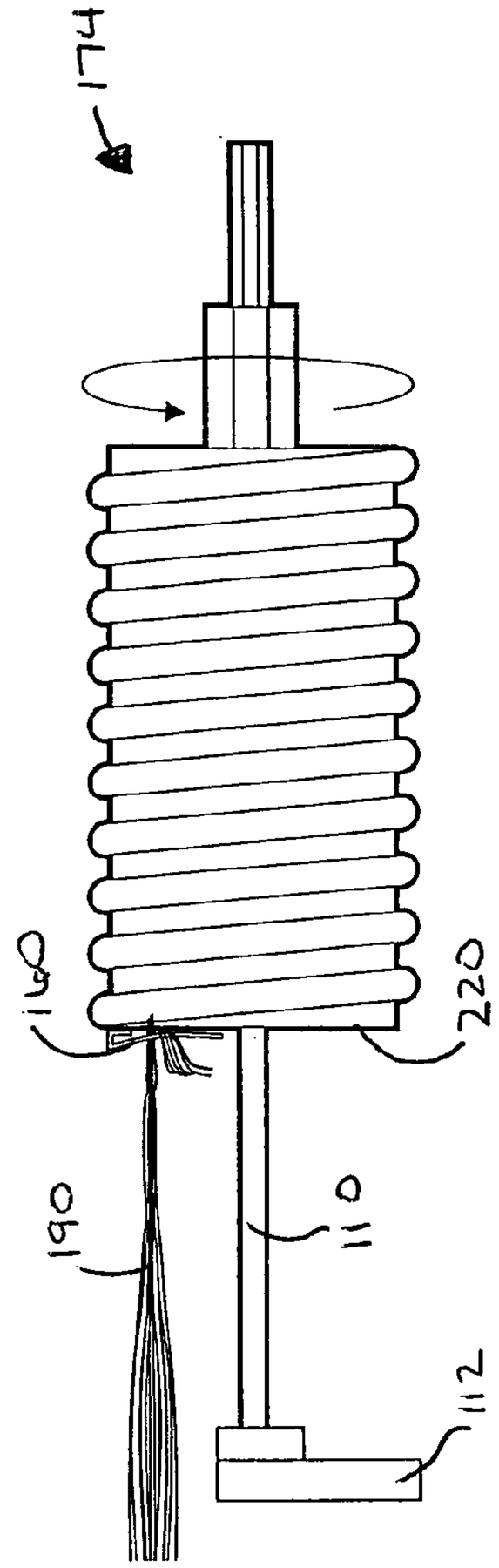


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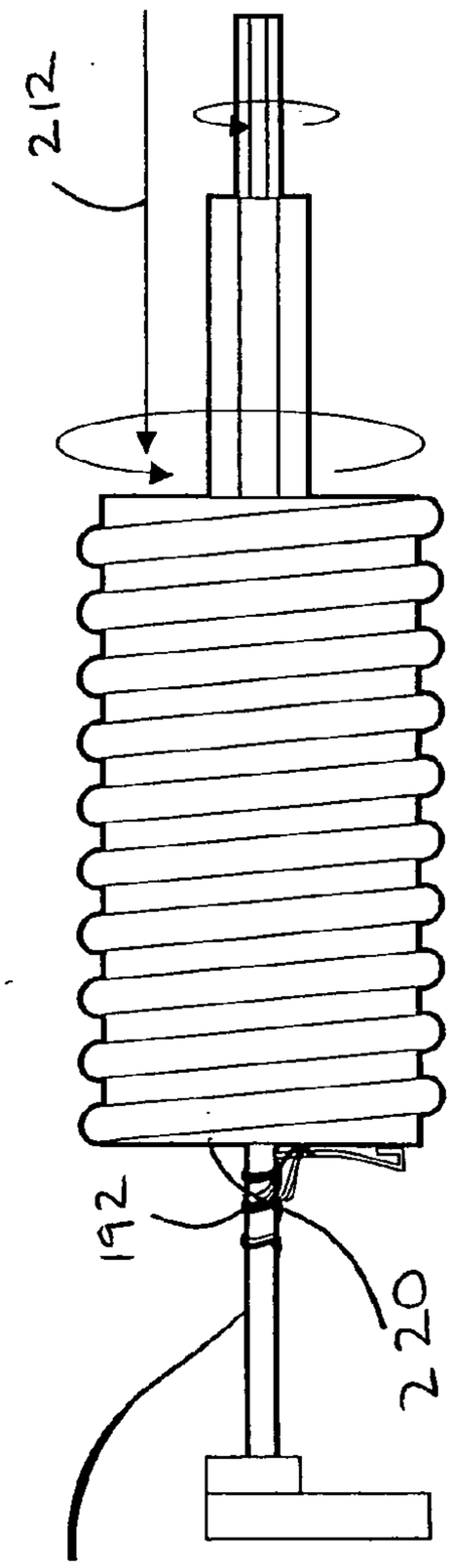


FIG. - 26

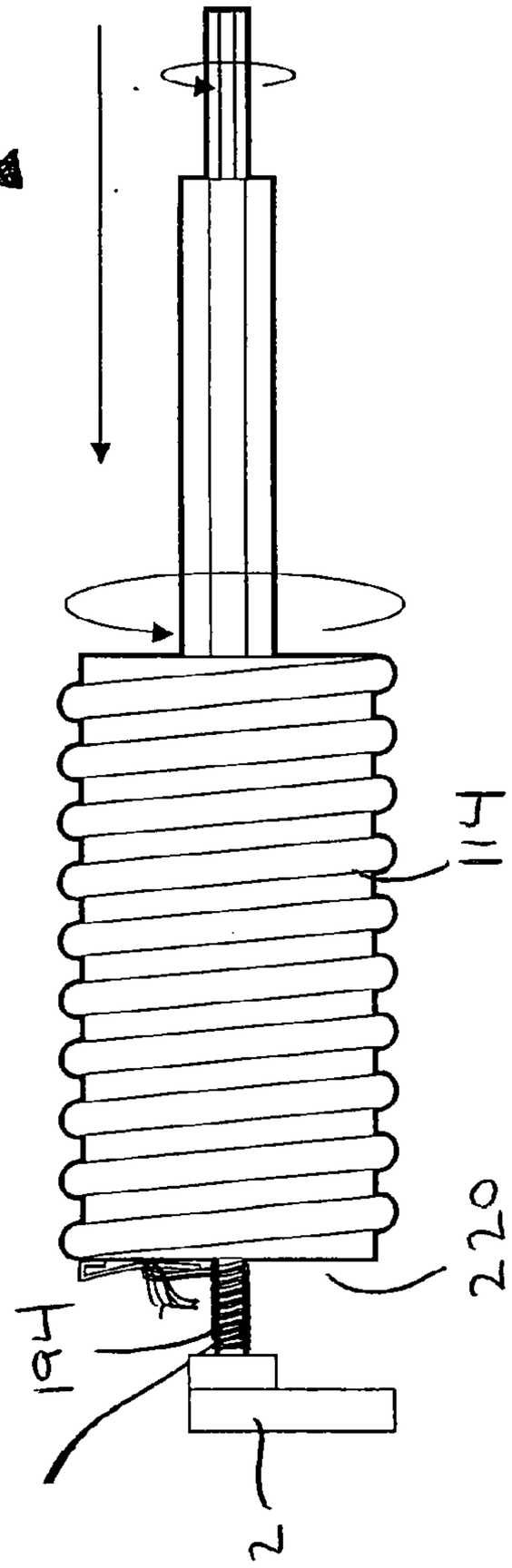


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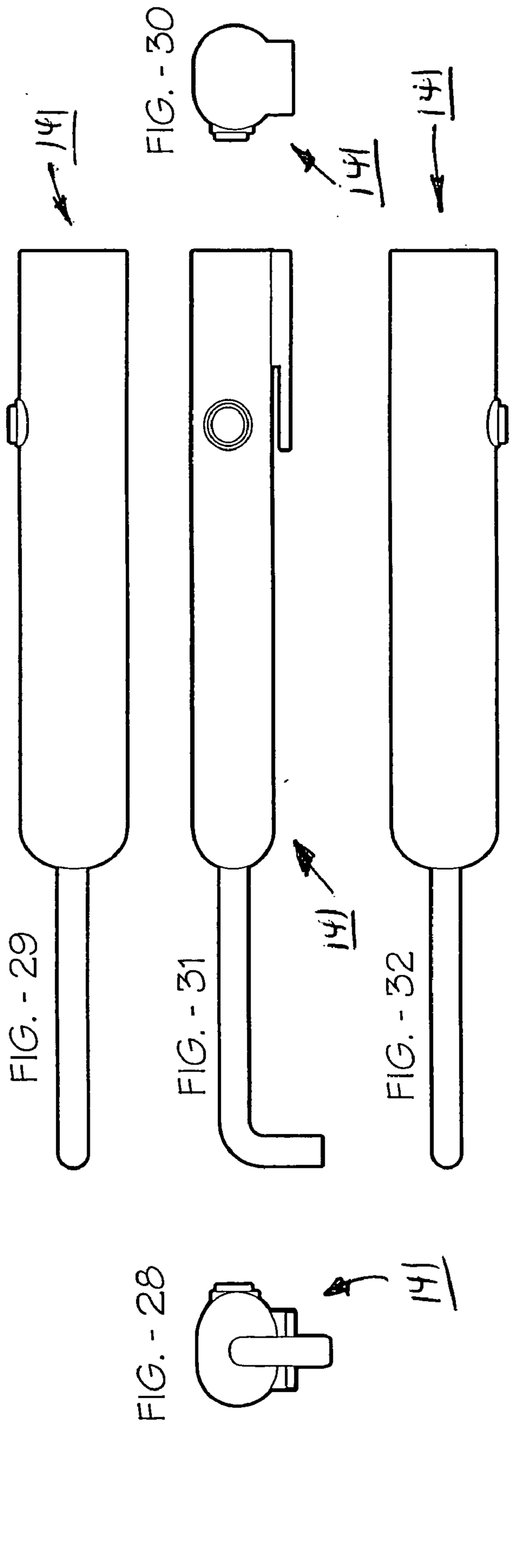


FIG. - 29

FIG. - 31

FIG. - 32

FIG. - 28

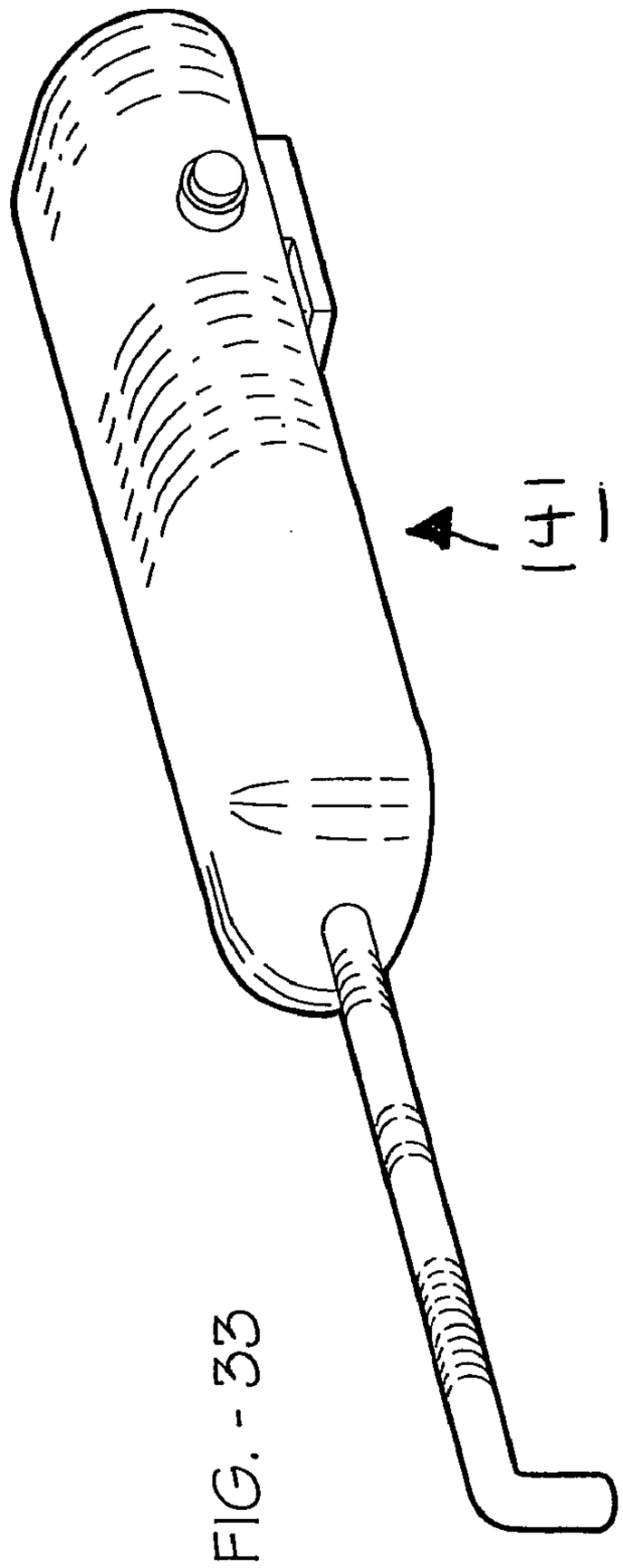


FIG. - 33

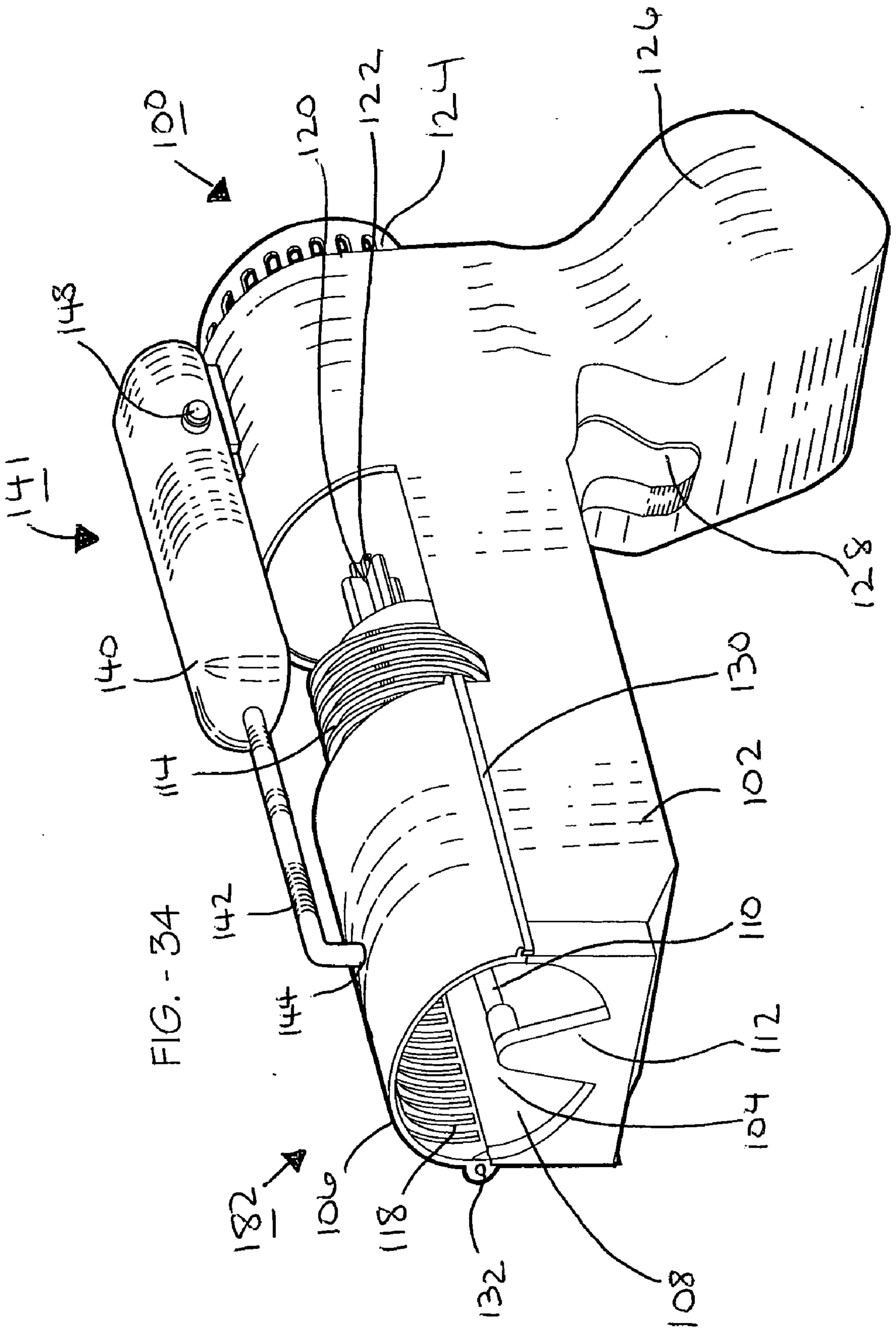

100
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141

FIG. - 34

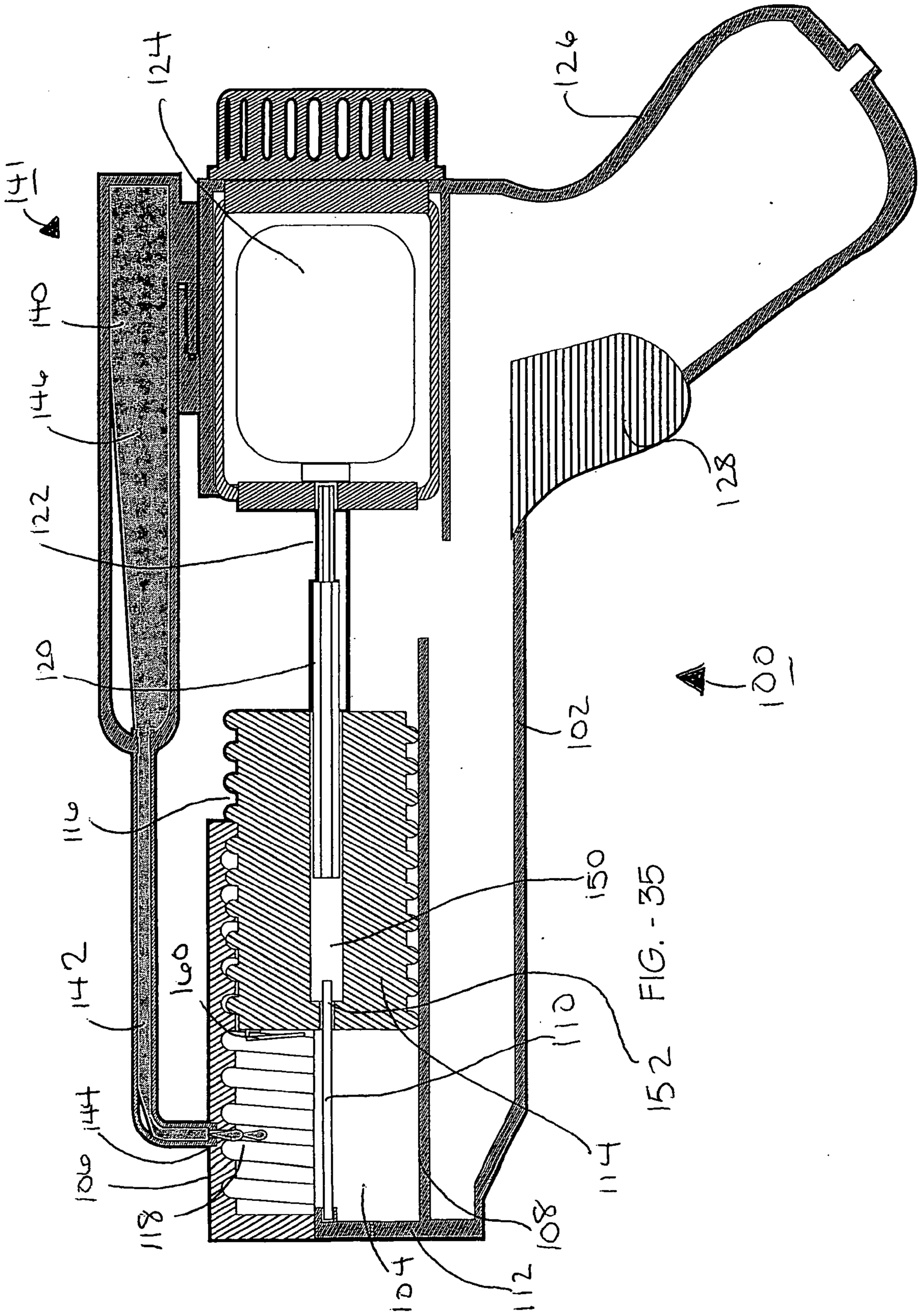

124
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152

FIG. - 3

HAIR TWISTER

FIELD OF THE INVENTION

[0001] The present invention relates to hair curling and twisting devices and in particular relates to a automated hair twisting device.

BACKGROUND OF THE INVENTION

[0002] There are a number of devices in the market place currently which provide for curling and/or setting of hair. There are a number of devices on the market which allow the user to create or prepare large curls of hair. Current styles have indicated that many persons would prefer to have a spring lock style hair set and/or a natural dread lock type hair look. Hair curls to provide for either spring locks or dread locks, need to be extremely small in diameter and rather than curling of hair, one needs to have a device which will twist hair. Currently, there are no useful automated apparatus on the market which will create a natural dread lock or a very tight spring lock type hairstyling. Dread locks and/or looser spring locks currently can be created by hand through very careful, time consuming and labour intense hair twisting.

[0003] Therefore, there is a need for a device which will more automatically create a tight dread lock or a somewhat looser spring lock in order to produce various hair styles which are in demand presently.

SUMMARY OF THE INVENTION

[0004] The present invention a hair twister includes;

[0005] a) a spool for twisting hair thereon;

[0006] b) a means for simultaneously winding hair onto the spool and for compressing the hair on said spool;

[0007] c) means for releasing the twisted hair from the spool.

[0008] Preferably wherein said winding means includes a drum mounted within a cylinder, said drum rotatably mounted within said cylinder for operatively winding hair onto said spool.

[0009] Preferably wherein said drum including outer drum threads and a cylinder top including cooperating cylinder top threads for threadably engaging with said drum, such that rotating the drum threadably urges the drum along a longitudinal direction within said cylinder.

[0010] Preferably wherein said spool being slidably received within a spool receiving channel defined in said drum as said drum rotatably moves in a forward direction within the cylinder.

[0011] Preferably wherein said cylinder also including a cylinder bottom, wherein said cylinder bottom having a smooth surface such that said drum slidably received within said cylinder bottom and threadably received within said cylinder top.

[0012] Preferably wherein said cylinder top being pivotally attached to said cylinder bottom, wherein said cylinder top being pivotable between an open position and a closed position, such that in the open position said drum is free to move slidably in the longitudinal direction along said cylinder bottom, and in said closed position said drum threadably engaging with said cylinder top threads.

[0013] Preferably wherein said drum moveable within said cylinder between a retracted position, engaged position and extended position, such that in said retracted position said spool is clear of said drum permitting removal of hair from said spool.

[0014] Preferably wherein said drum including a clip for releasably retaining a hair on a front face of said drum as said drum is rotating and moving forwardly along the longitudinal direction from said engaged position to said extended position, wherein said hair being fully twisted and compressed when said drum in said extended position.

[0015] Preferably wherein said winding means including a drive means operably connected to said drum for rotating said drum.

[0016] Preferably wherein said drive means including a spline slidably received within a spline receiving channel defined in a rearward portion of said drum, wherein said spline operably connected to a drive motor for rotating said drum.

[0017] Preferably wherein said drum including a front face impinging on said hair on said spool, such that as said drum being urged in a forward direction within said cylinder said drum front face compressing said hair on said spool.

[0018] Preferably further including a means for applying fluid to said hair as said hair being twisted and compressed onto said spool.

[0019] Preferably wherein said fluid means including a fluid applicator including a nozzle for applying fluid onto hair on said spool.

[0020] Preferably wherein said fluid applicator including a fluid reservoir connected to said nozzle with a fluid conduit for communicating fluid from said reservoir to said nozzle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The invention will now be described by way of example only with reference to the following drawings in which:

[0022] **FIG. 1** is a schematic top plan view of the present invention a hair twister.

[0023] **FIG. 2** is a front elevational view of the hair twister shown in **FIG. 3**.

[0024] **FIG. 3** is a side plan view of the present invention a hair twister.

[0025] **FIG. 4** is a rear elevational end view of the hair twister shown in **FIG. 3**.

[0026] **FIG. 5** is a bottom plan view of the hair twister shown in **FIG. 3**.

[0027] **FIG. 6** is a front schematic elevational view of the hair twister shown in **FIG. 7** showing the cylinder top being pivoted open.

[0028] **FIG. 7** is a side elevational view of the hair twister with the cylinder top being pivoted open.

[0029] **FIG. 8** is a side elevational view of the hair twister with the cylinder top being pivoted open.

[0030] **FIG. 9** is a rear top perspective view of the drum.

[0031] **FIG. 10** is a front top perspective view of the drum showing the clip.

[0032] **FIG. 11** is a rear perspective view of the drum together with the spool and the spline.

[0033] **FIG. 12** is a front perspective view of the drum together with the spool and the spline.

[0034] **FIG. 13** is an assembly view of the spool, the drum, the spline and the drive shaft showing the drum in the retracted position.

[0035] **FIG. 14** is a side elevational perspective view of the spool, the drum, the spline and the drive shaft showing the drum in the engaged position.

[0036] **FIG. 15** is an assembly view of the spool, the drum, the spline and the drive shaft showing the drum in the retracted position.

[0037] **FIG. 16** is a side plan view of the spool, the drum, the spline and the drive shaft showing the drum in the extended position.

[0038] **FIG. 17** is a schematic cross sectional view of the drum in the cylinder shown in the engaged position.

[0039] **FIG. 18** is a schematic cross-sectional view of the drum and the cylinder shown advancing into the extended position.

[0040] **FIG. 19** is a schematic side cross-sectional view of the drum shown in the extended position.

[0041] **FIG. 20** is a front perspective view of the present invention a hair twister with the cylinder top shown in the closed position.

[0042] **FIG. 21** is a front perspective view of the present invention a hair twister with the cylinder top shown in the open position.

[0043] **FIG. 22** is a front perspective view in the open position with a hair engaged onto the clip with the drum shown in the engaged position.

[0044] **FIG. 23** is a front schematic perspective view of the present invention a hair twister with the cylinder top shown in the closed position with the drum moving toward the extended position with twisted hair shown being twisted onto the spool.

[0045] **FIG. 24** is a front schematic perspective view together with a person shown a lock of hair being twisted onto the spool with the drum shown in the fully extended position and the cylinder top closed.

[0046] **FIG. 25** is a side elevational schematic plan view of the drum, spool and spline showing a lock of hair being attached to clip.

[0047] **FIG. 26** is a side elevational schematic plan view of the drum mounted onto the spline and the spool showing a lock of twisted hair, twisted onto the spool.

[0048] **FIG. 27** is a side elevational plan perspective view of the drum, spool and spline showing the hair in the filly twisted condition.

[0049] **FIG. 28** is a front elevational view of the fluid applicator shown in **FIG. 31**.

[0050] **FIG. 29** is a top plan view of the fluid applicator.

[0051] **FIG. 30** is a side elevational plan view of the fluid applicator.

[0052] **FIG. 31** is a bottom plan view of the fluid applicator.

[0053] **FIG. 32** is a end elevational view of the fluid applicator.

[0054] **FIG. 33** is a front top perspective schematic view of the fluid applicator.

[0055] **FIG. 34** is a top front schematic perspective view of the present invention a hair twister together with the fluid applicator mounted thereon.

[0056] **FIG. 35** is a schematic cross sectional view of a hair twister together with the fluid applicator shown in cross section along the centre line of the device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0057] The present invention, a hair twister shown generally as **100** includes the following major components, namely housing **102**, cylinder **104** being comprised of cylinder top **106** and cylinder bottom **108**, spool **110** mounted onto spool support **112**, drum **114** threadably engaging with drum thread **116**, with cylinder top threads **118**, spline **120**, drive shaft **122**, drive motor **124**, handle **126** and trigger **128**.

[0058] Optionally attached to hair twister **100** is fluid applicator **141** which includes the following major components, namely fluid reservoir **140**, fluid conduit **142** and fluid nozzle **144**.

Drum and Cylinder Unit

[0059] From the drawings a person skilled in the art will notice that drum **114** is threadably engaged with drum threads **116** with cylinder top **118**. Drum **114** includes at one end a spline receiving channel **150** and at the other end a spool receiving channel **152**. Spline **120** is slideably received within spline receiving channel **150** as drum **114** moves longitudinally along longitudinal direction **110** of spline **120**. Spool **110** is supported at one end with spool support **112** and at the other end by spool receiving channel **152** of drum **114**. Spline **120** is connected to drive shaft **122** which is in turn connected to drive motor **124**. Drum **114** also includes on the front face a clip **160** for clipping a lock of hair there under.

[0060] Hair twister **100** also includes a handle **126** for holding in a persons hand and a trigger **128** which essentially is a switch for turning motor **124** on and off and also potentially for reversing the rotation of direction of motor **124**.

Fluid Applicator

[0061] Fluid applicator shown generally as **141** includes a fluid reservoir **140** which can house numerous types of fluid **146**. Fluid reservoir **140** also includes a release button **148** which can either be a manual pump for manually pumping fluid **146** through fluid conduit **142** to fluid nozzle **144** where fluid can be deposited onto cylinder top **118**.

In Use

[0062] Referring particularly now to **FIGS. 21 through 27** inclusively, the present invention an hair twister **100** is employed as follows.

[0063] As shown in **FIG. 22**, cylinder top **106** can be pivotly opened to open position **180**. Cylinder top **106** pivots about cylinder hinge **132** and in the closed position **182** is latched onto the other side of housing **102** with a latch **130**. With cylinder top **106** in the open position **180**, a lock of hair **190** can be clipped onto clip **160** in order to the hold the end of the lock of hair **190** onto clip **160**. Drum **114** is in the engaged position **174** meaning that spline **120** is slideably received within spline receiving channel **150** and drum **114** is near the rear portion of cylinder top **106**, such that the front portion of drum **114** just engages with cylinder top threads **118**. Once a lock of hair **190** is clipped onto clip **160**, the cylinder top **106** is pivoted closed to the closed position **182** as shown in **FIG. 34** and also schematically shown in **FIG. 23** in dashed lines in order that one is still able to see drum **114**. Trigger **128** is depressed activating motor **124** which rotates in rotational direction **200** and as drum **114** is rotated by a motor **124** via spline **120** and drive shaft **122**, it moves along longitudinal direction **210** to the forward portion of housing **102**. A person skilled in the art will note that cylinder bottom **108** does not have any threads engaging with drum threads **116**, but rather drum **114** simply slideably and rotatably advances along cylinder bottom **108** and simultaneously engages with cylinder top threads **118**.

[0064] As drum **114** simultaneously rotates and longitudinally advances along longitudinal direction **210**, lock of hair **190** is twisted onto spool **110** curling twisted hair **192** around spool **110**. Simultaneously as the lock of hair **190** is twisted, it is also compressed on spool **110** as the front face **220** of drum **114** compresses twisted hair **192** onto spool **110**. Spool **110** is supported at the front end by spool support **112** and on the reward portion is slideably received within spool receiving channel **152** of drum **114**.

[0065] Continuing to rotate drum **114** via motor **124**, continues to advance drum **114** along longitudinal direction **210** and continues to twist hair locks **190** until drum **114** reaches the extended position **172** at which point the hair in the fully twisted hair condition as shown as **194**. Fully twisted hair **194** is not only twisted about spool **114**, but is also compressed on spool **110**, thereby creating a dread lock by both winding or twisting and compressing hair **190**. Once the twisting and compressing is completed, cylinder top **106** can once again be moved to the open position **180**, the end of hair **190** can be removed from clip **160** and drum **114** can be manually slide back until it reaches the retracted position **170**, such that drum **114** is clear of spool **110** and fully twisted hair **194** can now be easily slide off of spool **110**.

Use of Fluid Applicator **141**

[0066] Optionally a fluid applicator **141** can be mounted onto the top of hair twister **100** for the application of fluid onto fully twisted hair **194**. Preferably, fluid applicator **141** which includes a fluid reservoir **140** containing a hair treatment fluid **146** by pressing release button **148**, one can manually pump hair treatment fluid **146** out of nozzle **144** and onto fully twisted hair **194** thereby treating the hair as required by the operator. It is also possible that when cylinder top **106** is placed in the open position **180** after winding or twisting the hair on spool **110** and compressing the hair onto spool **110** into the fully twisted condition **194**, optionally a set of springs shown as **162** can be used to slideably retract drum **114** along cylinder **104**, rather than manually urging drum **114** along cylinder **104** back to the retracted position **170**.

[0067] It should be apparent to persons skilled in the arts that various modifications and adaptation of this structure described above are possible without departure from the spirit of the invention the scope of which defined in the appended claim.

I claim:

1. A hair twister comprising:

a) a spool for twisting hair thereon;

b) a means for simultaneously winding hair onto the spool and for compressing the hair on said spool;

c) means for releasing the twisted hair from the spool.

2. The hair twister claimed in claim 1 wherein said winding means includes a drum mounted within a cylinder, said drum rotatably mounted within said cylinder for operatively winding hair onto said spool.

3. The hair twister claimed in claim 2 wherein said drum including outer drum threads and a cylinder top including cooperating cylinder top threads for threadably engaging with said drum, such that rotating the drum threadably urges the drum along a longitudinal direction within said cylinder.

4. The hair twister claimed in claim 2 wherein said spool being slidably received within a spool receiving channel defined in said drum as said drum rotatably moves in a forward direction within the cylinder.

5. The hair twister claimed in claim 3 wherein said cylinder also including a cylinder bottom, wherein said cylinder bottom having a smooth surface such that said drum slidably received within said cylinder bottom and threadably received within said cylinder top.

6. The hair twister claimed in claim 5 wherein said cylinder top being pivotally attached to said cylinder bottom, wherein said cylinder top being pivotable between an open position and a closed position, such that in the open position said drum is free to move slidably in the longitudinal direction along said cylinder bottom, and in said closed position said drum threadably engaging with said cylinder top threads.

7. The hair twister claimed in claim 6 wherein said drum moveable within said cylinder between a retracted position, engaged position and extended position, such that in said retracted position said spool is clear of said drum permitting removal of hair from said spool.

8. The hair twister claimed in claim 7 wherein said drum including a clip for releasably retaining a hair on a front face of said drum as said drum is rotating and moving forwardly along the longitudinal direction from said engaged position to said extended position, wherein said hair being fully twisted and compressed when said drum in said extended position.

9. The hair twister claimed in claim 2 wherein said winding means including a drive means operably connected to said drum for rotating said drum.

10. The hair twister claimed in claim 9 wherein said drive means including a spline slidably received within a spline receiving channel defined in a rearward portion of said drum, wherein said spline operably connected to a drive motor for rotating said drum.

11. The hair twister claimed in claim 4 wherein said drum including a front face impinging on said hair on said spool, such that as said drum being urged in a forward direction within said cylinder said drum front face compressing said hair on said spool.

12. The hair twister claimed in claim 1 further including a means for applying fluid to said hair as said hair being twisted and compressed onto said spool.

13. The hair twister claimed in claim 12 wherein said fluid means including a fluid applicator including a nozzle for applying fluid onto hair on said spool.

14. The hair twister claimed in claim 13 wherein said fluid applicator including a fluid reservoir connected to said nozzle with a fluid conduit for communicating fluid from said reservoir to said nozzle.

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