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(54) **A HAIR STYLING APPARATUS**

(57) A hair styling apparatus with a plurality of modes for styling hair in a variety of fashions. The hair styling apparatus as at least two elongate components pivotally movable about a joint between an extended and closed position. Each elongate component having a styling part and a handle. The apparatus further has a clamp movably couplable to either elongate component, a temperature control means, and a power means. The hair styling apparatus is thereby portable and multifunctional.

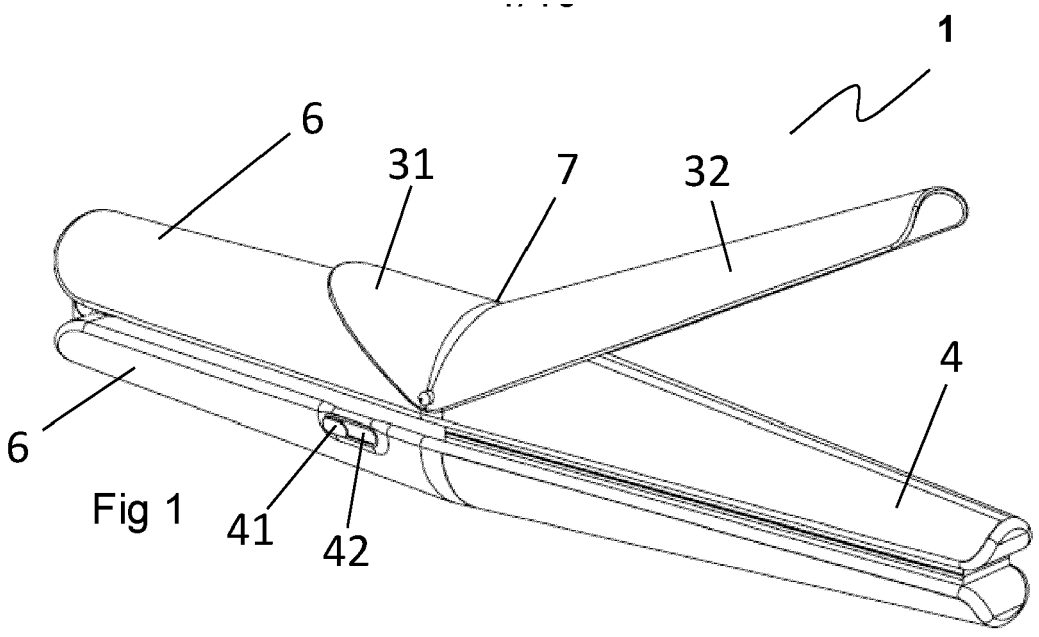

Fig 1

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Description

[0001] The present invention relates to a hair styling apparatus and in particular to a multifunctional portable hair styling apparatus.

[0002] In modern society people face pressure, both professionally and socially, to maintain a pristine image. However, given the many demands placed on people today, the time to stay on top of such aesthetic commitments can be diminished. This is especially the case for people with longer hair who enjoy keeping their hair styled to perfection throughout the course of the day. Currently, people with long hair are limited in how and where they can maintain their preferred style as many hair styling appliances on the market are wired. These require the use of a fixed power outlet that may not be convenient for people who are frequently on the go. Alternatively, other available appliances that are portable with a rechargeable battery facilitate the implementation of only one style such as curling or straightening or crimping due to limited power. This makes it necessary for people with long hair to bring more than one instrument if they wish to combine styles or precludes them from achieving a coiffure that involves a combination of the aforementioned styles.

[0003] Furthermore, concerning curled styles, current appliances offer either the option of a clamped curl of uniform diameter or curls of differing diameter. The former is achieved by a tradition curling iron/tong, the styling end of which consists of a heated metal cylinder with a levered clamping arm/tong attached to the exterior of the cylinder. The latter is achieved by a curling wand, the styling end of which consists of a conical shaped heated element that usually omits any sort of clamp. Instead, users are provided with heat proof gloves to implement their chosen curl diameter. The curling wand therefore presents an inherent burn risk to those who forget or lose their gloves and attempt to use the tool to style their hair without any heat safety protective equipment.

[0004] US 5,223,694 relates to a hair styling iron for selectively effecting hair straightening or curling includes a generally circular cross-section electrically heated barrel. A tongue is movable relative to the barrel for selectively clamping a strand of hair between the tongue and the peripheral surface of the barrel for curling hair wound therearound. The barrel comprises a first and second pipes each having a generally semi-circular cross section with a top rounded outer surface and a flat bottom outer surface. The pipes are movable relative to each other between a closed position where the flat bottom surfaces are kept in closed relation to each other and an open position where the bottom surfaces are spaced away from each other. In the closed position, a strand of hair can be held between the opposing flat bottom surfaces of the first and second pipes in order to substantially straighten or uncurl the hair. Thus, the hair styling iron can alone provide hair curling and straightening capabilities.

[0005] It is an object of the present invention to obviate or mitigate the problem where people with long hair are limited to wired or one-function portable hair styling tools. The present invention further mitigates the risk of burn for hair wand users who have misplaced their heat resistant gloves or other safety equipment required to use the tool.

[0006] Accordingly, the present invention provides a hair styling apparatus having a plurality of modes for styling hair in a variety of fashions comprising:

at least two elongate components pivotally coupled about a joint;
the at least two elongate components pivotally movable about the joint between an extended and closed position;
each elongate component comprising a styling part and a handle;
a clamp being couplable to any of the at least two elongate components;
the clamp being movable between a first open position and a second closed position when the clamp is coupled to either elongate component;
and a power means.

[0007] In one embodiment, the hair styling apparatus comprising a temperature control means.

[0008] The joint between the at least two elongate components is located proximal to one lengthwise end of each elongate component.

[0009] Preferably, the elongate components are generally of similar size and dimension.

[0010] Ideally, the elongate components are generally of equal size and dimension.

[0011] The styling parts are locatable along a portion of the elongate components.

[0012] The styling parts are locatable along a portion of the elongate components proximal to one end of the elongate components.

[0013] The handles are locatable along a portion of the elongate components.

[0014] The handles are locatable along a portion of the elongate components proximal the opposite end of the elongate components to the styling parts.

[0015] The joint between the at least two elongate components is located at or about the handles, most preferably, it is located proximal to an end of the handle distal to the styling parts.

[0016] Advantageously, when the elongate components are extended about the joint, the handles and the styling part move apart. This provides a large space within which hair can be received to enable styling.

[0017] Preferably, the styling parts are locatable along approximately a half of the elongate components from the centre to one end of the elongate components.

[0018] Preferably, the styling parts are locatable along approximately a half of the elongate components from the centre to the opposite end of the elongate compo-

nents to the handles.

[0019] The at least two elongate components comprise a first elongate arm.

[0020] The at least two elongate components comprise a second elongate arm.

[0021] The first elongate arm is in pivotal engagement with the second elongate arm.

[0022] The first elongate arm comprising a first styling part.

[0023] Ideally, the first elongate arm comprising a second styling part.

[0024] The first elongate arm comprising a handle.

[0025] The second elongate arm comprising a first styling part.

[0026] Ideally, the second elongate arm comprising a second styling part.

[0027] The second elongate arm comprising a handle part.

[0028] Ideally, the first styling part of the first elongate arm is correspondingly located to the first styling part of the second elongate arm.

[0029] By correspondingly located we mean that the respective styling parts and handles are located along the respective elongate components in a manner so as to mirror the location of the respective styling parts and handles in the other elongate component allowing each respective styling part and handle to co-operate with its counterpart in use.

[0030] Ideally, the second styling part of the first elongate arm is correspondingly located to the second styling part of the second elongate arm.

[0031] Ideally, the handle of the first elongate arm is correspondingly located to the handle of the second elongate arm.

[0032] The first styling part of the first elongate arm comprising an exterior surface.

[0033] By exterior surface we mean the outer facing surface of each respective elongate arm relative to the other elongate arm of the hair styling apparatus when the first and second elongate arms are pivotally coupled together into the closed position.

[0034] The first styling part of the second elongate arm comprising an exterior surface.

[0035] The first styling part of first elongate arm and the first styling part of the second elongate arm combine when pivotally engaged into the closed position to comprise an outer styling surface.

[0036] By outer styling surface we mean the combined outer surface of the exterior surfaces of the first and second elongate arms in combination, i.e. the styling parts that do not come into contact with the other elongate arm, when the first and second elongate arms pivotally engage with each other into the closed position.

[0037] By pivotal engagement we mean that each of the elongate arms move about their connecting pivot towards each other to the extent that their mutually opposing inside faces engage on application of force by the user.

[0038] The outer styling surface comprising the first styling part of the first elongate arm and the first styling part of the second elongate arm.

[0039] The outer styling surface comprising the first styling part of the first elongate arm and the first styling part of the second elongate arm when the respective elongate arms are pivotally engaged into the closed position.

[0040] The cross sectional area of the styling part tapers along its length.

[0041] Ideally, the cross sectional area of the styling part tapers along its length to a location at one end of the hair styling apparatus.

[0042] Ideally, the cross sectional area of the styling part tapers along its length to a location at one end of the hair styling apparatus when the first elongate arm and the second elongate arm are pivotally engaged into the closed position.

[0043] Ideally, the cross sectional area of the outer styling surface tapers along its length.

[0044] Ideally, the cross sectional area of the outer styling surface tapers along the length of the hair styling apparatus to a location at one end of the hair styling apparatus.

[0045] Ideally, the cross sectional area of the outer styling surface tapers along the length of the hair styling apparatus to a location at one end of the hair styling apparatus when the first elongate arm and the second elongate arm are pivotally engaged into the closed position.

[0046] Ideally, the first styling part of the first elongate arm is hemi-conical.

[0047] Ideally, the first styling part of the second elongate arm is hemi-conical.

[0048] Ideally, the first styling part of the first and second elongate arms are hemi-conical.

[0049] Ideally, outer styling surface is generally conical in shape.

[0050] Advantageously, by having the first styling part of the first and second arms being hemi-conical means that they combine to form a conical shape when the first and second arms are in engagement with each other. The outer styling surface provides the ability for a user to produce diametrically decreasing or increasing curls as required.

[0051] Ideally, the first styling part of the first elongate arm is hemi - frustoconical.

[0052] Ideally, the first styling part of the second elongate arm is hemi - frustoconical.

[0053] Ideally, the first styling part of the first and second elongate arms are hemi - frustoconical forming a generally conically shaped outer styling surface of the hair styling apparatus when brought into engagement with one another.

[0054] Advantageously, by having the first styling part of the first and second arms being hemi-frustoconical means that they combine to form a frustoconical shape when the first and second arms are in engagement with each other and the outer styling surface provides the abil-

ity for a user to produce diametrically decreasing or increasing curls as required.

[0055] Ideally, the first styling part is a styling plate.

[0056] Ideally, the first styling part is a hemi-conical styling plate.

[0057] Ideally, the first styling part is a hemi-frustoconical styling plate.

[0058] Ideally, the first styling part is a hemi-frustoconical styling plate mounted on the outer surface of the first and/or second elongate arm.

[0059] Ideally, the first elongate arm of the hair styling apparatus comprises a second styling part.

[0060] Ideally, the second elongate arm of the hair styling apparatus comprises a second styling part.

[0061] Ideally, both the first elongate arm and second elongate arm of the hair styling apparatus comprises a second styling part.

[0062] The hair styling apparatus comprising an interior styling surface.

[0063] Ideally, the interior styling surface being defined by opposing surfaces of the at least two elongate components.

[0064] Ideally, the second styling part of one or both elongate arms of the hair styling apparatus comprises an interior styling surface.

[0065] Ideally, the interior styling surface of one or both elongate arms comprises the respective interior surface of the styling part of one or both of the elongate arms.

[0066] By interior surface we mean the mutually opposing faces of the elongate arms that are brought into engagement when the elongate arms of the hair styling apparatus are pivoted towards each other into the closed position.

[0067] Ideally, the interior surface of the first elongate arm corresponds in shape with the interior surface of the second elongate arm.

[0068] Advantageously, by corresponding in shape the interior surfaces of the first and second elongate arms can clamp and hold a user's hair when positioning the hair between the two elongate arms as they are pivoted towards each other until the portion of hair is held between the respective arms of the hair styling apparatus. Further advantageously, this can lead to the user obtaining any one of multiple styles depending on the shape/profile of the second styling parts of the elongate arms. These include but are not limited to straight hair, wavy hair.

[0069] Ideally, the interior styling surface comprising a plate.

[0070] Ideally, the interior styling surface comprising a substantially flat plate.

[0071] Alternatively, the interior styling surface comprising an undulating plate.

[0072] Ideally, the interior styling surface comprising a shaped plate so as to style a user's hair in a style commensurate with the shape of the plate.

[0073] Ideally, the interior styling surface comprising plates the width of which tapers proportionately to the width of the first styling part along the length of the first and second elongate arms respectively.

[0074] The hair styling apparatus comprising a clamp.

[0075] The clamp being operable as a third styling part.

[0076] Preferably, the clamp comprising an actuating means operable by a user to move the clamp.

[0077] Ideally, the actuating means being an actuating lever or button.

[0078] Ideally, the clamp comprising an elongate plate.

[0079] Ideally, the clamp comprising an actuating means and a curved plate.

[0080] Preferably, the actuating means is operably engaged with the curved plate.

[0081] Ideally, the actuating means extends from the curved plate.

[0082] Ideally, the actuating means extends at an angle from the hair styling apparatus.

[0083] Ideally, the actuating means extends at an angle from the curved plate.

[0084] Preferably, the actuating means extends at an obtuse angle from the curved plate.

[0085] The clamp couples to the elongate component of the hair styling apparatus.

[0086] Ideally, the clamp couples to the elongate component of the hair styling apparatus at the junction between the actuating means and the curved plate.

[0087] Ideally, the clamp couples to the elongate component of the hair styling apparatus proximal to the outer styling surface of the hair styling apparatus.

[0088] Ideally, the clamp couples to at least one of the at least two elongate components of the hair styling apparatus proximal to the respective first styling parts.

[0089] Ideally, the clamp couples to the first elongate arm of the hair styling apparatus proximal to the first styling part.

[0090] Ideally, the clamp couples to the second elongate arm of the hair styling apparatus proximal to first styling part.

[0091] Ideally, the clamp couples to either the first or the second elongate arm of the hair styling apparatus proximal to the respective first styling parts of either elongate arm.

[0092] Ideally, the clamp couples to either the first or the second elongate arm of the hair styling apparatus proximal to the end of the respective first styling parts of either elongate arm closest to the handle of the hair styling apparatus.

[0093] Ideally, the clamp is pivotally attached to the hair styling apparatus.

[0094] Ideally, the clamp is pivotally attached to the hair styling apparatus at the junction between the actuating means and the curved plate.

[0095] Ideally, the clamp is pivotally attached to the hair styling apparatus proximal to the outer styling surface of the hair styling apparatus.

[0096] Ideally, the clamp is pivotally attached to at least one of the at least two elongate arms of the hair styling apparatus proximal to the respective first styling parts.

[0097] Ideally, the clamp is pivotally attached to the first elongate arm of the hair styling apparatus proximal to the first styling part.

[0098] Ideally, the clamp is pivotally attached to the second elongate arm of the hair styling apparatus proximal to first styling part.

[0099] Ideally, the clamp is pivotally attached to either the first or the second elongate arm of the hair styling apparatus proximal to the respective first styling parts of either elongate arm.

[0100] Ideally, the clamp is pivotally attached to either the first or the second elongate arm of the hair styling apparatus proximal to the end of the respective first styling parts of either elongate arm closest to the handle of the hair styling apparatus.

[0101] Ideally, the elongate plate corresponds in shape to the outer styling surface of the hair styling apparatus.

[0102] Ideally, the elongate plate corresponds in shape to the first styling part of one or both elongate arms.

[0103] Ideally, the elongate plate corresponds in shape to the first styling part of the first and second elongate arms.

[0104] Ideally, the internal face of the elongate plate corresponds in shape to the first styling part of the first and second elongate arms.

[0105] Ideally, the elongate plate corresponds in length to the outer styling surface.

[0106] Ideally, the elongate plate corresponds in length to the first styling part of one or both elongate arms.

[0107] Ideally, the elongate plate corresponds in length to the first styling part of the first and second elongate arms.

[0108] Ideally, the elongate plate corresponds or is slightly shorter in length to the length of the outer styling surface.

[0109] Ideally, the elongate plate corresponds or is slightly shorter in length to the first styling part of one or both elongate arms.

[0110] Ideally, the elongate plate corresponds or is slightly shorter in length to the first styling part of the first and second elongate arms.

[0111] Preferably, the elongate plate is a hemi-frustoconcial plate.

[0112] Ideally, the clamp is normally biased towards at least one elongate component of the hair styling apparatus via a biasing means.

[0113] Ideally, the clamp is normally biased towards the elongate arm of the hair styling apparatus via a biasing means.

[0114] Alternatively, the clamp is normally biased away from the elongate arm of the hair styling apparatus via a biasing means.

[0115] Advantageously, the clamp, being of similar shape and length to the first styling part of the first or second styling arms respectively, co-operates with a portion of the outer styling surface to apply pressure to a user's hair that has been inserted between the internal facing surface of the elongate plate of the clamp and the outer styling surface of the hair styling apparatus. Inserting the hair between these two elements of the hair styling apparatus involves applying pressure to the actuating means to pivot the elongate plate away from the outer styling surface, placing or wrapping the hair around the outer hair styling surface at a desired location along the outer styling surface, and releasing the actuating means to allow the elongate plate of the clamp to be biased back towards the outer styling surface clamping the hair between the outer styling surface and the elongate plate of the clamp.

[0116] The outer styling surface is heatable.

[0117] By heatable we mean that these respective parts are capable of conducting heat up to the maximum of a pre-determined temperature range.

[0118] The first styling part of one or both elongate arms are heatable.

[0119] The first styling part of the first and/or second elongate arms are heatable.

[0120] Ideally, the outer styling surface is made from a heat conductive material.

[0121] Ideally, the first styling part of one or both elongate arms is made from a heat conductive material.

[0122] Ideally, the first styling part of the first and second elongate arms are made from a heat conductive material.

[0123] The interior styling surfaces are heatable.

[0124] The second styling part of one or both elongate arms are heatable.

[0125] The second styling part of the first and second elongate arms are heatable.

[0126] Ideally, the interior styling surface is made from a heat conductive material.

[0127] Ideally, the second styling part of one or both elongate arms are made from a heat conductive material.

[0128] Ideally, the second styling part of the first and second elongate arms are made from a heat conductive material.

[0129] At least part of the clamp is heatable.

[0130] Ideally, the elongate plate of the clamp is heatable.

[0131] Ideally, at least part of the clamp is made from a heat conductive material.

[0132] Ideally, the elongate plate of the clamp is made from a heat conductive material.

[0133] Ideally, the heat conductive material is a composite material.

[0134] Ideally the heat conductive material is a metal, or metal alloy.

[0135] Ideally, the heat conductive material is aluminum, copper, or titanium, or any other suitable material.

[0136] The hair styling apparatus comprising a heating means.

[0137] The power means is operably engaged with the heating means.

[0138] Ideally, the outer and/or interior styling surfaces and/or the clamp are heated by heating means.

[0139] Ideally, the heating means comprises an elec-

trical heating element.

[0140] Ideally, the heating means comprises an internal electrical heating element such as a coil or the like.

[0141] Ideally, the hair styling apparatus comprising a heat control means.

[0142] Ideally, the heat control means controls the temperature to which the heating means heats the one or more styling surfaces and/or the clamp.

[0143] Ideally, the heat control means enables the heating means to independently or simultaneously heat the respective outer and interior styling surfaces and the elongate plate of the clamp to an operating temperature between 160°C - 250°C.

[0144] Ideally, the heat control means enables the heating means to independently or simultaneously heat the respective outer and interior styling surfaces and the elongate plate of the clamp to an operating temperature between 170°C - 240°C.

[0145] The hair styling apparatus comprising mode selection means.

[0146] The mode selection means comprising means for determining which of the three heatable styling surfaces are to be heated.

[0147] Ideally, in one position, the mode selecting means enables the outer styling surface to be heated.

[0148] Ideally, in another position, the mode selecting means enables the first styling part of the first elongate arm to be heated.

[0149] Ideally, in another position, the mode selecting means enables the first styling part of the second elongate arm to be heated.

[0150] Ideally, in one position, the mode selecting means enables the first styling parts of the first and second elongate arms to be heated.

[0151] Ideally, in one position, the mode selecting means enables the outer styling surface and the elongate plate of the clamp to be heated.

[0152] Ideally, in another position, the mode selecting means enables the first styling part of the first elongate arm and the elongate plate of the clamp to be heated.

[0153] Ideally, in another position, the mode selecting means enables the first styling part of the second elongate arm and the elongate plate of the clamp to be heated.

[0154] Ideally, in one position, the mode selecting means enables the first styling parts of the first and second elongate arms and the elongate plate of the clamp to be heated.

[0155] Ideally, in one position, the mode selecting means enables one or both of the interior styling surfaces to be heated.

[0156] Ideally, in another position, the mode selecting means enables the second styling part of the first elongate arm to be heated.

[0157] Ideally, in another position, the mode selecting means enables the second styling part of the second elongate arm to be heated.

[0158] Ideally, in one position, the mode selecting means enables the second styling parts of the first and second elongate arms to be heated.

[0159] Preferably, the handle extending from the styling part to an end of the hair styling apparatus.

[0160] Ideally, the handle extending from the styling part to the end of the hair styling apparatus distal to the styling part of the hair styling apparatus.

[0161] Ideally, the handle is made from a thermally insulative material.

[0162] Ideally, the actuating means is made from a thermally insulative material.

[0163] Ideally, the thermally insulative material is a plastic or composite thermally insulative material.

[0164] Preferably, the hair styling apparatus, most preferably the power means comprising at least one battery.

[0165] Ideally, the at least one battery powers the heating means and the heat control means of the hair styling apparatus.

[0166] Ideally, the at least one battery is rechargeable.

[0167] Preferably, the hair styling apparatus, most preferably the power means, comprising charging means.

[0168] Preferably, the charging means comprising at least one charging port.

[0169] Preferably, the charging means comprising at least one charging adapter.

[0170] By charging adapter we mean any apparatus that is capable of transferring charge from an external power source to the battery of the hair styling apparatus via the charging port.

[0171] Ideally, the charging port is capable of receiving the charging means to charge the battery from a power source.

[0172] Ideally, the hair styling apparatus comprises an elongate component biasing means for biasing the elongate components apart.

[0173] Ideally, the hair styling apparatus comprises an elongate component biasing means for biasing the first elongate arm and the second elongate arm apart.

[0174] Ideally, the elongate component biasing means is located at or near, or forms a part of, the joint between first elongate arm and second elongate arm.

[0175] Advantageously, in use, the user can press the two elongate arms together against the biasing force of the biasing means. When the user releases the arms, the elongate component biasing means forces the arms apart, releasing any hair from between the two elongate arms.

[0176] Ideally, the elongate component biasing means comprises a spring, most preferably a torsion spring.

[0177] Ideally, the hair styling apparatus comprises a lock operable to lock the elongate components together.

[0178] Preferably, the lock is operable to lock the elongate components together against the force of the elongate component biasing means.

[0179] Preferably, the lock is operable to lock the first and second elongate arms together.

[0180] Advantageously, when the lock is activated it

retains the two elongate arms together and the hair styling apparatus can easily be used as a curling wand.

[0181] In one embodiment, the lock is located proximal the joint.

[0182] Ideally, the lock is located at or about handles.

[0183] Preferably, the lock is located at or about and portion of the handles distal the styling parts.

[0184] Alternatively, the lock is located along one longitudinal side of handles.

[0185] Ideally, the lock is located approximately half way along the elongate components.

[0186] Advantageously, when operated, the location of the lock being along the longitudinal side of the hair styling apparatus provides a more secure lock than a lock located at either end portion the apparatus.

[0187] Preferably, the elongate components comprise a recess for accommodating the lock.

[0188] Ideally, the lock protrudes from the elongate components such that it is engageable by a user.

[0189] Preferably, the lock and an elongate component being arranged such that the lock can be recessed into an elongate component when the elongate components are moved apart.

[0190] Ideally, the lock comprising a catch moveable between an unlocking to a locked position.

[0191] Ideally, the lock comprising a button, most preferably, a slide button operably engaged with the catch to move the catch between the unlocking and locking positions.

[0192] Preferably, in the unlocked position the catch is located in a recess and in the locked position the catch is extending from the recess.

[0193] Ideally, the lock is operably engaged with the mode selecting means such that operating the lock also operates the mode selecting means.

[0194] Preferably, the lock button and the mode selecting means are formed as a unitary component.

[0195] Preferably, when the lock is in the unlocked position, the mode selecting means enables the first styling part of the first elongate arm and/or the second elongate arm to be heated.

[0196] Ideally, when the lock is in the locked position, the mode selecting means enables the outer styling surface the be heated,

[0197] Preferably, when the lock is in the locked position, the mode selecting means enables at least part of the clamp to be heated.

[0198] The invention will now be described with reference to the accompanying drawing which shows by way of example only three embodiments of an apparatus in accordance with the invention.

Fig 1 shows a perspective view of a first embodiment of the hair styling apparatus from one side;

Fig 2 shows a perspective view of the hair styling apparatus from the other side;

Fig 3 shows a side plan view of the hair styling apparatus with the clamp in the extended position;

Fig 4 shows a perspective view of the hair styling apparatus from one side with the first and second elongate arms in the extended position and the clamp in the closed position;

Fig 5 shows a perspective view of the hair styling apparatus from the other side with the first and second elongate arms in the extended position and the clamp in the closed position;

Fig 6 shows a side plan view of the hair styling apparatus with the first and second elongate arms in the extended position and the clamp in the closed position;

Fig 7 shows a side plan view of the hair styling apparatus with the first and second elongate arms in the extended position and the clamp in the extended position;

Fig 8 shows a perspective view of the hair styling apparatus with the first and second elongate arms in the extended position and the clamp in the extended position;

Fig 9 shows a side elevation view of a second embodiment of a hair styling apparatus according to the invention;

Fig 10 shows top elevation view of the second embodiment of the hair styling apparatus;

Fig 11 shows a rear elevation view of the second embodiment of the hair styling apparatus;

Fig 12 shows a side perspective view of the second embodiment of the hair styling apparatus;

Fig 13 shows an alternative side perspective view of the second embodiment of the hair styling apparatus;

Fig 14 shows a side perspective view of the second embodiment of the hair styling apparatus wherein the clamp is in the extended position;

Fig 15 shows an alternative side perspective view of the second embodiment of the hair styling apparatus wherein the clamp is in the extended position;

Fig 16 shows a side perspective view of the second embodiment of the hair styling apparatus wherein the first and second elongate arms are in the extended position and the clamp is in the closed position;

Fig 17 shows an alternative side perspective view of the second embodiment of the hair styling apparatus wherein the first and second elongate arms are in the extended position and the clamp is in the closed position;

Fig 18 shows a side perspective view of the second embodiment of the hair styling apparatus wherein the first and second elongate arms are in the extended position and the clamp is in the extended position;

Fig 19 shows an alternative side perspective view of the second embodiment of the hair styling apparatus wherein the first and second elongate arms are in the extended position and the clamp is in the extended position;

Fig 20 shows a rear perspective view of a third embodiment of a hair styling apparatus according to the invention; the apparatus has a lock which is in the

unlocked position;

Fig 21 shows an expanded side elevation view of the hair styling apparatus illustrated in Fig 20;

Fig 22 shows an alternative rear perspective view of the hair styling apparatus of Figure 20 showing the lock in the locked position;

Fig 23 shows an expanded side elevation view of the hair styling apparatus shown in Fig 22.

[0199] In Figures 1 to 8 there is shown a first embodiment of a hair styling apparatus indicated generally by the reference numeral 1 having a plurality of styling modes for styling hair in a variety of fashions. The apparatus 1 has two elongate components 2 pivotally coupled about a joint 3. The joint 3 connects the two elongate components 2 about their ends and the joint is a hinge joint 3. The two elongate components 2 are pivotally movable about the joint 3 between an extended and closed position. Each elongate component 2 has a styling part 4, 5 and a handle 6. A clamp 7 is coupled to one of the two elongate components 2. The clamp 7 is movable between a first open position see Figures 1-3 and 7 and 8 and a second closed position see figures 4-6. The apparatus has a mode control arrangement 9, a temperature control arrangement 10 and a power supply not shown. The power supply is housed within one or both elongate arms 2.

[0200] The elongate components 2 are generally of similar size and dimension. The styling parts 4, 5 are located along a portion of the elongate components 2 proximal to one end of the elongate components 2 distal to the joint 3. The handles 6 are located along a portion of the elongate components 2 proximal to the joint 3. The handles 6 are located along a portion of the elongate components 2 proximal the opposite end of the elongate components 2 to the styling parts 4, 5. The styling parts 4, 5 are located along approximately half of the length of the elongate components 2 from the centre to one end of the elongate components distal to the joint 3. The styling parts 4, 5 are located along approximately a half of the length of the elongate components 2 from the centre to the opposite end of the elongate components 2 to the handles 6. The two elongate components 2 comprises a first elongate arm 21 and a second elongate arm 22. The first elongate arm 21 has a first styling part 4 and a second styling part 5. The first elongate arm 21 has a handle 6. The second elongate arm 22 has a first styling part 4 and a second styling part 5 and a handle 6. The first styling part 4 of the first elongate arm 21 is correspondingly located to the first styling part 4 of the second elongate arm 22 and the second styling part 5 of the first elongate arm 21 is correspondingly located to the second styling part 5 of the second elongate arm 22. The handle 6 of the first elongate arm 21 is correspondingly located to the handle 6 of the second elongate arm 21.

[0201] By correspondingly located we mean that the respective styling parts 4 and 5 and handles 6 are located along the respective elongate components 2 in a manner so as to mirror the location of the respective styling parts 4 and 5 and handles 6 in the other elongate component 2 allowing each respective styling part and 5 and handle 6 to co-operate with its counterpart in use.

[0202] The first styling part 4 of the first elongate arm 21 is an exterior surface. By exterior surface we mean the outer facing surface 4 of each respective elongate arm 21, 22 relative to the other elongate arm 21, 22 of the hair styling apparatus 1 when the first and second elongate arms 21, 22 are pivotally coupled together about hinge/joint 3 in the closed position see Figures 1 to 3. The first styling part 4 of the second elongate arm 22 also is an exterior surface. The first styling part 4 of the first elongate arm 21 and the first styling part 4 of the second elongate arm 22 combine when pivotally engaged into the closed position about hinge/joint 3 to comprise an outer styling surface. By outer styling surface we mean the combined outer surface of the exterior surfaces of the first and second elongate arms 21, 22 in combination, i.e. the styling parts 4 that do not come into contact with the other elongate arm 21, 22, when the first and second elongate arms 21, 22 pivotally engage with each other into the closed position about hinge/joint 3. By pivotal engagement we mean that each of the elongate arms 2 move about their connecting pivot 3 towards each other to the extent that their mutually opposing inside faces 5 engage on application of force by the user.

[0203] The outer styling surface comprising the first styling part 4 of the first elongate arm 21 and the first styling part 4 of the second elongate arm 22. The outer styling surface comprising the first styling part 4 of the first elongate arm 21 and the first styling part 4 of the second elongate arm 22 when the respective elongate arms are pivotally engaged into the closed position about hinge/joint 3.

[0204] The cross sectional area of the styling part 4 tapers along its length. The cross sectional area of the styling part 4 tapers along its length to a location at one end of the hair styling apparatus 1 distal to the hinge/joint 3. The cross sectional area of the styling part 4 tapers along its length to a location at one end of the hair styling apparatus distal to the hinge/joint 3 when the first elongate arm 21 and the second elongate arm 22 are pivotally engaged into the closed position about hinge/joint 3. The cross sectional area of the outer styling surface tapers along its length. The cross sectional area of the outer styling surface tapers along the length of the hair styling apparatus 1 to a location at one end of the hair styling apparatus 1 distal to hinge/joint 3. The cross sectional area of the outer styling surface tapers along the length of the hair styling apparatus 1 to a location at one end of the hair styling apparatus 1 distal to hinge/joint 3 when the first elongate arm 21 and the second elongate arm 22 are pivotally engaged into the closed position about hinge/joint 3.

[0205] The first styling part 4 of the first elongate arm 21 is hemi-conical. The first styling part 4 of the second elongate arm 22 is also hemi-conical. The outer styling

surface is generally conical in shape. Advantageously, by having the first styling part 4 of the first and second arms 21, 22 being hemi-conical means that they combine to form a conical shape when the first and second arms 21, 22 are in engagement with each other. The conical outer styling surface provides the ability for a user to produce diametrically decreasing or increasing curls for their hair as required. The first styling part 4 of the first elongate arm 21 is hemi - frustoconical and the first styling part 4 of the second elongate arm 22 is hemi-frustoconical. The first styling part 4 of the first and second elongate arms 21, 22 are hemi-frustoconical forming a generally conically shaped outer styling surface of the hair styling apparatus 1 when brought into engagement with one another about hinge/joint 3.

[0206] Advantageously, by having the first styling part 4 of the first and second arms 21, 22 being hemi-frustoconical means that they combine to form a frustoconical shape when the first and second arms 21, 22 are in engagement with each other and the outer styling surface provides the ability for a user to produce diametrically decreasing or increasing curls for their hair as required.

[0207] The first styling part 4 is a styling plate 4. The first styling part 4 is a hemi-conical styling plate 4. The first styling part 4 is a hemi-frustoconical styling plate 4 mounted on the outer surface of the second elongate arm 22.

[0208] The first elongate arm 21 of the hair styling apparatus 1 has a second styling part 5 and the second elongate arm 22 of the hair styling apparatus 1 also has a second styling part 5. Both the first elongate arm 21 and second elongate arm 22 of the hair styling apparatus have the same second styling part 5. The second styling part 5 of both elongate arms 21, 22 of the hair styling apparatus 1 have an interior styling surface 25. The interior styling surface 25 of both elongate arms 21, 22 are provided by the respective interior surface of the styling part 5 of both of the elongate arms 21, 22. By interior surface we mean the mutually opposing faces of the elongate arms 21, 22 that are brought into engagement when the elongate arms 21, 22 of the hair styling apparatus 1 are pivoted towards each other into the closed position about hinge/joint 3. The interior styling surface 25 of the first elongate arm 21 corresponds in shape with the interior styling surface 25 of the second elongate arm 22.

[0209] Advantageously, by corresponding in shape the interior surfaces of the first and second elongate arms 21, 22 can clamp and hold a user's hair when positioning the hair between the two elongate arms 21, 22 as they are pivoted towards each other until the portion of hair is held between the respective arms 21, 22 of the hair styling apparatus 1. Further advantageously, this can lead to the user obtaining any one of multiple styles depending on the shape/profile of the second styling parts 5 of the elongate arms 21, 22. These include but are not limited to straight hair, wavy hair.

[0210] In the embodiments shown in the drawings, the interior styling surface 25 are provided by substantially flat plates 25. In alternative embodiments not shown in the drawings, the interior styling surface 25 can have an undulating plate or a shaped plate so as to style a user's hair in a style commensurate with the shape of the plate.

[0211] The width of the interior styling surface plates 25 tapers proportionately to the width of the first and second elongate arms respectively.

[0212] The hair styling apparatus 1 also has a clamp 7. The clamp 7 has an actuating lever 31 and an elongate curved plate 32. The actuating lever 31 extends at an acute angle from the hair styling apparatus 1 and the actuating lever 31 extends at an obtuse angle from the curved plate 32. The clamp 7 couples to the hair styling apparatus 1 at the junction between the actuating lever 31 and the curved plate 32. The clamp 7 couples to the hair styling apparatus 1 proximal to the outer styling surface of the hair styling apparatus 1. In the embodiment shown, the clamp 7 couples to the second elongate arm 22 of the hair styling apparatus 1 proximal to the end of the first styling part 4 along the length of the second elongate arm 22. The clamp 7 is pivotally attached to the hair styling apparatus 1 at the junction between the actuating lever 31 and the curved plate 32. The clamp 7 is pivotally attached to the hair styling apparatus 1 proximal to the outer styling surface of the hair styling apparatus 1. The clamp 7 is pivotally attached to the second elongate arm 22 of the hair styling apparatus 1 proximal to the end of the first styling part 4 along the length of the second elongate arm 22. The clamp 7 is pivotally attached to the second elongate arm 22 of the hair styling apparatus 1 proximal to the end of the respective first styling part 4 of the elongate arm 22 closest to the handle 6 of the hair styling apparatus 1.

[0213] The elongate plate 32 corresponds in shape to the outer styling surface of the hair styling apparatus 1. The elongate plate 32 of the clamp 7 corresponds in shape to the first styling part 4 of both elongate arms 21, 22. The internal face of the elongate plate 32 of the clamp 7 corresponds in shape to the first styling part 4 of the first and second elongate arms 21, 22. The elongate plate 32 corresponds in length to the length of the outer styling surface and to the length of the first styling part 4 of both elongate arms 21, 22. The elongate plate 32 corresponds or is slightly shorter in length to the length of the outer styling surface and is slightly shorter in length to the first styling part 4 of both elongate arms. The elongate plate 32 is a hemi-frustoconcial plate. The clamp 7 is normally biased towards the elongate arm 22 of the hair styling apparatus 1 via a biasing arrangement such as a spring, not shown. Alternatively, the clamp 7 is normally biased away from the elongate arm 22 of the hair styling apparatus 1 via a biasing arrangement.

[0214] Advantageously, the clamp 7, being of similar shape and length to the first styling part of the first or second styling arms respectively, co-operates with a portion of the outer styling surface to apply pressure to a user's hair that has been inserted between the internal facing surface of the elongate plate 32 of the clamp 7

and the outer styling surface of the hair styling apparatus 1. Inserting the hair between these two elements of the hair styling apparatus 1 involves applying pressure to the actuating lever 31 to pivot the elongate plate 32 away from the outer styling surface, placing or wrapping the hair around the outer hair styling surface at a desired location along the outer styling surface, and releasing the actuating lever 31 to allow the elongate plate 32 of the clamp 7 to be biased back towards the outer styling surface clamping the hair between the outer styling surface and the elongate plate 32 of the clamp 7.

[0215] The outer styling surface is heatable. By heatable we mean that these respective parts are capable of conducting heat up to the maximum of a pre-determined temperature range. The first styling part 4 of one or both elongate arms 21, 22 are heatable. The outer styling surface is made from a heat conductive material. The first styling part 4 of one or both elongate arms 21 ,22 is made from a heat conductive material. The first styling part 4 of the first and second elongate arms are made from a heat conductive material. The interior styling surfaces 25 are heatable. The second styling part 5 of one or both elongate arms 21, 22 are heatable. The second styling part of one or both elongate arms are made from a heat conductive material. At least part of the clamp 7 is heatable. The elongate plate 32 of the clamp 7 is heatable. At least part of the clamp 7 is made from a heat conductive material. The elongate plate 32 of the clamp 7 is made from a heat conductive material. The heat conductive material is a composite material or the heat conductive material is a metal, or metal alloy. The heat conductive material is copper, or titanium, or any other suitable material. The outer and/or interior styling surfaces and/or the elongate clamp 7 are heated by a heating arrangement. The heating arrangement comprises an electrical heating element not shown.

[0216] The heating arrangement has an internal electrical heating element such as a coil or the like. The hair styling apparatus 1 has a heat control arrangement 41. The heat control arrangement controls the temperature to which the heating arrangement heats the one or more styling surfaces and/or the clamp 7. The heat control arrangement 41 enables the heating arrangement to independently heat the respective outer and interior styling surfaces and the elongate plate 32 of the clamp 7 to an operating temperature between 160°C - 250°C and more preferably to an operating temperature between 170°C - 240°C.

[0217] The hair styling apparatus comprising a mode selection arrangement 42. The mode selection arrangement 42 has means for determining which of the three heatable styling surfaces are to be heated. In one position, the mode selecting arrangement 42 enables the outer styling surface to be heated. In another position, the mode selecting arrangement 42 enables one or both of the interior styling surfaces 5, 25 to be heated. The clamp 7 heats via conduction from the heating of the outer styling surface.

[0218] The handle 6 extends from the styling part to the other end of the hair styling apparatus 1 proximal to the hinge/joint 3. The handle 6 extending from the styling part to the end of the hair styling apparatus 1 distal to the styling part of the hair styling apparatus. The handle 6 is made from a thermally insulative material. The actuating lever 31 is made from a thermally insulative material. The thermally insulative material is a plastic or composite thermally insulative material.

[0219] The hair styling apparatus 1 has at least one battery. The at least one battery powers the heating arrangement and the heat control arrangement of the hair styling apparatus 1. The at least one battery is rechargeable. The hair styling apparatus 1 has a charging means. The charging means comprising at least one charging port and at least one charging adapter. By charging adapter we mean any apparatus that is capable of transferring charge from an external power source to the battery of the hair styling apparatus via the charging port. The charging port is capable of receiving the charging means to charge the battery from a power source.

[0220] In Figures 9 to 19 there is shown a second embodiment of a hair styling apparatus according to the invention indicated generally by reference numeral 101. The hair styling apparatus 101 has a first elongate arm 121 and a second elongate arm 122. The first and second elongate arms 121, 122 are pivotally connected via a hinge joint 3. Each elongate arm 121, 122 has a first styling part 104, a second styling part 105 and a handle 106. The first styling parts 104 of each elongate arm 121, 122 are mutually opposing and arranged to close together as shown in Figs 9 to 15. The second styling parts 105 of each elongate arm 121, 122 form an outer styling surface. The hinge joint 103 is located between the handles 106 of each elongate arm 121, 122, proximal the end of the handle distal to the styling parts 104, 105. When the elongate arms 121, 122 are pivoted about the hinge joint 103, the handles 106 and styling parts 104 of each elongate arm 121, 122 are moved apart. The hair styling apparatus 101 further has a clamp 107 pivotally arranged on the second styling part 105 of the second elongate arm 122. For each elongate arm 121, 122, the handles 106 have a raised protrusion 150 that extends around the perimeter of the handle 106.

[0221] The actuator 131 of the clamp 107 of the second embodiment is formed as a button 151 protruding from the surface of the second elongate arm 122. The button 151 is centrally located along, and extends through, the raised protrusion 150. The button 151 has a first engagement portion 152 that is coplanar with a part of the elongate plate 132 of the clamp 107, and a second engagement portion 153 that extends at an obtuse angle form the first engagement portion 152. Second engagement portion 153 is located between the first engagement portion 152 and the elongate plate 132 of the clamp 107. This creates a dip between the first and second engagement portions 152, 153 sized to receive a thumb of a user. The button 151 is arranged with the elongate plate

132 such that pressing the coplanar first engagement portion 152 downwards, i.e., towards the handle 106, causes the elongate plate 132 to move away from the styling part 105, pivoting at a location between the handle 106 and the styling part 105.

[0222] The hair styling apparatus 101 further has a charging port 155 that can receive a charger lead for charging the rechargeable battery (not shown). The hair styling apparatus 101 further has an on/off switch 156 and a series of four electronic lights 157 that are operable to indicate the charge level of the rechargeable battery. The on/off switch 156 and the four electronic lights 157 are arranged on the second elongate arm 122 proximal the button 151 for operating the clamp 107.

[0223] The hinge joint 103 has a torsion spring (not shown) for biasing the first elongate arm 121 and the second elongate arm 122 apart. The hair styling apparatus 101 further has a lock switch 160 located proximal to the torsion spring and behind the hinge joint 103. The lock switch 160 can be operated to lock the first elongate arm 121 to the second elongate arm 122 against the force of the torsion spring. This enables the user to operable the hair styling apparatus 101 as a curling wand without the two elongate arms 121, 122 moving apart undesirably.

[0224] In use, to press the user's hair between the first elongate arm 121 and the second elongate arm 122, the user places their hair in contact with the first styling part 104 between the two arms 121, 122 and, using the handles 106, moves the arms 121, 122 towards each other against the biasing force of the torsion spring. The user holds the arms 121, 122 together for a desired length of time. On release, the torsion spring moves the elongate arms 121, 122 apart and releases the hair. The user can then repeat this action for different portions of their hair to produce a desired style.

[0225] To use the hair styling apparatus 101 as a curling device, the user moves the two elongate arms 121, 122 together and operates the lock switch 160 to lock the arms together. Next, the user can operate the button 151 to raise the clamp 107 away from the second styling surface 105 of the second elongate arm 122. The user can then wrap their hair around the hemi-frustoconical second styling surface 105 and can operate the button 151 to move the clamp down against the user's hair and the second styling surface 105 and hold for a desired time. The user can then operate the button 151 again to release their hair and can repeat the action for different sections of their hair until the desired style is achieved. Alternatively, if it is desired to have a larger curl than that offered by the outer styling surface alone. The user can simply wrap their hair around all of the styling part of the device, including the clamp 107, when the clamp 107 is abutting the outer styling surface.

[0226] In the drawings in Figs 20 to 23 there is shown a third embodiment of a hair styling apparatus according to the invention illustrated generally by reference numeral 201. The lock 260 of the apparatus 201 is located along the length of the handle 206 of the hair styling apparatus 201 and is operable from a slide button 270 located on the first elongate arm 221. The first elongate arm 221 has a recess 271 which houses a catch 272. The catch 272 is operably engaged with the slide button 270 and pivots out of the recess 271 when the button 270 is moved towards the styling part 204. There is a corresponding recess (not shown) located on the second elongate arm 222 for receiving the catch 272 thereby locking the arms 221, 222 together. The catch 272 is hook-shaped and the corresponding recess is shaped to receive the hook. It will be apparent that any suitable releasable locking mechanism may be used and is within the scope of the invention. The lock 260 is a rack and pinion mechanism (not shown). The slide button 270 is engaged with the pinion and correspondingly moves the pinion when it is slid along the handle 206. The catch 272 is engaged with the pinion is rotated out of the recess 271 by the rack when moved. To unlock the arms 221, 222, the user can slide the button 270 away from the styling part 204. The catch 272 retreats into the recess 271 and releases the arms 221, 222.

[0227] In relation to the detailed description of the different embodiments of the invention, it will be understood that one or more technical features of one embodiment can be used in combination with one or more technical features of any other embodiment where the transferred use of the one or more technical features would be immediately apparent to a person of ordinary skill in the art to carry out a similar function in a similar way on the other embodiment.

[0228] In the preceding discussion of the invention, unless stated to the contrary, the disclosure of alternative values for the upper or lower limit of the permitted range of a parameter, coupled with an indication that one of the said values is more highly preferred than the other, is to be construed as an implied statement that each intermediate value of said parameter, lying between the more preferred and the less preferred of said alternatives, is itself preferred to said less preferred value and also to each value lying between said less preferred value and said intermediate value.

[0229] The features disclosed in the foregoing description or the following drawings, expressed in their specific forms or in terms of a means for performing a disclosed function, or a method or a process of attaining the disclosed result, as appropriate, may separately, or in any combination of such features be utilised for realising the invention in diverse forms thereof.

Claims

1. A hair styling apparatus (1, 101, 201) having a plurality of modes for styling hair in a variety of fashions comprising:

at least two elongate components (2) compris-

ing a first and second elongate arm (21, 22, 121, 122, 221, 222) pivotally coupled about a joint (3, 103), the at least two elongate components (2) pivotally movable about the joint (3, 103) between an extended and closed position;
each elongate component (2) comprising a styling part (4, 5, 104, 105, 204) and a handle (6, 106, 206), wherein the styling parts (4, 5, 104, 105, 204) are locatable along a portion of the elongate components (2) proximal to one end of the elongate components (2) and wherein the handles (6, 106, 206) are locatable along a portion of the elongate components (2) proximal the opposite end of the elongate components (2) to the styling parts (4, 5, 104, 105, 204), wherein the joint (3, 103) between the at least two elongate components (2) is located proximal to the ends of the handles (6, 106, 206) distal to the styling parts (4, 5, 104, 105, 204);
the hair styling apparatus (1, 101, 201) further comprising a clamp (7, 107) being coupled to one of the at least two elongate components (2), the clamp (7, 107) being movable between a first open position and a second closed position when the clamp (7, 107) is coupled to the elongate component (2);
and a power means;
wherein the hair styling apparatus comprising an interior styling surface (25), a first styling part (4, 104, 204) of the first elongate arm (21, 121, 221) and a first styling part (4, 104, 204) of the second elongate arm (22, 122, 222) combine when pivotally engaged into the closed position to comprise an outer styling surface, the hair styling apparatus comprising a heating means, the power means being operably engaged with the heating means the outer and interior styling surfaces and the clamp are heated by the heating means, the hair styling apparatus comprising mode selection means (42), the mode selection means (42) comprising means for determining which of the interior styling surface, the outer styling surface and the clamp are to be heated.

2. A hair styling apparatus (1, 101, 201) as claimed in claim 1 wherein the first elongate arm (21, 121, 221) and the second elongate arm (22, 122, 222) each comprise the first styling part (4, 104, 204), a second styling part (5, 105) and a handle (6, 106, 206), and wherein the first styling part (4, 104, 204) of the first elongate arm (21, 121, 221) is correspondingly located to the first styling part (4, 104, 204) of the second elongate arm (22, 122, 222), the second styling part (5, 105) of the first elongate arm (21, 121, 221) is correspondingly located to the second styling part (5, 105) of the second elongate arm (22, 122, 222) and the handle (6, 106) of the first elongate arm (21, 121, 221) is correspondingly located to the handle (6, 106, 206) of the second elongate arm (22, 122, 222).

3. A hair styling apparatus (1, 101, 201) as claimed in claim 1 or claim 2 wherein the cross-sectional area of the styling part (4, 5, 104, 105, 204) tapers along the entirety of its length and the outer styling surface is generally conical in shape.

4. A hair styling apparatus (1, 101, 201) as claimed in claim 3 wherein the first styling part (4, 104, 204) of the first (21, 121, 221) and second (22, 122, 222) elongate arms are hemi-conical forming a generally conically shaped outer styling surface of the hair styling apparatus (1, 101, 201) when brought into engagement with one another.

5. A hair styling apparatus (1, 101, 201) as claimed in any one of the preceding claims the interior styling surface (5, 25) being defined by opposing surfaces of the at least two elongate components (21, 22, 121, 122, 221, 222).

6. A hair styling apparatus (1, 101, 201) as claimed in claim 3 wherein the interior styling surface (5, 25) comprises plates (25) the width of which tapers proportionately to the width of the first styling part (4, 104, 204) along the length of the first (21, 121, 221) and second (22, 122, 222) elongate arms respectively.

7. A hair styling apparatus (1, 101, 201) as claimed any one of the preceding claims , wherein the clamp (7, 107) comprises an actuating lever (31) and a curved plate (32) and wherein the clamp (7, 107) is pivotally attached to at least one of the at least two elongate arms (21, 22, 121, 122, 221, 222) of the hair styling apparatus (1, 101, 201) proximal to the respective first styling parts (4, 104, 204).

8. A hair styling apparatus (1, 101, 201) as claimed in any one of the preceding claims wherein the clamp (7, 107) comprises an elongate plate (32), the elongate plate (32) corresponding in shape and length to the outer styling surface of the hair styling apparatus (1, 101, 201).

9. A hair styling apparatus (1, 101, 201) as claimed in any one of the preceding claims wherein the hair styling apparatus (1, 101, 201) further comprising a heat control means (41), the heat control means (41) controlling the temperature to which the heating means heats the outer styling surface, interior styling surface and/or at least part of the clamp (7, 107).

10. A hair styling apparatus (1, 101, 201) as claimed in any preceding claim, the hair styling apparatus (1, 101, 201) comprising a safety means (150) to pre-

vent the user's hand from moving from the handle (6, 106, 206) to the styling part (4, 104, 204, 5, 105, 205) in use.

11. A hair styling apparatus (1, 101, 201) as claimed in any preceding claim, the hair styling apparatus (1, 101, 201) comprising a lock (160, 260) operable to lock the elongate components (21, 22, 121, 122, 221, 222) together.

12. A hair styling apparatus (1, 101, 201) as claimed in claim 11 wherein the lock (160, 260) is operably engaged with the mode selection means (42) such that operating the lock (160, 260) also operates the mode selection means (42).

13. A hair styling apparatus (1, 101, 201) as claimed in claim 11 or 12 wherein the lock (160 260) comprises a lock button (270) and wherein the lock button (270) and the mode selection means (42) are formed as a unitary component.

14. A hair styling apparatus (1, 101, 201) as claimed in claim 12 wherein when the lock (160, 260) is in the unlocked position, the mode selecting means (42) enables the first styling part (4, 104, 204) of the first elongate arm (21, 121, 221) and/or the second elongate arm (22, 122, 222) to be heated and/or wherein when the lock (160, 260) is in the locked position, the mode selecting means (42) enables the outer styling surface to be heated.

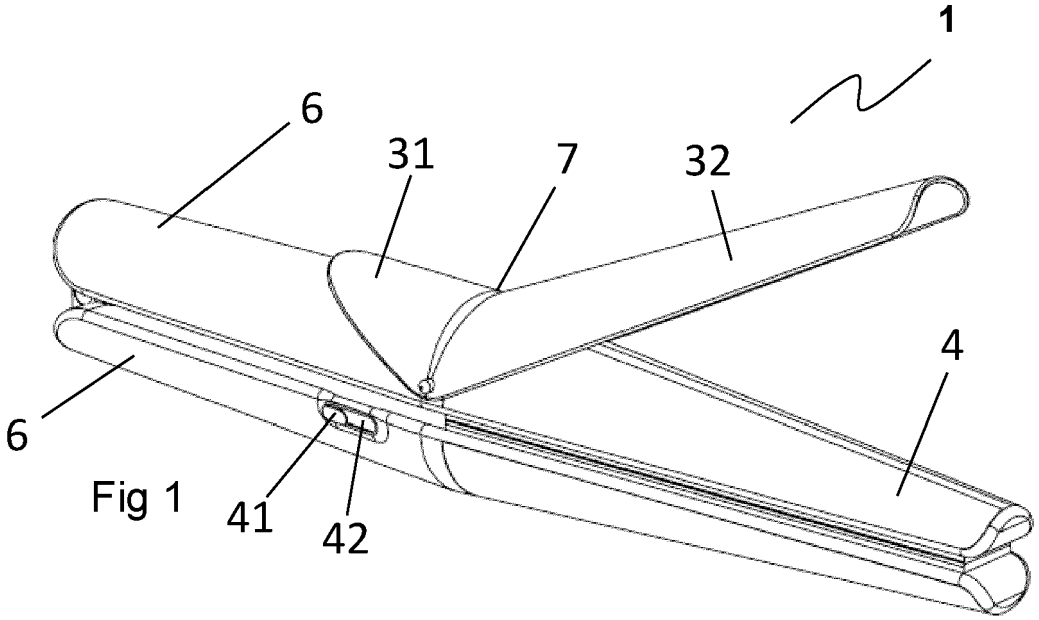


Fig 1

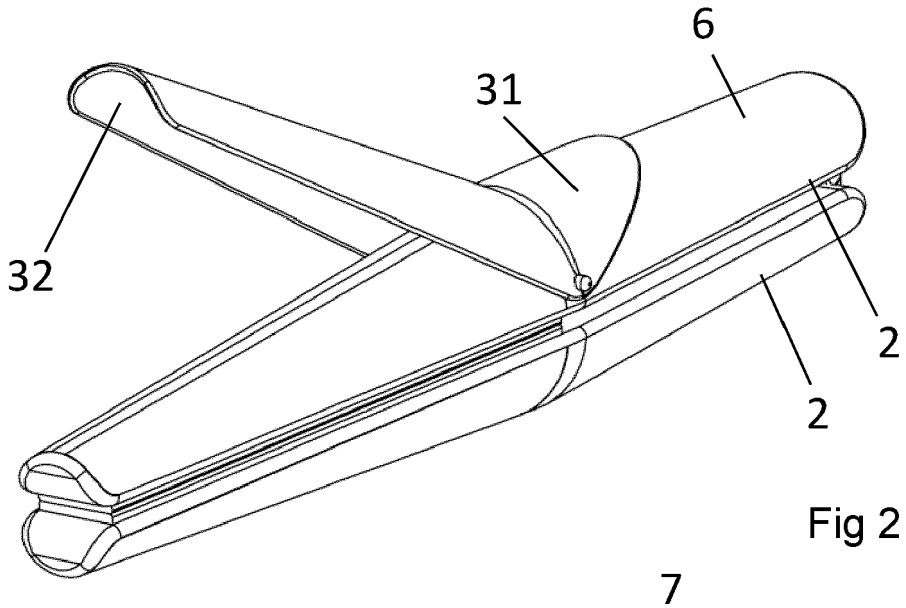


Fig 2

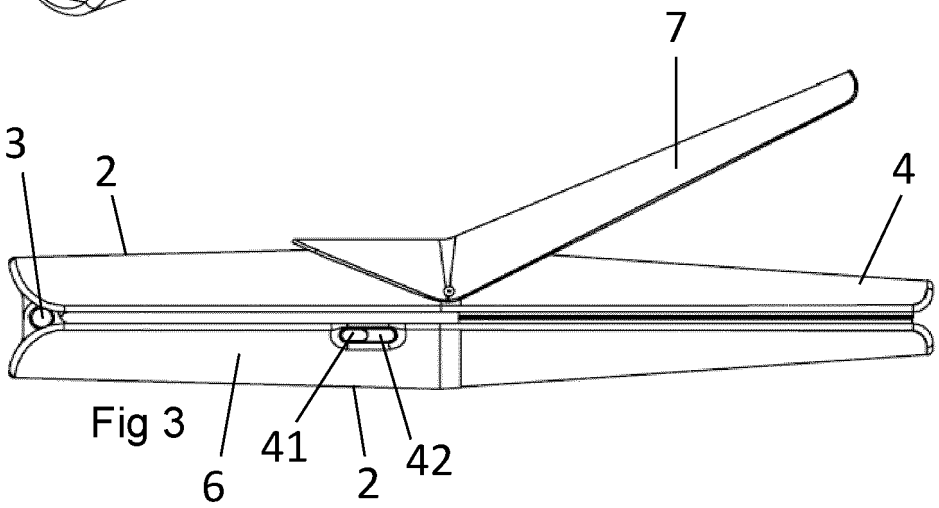


Fig 3

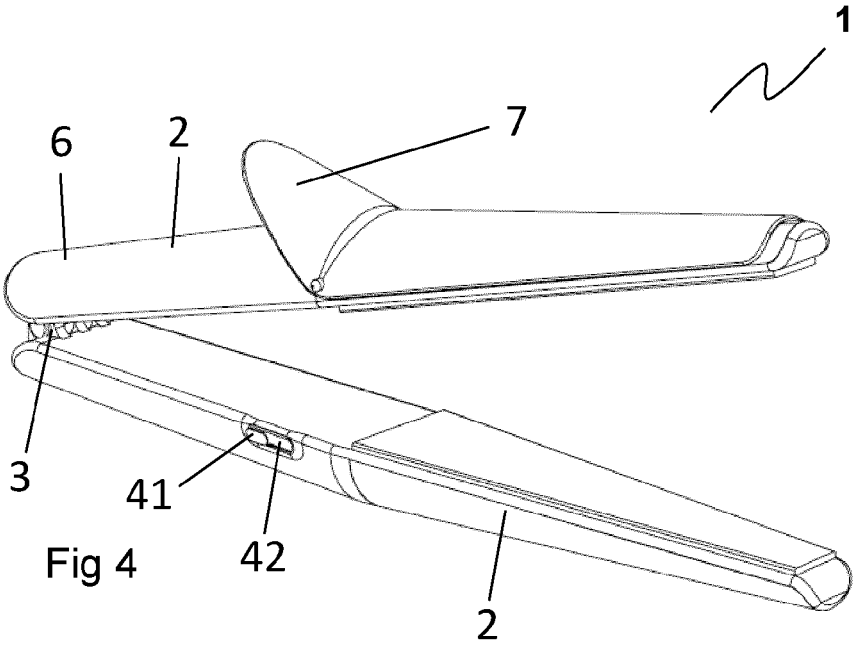
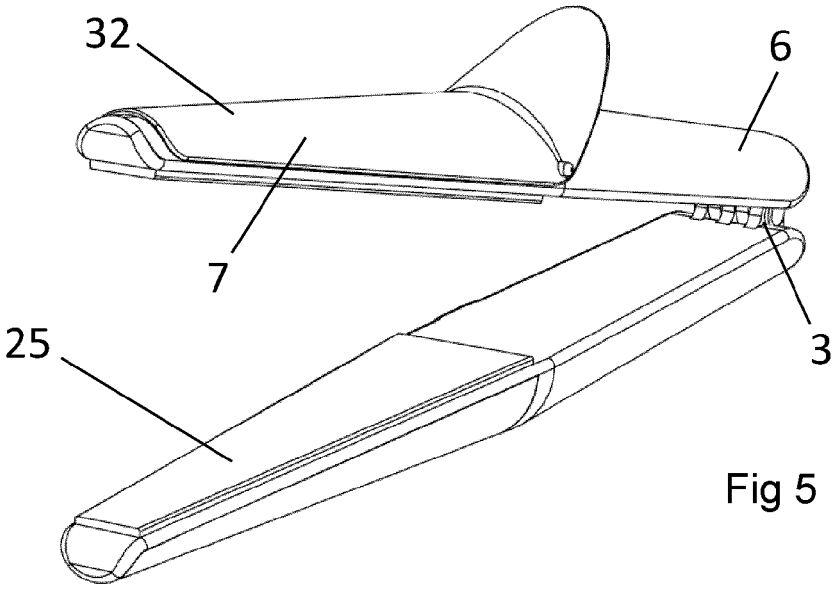


Fig 4



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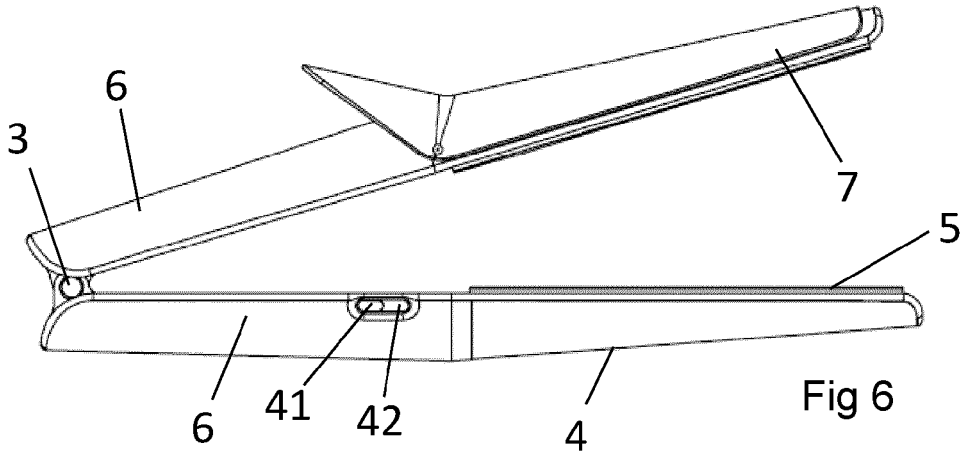


Fig 6

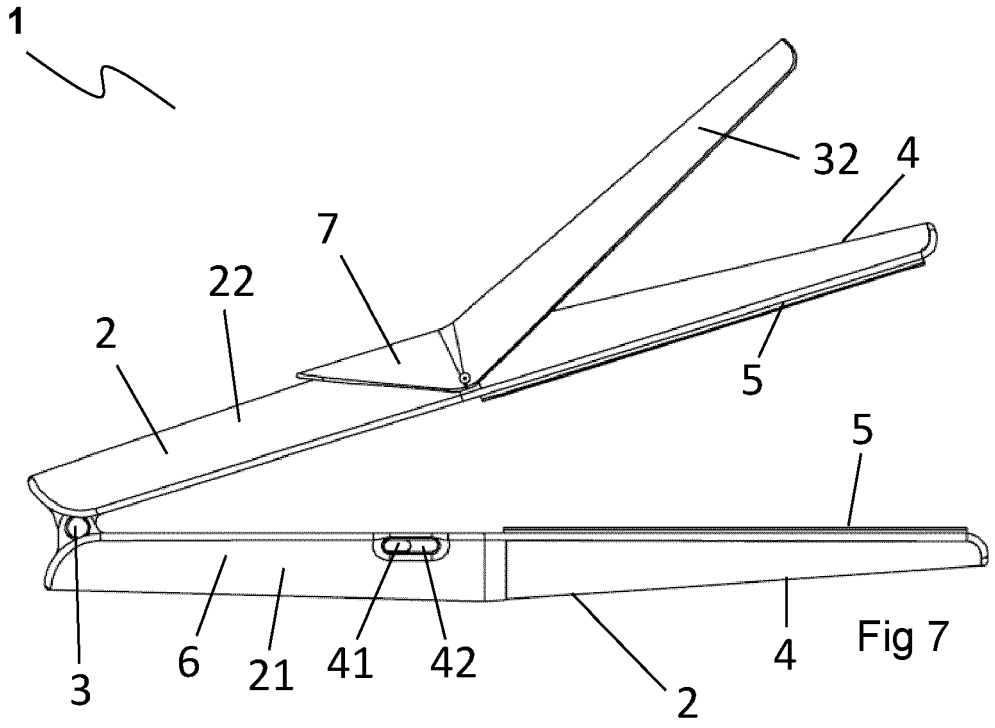


Fig 7

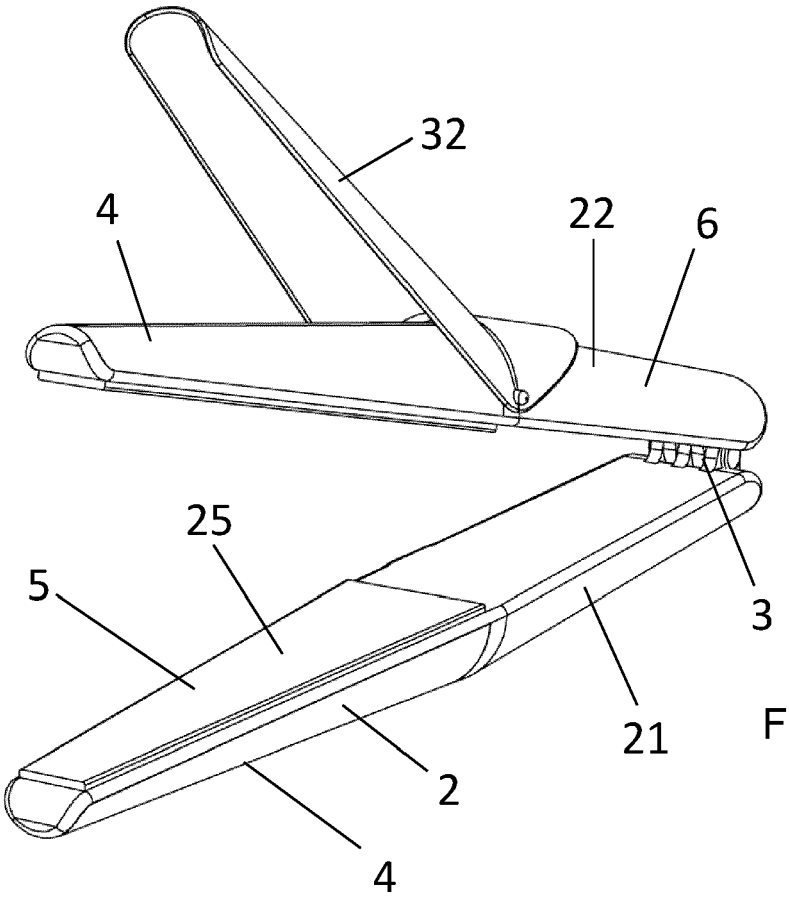


Fig 8

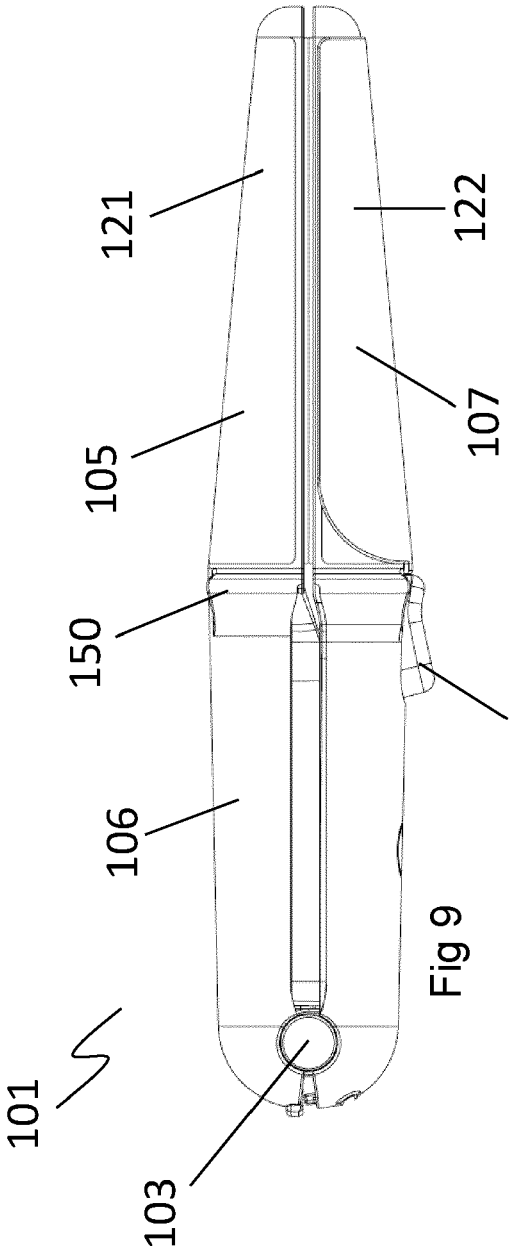


Fig 9

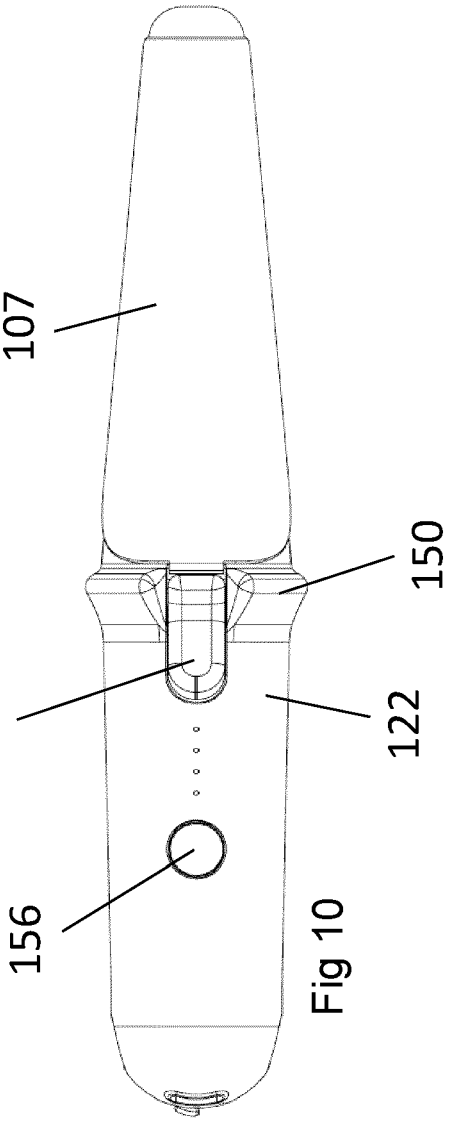
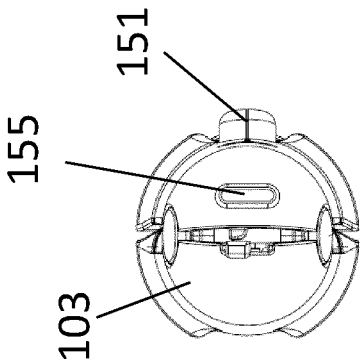


Fig 10



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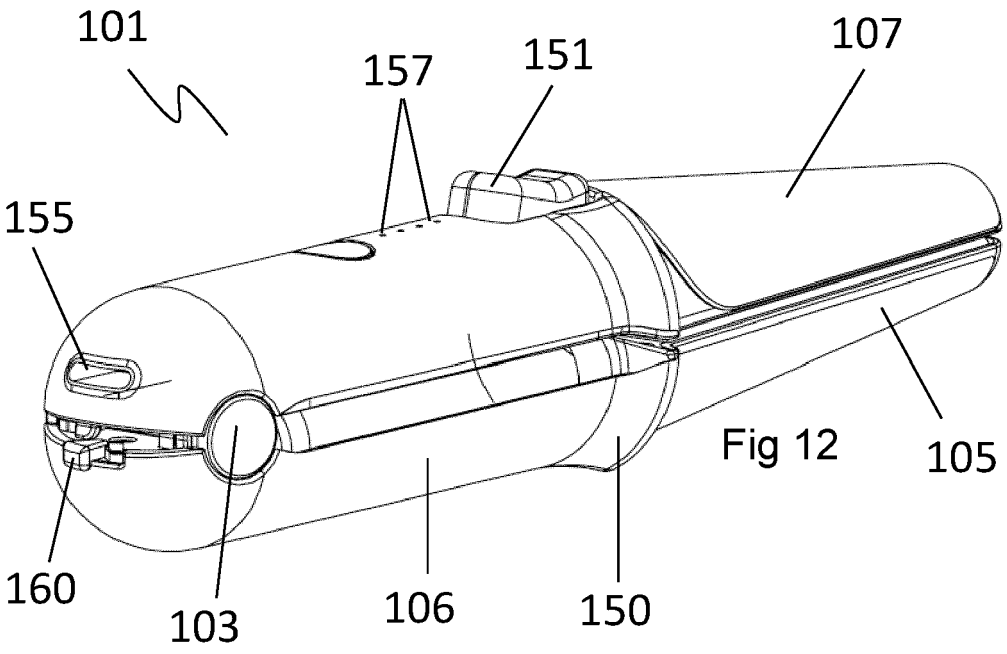
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Fig 12

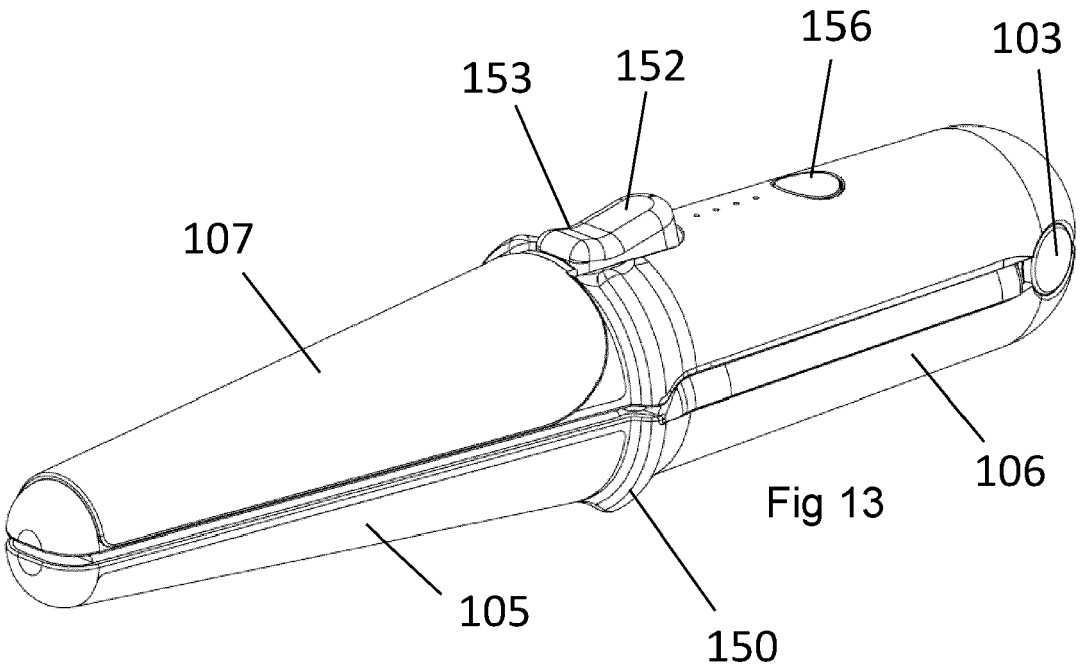
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Fig 13

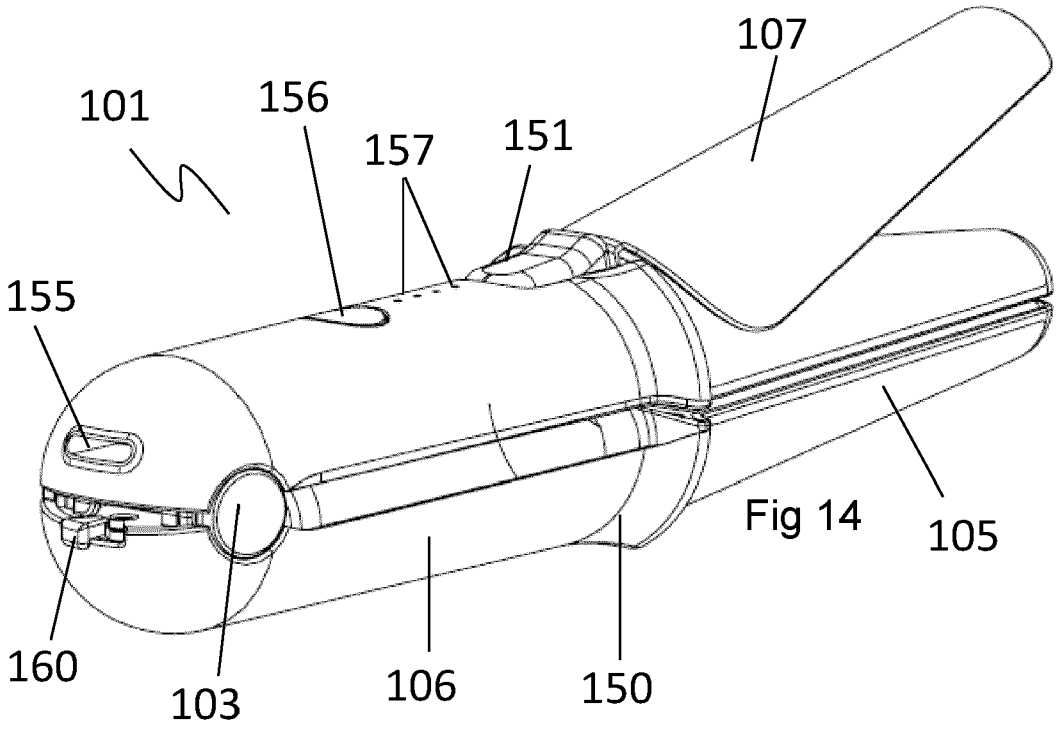
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Fig 14

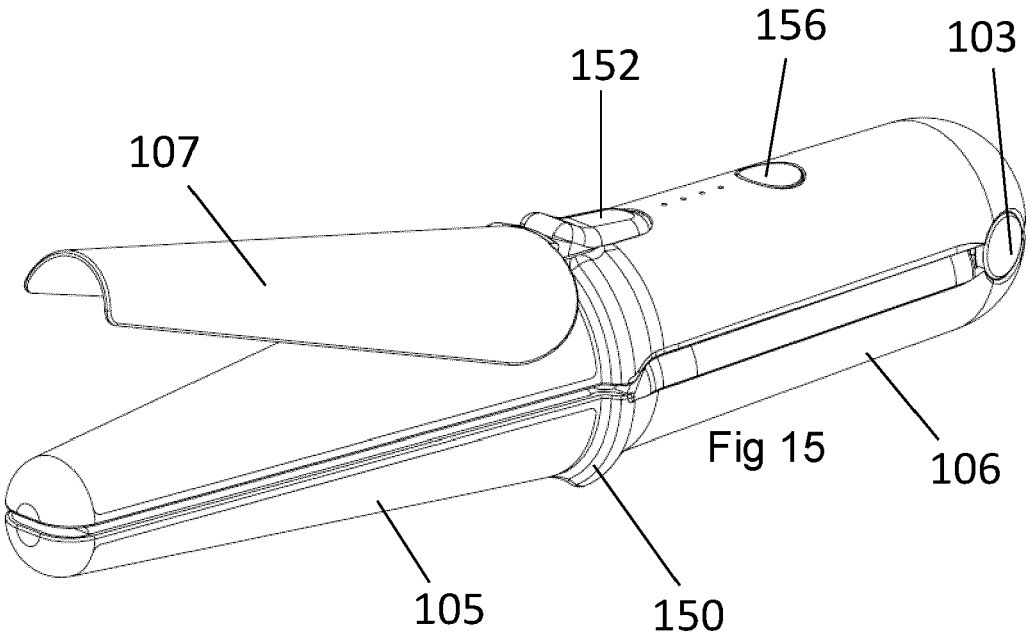
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Fig 15

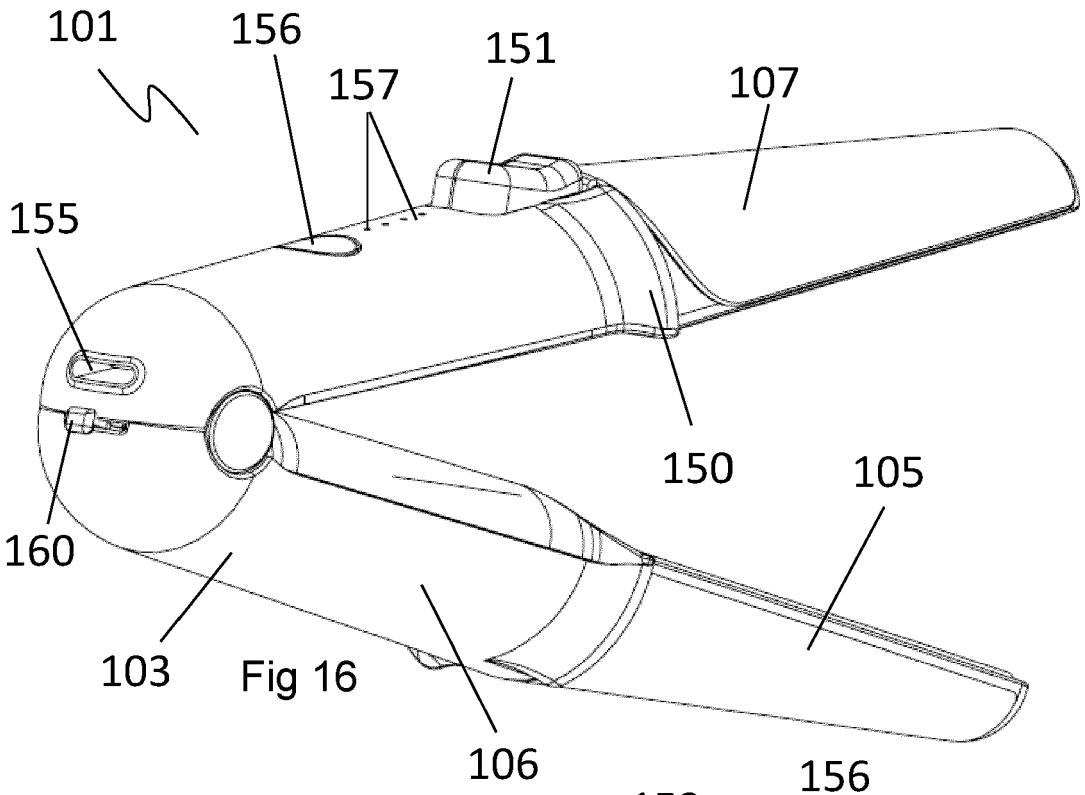
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Fig 16

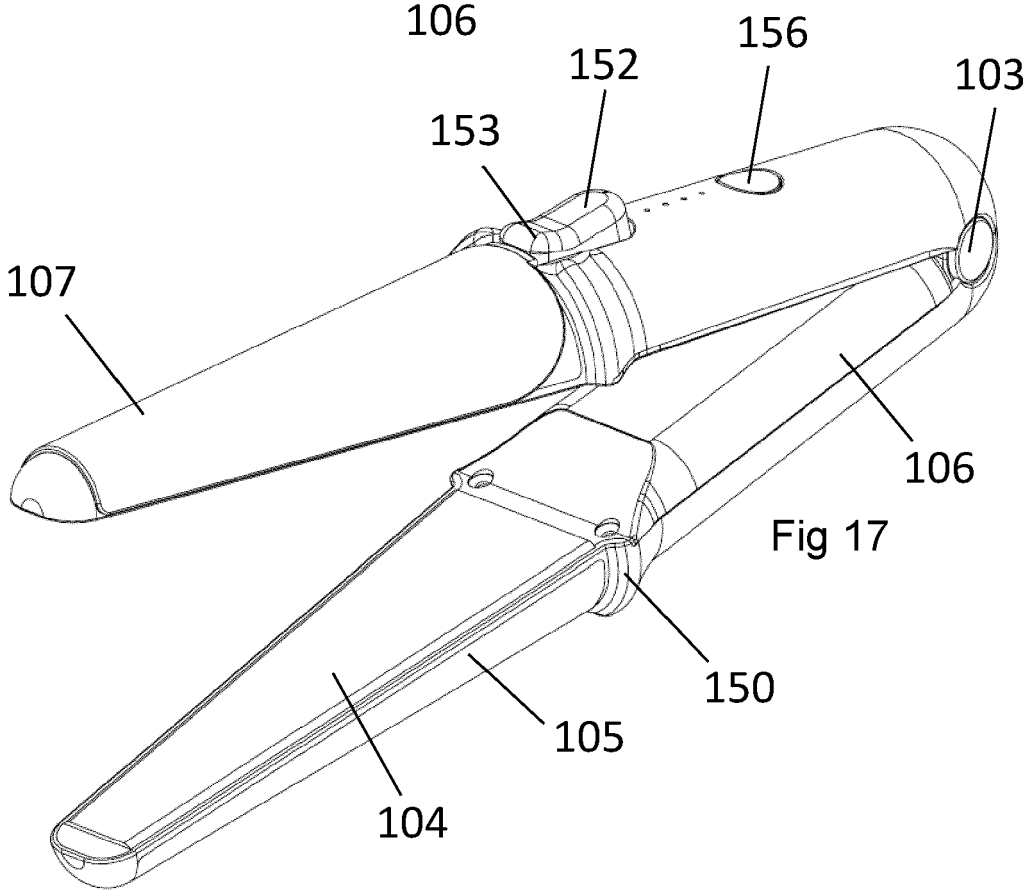
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Fig 17

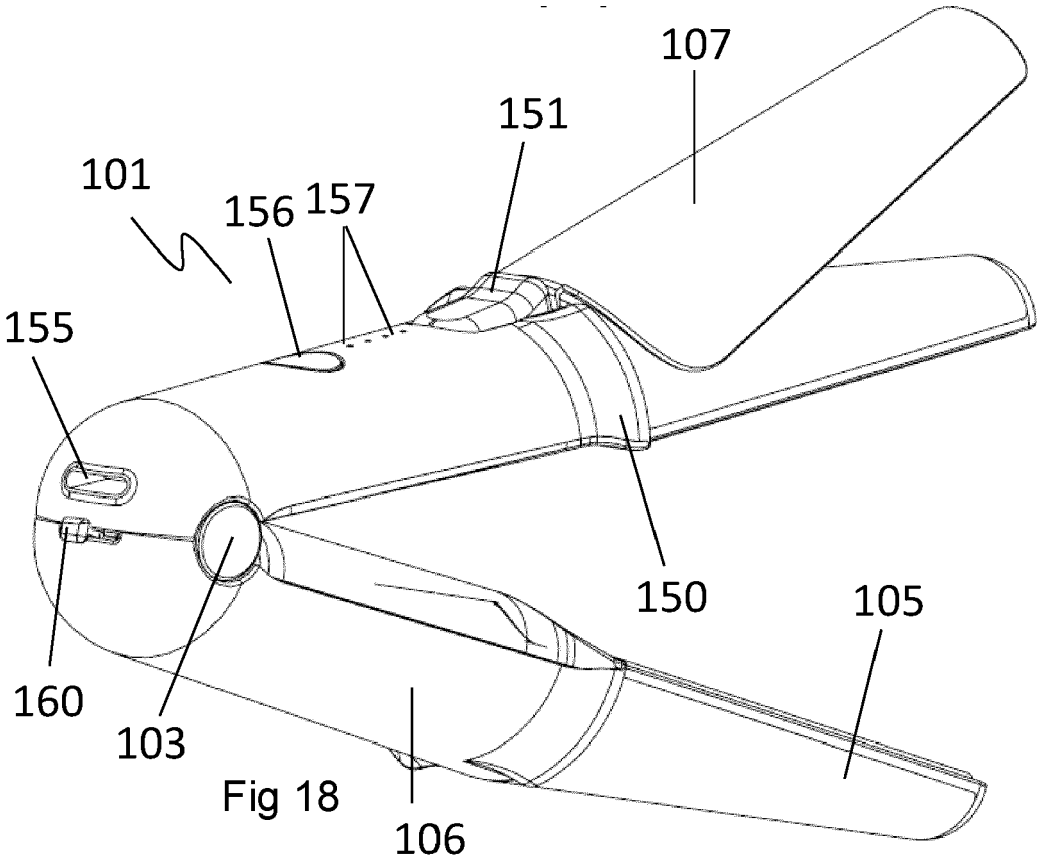
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Fig 18

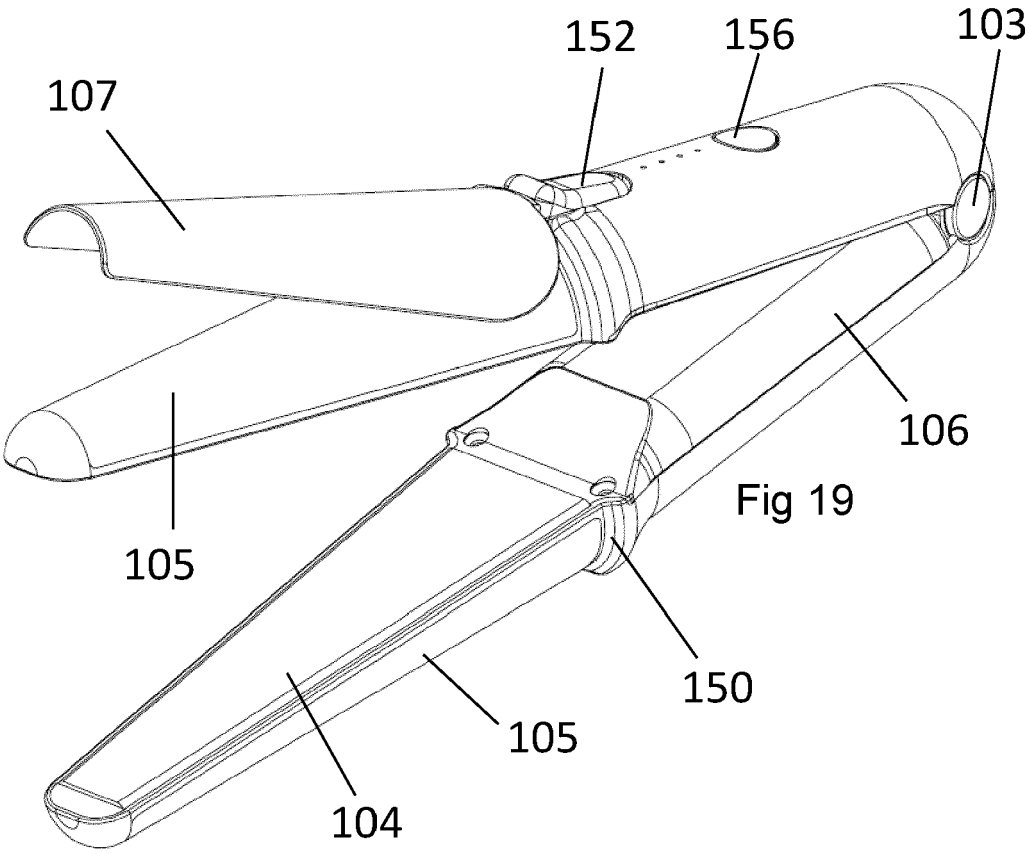
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Fig 19

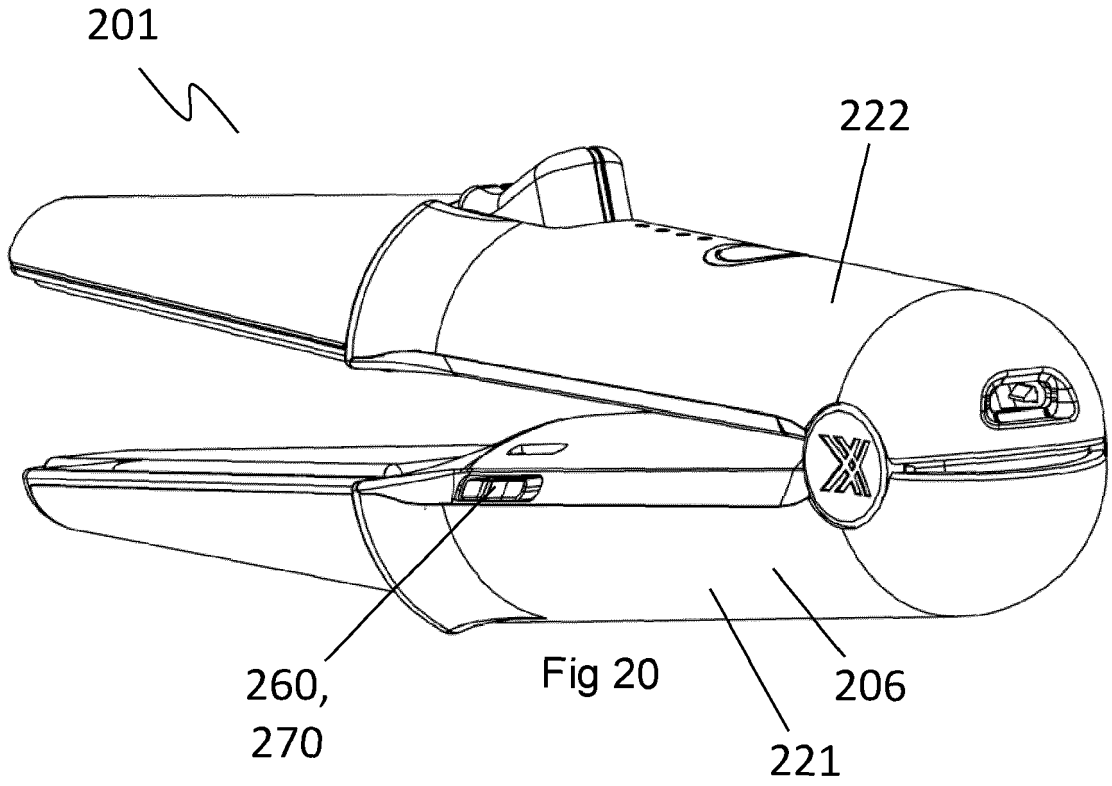

Fig 20

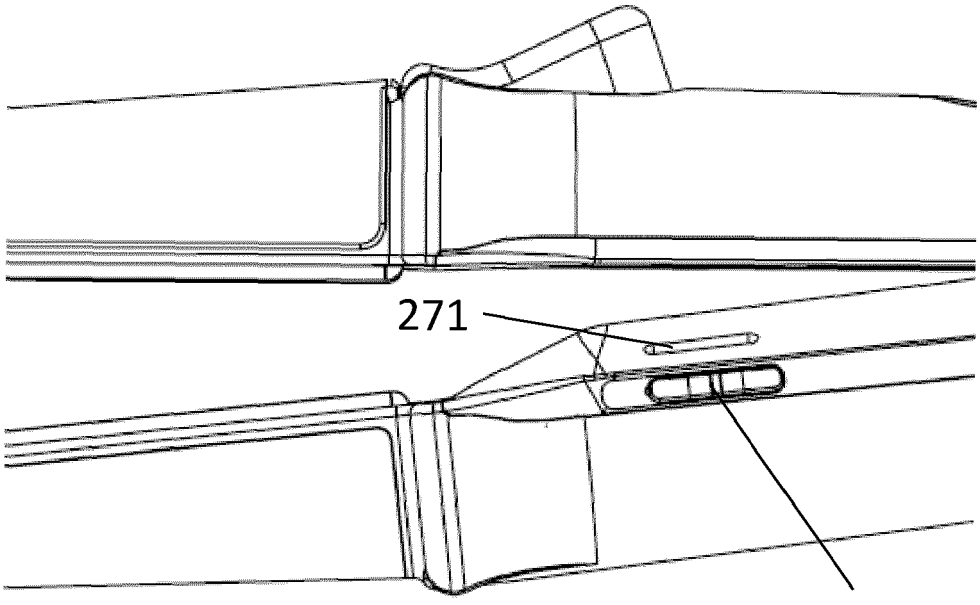

Fig 21

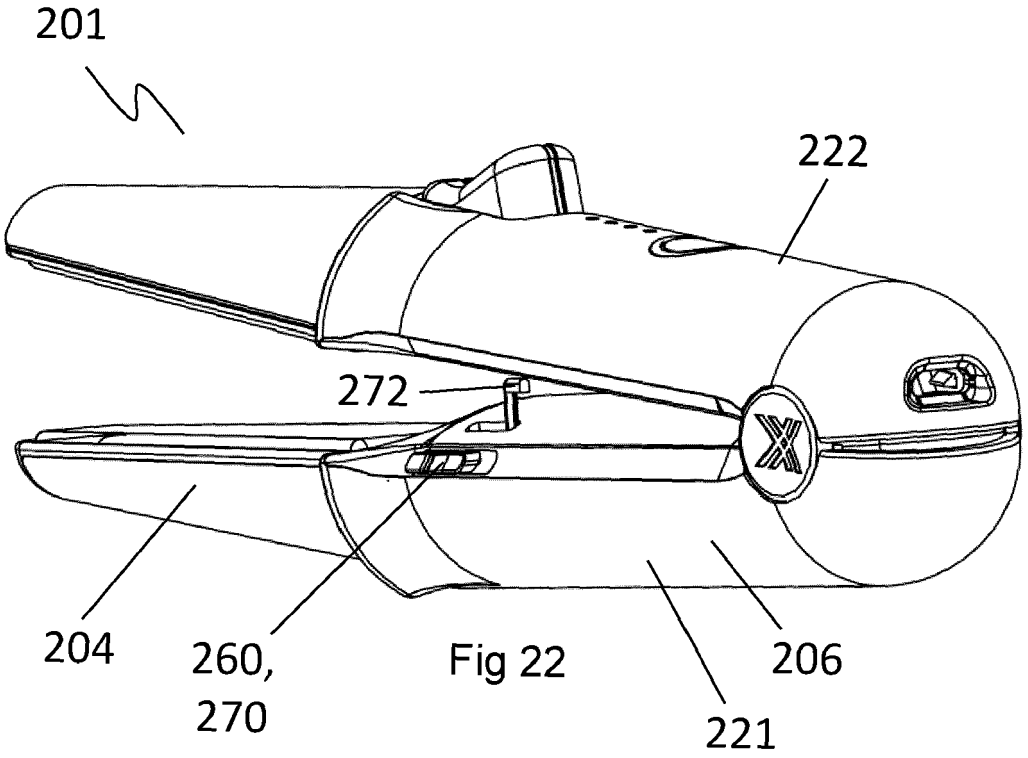

Fig 22

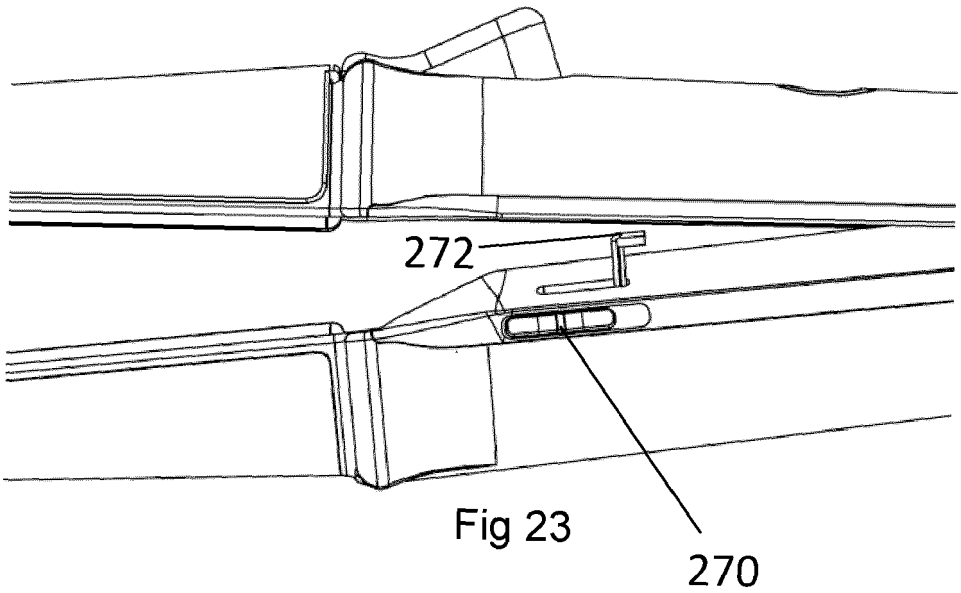

Fig 23

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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