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(71) Demandeurs/Applicants:
RIZZUTO, FRANCESCO, CA;
RIZZUTO, DONNA MARIE, CA;
MARSHALL, DALE, CA;
GALASSO, CARLO, CA

(72) Inventeurs/Inventors:
RIZZUTO, FRANCESCO, CA;
RIZZUTO, DONNA MARIE, CA;
MARSHALL, DALE, CA;
GALASSO, CARLO, CA

(74) Agent: MOFFAT & CO.

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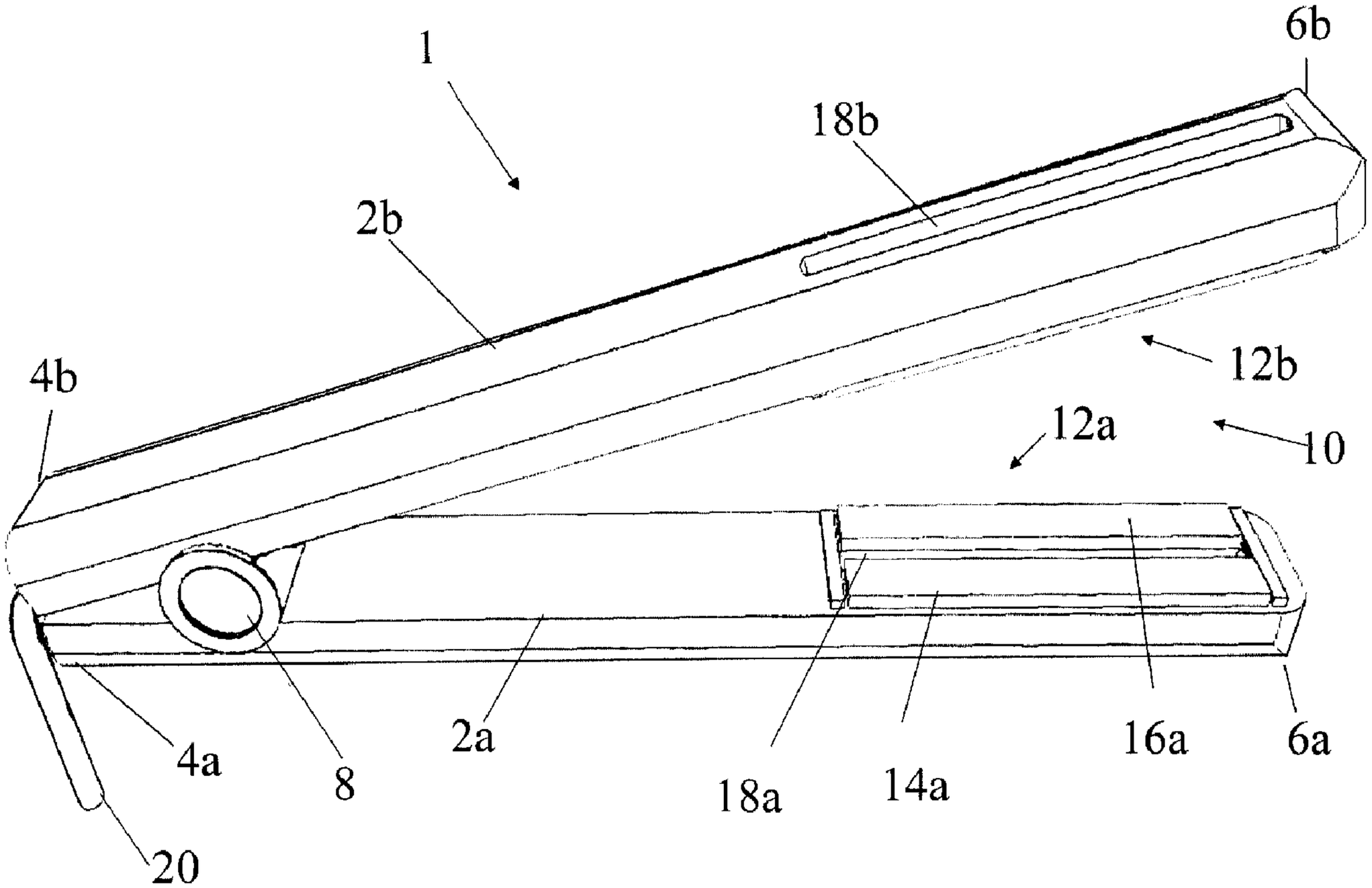
(54) Title: HAIR STYLING APPLIANCE



(57) Abrégé/Abstract:
An appliance used for styling or shaping of fiber that is comprised of at least two heatable plates with a longitudinally extending gap between adjacent plates. The gap between the plates allows for increased function of the appliance. The appliance may be a hair straightener, a crimping iron, a curling iron, clothes iron or any other appliance that uses heated plates and is used to shape or style fibers.

ABSTRACT

An appliance used for styling or shaping of fiber that is comprised of at least two heatable plates with a longitudinally extending gap between adjacent plates. The gap between the plates allows for increased function of the appliance. The appliance may be a hair straightener, a crimping iron, a curling iron, clothes iron or any other appliance that uses heated plates and is used to shape or style fibers.

HAIR STYLING APPLIANCE

FIELD OF INVENTION

The present invention is related to appliances and devices used for styling or shaping fibers. More specifically the present invention relates to hair/fabric treating appliances such as straighteners, crimpers, curlers, clothes irons and the like.

BACKGROUND TO THE INVENTION

Hair styling appliances are currently used (e.g. for straightening, crimping or curling hair) in both the professional and domestic domain. Further, fabric treating appliances (e.g. clothes-irons) are also used in both the professional and domestic domain to remove wrinkles from fabric. These appliances rely on the principle of simultaneously heating the fiber (hair/fabric) and pressing it into a determined shape or condition. As used hereinafter, the word fiber(s) denotes one or more hairs, fabric, strands, threads or any other filamentary material that can be treated including, but not limited to, being shaped, styled, pressed, straightened or conditioned using heat. For descriptive and exemplary purposes only, the fiber described and referred to below will predominantly be hair. References to hair however should not be read to exclude other fiber(s) as described above.

Conventional hair styling appliances are characterized by a pair of opposed heating elements located on the appliance's pivotally hinged arms or clamping members. A typical hair straightener for example has a heating element placed on each arm. Each heating element of conventional hair styling appliances tends to be heated as a single unit. Conventional clothes irons (or other fabric-shaping appliances) are typically characterized by a single heating surface that is heated as a single unit. The fibers passing in contact with the heating element(s) are therefore subject to being heated across the entire width of the heating element(s). This is not necessarily the best way to shape or treat the fibers. Better results may be obtained if the fibers passing in contact with the heating element(s) are subjected to alternate heating and cooling.

What is proposed therefore is a tool in the nature for example of a hair appliance or a fabric treating appliance with an improved function to expose the fiber being heated to temperature differentials.

SUMMARY OF THE INVENTION

To achieve this goal, the present invention is directed towards a fiber treating device consisting of a heating area comprising at least two heatable plates, a longitudinally extending gap separating adjacent heatable plates and a power supply, wherein the heatable plates are heated to treat the fiber.

The fiber treating device may be a hair styling apparatus further comprising two longitudinally extending arms connected to each other via a hinge at one of their ends, the arms capable of moving between open and closed positions, a heating area near the end of the arms opposite of the hinge, the heating area comprising at least two heatable plates, a longitudinally extending gap separating adjacent heatable plates and a power supply, wherein the heatable plates are heated to style or shape hair.

The longitudinally extending gap between the heatable plates of the appliance may extend through the arm allowing airflow through the gap. Alternatively the longitudinally extending gap may be comprised of an insulating material.

The heatable plates of the appliance may be connected to a control for controlling the temperature of the heatable plates. Preferably all the heatable plates are connected to a single control to ensure the temperature is the same for all of the heatable plates. In other embodiments the heatable plates of the first arm may be controlled by a first control and the heatable plates of the second arm may be controlled by a second control.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention will now be described in greater detail and will be better understood when read in conjunction with the following drawings in which:

Figure 1 is a perspective view of one embodiment of the present invention formed in a hair appliance;

Figure 2A is a top plan view of one of the arms of the hair appliance shown in Figure 1;

Figure 2B is a top plan view of the other of the arms of the hair appliance shown in Figure 1;

Figure 3 is a side elevational view of the hair appliance shown in Figure 1;

Figure 4A is a side elevational view of the arm of the hair appliance shown in Figures 2A; and

Figure 4B is a side elevational view of the arm of the hair appliance shown in Figure 2B.

DETAILED DESCRIPTION OF THE INVENTION

A hair styling appliance including the invention could be implemented in various ways depending on its purpose. Accordingly, one embodiment of the invention may be a hair straightener **1**, as shown in Figure 1. The reference to a hair straightener is merely exemplary however. Hair appliance **1** may also be a crimping iron, a curling iron or any other tool or appliance that uses heated elements for the treatment of fibers.

In one embodiment, hair appliance **1** may include two longitudinally extending arms, a first arm **2a** and a second opposed arm **2b**. Arms **2a, 2b** each have a first end **4a, 4b** and a second end **6a, 6b**. Longitudinally extending arms **2a, 2b** may be connected at their first ends **4a, 4b** by a hinge or pivot joint **8** in any manner known in the art. Accordingly arms **2a, 2b** may pivot and move between an open position as shown in Figures 1 and 3 and a closed position (not shown). As will be known to those skilled in the art, the two arms will be normally biased into the open position. In the closed position, the ends of two arms **6a** and **6b** can be brought into contact with each other although in actual use, they will be separated by the width or thickness of the fibers being treated.

Alternatively, arms **2a, 2b** may be pivotally attached to each other nearer the middle, thus dividing arms **2a, 2b** between a styling part and a gripping part (not shown).

Hair styling appliance **1** may include a hair shaping area **10**, which in the present embodiment is comprised of heating areas **12a** and **12b** on arms **2a, 2b** respectively. Heating areas **12a**, **12b** are preferably located proximate to ends **6a, 6b** of arms **2a**, **2b**.

Heating areas **12a**, **12b** face each other and extend only partly along the length of arms **2a**, **2b** to create the hair shaping area **10**, which may style or shape the hair when the arms are closed to press the hair therebetween.

In the example shown most clearly in Figures 2A and B, each heating area **12a**, **12b** may be generally rectangular and may be formed of at least two heatable plates **14a, 16a** on first arm **2a,** and two heatable plates **14b, 16b** on second arm **2b**. Alternative embodiments may have the heatable plates **14a, 16a** present only on one arm **2a, 2b**. When the embodiment is a hair straightener, plates **14a**, **16a**, may be generally rectangular in outline with smooth, flat heating surfaces. However, different shaped plates **14a**, **16a** may be used for different appliances.

At least one longitudinally extending thermal gap **18a**, **18b** exists between each set of plates **14a**, **16a** and **14b, 16b** respectively. Gap **18a**, **18b** may allow hair to cool slightly by not being in constant contact with the plates **14a**, **16a, 14b, 16b** when the appliance **1** is used. Each gap **18a 18b** may extend through each respective arm **2a, 2b** allowing increased airflow into the hair shaping mechanism. Alternatively, gap **18a**, **18b** may contain or be occupied by an insulating material of any suitable type known to those skilled in the art. The insulating material may enhance the effect of gap **18a**, **18b**. In its simplest form, gaps **18a** and **b** can simply be an air space.

Plates **14a**, **16a, 14b, 16b** may be made of any suitable heatable thermal material with a surface designed to be placed in contact with hair without risking damage to it. Accordingly, each plate **14a**, **16a** could, for example, be polished smooth or coated with enamel, ceramic, polymer, or even a layer of glass or a mineral (e.g. with a low coefficient of friction). Preferably each plate **14a**, **16a** is ceramic but numerous materials are known and used in the art and any can be used.

Plates **14a**, **16a, 14b, 16b** may be operatively associated with a heating mechanism (not shown) provided inside arms **2a**, **2b**. The heating mechanism may be implemented in any appropriate manner known in the art. The heating mechanism may be connected to a power supply such as by a cord **20** connected to an electrical outlet. Alternatively the power could be supplied to hair styling appliance **1** by batteries located within one or both of arms **2a**, **2b**.

Hair appliance **1** may include a conventional control mechanism between the heating mechanism and the power supply. The control mechanism allows a user to select an appropriate operating temperature. Similarly, the heating mechanism could also be designed to automatically maintain a predetermined temperature. The implementation of the heating mechanisms and the control mechanism(s) are well known in the art. Preferably plates **14a**, **16a, 14b, 16b** are all on the same control and the temperature of each plate **14a, 16a, 14b, 16b** is the same. Alternatively heating plates **14a, 16a , 14b, 16b** may each have individual temperature controls. A second alternative is to have heatable plates **14a, 16a** of first arm **2a** controlled by a first control and heatable elements **14b, 16b** of second arm **2b** controlled by a second control.

To use the appliance **1,** the hair to be treated is introduced into the hair shaping area **10** between arms **2a** and **b**. The arms **2a**, **2b** are then closed to press the hair between the heatable plates as the appliance is moved along the length of the hair to be treated by the application of heat from the plates. As the appliance is pulled along the hair, the first pair of plates heat the hair, then the hair cools in the gaps and then the second pair of plates again heats the hair. Alternatively the hair may be held in hair shaping area **10** for a period of time sufficient to apply the desired treatment.

In an alternative embodiment of the invention (not shown), the heatable plates **14a, 16a, 14b, 16b** may be used for treating a fabric, such as clothes. In this embodiment, which can be for example a clothes iron, the plates **14a, 16a** may be connected to a handle. At least one gap **18a** may extend between adjacent plates **14a, 16a**. Thus, when the appliance is moved over the fabric, the fabric is first heated by at least one plate, the fabric then cools in the adjacent gap and then another plate again heats the fabric. This is repeated for as many gaps and plates as are built into the iron.

In alternative embodiments, heating areas **12a, 12b** may have more than one gap **18** between multiple heatable plates (not shown).

Although one embodiment has been described above and illustrated in the Figures, those skilled in the art would appreciate that various changes, alterations and substitutions can be made without departing form the essence of the invention. All such changes, alterations and substitutions are believed to fall within the sphere and scope of the invention as defined by the claims appended hereto.

CLAIMS

1. An apparatus for treating a fiber with heat comprising:

a first longitudinally extending arm and a second longitudinally extending arm, each having a first end and a second end, the arms being hingedly connected to each other adjacent their respective first ends for movement between an open fiber receiving position and a closed fiber treating position;

a heating area adjacent said second end of each arm, said heating area comprising at least two heatable surfaces and a non-heated area separating said at least two surfaces, said at least two heatable surfaces and said non-heated area being respectively opposed to one another when said arms are in said closed position thereof; and

a power supply for supplying power to heat said heatable surfaces,

wherein a fiber moving through said heating area when said arms are in said closed position is alternatively heated when traversing between said heatable surfaces and cooled when traversing said non-heated area.

2. The apparatus of claim 1, wherein said non-heated area comprises a longitudinally extending gap.

3. The apparatus of claim 1 or 2, wherein said non-heated area is comprised of an insulating material.

4. The apparatus any one of claims 1, 2 or 3, wherein said apparatus further comprises at least one control for controlling the temperature of said heatable surfaces.

5. The apparatus of claim 4, wherein said heatable surfaces are connected to a single control that adjusts the temperature of said heatable surfaces.

6. The apparatus of claim 4, wherein said heatable surfaces of said first arm are connected to a first control to adjust the temperature of said heatable surfaces on said first

arm and said heatable surfaces of the second arm are connected to a second control to adjust the temperature of said heatable surfaces on said second arm and.

7. The apparatus of claim 5 or 6, wherein said controls are adapted to heat each heatable surface to a different relative temperature.

8. The apparatus of any one of claims 1 to 6, wherein said power supply is a cord connected to an electrical outlet.

9. The apparatus of any one of claims 1 to 8, wherein said arms are normally biased towards said open position.

10. The apparatus of any one of claims 1 to 9, wherein said apparatus is a hair styling apparatus.

11. The apparatus of claim 10, wherein said hair styling apparatus is a hair straightener.

12. An apparatus for treating fiber with heat comprising:

a heating area having at least two heatable surfaces and a non-heated area separating said heatable surfaces;

a power supply for supplying power to heat said heatable surfaces,

wherein a fiber moving through said heating area is alternatively heated when traversing said heatable surfaces and cooled when traversing said non-heated area

13. The apparatus of claim 12, wherein said apparatus is a clothes-iron.

14. The apparatus of claim 12 or 13, wherein said non-heated area is a longitudinally extending gap.

15. The apparatus of claim 12 or 13, wherein said non-heated area is comprised of an insulating material.

16. A method of treating fiber comprising:
passing the fiber across a first heated area;
passing the fiber across a thermally cooler area;
passing the fiber across a second heated area.

17. The method of claim 16, wherein said first heated area comprises a first heated surface above the fiber and a second heated surface below the fiber.

18. The method of claim 16 or 17, wherein said second heated area comprises a first heated surface above the fiber and a second heated surface below the fiber.

19. The method of claim 16, 17 or 18, wherein said thermally cooler area is a longitudinally extending gap.

20. The method of claim 16, 17 or 18, wherein said thermally cooler area is comprised of an insulating material.

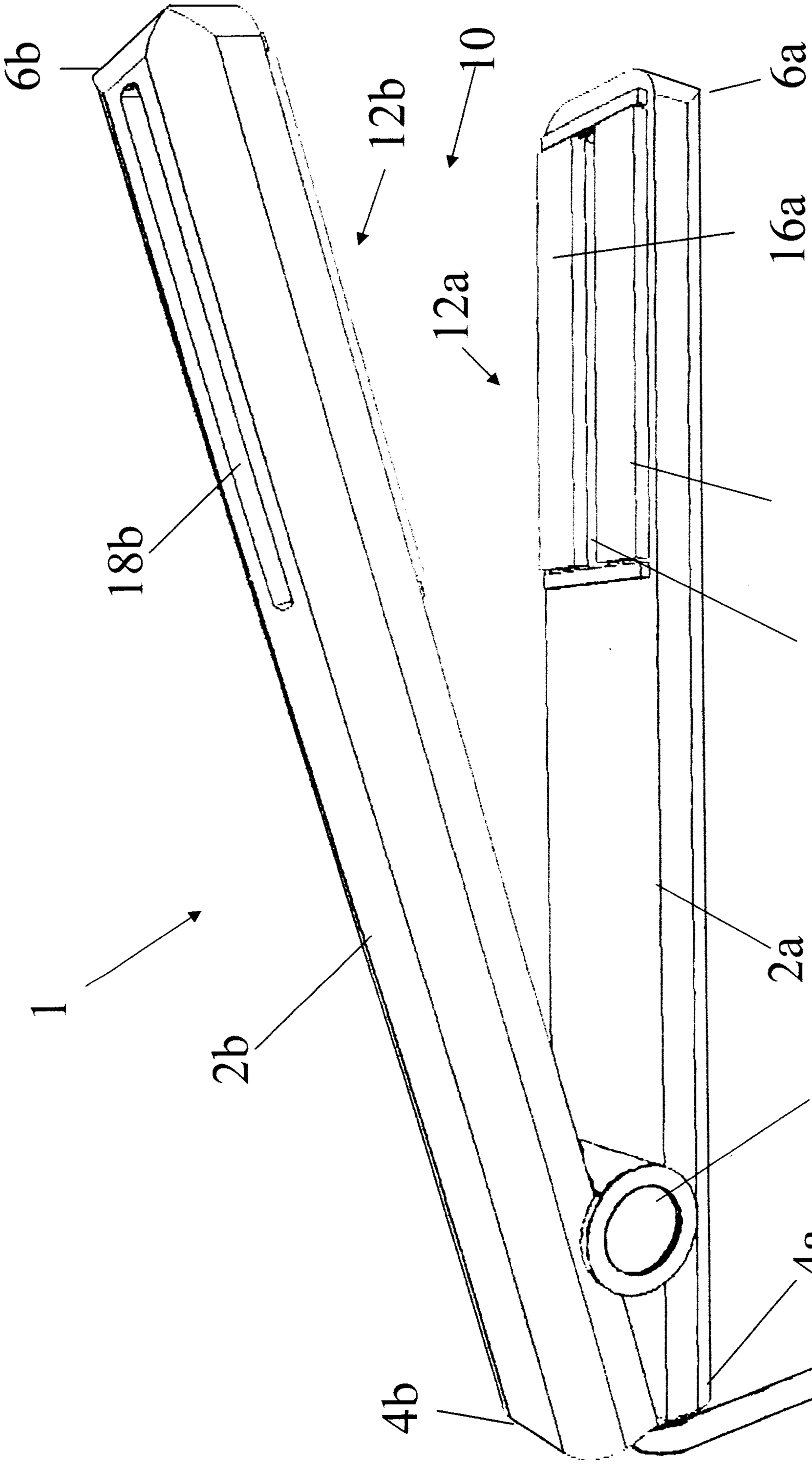


Figure 1

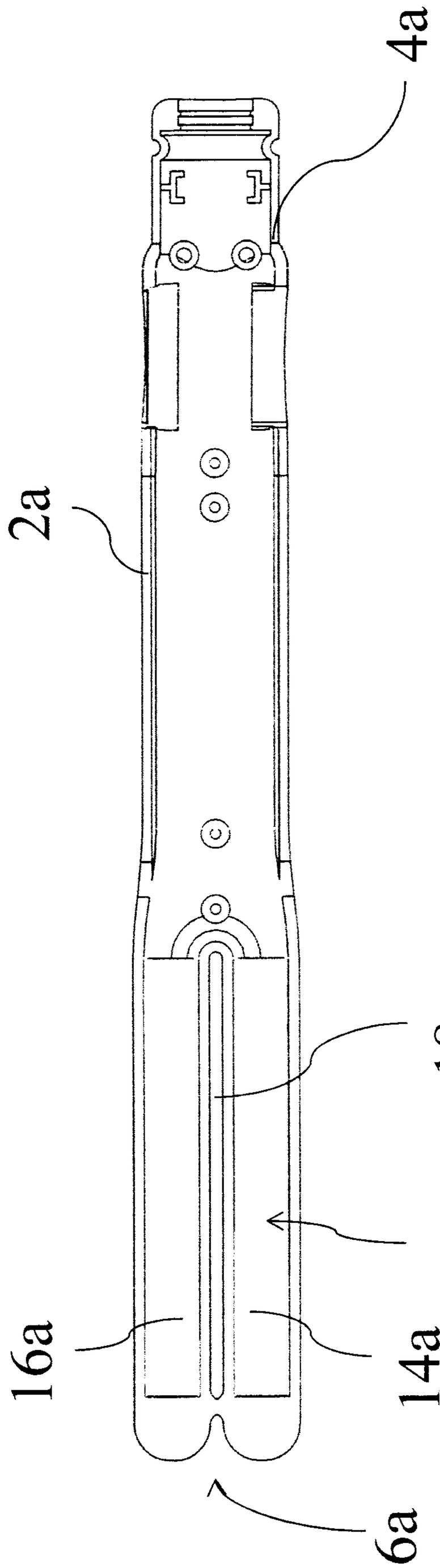


Figure 2A

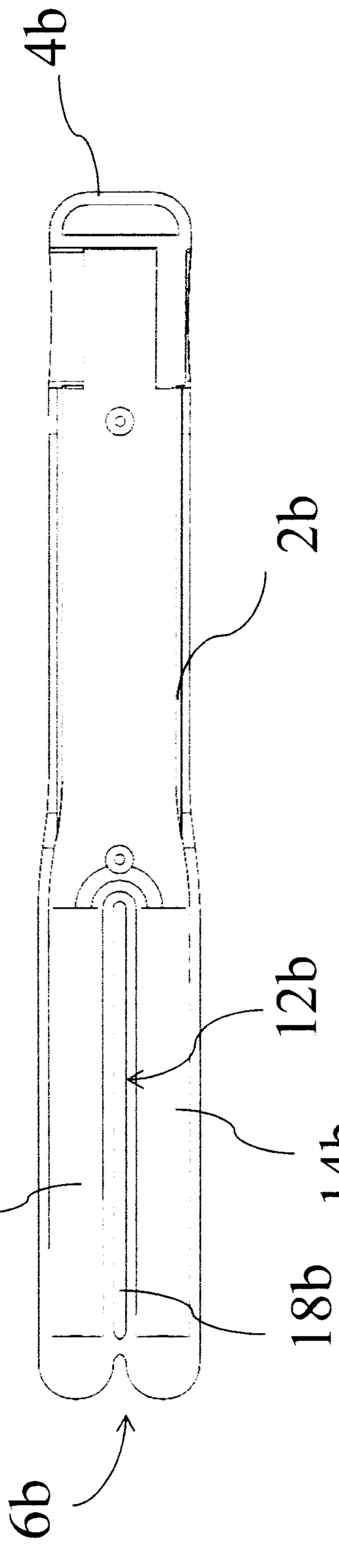


Figure 2B

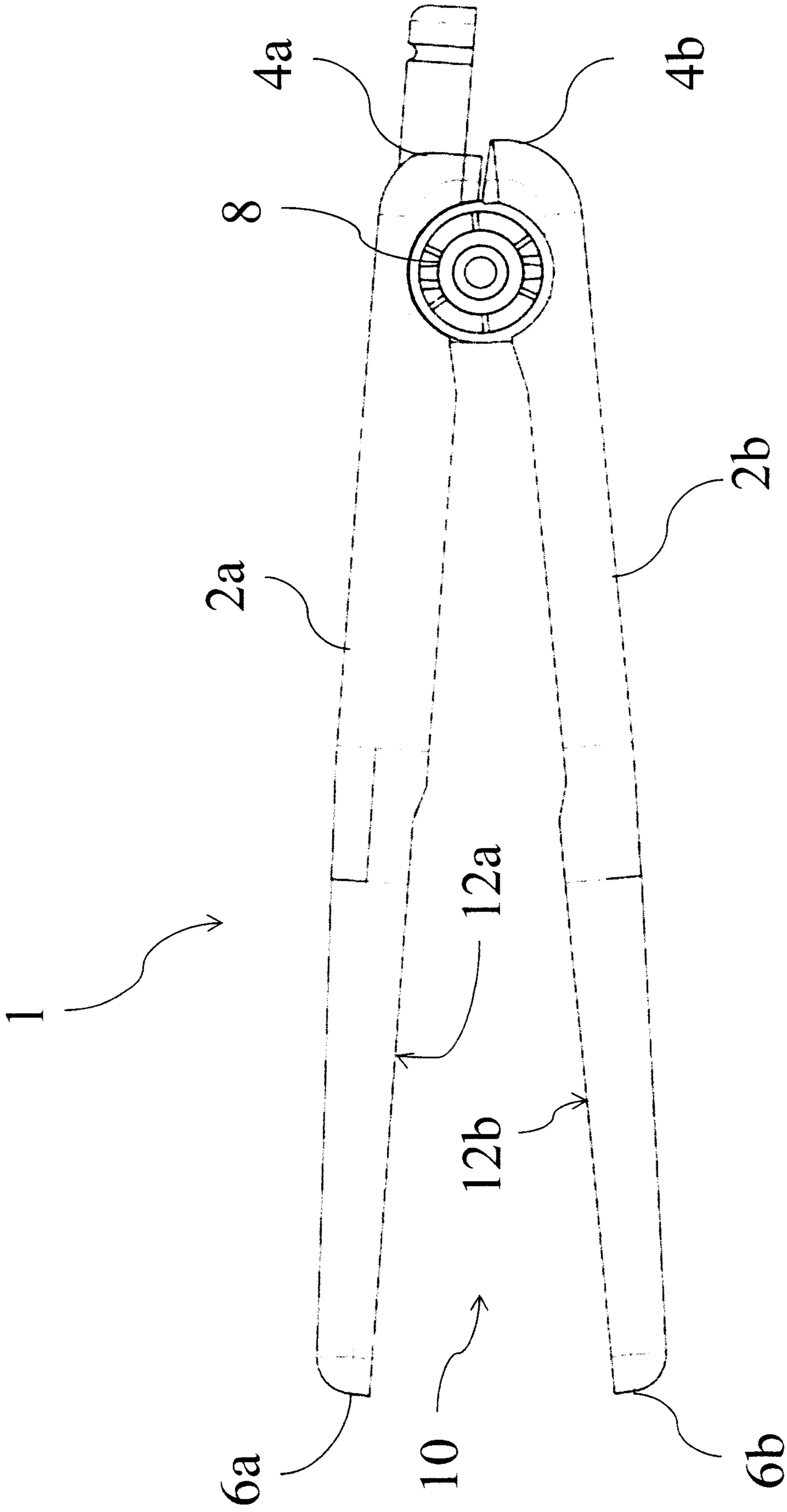


Figure 3

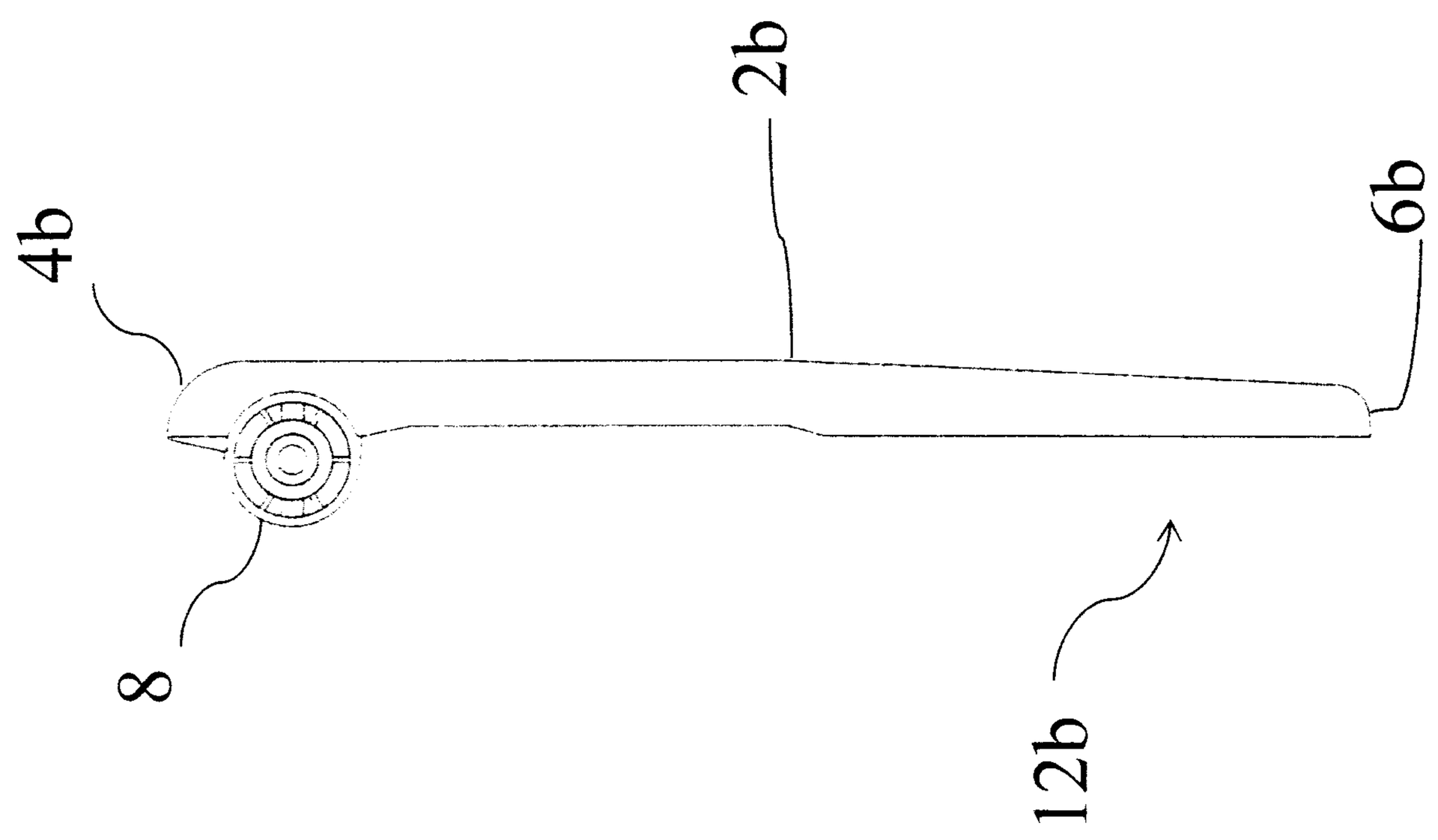


Figure 4B

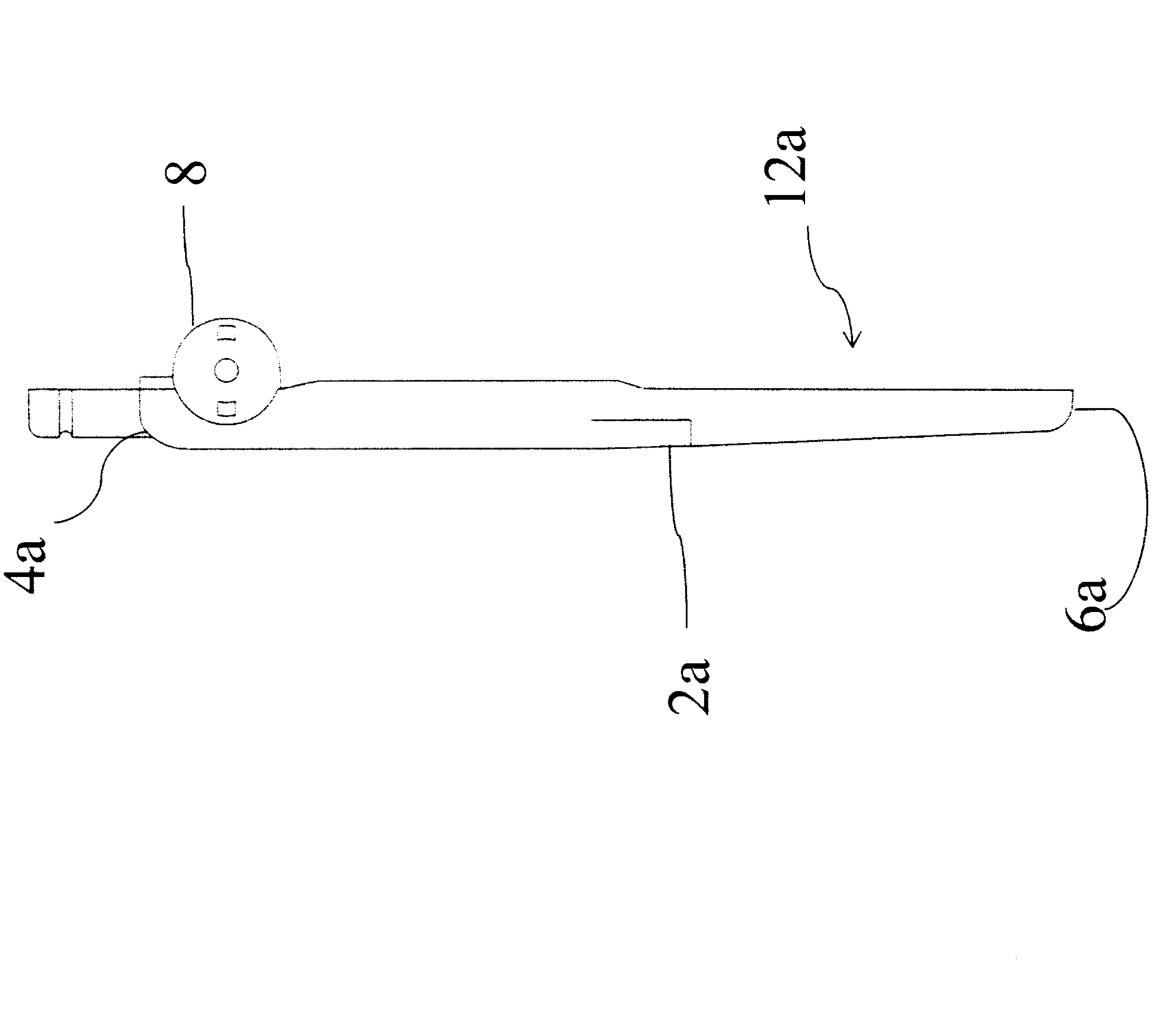
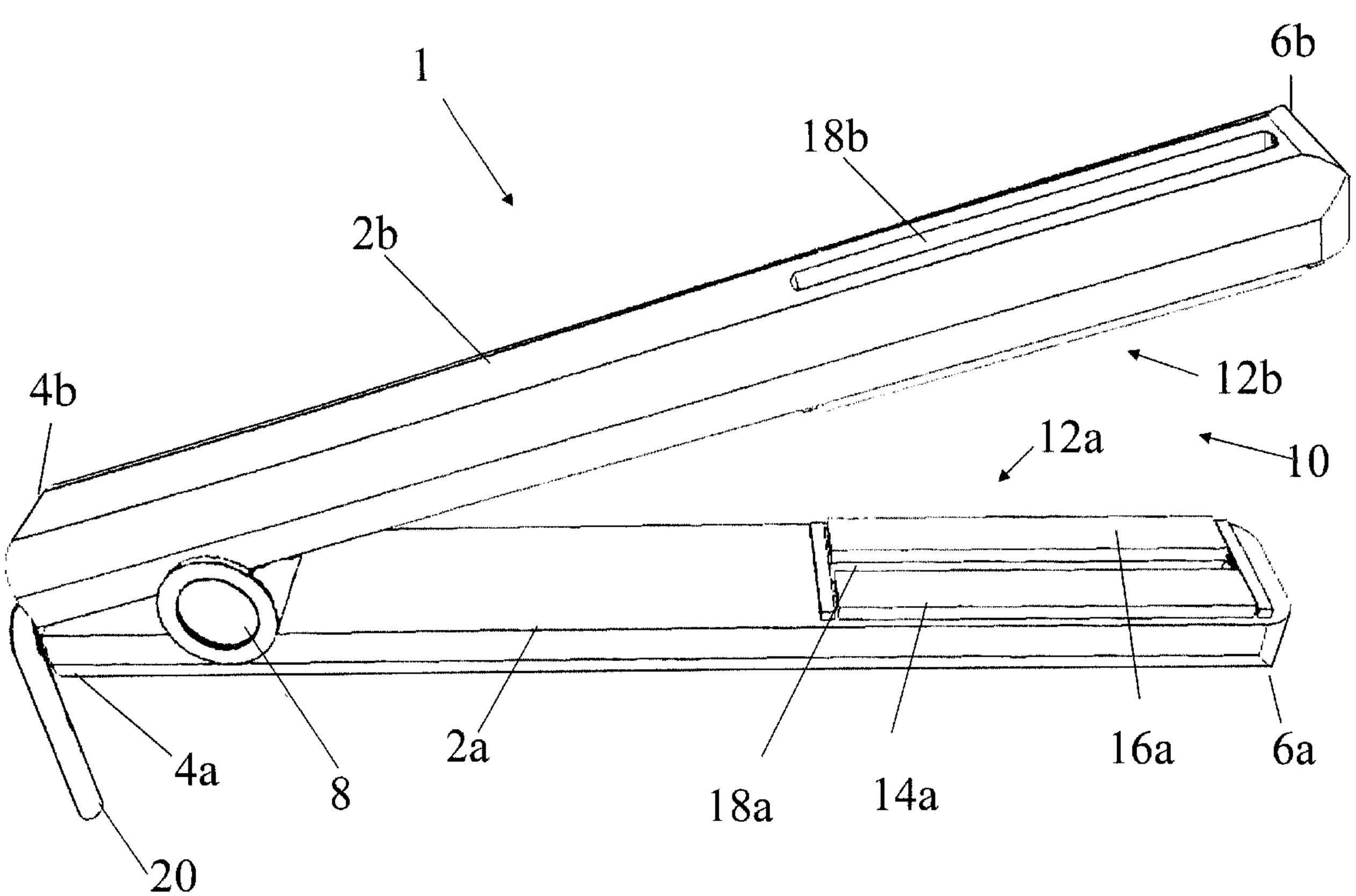


Figure 4A


1
6b
18b
2b
4b
12b
12a
10
4a
8
2a
18a
14a
16a
6a
20