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(54) **POWER TWISTER WITH ADJUSTABLE RESISTANCE**

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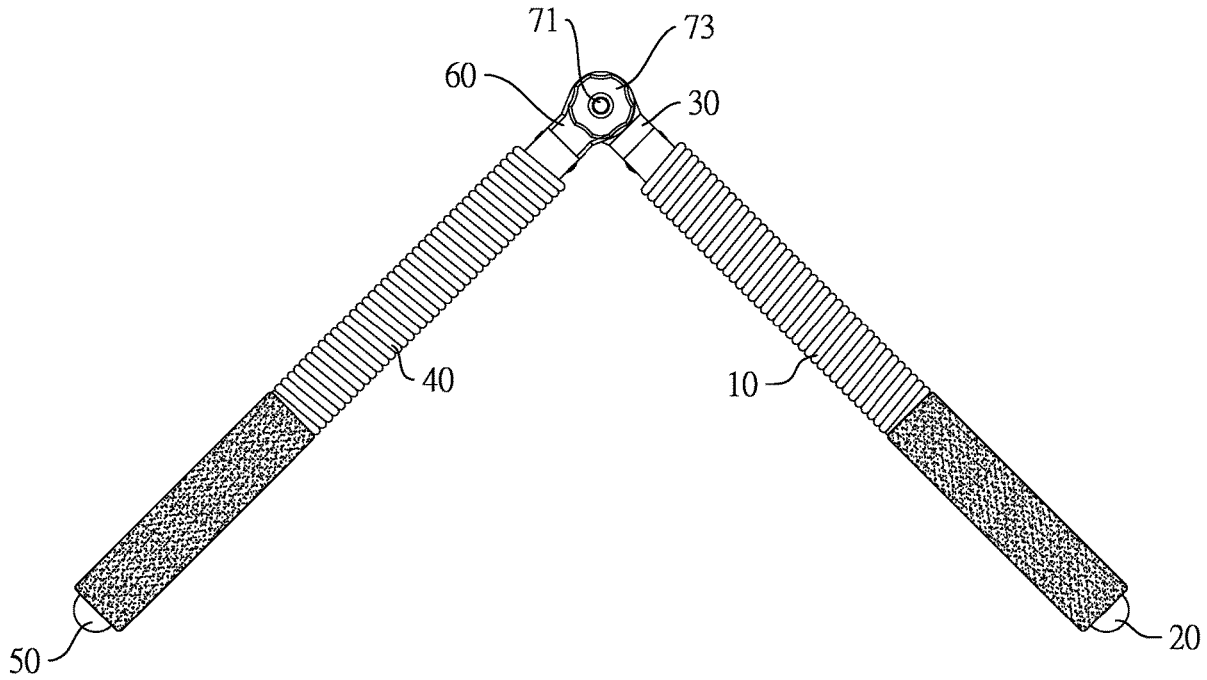
(52) **U.S. Cl.**

CPC ***A63B 21/00043*** (2013.01); ***A63B 21/023*** (2013.01); ***A63B 21/4035*** (2015.10); ***A63B 21/00185*** (2013.01); ***A63B 21/045*** (2013.01); ***A63B 23/03533*** (2013.01); ***A63B 23/12*** (2013.01); ***A63B 21/00069*** (2013.01)

(57) **ABSTRACT**

A power twister with adjustable resistance has two elastic components, two handles, two adjusting components, and a positioning assembly. The two elastic components are each respectively made of a rod rolled up spirally. The two handles are each respectively a bar, and are each fixed with a respective one of the two elastic components. The two adjusting components are each fixed with a respective one of the two elastic components, and each has a respective socket. The two sockets of the two adjusting components have multiple teeth meshed together. The positioning assembly has an elastomer disposed between the two sockets, a threaded rod, and a knob. The threaded rod passes through the two sockets and the elastomer, and is mounted with the knob.



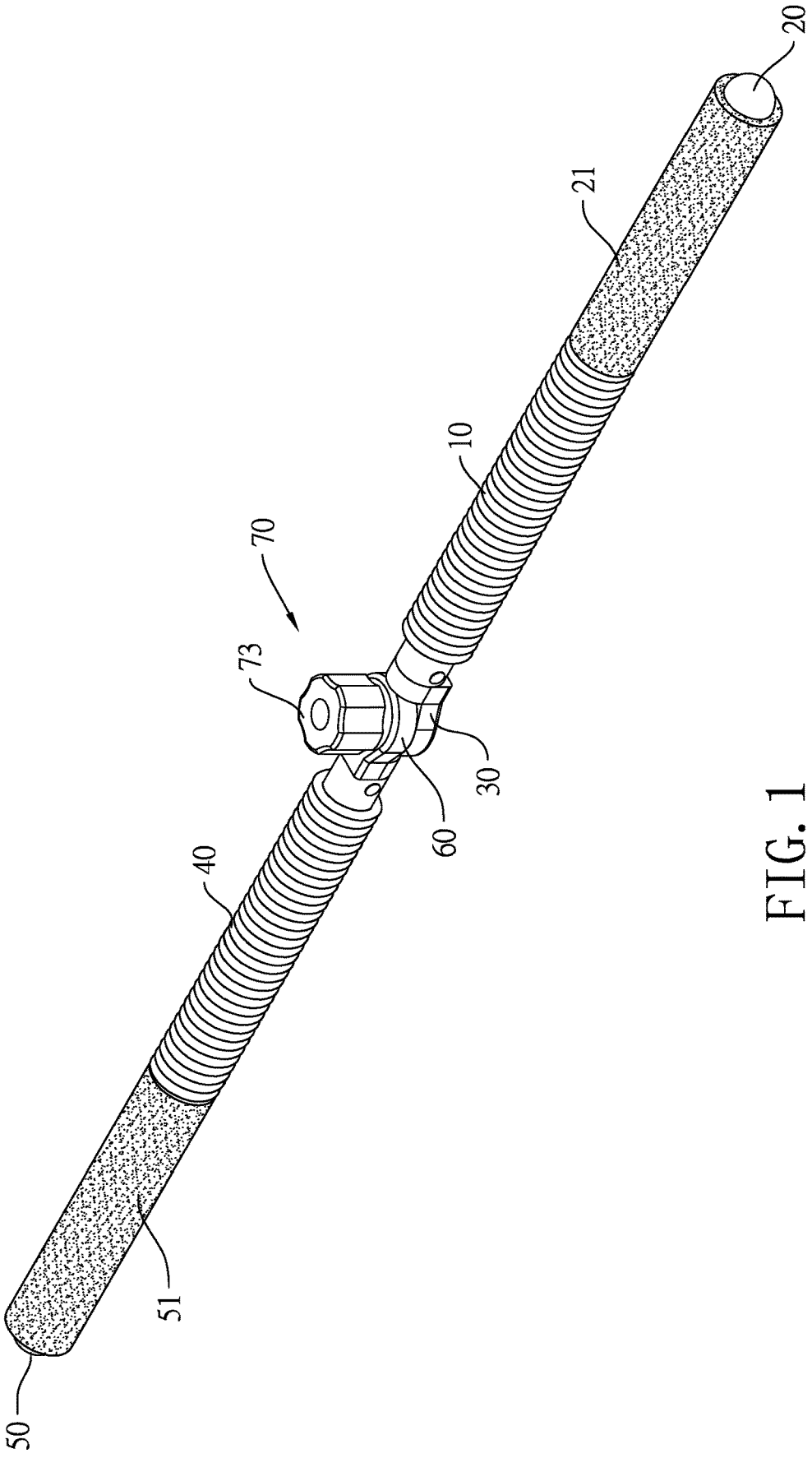


FIG. 1

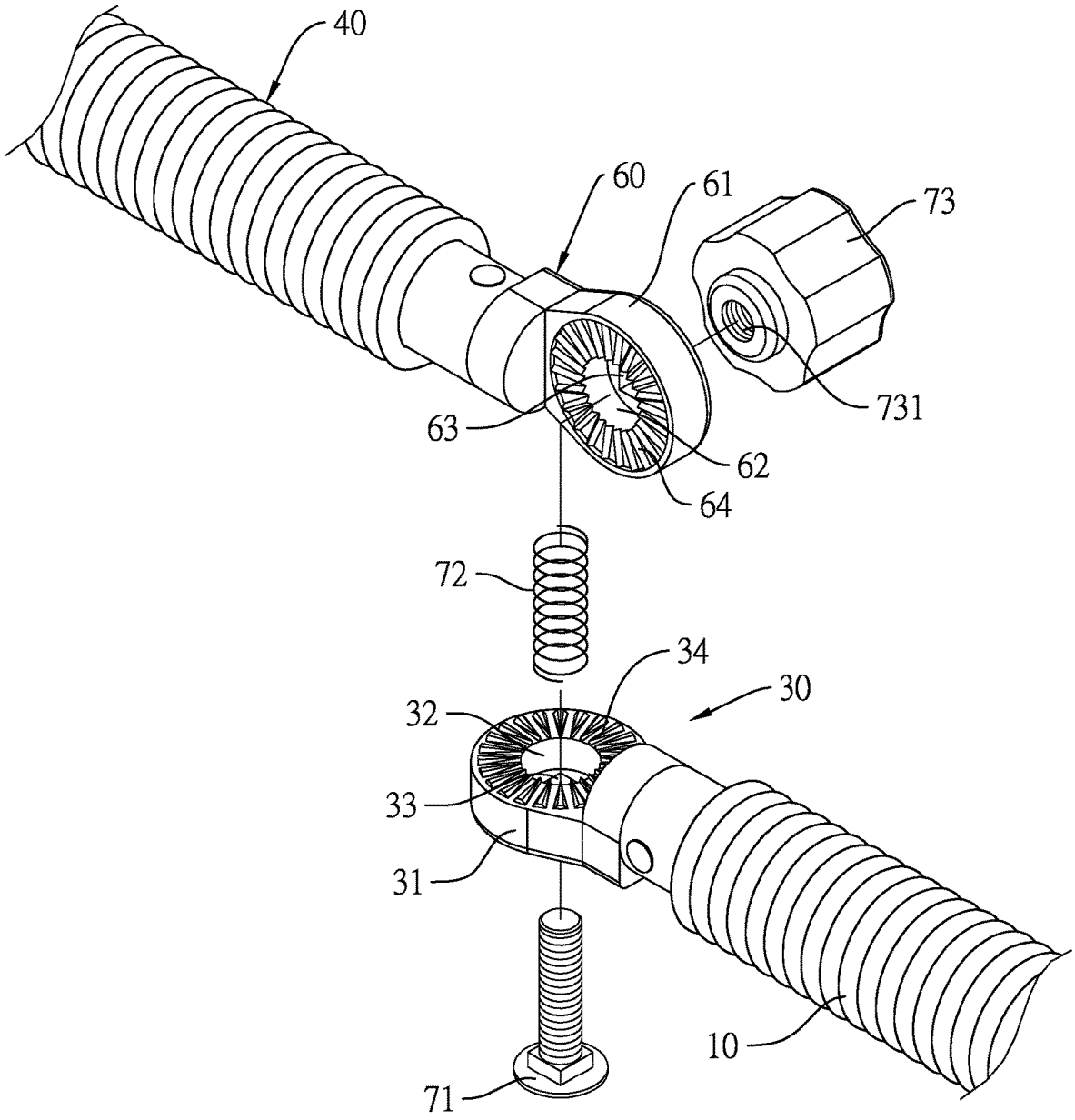


FIG. 2

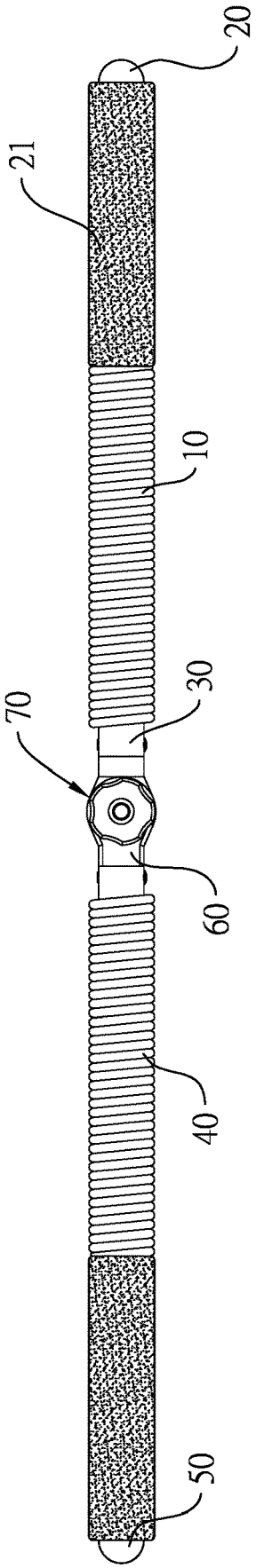


FIG. 3

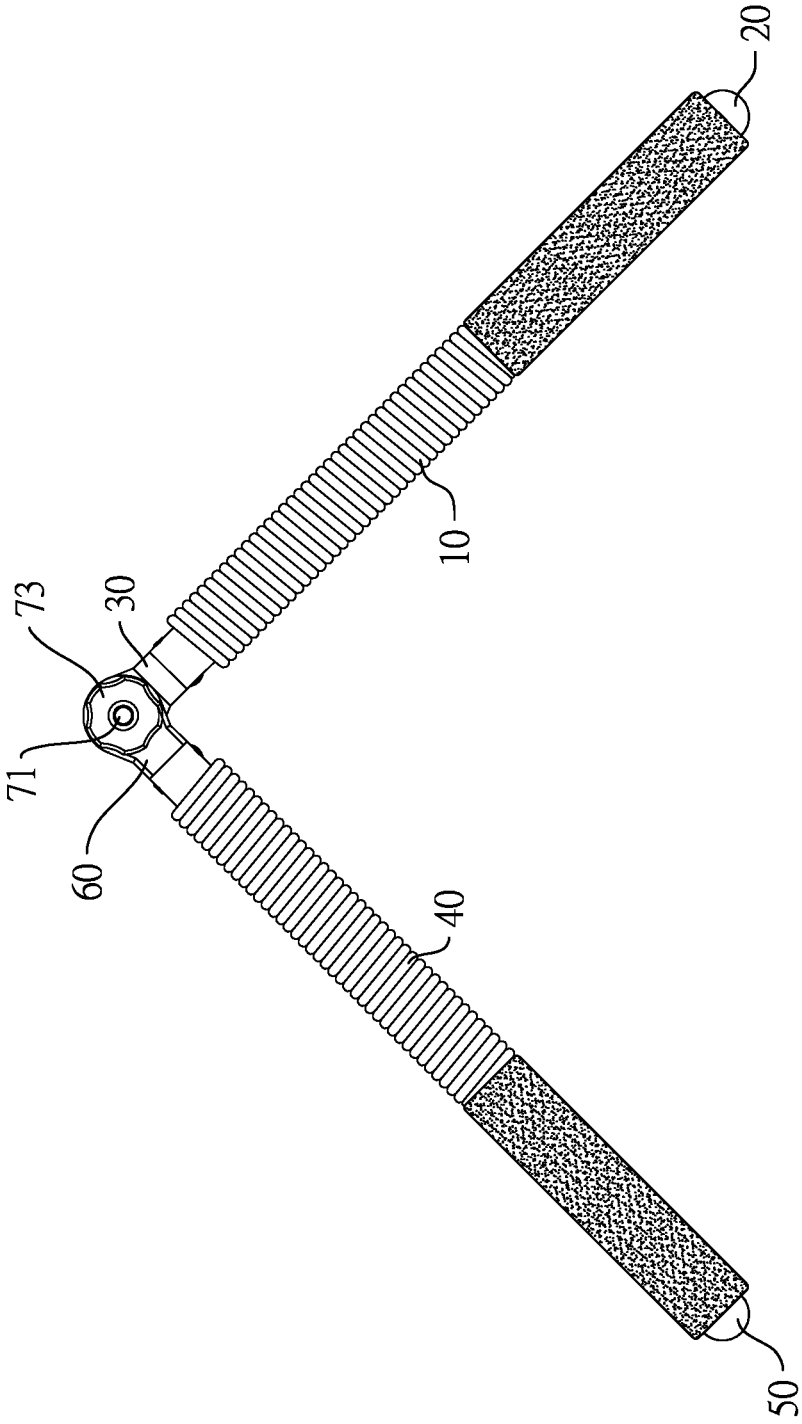


FIG. 4

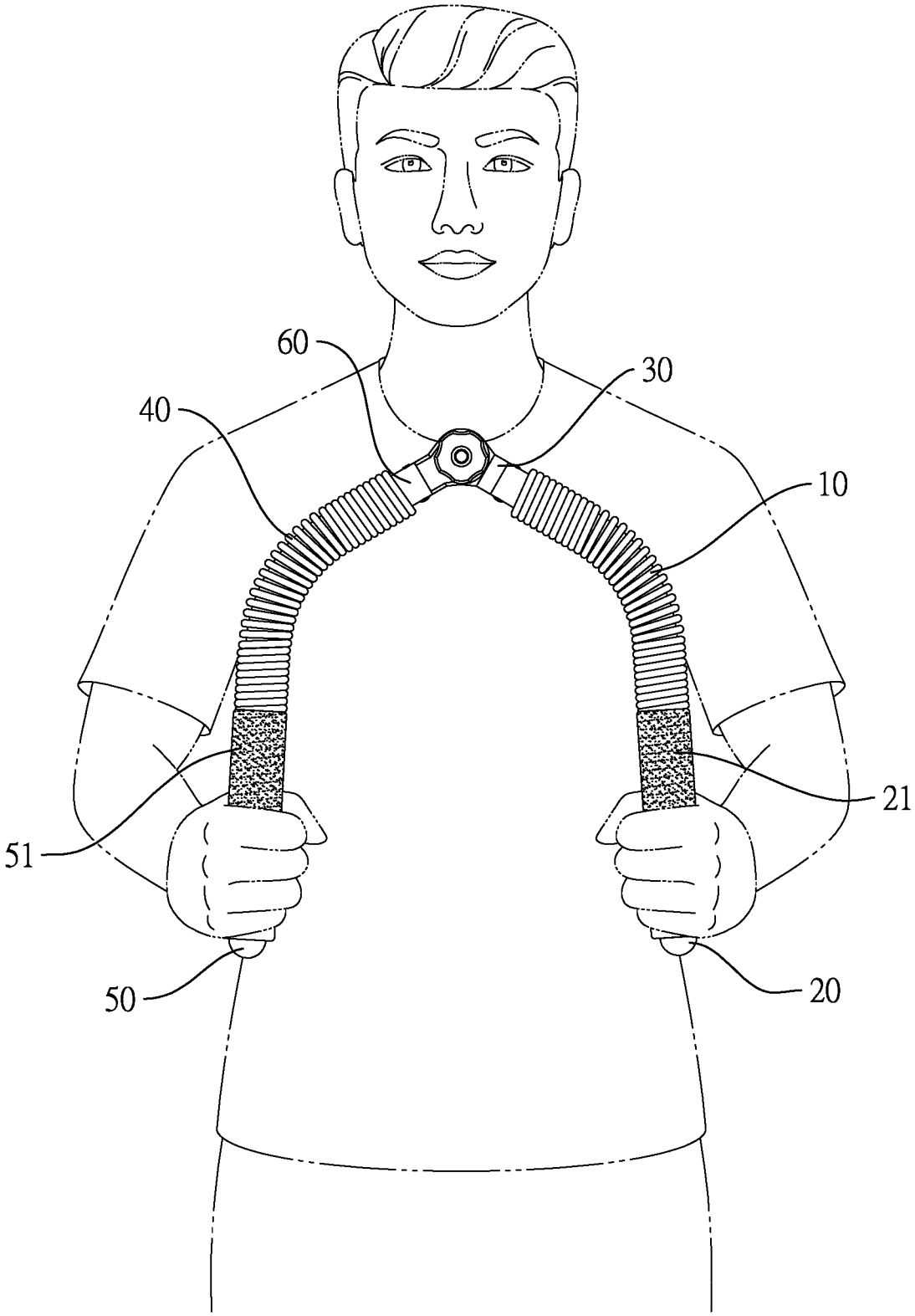


FIG. 5

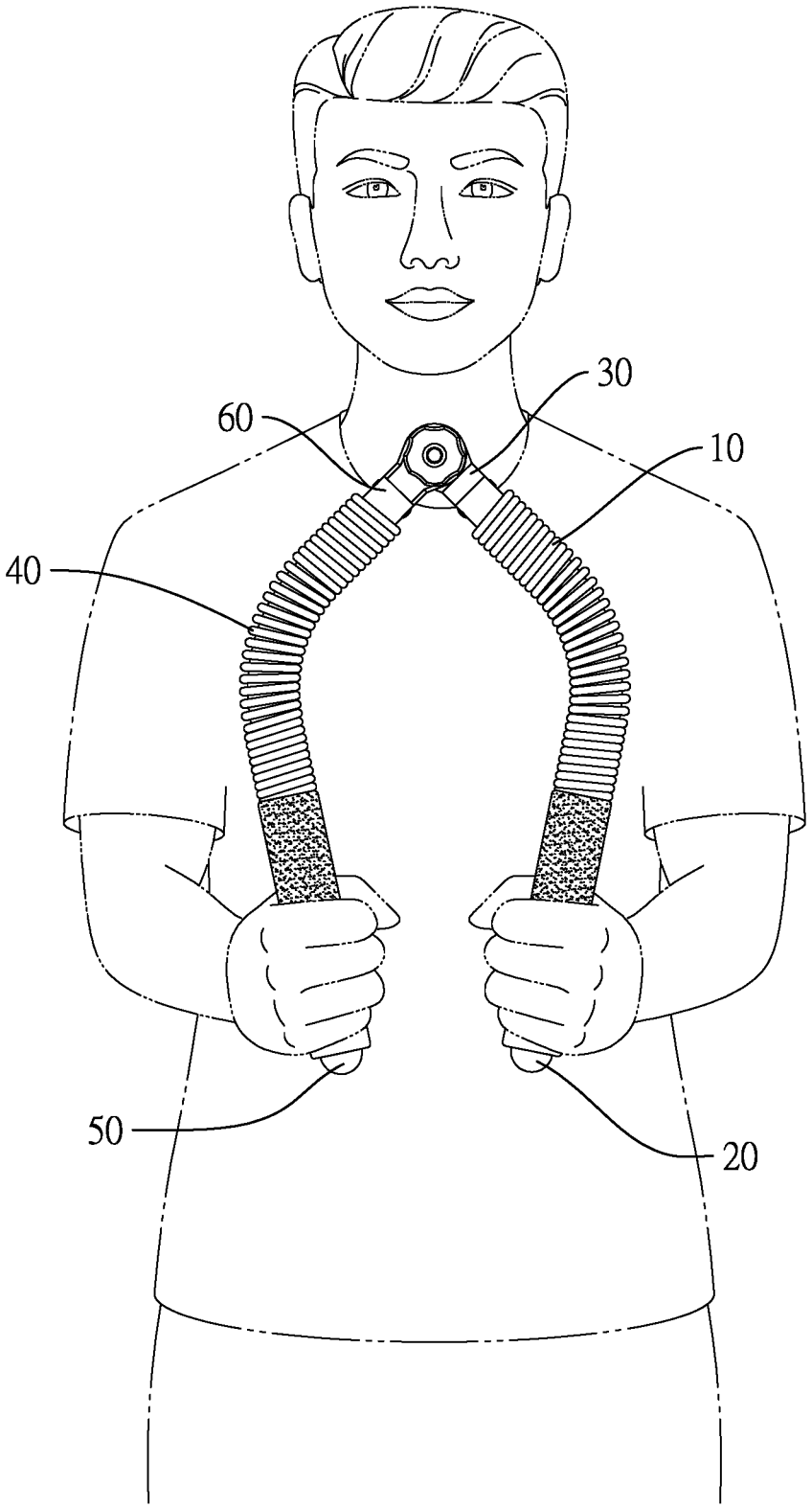


FIG. 6

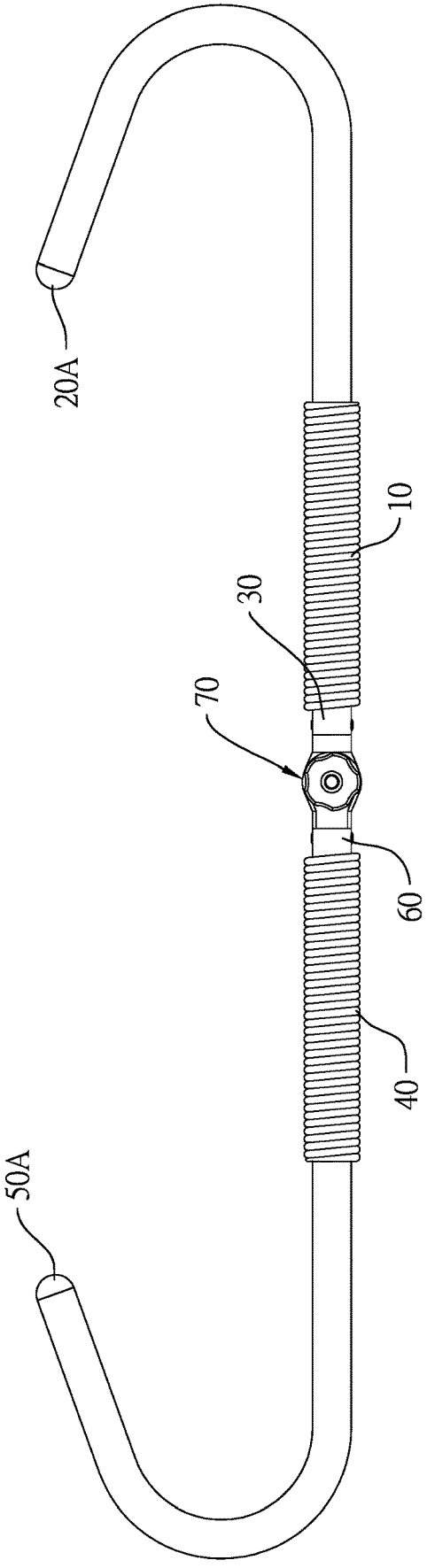


FIG. 7

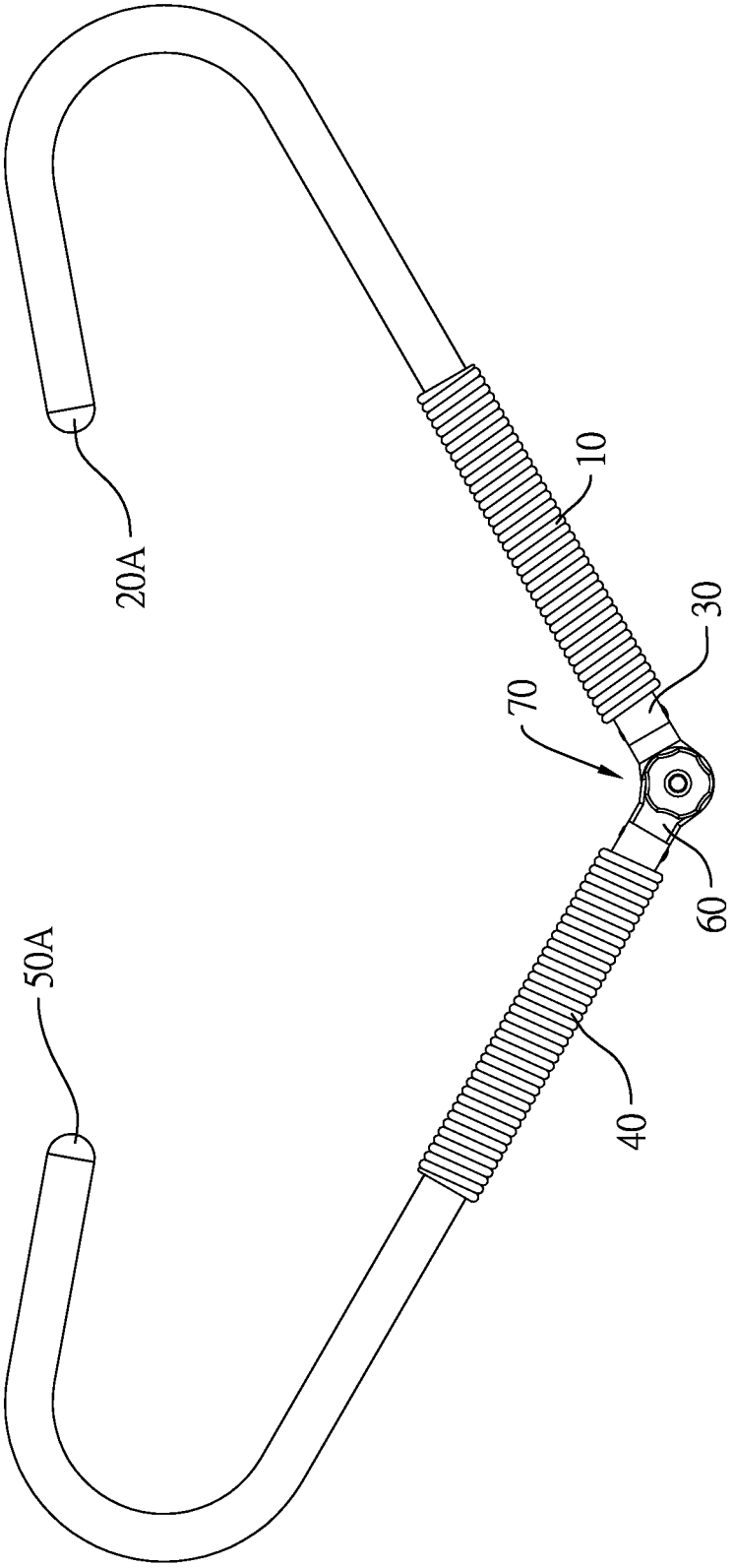


FIG. 8

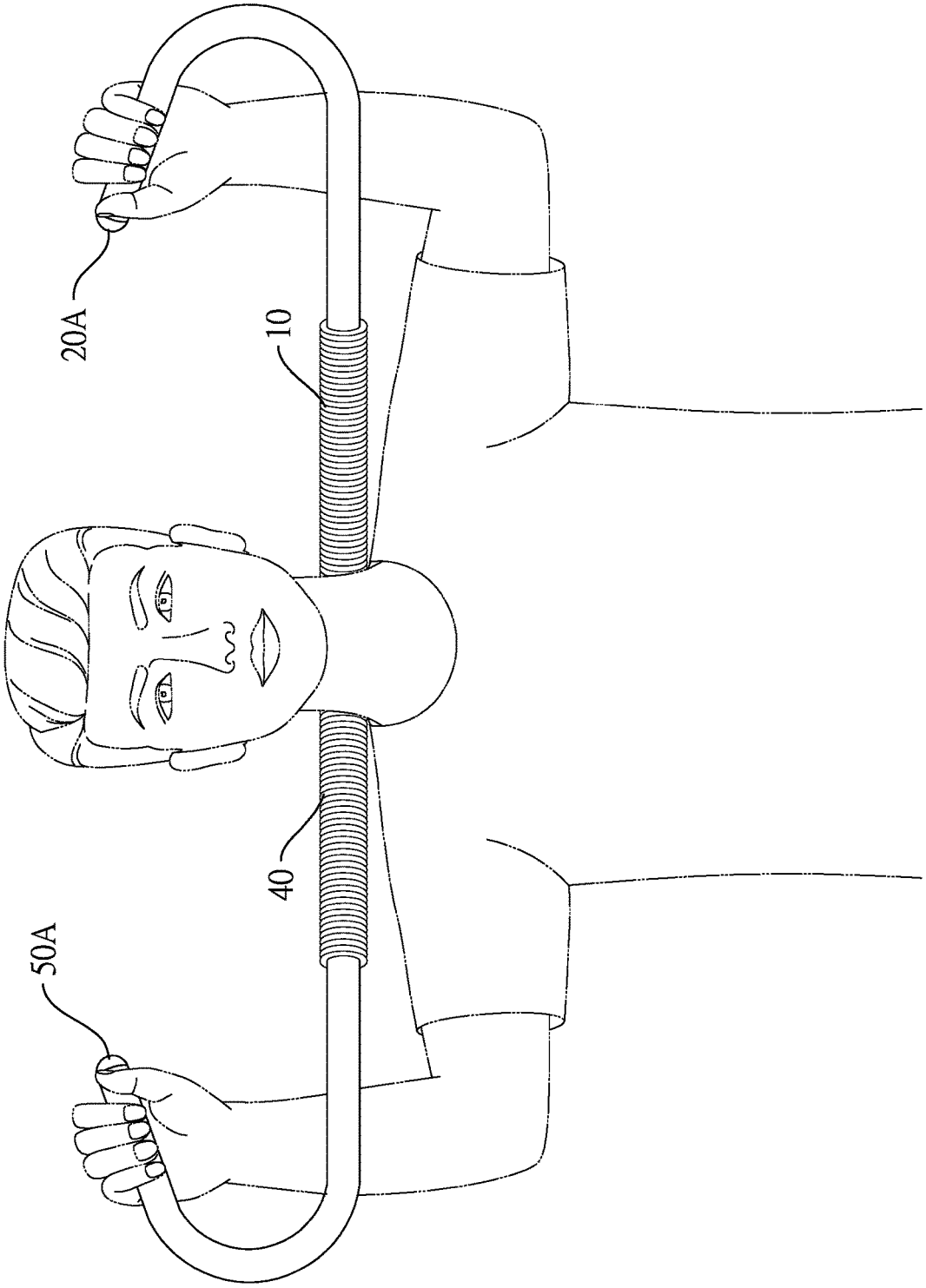


FIG. 9

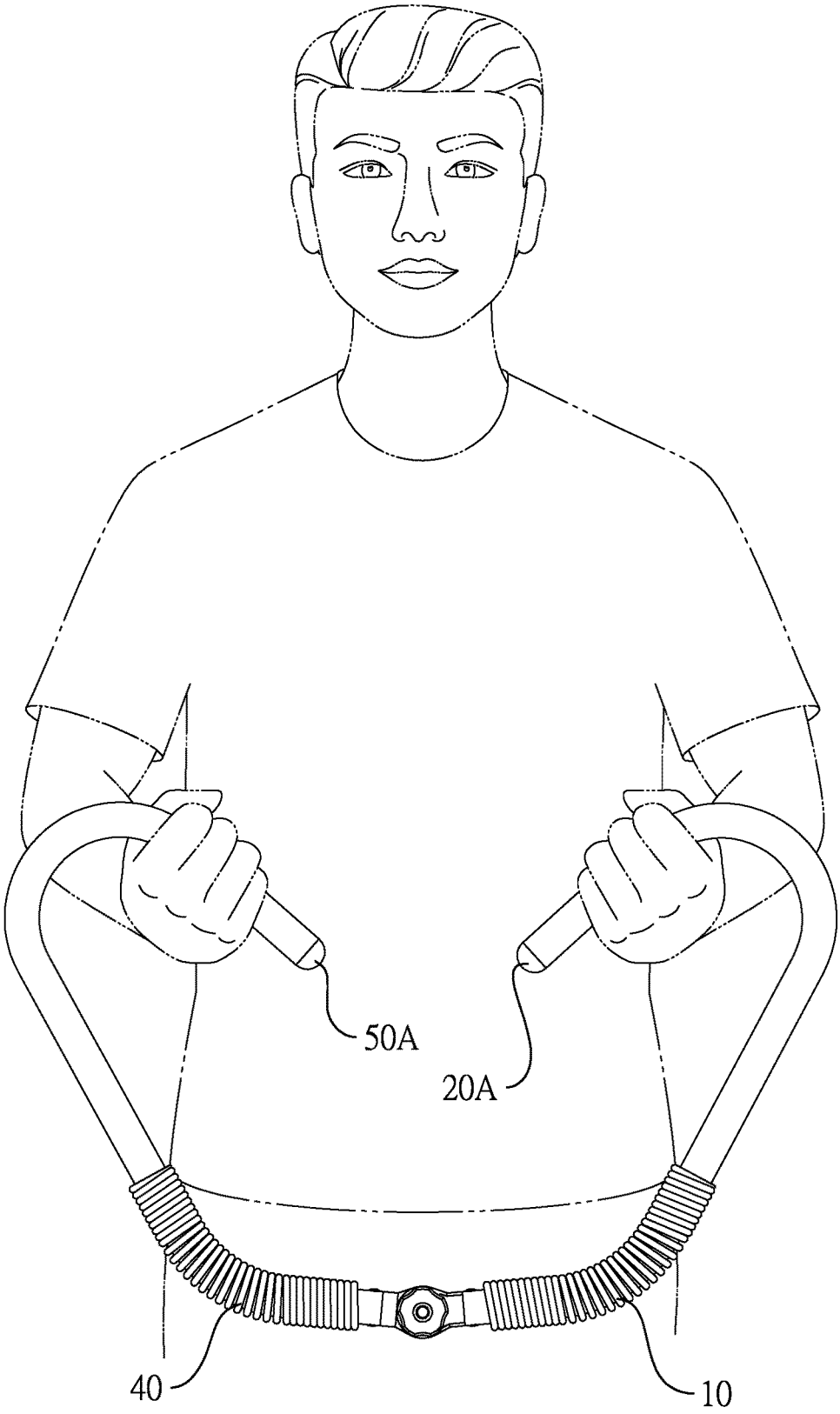


FIG. 10

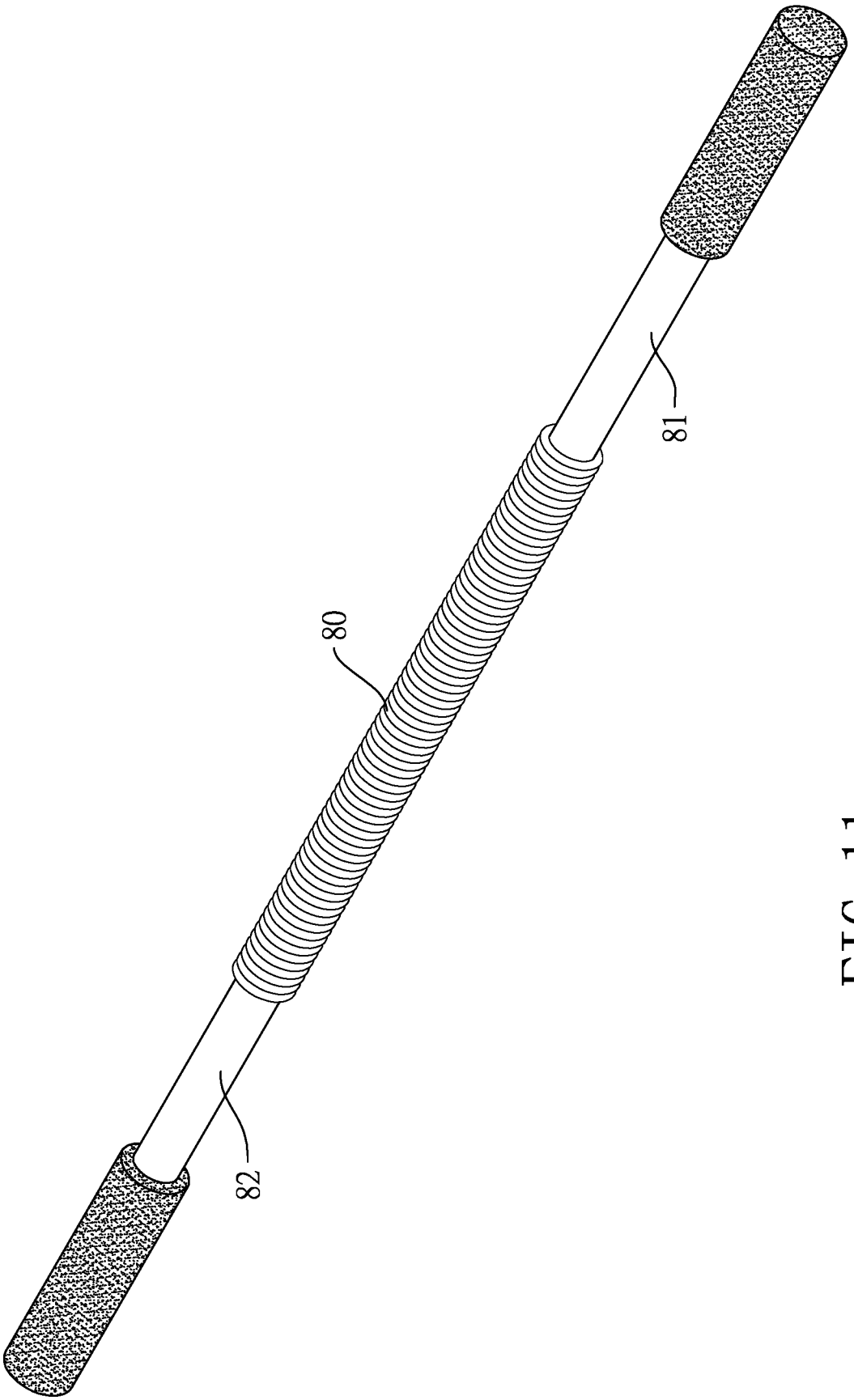


FIG. 11

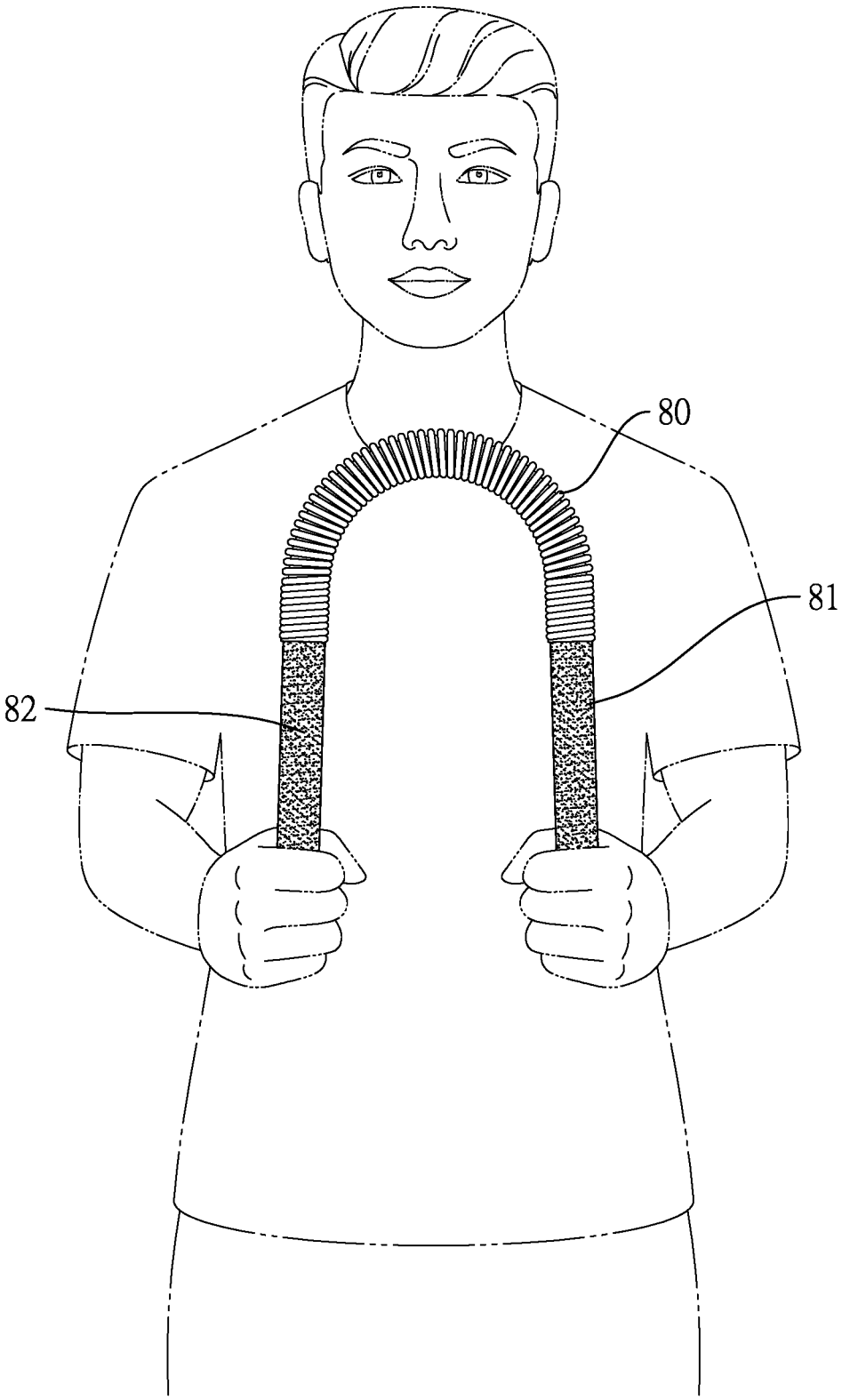


FIG. 12

POWER TWISTER WITH ADJUSTABLE RESISTANCE

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a power twister, and more particularly to a power twister with adjustable resistance that can help users in different builds with arm and chest workouts.

2. Description of Related Art

[0002] A power twister is an equipment of simple structure for a user to train his/her arms and chest. With reference to FIG. **11**, a conventional power twister is configured as a straight bar, and has an elastic component **80**, a right handle **81**, and a left handle **82**. The elastic component **80** is made of a rod rolled up spirally, and is hollow. Two ends of the elastic component **80** are respectively fixed with the right handle **81** and the left handle **82**. Each one of the right handle **81** and the left handle **82** is equipped with a respective sheath. With reference to FIG. **12**, when a user holds the sheaths of the right handle **81** and the left handle **82** by the user's two hands respectively, and uses arm muscles and chest muscles to force the conventional power twister to bend, two ends of the conventional power twister move toward each other. During the above-mentioned process, the user must overcome the resistance provided by elastic resilience of the elastic component **80**, so as to train the user's body.

[0003] However, the conventional power twister has the following shortcomings. Because of an overall length of the conventional power twister, a diameter of the rod that is used to make the elastic component **80** and a radius of the helix of the elastic component **80** are both fixed, and the resistance provided by the conventional power twister is thereby fixed. When the user tries to bend the conventional power twister, the user should provide a force larger than the resistance. When the user is strong enough to provide a larger force, bending the conventional power twister repeatedly for exercise is easy. On the contrary, if the user is less strong, then the user may not be able to bend the conventional power twister for workout.

[0004] To conclude, the resistance provided by the conventional power twister is fixed and not adjustable, so the conventional power twister may not be useful to users in different builds.

SUMMARY OF THE INVENTION

[0005] The main objective of the present invention is to provide a power twister with adjustable resistance, so as to solve the problem of the conventional power twister. The power twister of the present invention has a first elastic component, a first handle, a first adjusting component, a second elastic component, a second handle, a second adjusting component, and a positioning assembly. The first elastic component is made of a rod rolled up spirally, is hollow, and has two ends. The first handle is a bar, and has two ends, wherein one of the two ends of the first handle is inserted into one of the two ends of the first elastic component, and is fixed with the first elastic component. The first adjusting component is fixed with the other one of the two ends of the first elastic component, and has a first socket. The first socket has an upper surface, a first through hole disposed through the first socket, and a first toothed portion having multiple teeth protruding on the upper surface of the first socket and surrounding the first through hole.

[0006] The second elastic component is made of a rod rolled up spirally, is hollow, and has two ends. The second handle is a bar and has two ends, wherein one of the two ends of the second handle is inserted into one of the two ends of the second elastic component, and is fixed with the second elastic component. The second adjusting component is fixed with the other one of the two ends of the second elastic component, and has a second socket. The second socket has a lower surface, a second through hole disposed through the second socket, and a second toothed portion having multiple teeth protruding on the lower surface of the second socket, surrounding the second through hole, and engaged with the first toothed portion of the first adjusting component. The positioning assembly has an elastomer disposed between the first socket and the second socket, a threaded rod, and a knob. The threaded rod passes through the first through hole of the first adjusting component, the elastomer, and the second through hole of the second adjusting component. The knob has a threaded hole screwed with the threaded rod.

[0007] Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. **1** is a perspective view of a first embodiment of a power twister with adjustable resistance in accordance with the present invention;

[0009] FIG. **2** is an enlarged exploded view of the power twister in FIG. **1**;

[0010] FIG. **3** is a top view of the power twister in FIG. **1**;

[0011] FIG. **4** is a top view of the power twister in FIG. **1**, wherein the power twister is adjusted to a different angle;

[0012] FIGS. **5** and **6** are operational side views of the power twister in FIG. **1**;

[0013] FIG. **7** is a top view of a second embodiment of a power twister with adjustable resistance in accordance with the present invention;

[0014] FIG. **8** is a top view of the power twister in FIG. **7**, wherein the power twister is adjusted to a different angle;

[0015] FIGS. **9** and **10** are operational side views of the power twister in FIG. **7**;

[0016] FIG. **11** is a perspective view of a power twister in accordance with the prior art; and

[0017] FIG. **12** is an operational side view of the power twister in FIG. **11**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] With reference to FIGS. **1** to **3**, in a first embodiment of a power twister of the present invention, the power twister has a first elastic component **10**, a first handle **20**, a first adjusting component **30**, a second elastic component **40**, a second handle **50**, a second adjusting component **60**, and a positioning assembly **70**.

[0019] The first elastic component **10** is made of a rod, which is rolled up spirally, and the first elastic component **10** is thereby hollow. In other words, the first elastic component

10 is formed in a helix comprising multiple helix turns, and two adjacent said helix turns are axially in contact with each other.

[0020] The first handle **20** is an elongated straight bar and has two ends. One of the two ends of the first handle **20** is mounted with one of two ends of the first elastic component **10**. The end of the first handle **20** is inserted into the first elastic component **10**, and is fixed with the first elastic component **10**. The other one of the two ends of the first handle **20** is sheathed with a sheath **21**, so a user may grab the sheath **21** of the first handle **20** for holding the power twister. The first adjusting component **30** has one of two ends mounted with the other one of the two ends of the first elastic component **10**. Similarly, the second elastic component **40** is made of a rod, which is rolled up spirally, and the first elastic component **10** is thereby hollow. In other words, the second elastic component **40** is formed in a helix comprising multiple helix turns, and two adjacent said helix turns are axially in contact with each other. The second handle **50** is an elongated straight bar and has two ends. One of the two ends of the second handle **50** is mounted with one of two ends of the second elastic component **40**. The end of the first handle **50** is inserted into the second elastic component **40**, and is fixed with the second elastic component **40**. The other one of the two ends of the second handle **50** is sheathed with a sheath **51**, so the user may grab the sheath **51** of the second handle **50** for holding the power twister. The second adjusting component **60** has one of two ends mounted with the other one of the two ends of the second elastic component **40**.

[0021] With reference to FIG. **2**, the first adjusting component **30** has a first socket **31** located on the other one of the two ends of the first adjusting component **30**. The first socket **31** has an upper surface, a first groove **32**, a first through hole **33**, and a first toothed portion **34**. The first groove **32** is disposed on the upper surface of the first socket **31**. The first through hole **33** is disposed through a bottom portion of the first socket **31** and communicates with the first groove **32**. The first toothed portion **34** has multiple teeth protruding on the upper surface of the first socket **31** and surrounding the first groove **32** and the first through hole **33**.

[0022] With reference to FIG. **2**, the second adjusting component **60** has a second socket **61** located on the other one of the two ends of the second adjusting component **60**. The second socket **61** has a lower surface, a second groove **62**, a second through hole **63**, and a second toothed portion **64**. The second groove **62** is disposed on the lower surface of the second socket **61**. The second through hole **63** is disposed through a top portion of the second socket **61** and communicates with the second groove **62**. The second toothed portion **64** has multiple teeth protruding on the lower surface of the second socket **61** and surrounding the second groove **62** and the second through hole **63**. Further, the first through hole **33** and the second through hole **63** may be polygonal.

[0023] The positioning assembly **70** comprises a threaded rod **71**, an elastomer **72**, and a knob **73**. The elastomer **72** may be a compression spring, and is disposed between the first groove **32** of the first adjusting component **30** and the second groove **62** of the second adjusting component **60**. Two ends of the elastomer **72** abut the bottom portion of the first socket **31** and the top portion of the second socket **61**. The threaded rod **71** passes through the first through hole **33** of the first adjusting component **30**, the elastomer **72**, and the second through hole **63** of the second adjusting component **60**. With reference to FIG. **2**, the knob **73** may be a star knob. The knob **73** has a threaded hole **731**. The threaded hole **731** may be disposed through the knob **73**. The knob **73** and the threaded rod **71** are mounted by threads.

[0024] Moreover, with reference to FIG. **2**, the threaded rod **71** has an end cap, threads, and a polygonal block located between the end cap and the threads. The polygonal block has a contour corresponding to a contour of the first through hole **33** and a contour of the second through hole **63**, so the polygonal block of the threaded rod **71** may be wedged within the first through hole **33** of the first adjusting component **30** or the second through hole **63** of the second adjusting component **60**. In this way, the threaded rod **71** cannot be rotated with respect to the first adjusting component **30** or the second adjusting component **60**, and the knob **73** may be tightened on or loosened from the threaded rod **71**.

[0025] With reference to FIGS. **1** and **3**, in the first embodiment of the present invention, the first elastic component **10**, the first handle **20**, the second elastic component **40**, and the second handle **50** are aligned. The elastomer **72** of the positioning assembly **70** is compressed as the knob **73** and the threaded rod **71** are mounted together. At the same time, the first toothed portion **34** of the first socket **31** and the second toothed portion **64** of the second socket **61** are engaged together, so the power twister may be sustained in a bar shape without applied with any force.

[0026] With reference to FIGS. **2** and **4**, in case a user has less strength to operate the bar-shaped power twister, the resistance of the power twister of the present invention may be adjusted down. When the knob **73** is loosened from the threaded rod **71**, the restoring force of the compressed elastomer **72** will separate the engaged first toothed portion **34** and the second toothed portion **64** by pushing the first socket **31** and the second socket **61** away from each other. Then the user may swing, rather than bend, the first elastic component **10** and the second elastic component **40** to form an angle therebetween. Afterwards, the knob **73** may be retightened on the threaded rod **71** as well as the first toothed portion **34** and the second toothed portion **64** are re-engaged. With reference to FIG. **5**, the user holds the power twister by grabbing the sheaths **21**, **51** of the two handles **20**, **50**. When the user applies an inward force to overcome the resistance provided by the two elastic components **10**, **40**, the two handles **20**, **50** approach each other. Due to the angle formed between the two elastic components **10**, **40**, the resistance is lower, and a user who has a smaller strength becomes able to exercise with the power twister.

[0027] With reference to FIG. **6**, for a user having even less strength, the angle between the two elastic components **10**, **40** may be adjusted even smaller, and the resistance of the power twister may be lowered once again.

[0028] With reference to FIG. **7**, a second embodiment of a power twister of the present invention differs from the first embodiment in the following descriptions. The first handle **20**A and the second handle **50**A are respectively a bended bar. Sheaths not shown in the figures are still optional to be equipped on the handles **20**A, **50**A.

[0029] With reference to FIG. **8**, similar with the first embodiment, the angle between the first elastic component **10** (along with the first handle **20**A) and the second elastic component **40** (along with the second handle **50**A) may be adjusted for suiting users in different builds.

[0030] With further reference to FIG. **9**, the power twister of the second embodiment of the present invention may be set behind the user's neck and upper back. The user may grab the bended parts of the two handles **20**A, **50**A and push forward with two arms for training.

[0031] With reference to FIG. **10**, the power twister may be also disposed in front of the user's body. The user may grab the two handles **20**A, **50**A and force the two handles **20**A, **50**A to move toward each other for training.

[0032] With the aforementioned technical characteristics, the power twister of the present invention has the following advantages. The angle between the two elastic components **10**, **40** are adjustable, and the resistance of the power twister is thereby adjustable for different users according to their capabilities. Therefore, the problem of the conventional power twister is solved, and the power twister of the present invention is widely applicable to people in different builds.

[0033] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and features of the invention, the disclosure is illustrative only. Changes may be made in the details, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A power twister with adjustable resistance, the power twister comprising:

a first elastic component made of a rod rolled up spirally, being hollow, and having two ends;

a first handle being a bar, and having

two ends, wherein one of the two ends of the first handle is inserted into one of the two ends of the first elastic component, and is fixed with the first elastic component;

a first adjusting component fixed with the other one of the two ends of the first elastic component, and having

a first socket having

an upper surface;

a first through hole disposed through the first socket; and

a first toothed portion having multiple teeth protruding on the upper surface of the first socket and surrounding the first through hole;

a second elastic component made of a rod rolled up spirally, being hollow, and having two ends;

a second handle being a bar, and having

two ends, wherein one of the two ends of the second handle is inserted into one of the two ends of the second elastic component, and is fixed with the second elastic component;

a second adjusting component fixed with the other one of the two ends of the second elastic component, and having

a second socket having

a lower surface;

a second through hole disposed through the second socket; and

a second toothed portion having multiple teeth protruding on the lower surface of the second socket, surrounding the second through hole, and engaged with the first toothed portion of the first adjusting component; and

a positioning assembly having

an elastomer disposed between the first socket and the second socket;

a threaded rod passing through the first through hole of the first adjusting component, the elastomer, and the second through hole of the second adjusting component; and

a knob having

a threaded hole screwed with the threaded rod.

2. The power twister with adjustable resistance as claimed in claim **1**, wherein

the first socket has

a first groove disposed on the upper surface of the first socket; and

the first through hole disposed through a bottom portion of the first socket and communicating with the first groove;

the second socket has

a second groove disposed on the lower surface of the second socket; and

the second through hole disposed through a top portion of the second socket and communicating with the second groove; and

the elastomer is disposed between the first groove and the second groove.

3. The power twister with adjustable resistance as claimed in claim **1**, wherein the other one of the two ends of the first handle is sheathed with a sheath, and the other one of the two ends of the second handle is sheathed with another sheath.

4. The power twister with adjustable resistance as claimed in claim **2**, wherein the other one of the two ends of the first handle is sheathed with a sheath, and the other one of the two ends of the second handle is sheathed with another sheath.

5. The power twister with adjustable resistance as claimed in claim **1**, wherein the first handle and the second handle are each respectively a bended bar.

6. The power twister with adjustable resistance as claimed in claim **2**, wherein the first handle and the second handle are each respectively a bended bar.

7. The power twister with adjustable resistance as claimed in claim **3**, wherein the first handle and the second handle are each respectively a bended bar.

8. The power twister with adjustable resistance as claimed in claim **4**, wherein the first handle and the second handle are each respectively a bended bar.

* * * * *