US 20070151998A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2007/0151998 A1**

Wong (43) **Pub. Date: Jul. 5, 2007**

(54) **COIL SPRING HANGER CLIP**

(75) Inventor: **Sai Tat Wong**, N.t. (HK)

Correspondence Address:
RABIN & Berdo, PC
1101 14TH STREET, NW, SUITE 500
WASHINGTON, DC 20005

(73) Assignee: **TOP FINE PRODUCTS LIMITED**

(21) Appl. No.: **11/518,304**

(22) Filed: **Sep. 11, 2006**

Related U.S. Application Data

(60) Provisional application No. 60/754,652, filed on Dec. 30, 2005.

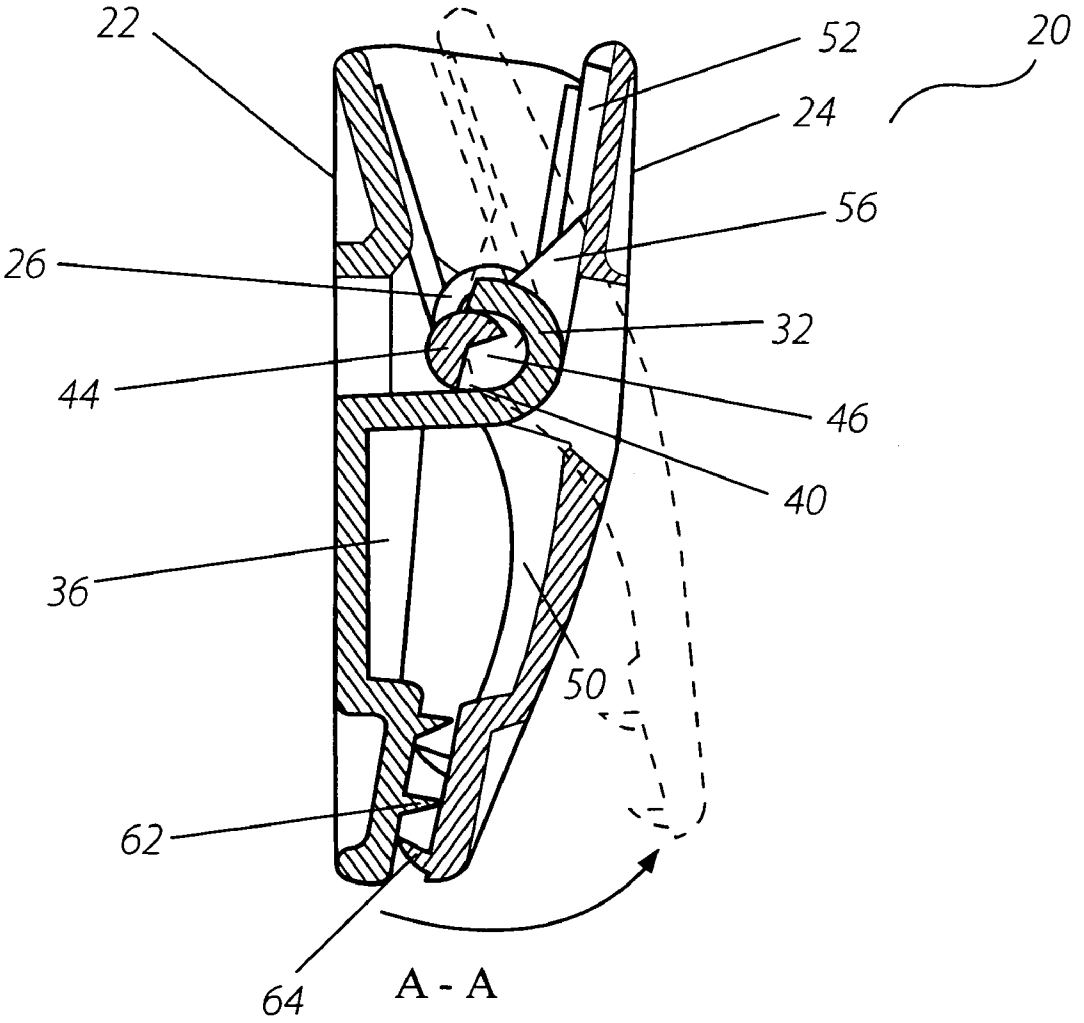
Publication Classification

(51) **Int. Cl.**
A41D 27/22 (2006.01)

(52) **U.S. Cl.** **223/85**

(57) **ABSTRACT**

A clip for securing a garment to a garment hanger is provided, comprising a first jaw with two portions outwardly, upwardly and inwardly extending from an inner surface of the first jaw in a spaced and aligned fashion to respectively define an open-end support; a second jaw with two stub shafts in a spaced and aligned fashion, outwardly, laterally and oppositely extending from an inner surface of the second jaw, each being adapted to be received in the open-end support of the first jaw to form a pivot axis about which the second jaw is pivotally moveable relative to the first jaw; and a coil spring held between the first and second jaws in a manner that two ends of the coil spring respectively press on the first and second jaws so as to serve as a biasing means of the clip for holding the first and second jaws together.



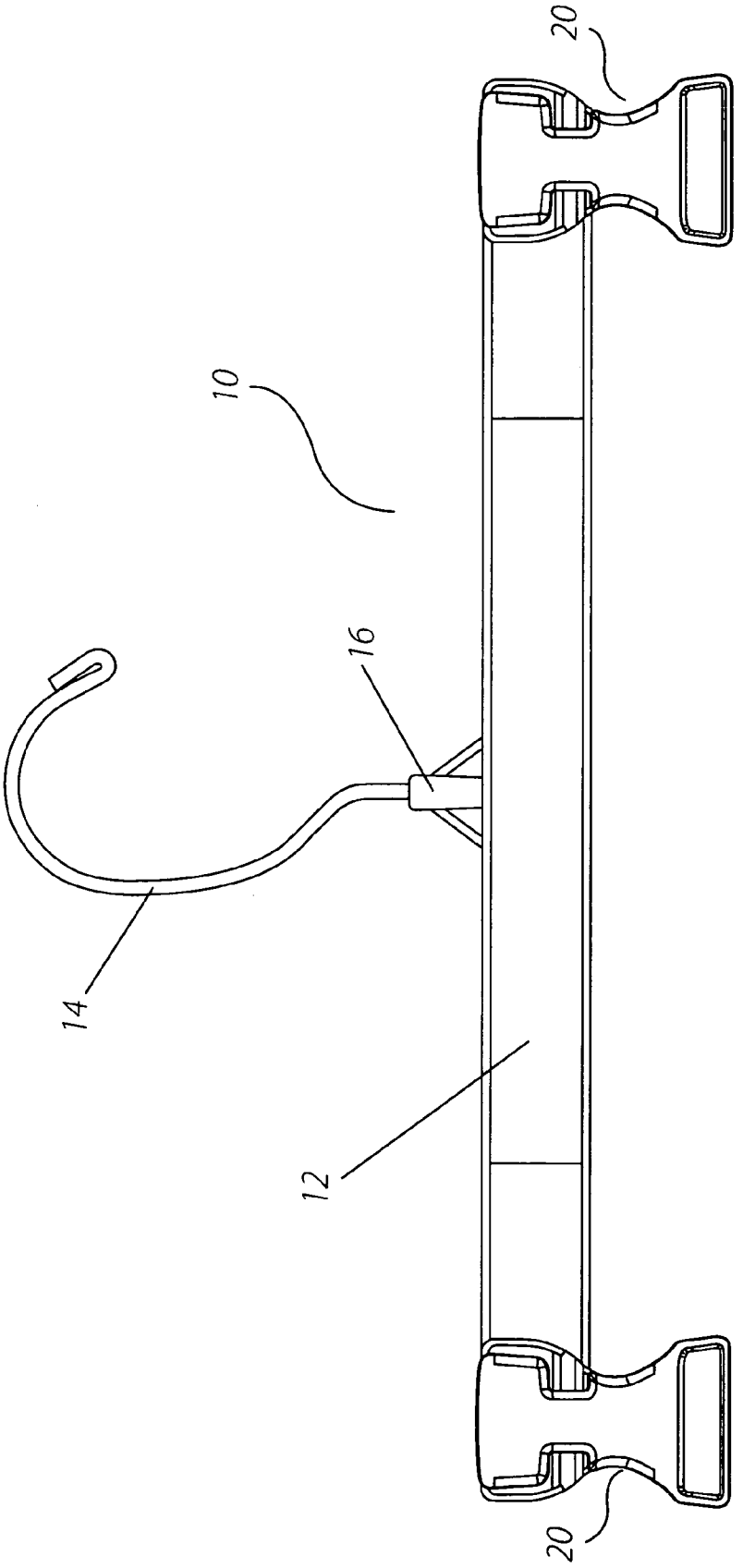


Fig. 1

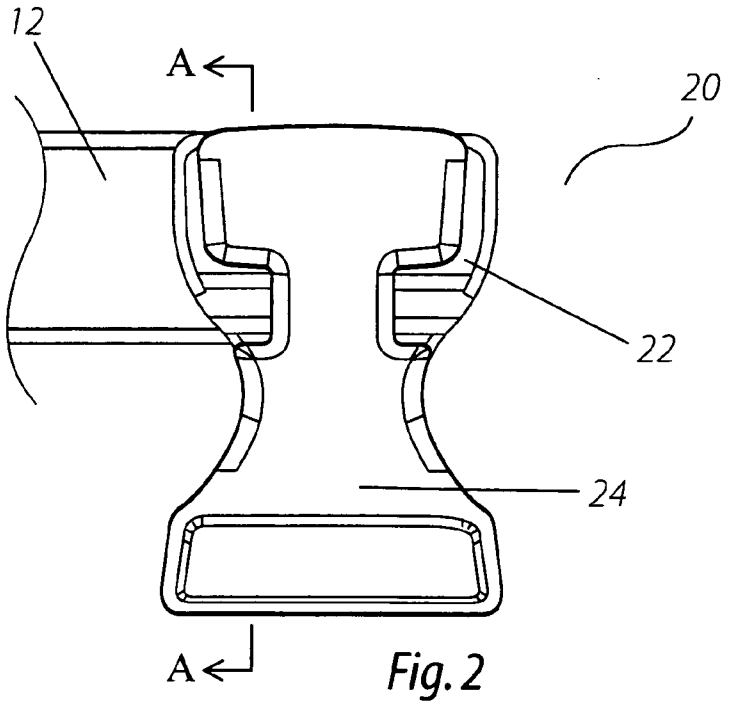


Fig. 2

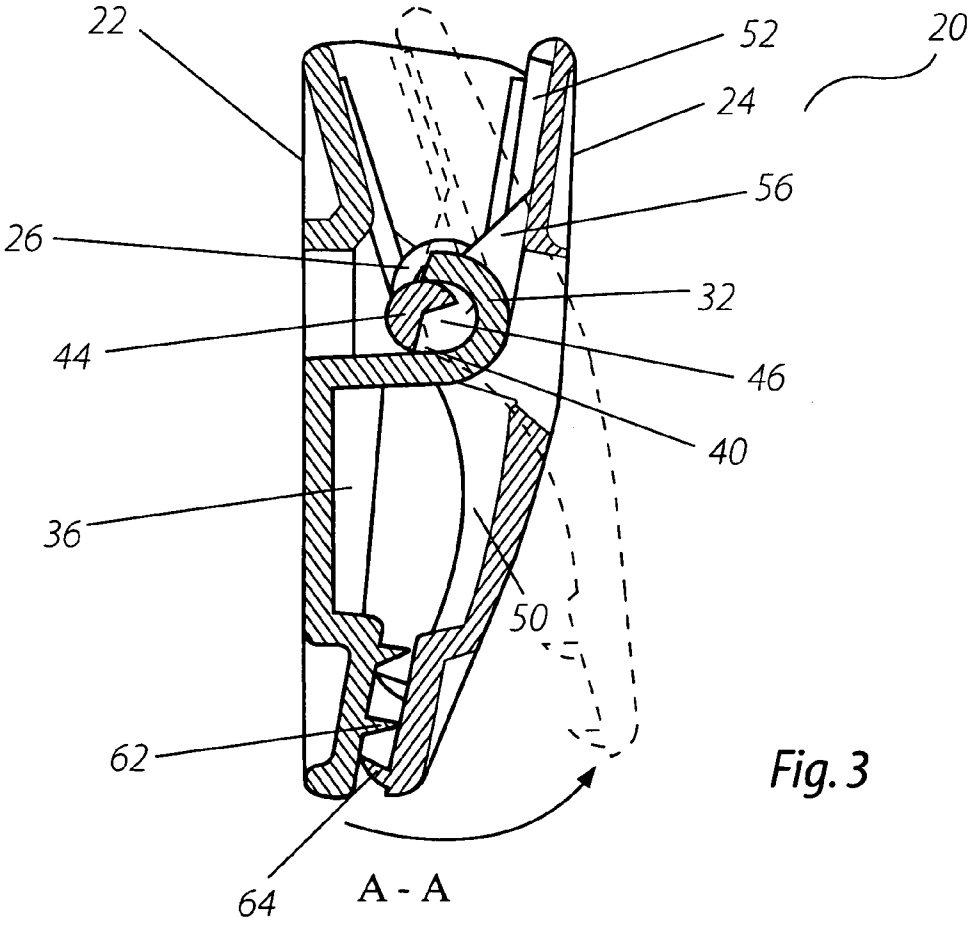


Fig. 3

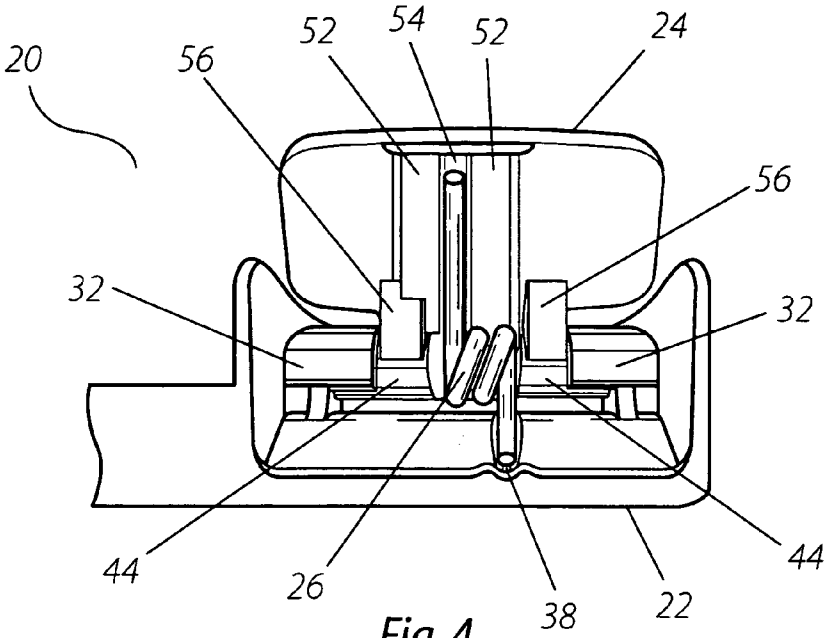


Fig. 4

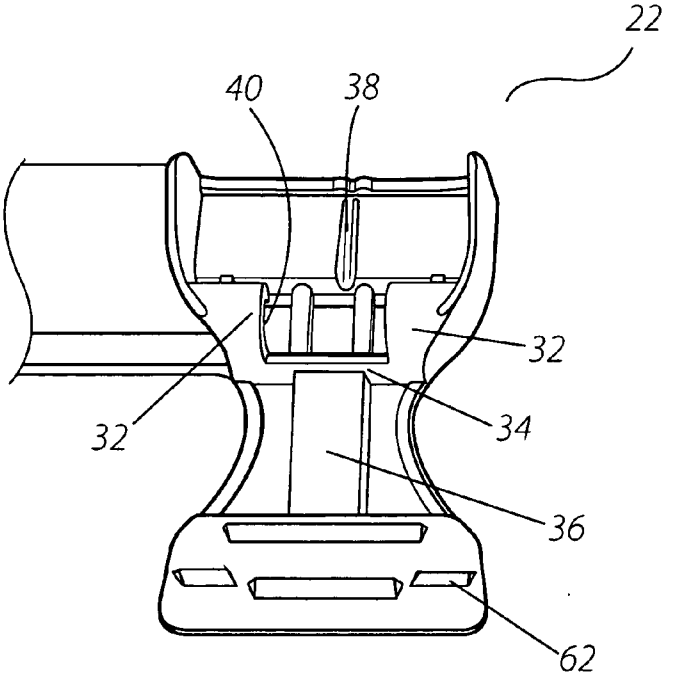


Fig. 5

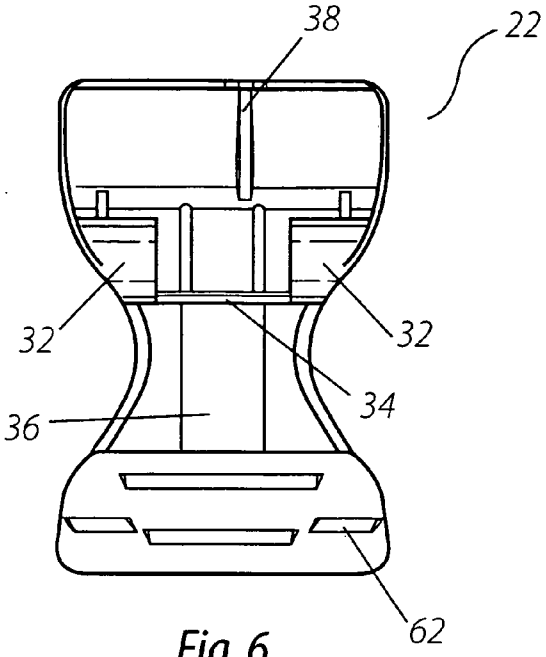


Fig. 6

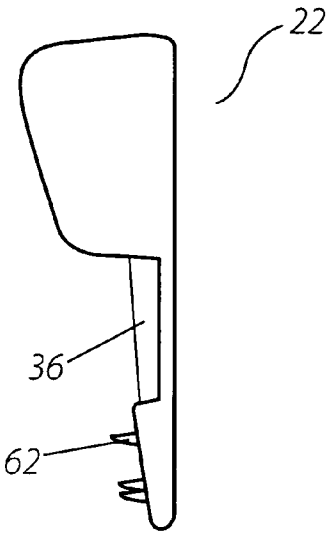


Fig. 7

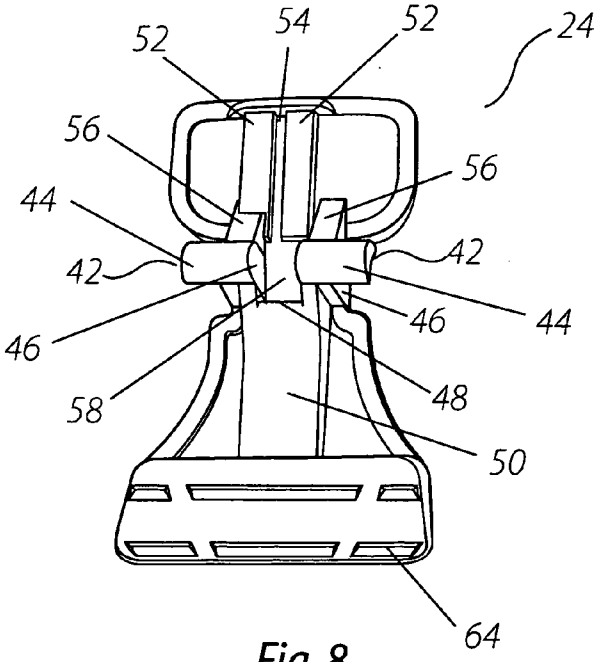


Fig. 8

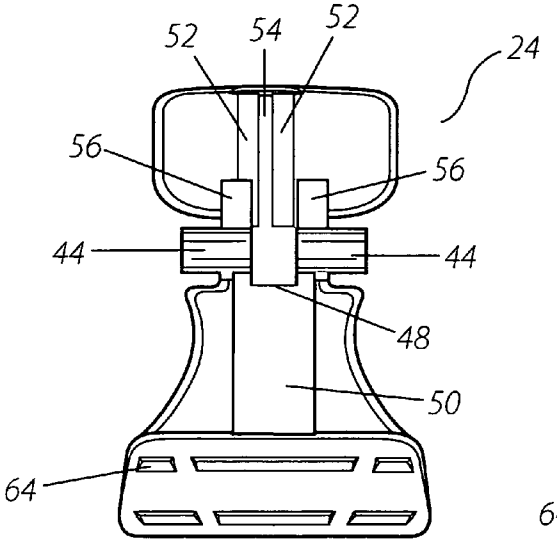


Fig. 9

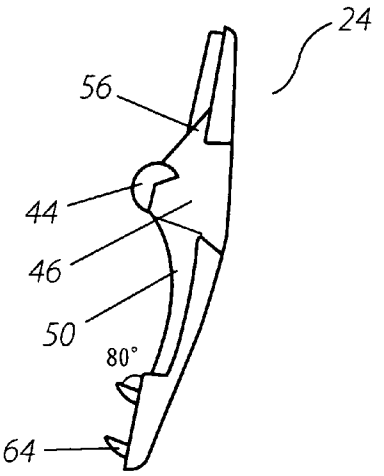


Fig. 10

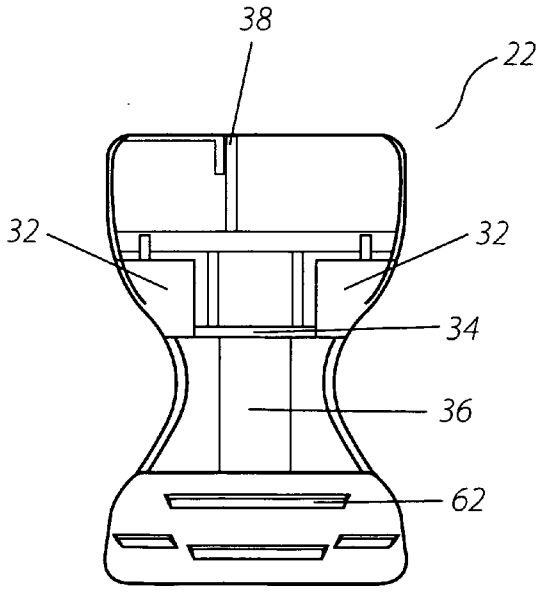


Fig. 11

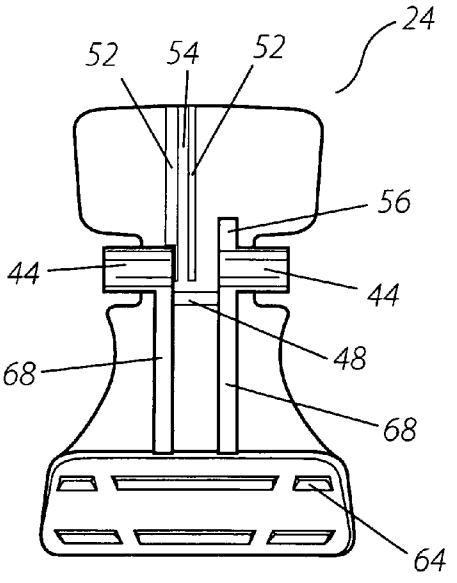


Fig. 12

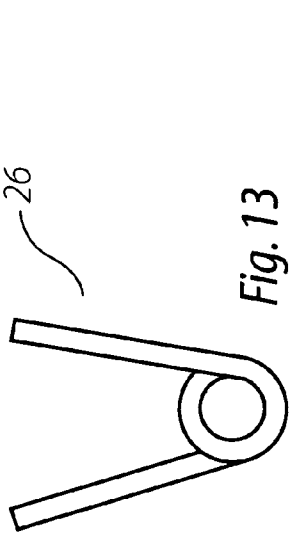


Fig. 13

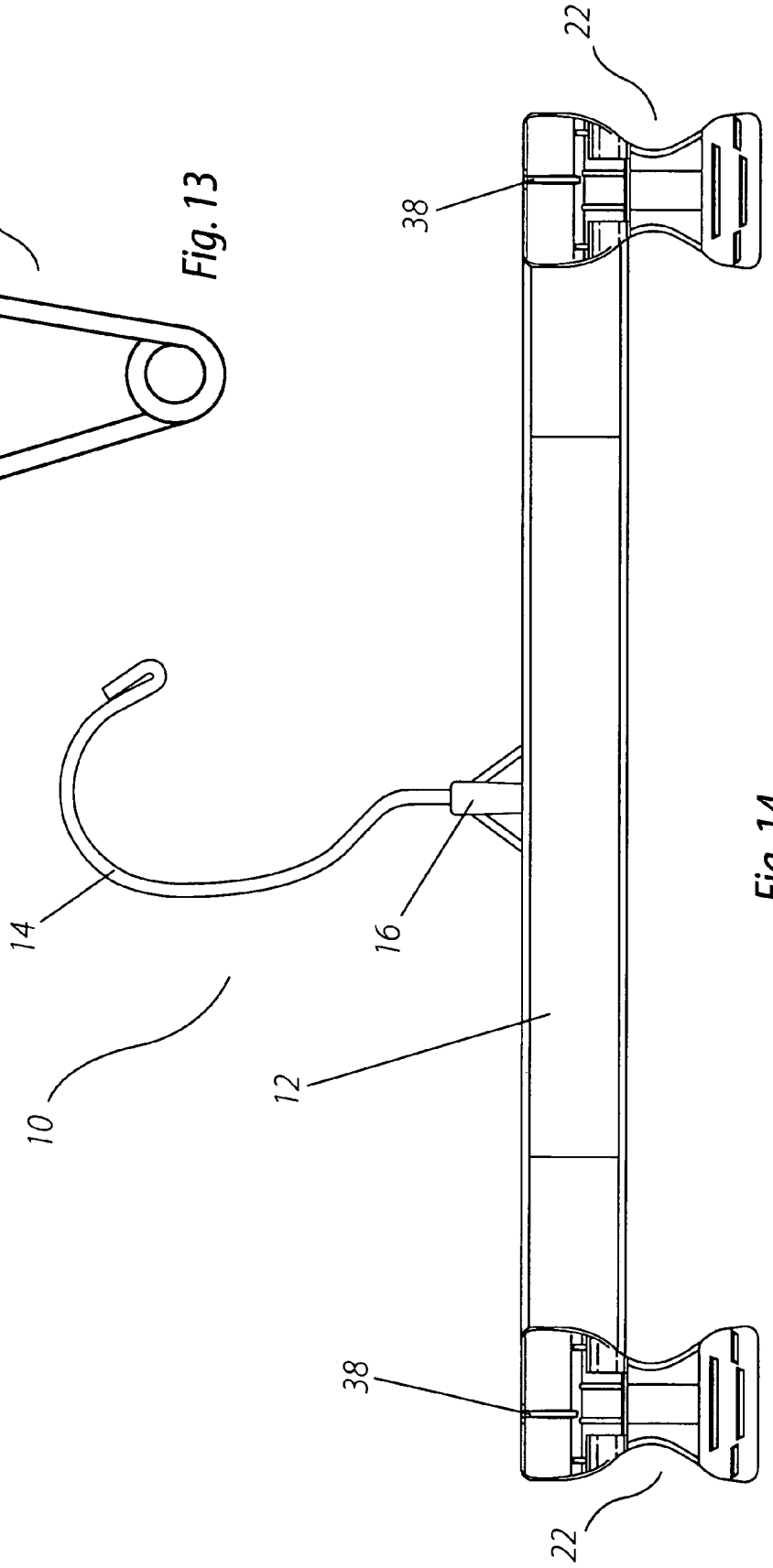


Fig. 14

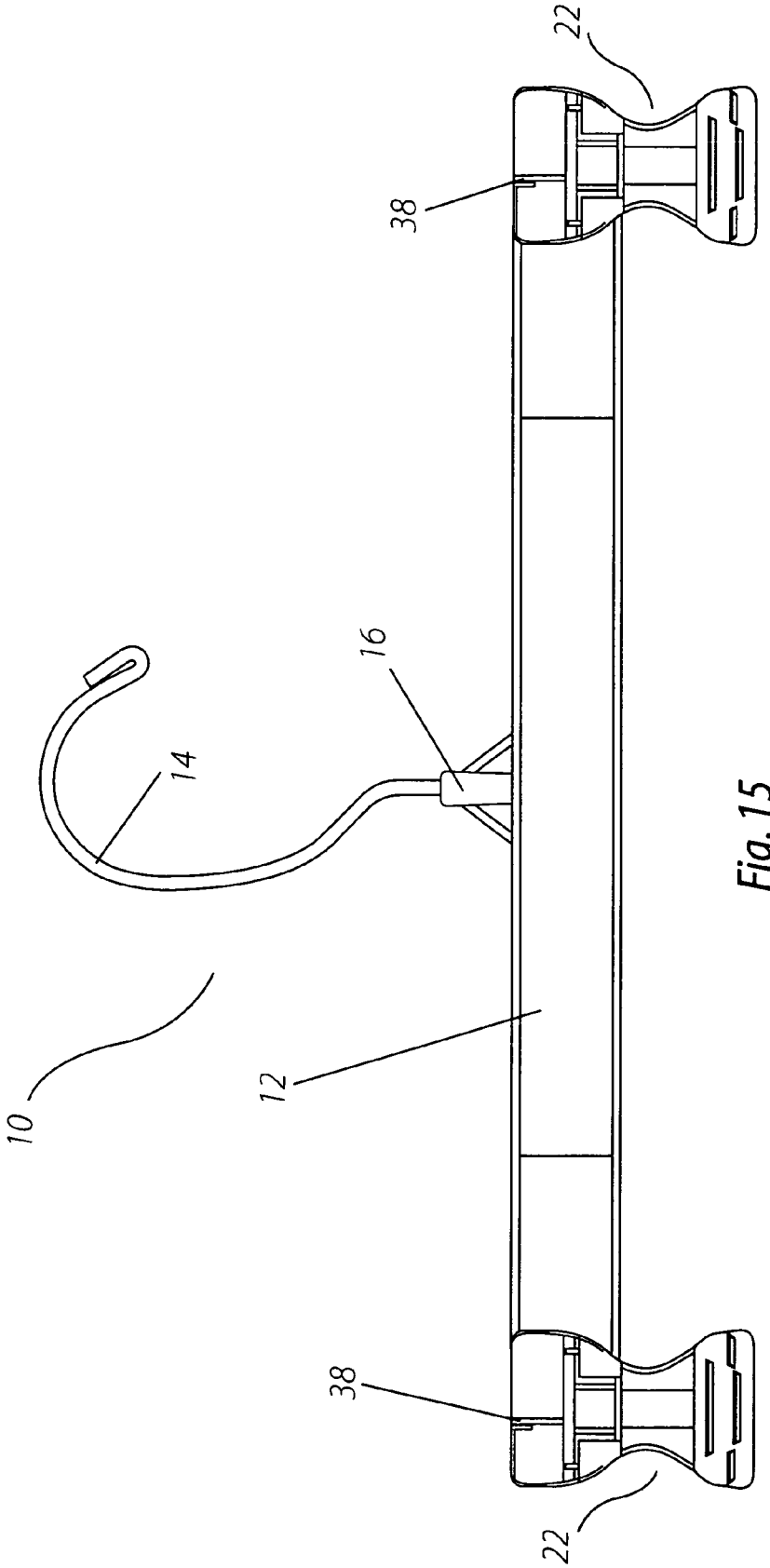


Fig. 15

COIL SPRING HANGER CLIP

RELATED APPLICATIONS

[0001] This non-provisional application claims priority from provisional application No. 60/754,662, filed on Dec. 30, 2005, the disclosure of which is incorporated herein by reference in their entirety.

FIELD OF THE INVENTION

[0002] This invention relates generally to a coil clip for clamping garments and, more particularly, to a garment hanger clip provided with improved construction for preventing deformation and for ease in manufacturing and manipulation.

BACKGROUND OF THE INVENTION

[0003] The present invention relates to a structural improvement of "Coil Spring Hanger Clip" disclosed in the U.S. Pat. No. 6,023,819. A problem of the coil spring hanger clip disclosed in the above U.S. patent is resided in that either the fixed jaw or the movable jaw of the clip has an asymmetrical and unbalanced construction, thus leading to asymmetrical application of the force to each jaw. This cause deformation and mismatch of two jaws after use over a period of time.

[0004] The clip disclosed in the above U.S. patent also involves the following particular disadvantages:

[0005] (1) the asymmetrical and unbalanced construction of the clip has rather difficulty in injection molding during the manufacturing thereof and inevitably results in an additional problem of being relatively expensive to manufacture;

[0006] (2) the clip requires for a heavier coil spring and a high force applied to the clip and spring is required to manipulate the clip; and

[0007] (3) there is a tendency for the delicate and smoothly textured garments to accidentally or unintendedly release or drop off from the jaws of the clip because of the deformation of the clip and of the design of teeth at the bottom of inner surfaces of the jaws.

[0008] Accordingly, there exists a need for an improved clip with a simple design which is inexpensive to produce in an injection mold and which is capable of surely and stably holding garments, especially holding expensive and delicate garments.

SUMMARY OF THE INVENTION

[0009] The present invention has been developed to fulfill the needs noted above and therefore has an principle object of the provision of a garment hanger clip which is not only lower in manufacturing cost and complexity but also significantly reduces the likelihood of deformation of the jaws of the clip.

[0010] Another object of the invention is to modify the existing hanger clip structure with a simple enhancement to afford durability, maintain an optimum clamping state over a long time and allow the utilization of a relatively small-sized coil spring while keeping the essentially same clamping action applied to the jaws.

[0011] In one aspect of the invention, there is provided a clip for securing a garment to a garment hanger, which is connected to one end of a hanger arm of the garment hanger, comprising a first jaw formed integrally with the hanger arm, comprising two portions outwardly, upwardly and inwardly extending from an inner surface of the first jaw in a spaced and aligned fashion to respectively define an open-end support; a second jaw pivotally mounted to the first jaw, comprising two stub shafts in a spaced and aligned fashion, outwardly, laterally and oppositely extending from an inner surface of the second jaw, each being adapted to be received in the open-end support of the first jaw through the opening of the support to form a pivot axis about which the second jaw is pivotally moveable with respect to the first jaw; and a coil spring held between the first and second jaws in a manner that two ends of the coil spring respectively press on the first and second jaws so as to serve as a biasing means of the clip for holding the first and second jaws together.

[0012] While the clip according to the invention may be made from any suitable material, it is preferred that the clip should be mounded from a suitable plastics material such as polypropylene (PP), High Impact Polystyrene (HIPS), K-resin or the like.

[0013] In another aspect of the invention, there is provided a garment hanger comprising a hanger arm, a hook member projecting upwardly in the middle of the hanger arm, and a clip disposed at each end of the hanger arm, wherein the clip comprises a first jaw formed integrally with the hanger arm, comprising two portions outwardly, upwardly and inwardly extending from an inner surface of the first jaw in a spaced and aligned fashion to respectively define an open-end support; a second jaw pivotally mounted to the first jaw, comprising two stub shafts in a spaced and aligned fashion, outwardly, laterally and oppositely extending from an inner surface of the second jaw, each being adapted to be received in the open-end support of the first jaw through the opening of the support to form a pivot axis about which the second jaw is pivotally moveable with respect to the first jaw; and a coil spring held between the first and second jaws in a manner that two ends of the coil spring respectively press on the first and second jaws so as to serve as a biasing means of the clip for holding the first and second jaws together.

[0014] To have a better understanding of the invention reference is made to the following detailed description of the invention and embodiments thereof in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. **1** is a front view of a garment hanger having a pair of garment clips constructed consistent with a first embodiment the invention.

[0016] FIG. **2** is an enlarged front view of the garment clip of FIG. **1**.

[0017] FIG. **3** is a cross-sectional view taken along line A-A of FIG. **2**.

[0018] FIG. **4** is a top view of the garment clip of FIG. **1**.

[0019] FIG. **5** is a perspective view of the fixed jaw of the first embodiment of the invention.

[0020] FIG. **6** is a front view of the fixed jaw of FIG. **5**.

[0021] FIG. **7** is a side view of the fixed jaw, shown in FIG. **6**.

[0022] FIG. **8** is a perspective view of the movable jaw of the first embodiment of the invention.

[0023] FIG. **9** is a front view of the movable jaw of FIG. **8**.

[0024] FIG. **10** is a side view of the movable jaw, shown in FIG. **9**.

[0025] FIG. **11** is a front view of the fixed jaw of the clip constructed consistent with a second embodiment of the invention.

[0026] FIG. **12** is a front view of the movable jaw of the clip constructed consistent with a second embodiment of the invention.

[0027] FIG. **13** is a side view of a coil spring for use in the clip of the invention.

[0028] FIG. **14** is a front view of the garment hanger having the fixed jaws of FIG. **5** with the movable jaw and the coil spring being removed.

[0029] FIG. **15** is a front view of the garment hanger having the fixed jaws of FIG. **11** with the movable jaw and the coil spring being removed.

[0030] In the various figures of the drawings, like reference numerals are used to designate like parts.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0031] Referring firstly to FIG. **1** of the drawings, there is illustrated a garment hanger **10** comprising a hanger arm **12**, from which a hook member **14** projects upwards in the middle. Positioned at both ends of the hanger arm **12** are clips **20** constructed consistent with a first preferred embodiment of the present invention, to which a garment can be securely clamped. The garment hanger **10** may be of any size, shape and configuration that is conventional in the clothing industry. Preferably, the garment hanger **10** used in the present invention is advantageously of a type having a plastic post **16** integral with the hanger arm **12** and a hook member **14** made of metal and received in the post **16**. The plastic material may be preferably selected from PP, HIPS and K-resin. As is known in the industry, the hanger **10** may also be formed as a one-piece moulding of plastic material.

[0032] The clip **20** comprises a first jaw **22** (hereinafter referred as fixed jaw) integrally moulded with one end of the hanger arm **12**, a second jaw **24** (hereinafter referred as movable jaw) that pivots with respect to the fixed jaw **22**, and a coil spring **26** held between the fixed jaw **22** and the movable jaw **24** to serve as a biasing means of the clip **20** for holding and releasing an garment, as best seen in FIGS. **2** to **4**. Each of the jaws **22**, **24** may be made as a single piece of molded plastic.

[0033] Referring now to FIGS. **5** to **7**, the fixed jaw **22** is symmetrically formed with two arcuate portions **32** outwardly, upwardly and inwardly extending from an inner surface of the fixed jaw **22** with a uniform size and configuration. The two arcuate portions **32** are provided in a spaced and aligned fashion to define two open-end supports **40**. The lower ends of the arcuate portions **32** are joined by a ledge **34** which extends outwardly from the inner surface of the fixed jaw **22**. The ledge **34** serves as a stop to prevent the coil spring **26** (usually being V-shaped, as shown in FIG. **13**) from being pressed too far downwardly during its insertion between the jaws. For the sake of supporting the ledge **34**, a projection **36** extends downwardly from the underside of the ledge **34** along the inner surface of the fixed jaw **22**. A groove **38** is built on the upper inner surface of the fixed jaw **22** for receiving a first leg of the coil spring **26**. The groove **38** is also used for supporting the coil spring and preventing it from moving or slipping. Arranged on the lower inner surface of the fixed jaw **22** are rows of raised teeth **62** formed substantially perpendicularly to the inner surface of the fixed jaw **22** in order to improve the clamping action of the clip **20**.

[0034] Referring to FIGS. **8** to **10**, they show a moveable jaw **24** for use in combination of the fixed jaw of FIGS. **5** to **7**. The movable jaw **24** is symmetrically formed with a pair of stub shafts **42** outwardly, laterally and oppositely extending from an inner surface of the movable jaw **24** with a uniform size and configuration. The two stub shafts **42** are spaced apart so that they define a space **58** adapted for suitable accommodation of the coil spring **26**, as shown in FIG. **4**. The stub shafts **42** are constructed to fit the dimensions of the portions **32** on the fixed jaw **22** so as to allow engagement therebetween. In this embodiment shown, the stub shaft **42** includes a support **46** and an arcuate pin **44** axially extending out from the support **46**. The two arcuate pins **44** are configured so that they can be pivotally received in the open-end supports **40** of the fixed jaw **22** through the opening of the supports **40** in this manner to form a pivot axis about which the movable jaw **24** is pivotally mounted to the fixed jaw **22**. Reinforced ribs **56** may be positioned above the stub shafts **42** to afford-additional support.

[0035] Similar to the fixed jaw, a ledge **48** is also provided which extends outwardly from the inner surface of the movable jaw **24** to join the stub shafts **42** and functions in a manner same as the ledge **34** provided on the fixed jaw **22**. For supporting the ledge **48**, a projection **50** extending downwardly from the underside of the ledge **48** along the inner surface of the movable jaw **24** is disposed.

[0036] Two parallel vertical ribs **52** are built on the upper inner surface of the movable jaw **24** to form a slot **54** for better guiding and receiving a second leg of the coil spring **26**. One of the ribs **52** may be formed as an extension of the stub shaft **42**, which the other rib **52** is arranged adjacent to and parallel with to form the slot **54**, as best seen from FIG. **8**. It is obvious that the ribs **52** of relatively large size can provide a stronger resistance in response to the force applied to the clip in order to open the clip and release the garment.

[0037] The lower inner surface of the movable jaw **14** has rows of slightly upward raised teeth **64** at an angle of about 80 degrees with respect to the longitudinal axis of the movable jaw **14**, as shown in FIG. **10**. The teeth **64** on the movable jaw **24** can be arranged to offset from those **62** on the fixed jaw **22** to create interengagement. The design of the teeth **64** formed on the movable jaw **64** in accordance with the present invention allows for stably clamping garments between the jaws of the clip.

[0038] The movable jaw **24** is pivotally mounted to the fixed jaw **5** and the hanger arm **12** of the garment hanger by respectively inserting the stub shafts **42** of the movable jaw **24** into the open-end supports **40** of the fixed jaw **22**. The jaws **22**, **24** are biased together by disposing the coil spring **26** into the space **58** defined by the fixed and movable jaws **22**, **24** along the slot **54** formed on the movable jaw **22** and the groove **38** formed on the fixed jaw **22**. The coil spring **26** can be readily pushed downwardly to seat in place, with its first leg received in the groove **38** on the fixed jaw **22** and its second leg received in the slot **54** on the movable jaw **24**. The coil spring **26** may be easily fitted either by hand or by a suitable means.

[0039] In this embodiment, the clips **20** disposed at the ends of hanger arm **12** are substantially mirror images of one another, centred about the middle of the hanger arm. In

particular, the grooves **38** and the slots **54** of the two clips **20** are mirror-inverted, as shown in FIG. **14**.

[0040] FIGS. **11** and **12** illustrate a fixed jaw and a movable jaw consistent with a second embodiment of the invention. This embodiment is substantially similar in structure and operation to that disclosed in the first embodiment, but differing only in that the clips disposed at the ends of hanger arm **12** are made as a same configuration rather than as a mirror-inverted configuration. In other words, this embodiment offers an advantage of the obviation of necessity to distinguish the jaw as the right one or the left one either for the fixed jaw or for the movable jaw, when in use or manufacturing process. As can been seen in FIG. **12**, the stub shafts extend downwardly to form two additional ribs **68** as an alternative of the projection **50** for providing supporting action.

[0041] In operation, the clip **20** is normally closed. Pressure of a user's fingers on the movable jaw **24** overcomes the force of the coil spring **26**. This causes the clip **20** to open for securing a garment due to the pivot arrangement of the two jaws. When the pressure is released, the coil spring **26** moves the jaws back to the closed position so that the garment is stably secured by the clip **20**.

[0042] As discussed above, a significant feature of the invention is the construction of the symmetrical uniform outwardly, upwardly and inwardly directed portions **32** and the stub shafts **42** respectively arranged on the fixed and movable jaws to thereby eliminate the unbalance and deformation problems, which was not accomplished by the prior art garment hangers. This feature greatly prolongs the service life of the clip.

[0043] In addition, such a symmetrical and uniform construction also offers the convenience of mass-manufacturing the clip using molding with one mold or two structurally similar molds, the clip thus being manufactured at very low cost which should contribute to its popularity and usefulness. According to the invention, the coil spring in a relatively small size may be used while maintaining the clamping action. The utilization of a lighter spring allows the ease for assembling the jaws or manipulating the clip through the less thumb pressure exerted against the movable jaw.

[0044] Further, the garment clip in accordance with the present invention is developed with the teeth on the jaw slightly inclining upward to form an angle of about 80 degrees with the longitudinal axis so as to prevent the undesirable release of a garment.

[0045] It is understood that many other embodiments of the present invention are also possible, and many corresponding modifications as well as variations can be made by those skills in the art as according to the disclosure of the present invention and without departing from the spirits and essentials thereof, while such modifications and variations fall into the scope of the claims of the present invention.

1. A clip for securing a garment to a garment hanger, which is connected to one end of a hanger arm of the garment hanger, comprising:

a first jaw formed integrally with the hanger arm, comprising two portions outwardly, upwardly and inwardly extending from an inner surface of the first jaw in a spaced and aligned fashion to respectively define an open-end support, and a ledge projected from the inner surface of the first jaw to join the two outwardly, upwardly and inwardly directed portions at their lower ends that are the ends closest to a garment-gripping portion of the jaws;

a second jaw pivotally mounted to the first jaw, comprising two stub shafts in a spaced and aligned fashion, outwardly, laterally and oppositely extending from an inner surface of the second jaw, each being adapted to be received in the open-end support of the first jaw through the opening of the support to form a pivot axis about which the second jaw is pivotally moveable with respect to the first jaw; and

a coil spring held between the first and second jaws in a manner that two ends of the coil spring respectively press on the first and second jaws so as to serve as a biasing means of the clip for holding the first and second jaws together.

2. The clip as claimed in claim **1**, wherein a groove is built on the upper inner surface of the first jaw to support the spring and to prevent it from moving or slipping.

3. The clip as claimed in claim **1**, wherein the two outwardly, upwardly and inwardly directed portions of the first jaw are formed symmetrically with a uniform size and configuration.

4. The clip as claimed in claim **3**, wherein the two stub shafts of the second jaw are formed symmetrically with a uniform size and configuration so that they are pivotally receivable in the open-end support of the first jaw.

5. (canceled)

6. The clip as claimed in claim **1**, wherein a projection extends downwardly from the underside of the ledge along the inner surface of the first jaw.

7. The clip as claimed in claim **1**, wherein two vertical parallel ribs are built on the upper inner surface of the second jaw to form a slot for guiding and receiving the coil spring.

8. The clip as claimed in claim **1**, wherein a ledge is projected from the inner surface of the second jaw to join the stub shafts at their lower ends.

9. The clip as claimed in claim **8**, wherein a projection extends downwardly from the underside of the ledge along the inner surface of the second jaw.

10. The clip as claimed in claim **8**, wherein two additional ribs respectively extend downwardly from the underside of the ledge along the inner surface of the second jaw.

11. The clip as claimed in claim **1**, wherein one or more rows of teeth are respectively provided on the lower inner surfaces of the first and second jaws.

12. The clip as claimed in claim **11**, wherein the teeth are formed at an angle of about 80 degrees relative to the inner surface of the second jaw, and the teeth are formed at an angle of about 90 degrees relative to the inner surface of the first jaw.

13. A garment hanger comprising a hanger arm, a hook member projecting upwardly in the middle of the hanger arm, and a clip disposed at each end of the hanger arm, wherein the clip comprises:

a first jaw formed integrally with the hanger arm, comprising two portions outwardly, upwardly and inwardly extending from an inner surface of the first jaw in a spaced and aligned fashion to respectively define an open-end support, and a ledge projected from the inner surface of the first jaw to join the two outwardly,

upwardly and inwardly directed portions at their lower ends that are the ends closest to a garment-gripping portion of the jaws;

a second jaw pivotally mounted to the first jaw, comprising two stub shafts in a spaced and aligned fashion, outwardly, laterally and oppositely extending from an inner surface of the second jaw, each being adapted to be received in the open-end support of the first jaw through the opening of the support to form a pivot axis about which the second jaw is pivotally moveable with respect to the first jaw; and

a coil spring held between the first and second jaws in a manner that two ends of the coil spring respectively press on the first and second jaws so as to serve as a biasing means of the clip for holding the first and second jaws together.

14. The garment hanger as claimed in claim **13**, wherein a groove is built on the upper inner surface of the first jaw to support the spring and to prevent it from moving or slipping.

15. The garment hanger as claimed in claim **13**, wherein the two outwardly, upwardly and inwardly directed portions of the first jaw are formed symmetrically with a uniform size and configuration.

16. The garment hanger as claimed in claim **15**, wherein the two stub shafts of the second jaw are formed symmetrically with a uniform size and configuration so that they are pivotally receivable in the open-end support of the first jaw.

17. (canceled)

18. The garment hanger as claimed in claim **13**, wherein a projection extends downwardly from the underside of the ledge along the inner surface of the first jaw.

19. The garment hanger as claimed in claim **13**, wherein two vertical parallel ribs are built on the upper inner surface of the second jaw to form a slot for guiding and receiving the coil spring.

20. The garment hanger as claimed in claim **13**, wherein a ledge is projected from the inner surface of the second jaw to join the stub shafts at their lower ends.

21. The garment hanger as claimed in claim **20**, wherein a projection extends downwardly from the underside of the ledge along the inner surface of the second jaw.

22. The clip as claimed in claim **20**, wherein two additional ribs respectively extend downwardly from the underside of the ledge along the inner surface of the second jaw.

23. The garment hanger as claimed in claim **13**, wherein one or more rows of teeth are respectively provided on the lower inner surfaces of the first and second jaws.

24. The garment hanger as claimed in claim **23**, wherein the teeth are formed at an angle of about 80 degrees relative to the inner surface of the second jaw, and the teeth are formed at an angle of about 90 degrees relative to the inner surface of the first jaw.

25. The garment hanger as claimed in claim **13**, wherein the clips disposed at the ends of hanger arm are substantially mirror images of one another, centred about the middle of the hanger arm.

26. The garment hanger as claimed in claim **13**, wherein the clips disposed at the ends of the hanger arm are made as a same configuration.

27. The clip as claimed in claim **1**, wherein the ledge is positioned to act as a stop to prevent the coil spring from being pressed too far downwardly between the jaws.

28. The garment hanger as claimed in claim **13**, wherein the ledge is positioned to act as a stop to prevent the coil spring being pressed too far downwardly between the jaws.

* * * * *