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(71) Applicant: **Lea Way Hand Tool Corporation**
Taichung, 408 (TW)

(72) Inventors:
- **Tuan Mu, Hsien-Chung**
  Taichung 408 (TW)
- **Tsai, Sammy**
  Taichung 408 (TW)

(74) Representative: **Viering, Jentschura & Partner**
Steinsdorfstrasse 6
80538 München (DE)

(54) Collecting device for a handed tool

(57) A collecting device for a handed tool includes a connecting portion (10) having at least one cavity (11) defined therein. At least one collecting portion (20) is disposed on the connecting portion (10). The collecting portion (20) includes an apron (21) extending from the connecting portion (10) and surrounding the cavity (11). The apron (21) has an opening (211) defined to correspond to the cavity (11). A buckle (22) is securely mounted on the connecting portion (10) and partially received in the cavity (11). The buckle (22) has a resilient arm (221) extending therefrom and corresponding to the opening (211) of the apron (21). The resilient arm (221) abuts an inner periphery of a connecting hole that is defined in the handed tool.

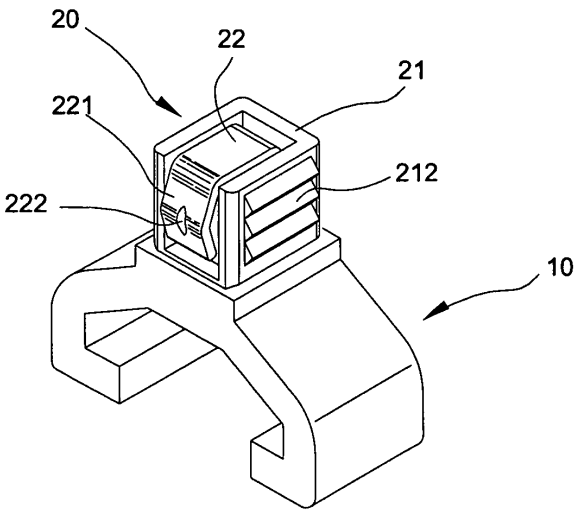

FIG. 1

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a collecting device, and more particularly to a collecting device for a handed tool.

2. Description of Related Art

[0002] A handed tool, such as a socket, is usually used to operate a bolt. The bolts have various standards such the operator needs to prepare multiple sockets for different bolts. The marketed sockets are designed to have a round shape such that the user needs to prepare a collecting device for collecting the sockets.

[0003] The conventional collecting device for a handed tool is integrally formed by injecting mold such that the manufacturer needs to prepare multiple molds for manufacturing collecting devices with different standards. As a result, the manufacturing cost is raised due to the molds with different standards.

[0004] The present invention has arisen to mitigate and/or obviate the disadvantages of the conventional collecting device for a handed tool.

SUMMARY OF THE INVENTION

[0005] The main objective of the present invention is to provide an improved collecting device for a handed tool that can reducing the manufacturing cost.

[0006] To achieve the objective, the collecting device in accordance with the present invention comprises a connecting portion having at least one cavity defined therein. At least one collecting portion is disposed on the connecting portion. The collecting portion includes an apron extending from the connecting portion and surrounding the cavity. The apron has an opening defined to correspond to the cavity. A buckle is securely mounted on the connecting portion and partially received in the cavity. The buckle has a resilient arm extending therefrom and corresponding to the opening of the apron. The resilient arm abuts an inner periphery of a connecting hole that is defined in the handed tool.

[0007] Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

Fig. 1 is a perspective view of a collecting device for a handed tool in accordance with the present invention;

Fig. 2 is a first perspective schematic view of the collecting device in Fig. 1;

Fig. 3 is a cross-sectional view of the collecting device in Fig. 1 when a socket is connected thereon;

Fig. 4 is an operational view of the collecting device of the present invention when collecting a socket;

Fig. 5 is a cross-sectional view of the collecting device in Fig. 1 when a socket is connected thereon;

Fig. 6 is an exploded perspective view of a second embodiment of the collecting device in accordance with the present invention;

Fig. 7 is an exploded perspective view of a third embodiment of an apron of the present invention;

Fig. 8 is an exploded perspective view of a fourth embodiment of the collecting device in accordance with the present invention;

Fig. 9 is an exploded perspective view of a fifth embodiment of the collecting device in accordance with the present invention;

Fig. 10 is an exploded perspective view of a sixth embodiment of the collecting device in accordance with the present invention; and

Fig. 11 is a schematic plan view of the collecting device in Fig. 10 in cross-section.

DETAILED DESCRIPTION OF THE INVENTION

[0009] The present invention relates to a collecting device for a handed tool. However, the handed tools are various. A socket is given to an example in the following specification.

[0010] Referring to the drawings and initially to Figs. 1-4, a collecting device for a handed tool in accordance with the present invention comprises a connecting portion (10) and at least one collecting portion (20) formed on the connecting portion (10).

[0011] In the preferred embodiment of the present invention, the connecting portion (10) is dove-tail structure such that the connecting portion (10) can be slidably mounted on a suspension rod (30). As a result, multiple handed tools can be collected together on the suspension rod (30). At least one cavity (11) is defined in the periphery of the connecting portion (10). The number of the cavity (11) is decided according to that of the collecting portion (20).

[0012] The collecting portion (20) has an apron (21) extending from the connecting portion (10) and surrounding the cavity (11). The apron (21) is U-shaped and forming an opening (211) corresponding to the cavity (11). A buckle (22) is securely longitudinally mounted on the connecting portion (10) and has an insertion (224) extending from the buckle (22). The insertion (224) is inserted into and securely received in the cavity (11). The buckle (22) has at least one resilient arm (221) extending therefrom and corresponding to the opening (211). The resilient arm (221) is adapted to abut an inner periphery of a connecting hole (41) of the socket (40) for promoting the connection between the collecting portion (20) and the

socket (40). In the preferred embodiment of the present invention, the resilient arm (221) is

- shaped and has a boss (222) formed on a corner of the resilient arm (221). The boss (222) is adapted to be received in an indentation (411), which is defined in the inner periphery of the connecting hole (41) of the socket (40), for providing a snapping effect when the socket (40) is collected in a right situation. Further with reference to Fig. 5, the apron (21) has teethed structure (212) formed on an outer periphery for providing a friction and promoting the connection between the collecting portion (20) and the socket (40).

[0013] With reference to Figs. 3 and 4, when starting to mount the socket (40), the inner periphery of the connecting hole (41) inwardly compresses the resilient arm (221). The boss (222) is snapped into the indentation (411) when the socket (40) is moved to the specific situation and the resilient arm (221) provides a connection between the collecting portion (20) and the socket (40).

[0014] As well known, the handed tools/sockets are various such that the connecting holes (41) have different standards. However, the conventional collecting device is integrally formed so that the mold for the conventional collecting device needs to be often changed for manufacturing the collecting devices with different standards. On the contrary, the buckle (22) can be mass-produced for reducing manufacturing cost. The manufacturer only needs to change the size of the apron (21) and the collecting device can be suitable to the handed tools with various standards.

[0015] The present invention is provided not only for collecting handed tools but also for displaying handed tools. As shown in Fig. 6, the connecting portion (100) of the present invention can be formed with a suspension card (50) such that the handed tool can be hung with the suspension card (50) in a market for displaying.

[0016] With reference to Fig. 7 that shows a third embodiment of the apron (21) of the present invention, the apron (21) in accordance with the present invention can be designed to have a curved shape for a handed tool that has a round hole.

[0017] With reference to Fig. 8 that shows a fourth embodiment of the collecting device for a handed tool in accordance with the present invention, the above apron (21) is altered to be two parallel walls such that the buckle (22) has two resilient arms (221) extending therefrom. Consequently, the connection between the collecting portion (20) and the handed tool is raised by increasing the number of the resilient arm (221).

[0018] With reference to Fig. 9 that shows a fifth embodiment of the collecting device for a handed tool in accordance with the present invention, the above apron (21) is altered to be an L-shaped wall such that the buckle (22) has two resilient arms (221) extending therefrom opposite the L-shaped wall. Consequently, the connection between the collecting portion (20) and the handed tool is raised by increasing the number of the resilient arm (221).

[0019] With reference to Fig. 10 that shows a sixth embodiment of the collecting device for a handed tool in accordance with the present invention, the apron (21) is unnecessary when the buckle (22) is great enough to the connecting hole (41). Consequently, the mold for manufacturing the connecting portion (10) is simplified and the cost of manufacturing mold is reduced.

[0020] With reference to Figs. 10 and 11, the apron (12) is removed such that the resilient arm (221) can be freely arranged on the buckle (22). As shown, in the embodiment, the buckle (22) has four resilient arm (221) extending therefrom. Consequently, the connection between the collecting portion (20) and the handed tool is raised by increasing the number of the resilient arm (221).

[0021] Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

Claims

1. A collecting device for a handed tool, comprising:

   a connecting portion; and
   at least one collecting portion disposed on the connecting portion, the collecting portion including a buckle securely mounted on the connecting portion, the buckle having at least one resilient arm extending therefrom, the resilient arm adapted to abut an inner periphery of a connecting hole that is defined in the handed tool.

2. The collecting device as claimed in claim 1, wherein the collecting portion comprises an apron extending from the connecting portion, the apron having at least one opening defined to correspond to the at least one resilient arm.

3. The collecting device as claimed in claim 1, wherein the collecting portion comprises an apron extending from the connecting portion, the apron having a curved shape for a handed tool that has a round hole.

4. The collecting device as claimed in claim 1, wherein the resilient arm is -shaped and has a boss formed on a corner of the resilient arm, the boss adapted to be received in an indentation, which is defined in the inner periphery of the connecting hole of the handed tool.

5. The collecting device as claimed in claim 1, wherein the connecting portion is a dove-tail structure such that the connecting portion is adapted to be slidably mounted on a suspension rod.

6. The collecting device as claimed in claim 1, wherein the connecting portion is formed with a suspension card for hanging the handed tool.

7. The collecting device as claimed in claim 2, wherein the resilient arm is -shaped and has a boss formed on a corner of the resilient arm, the boss adapted to be received in an indentation, which is defined in the inner periphery of the connecting hole of the handed tool.

8. The collecting device as claimed in claim 2, wherein the connecting portion is a dove-tail structure such that the connecting portion is adapted to be slidably mounted on a suspension rod.

9. The collecting device as claimed in claim 2, wherein the connecting portion is formed with a suspension card for hanging the handed tool.

10. The collecting device as claimed in claim 3, wherein the resilient arm is -shaped and has a boss formed on a corner of the resilient arm, the boss adapted to be received in an indentation, which is defined in the inner periphery of the connecting hole of the handed tool.

11. The collecting device as claimed in claim 3, wherein the connecting portion is a dove-tail structure such that the connecting portion is adapted to be slidably mounted on a suspension rod.

12. The collecting device as claimed in claim 3, wherein the connecting portion is formed with a suspension card for hanging the handed tool.

13. The collecting device as claimed in claim 4, wherein the connecting portion is a dove-tail structure such that the connecting portion is adapted to be slidably mounted on a suspension rod.

14. The collecting device as claimed in claim 4, wherein the connecting portion is formed with a suspension card for hanging the handed tool.

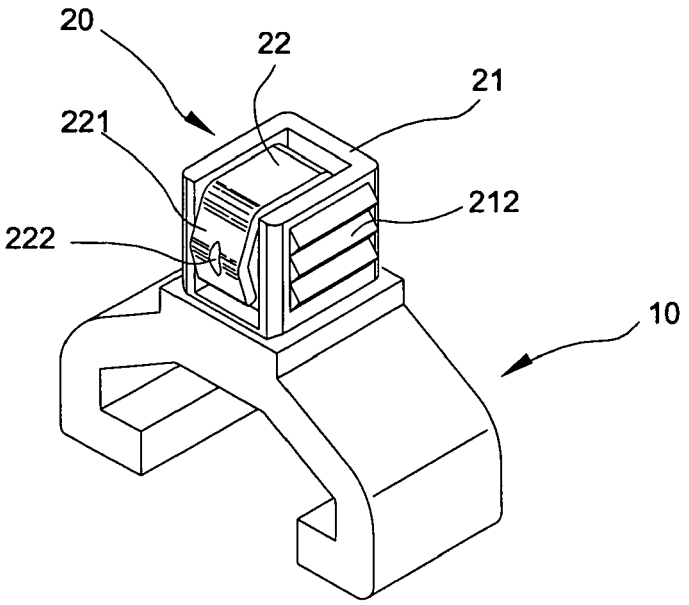

FIG. 1

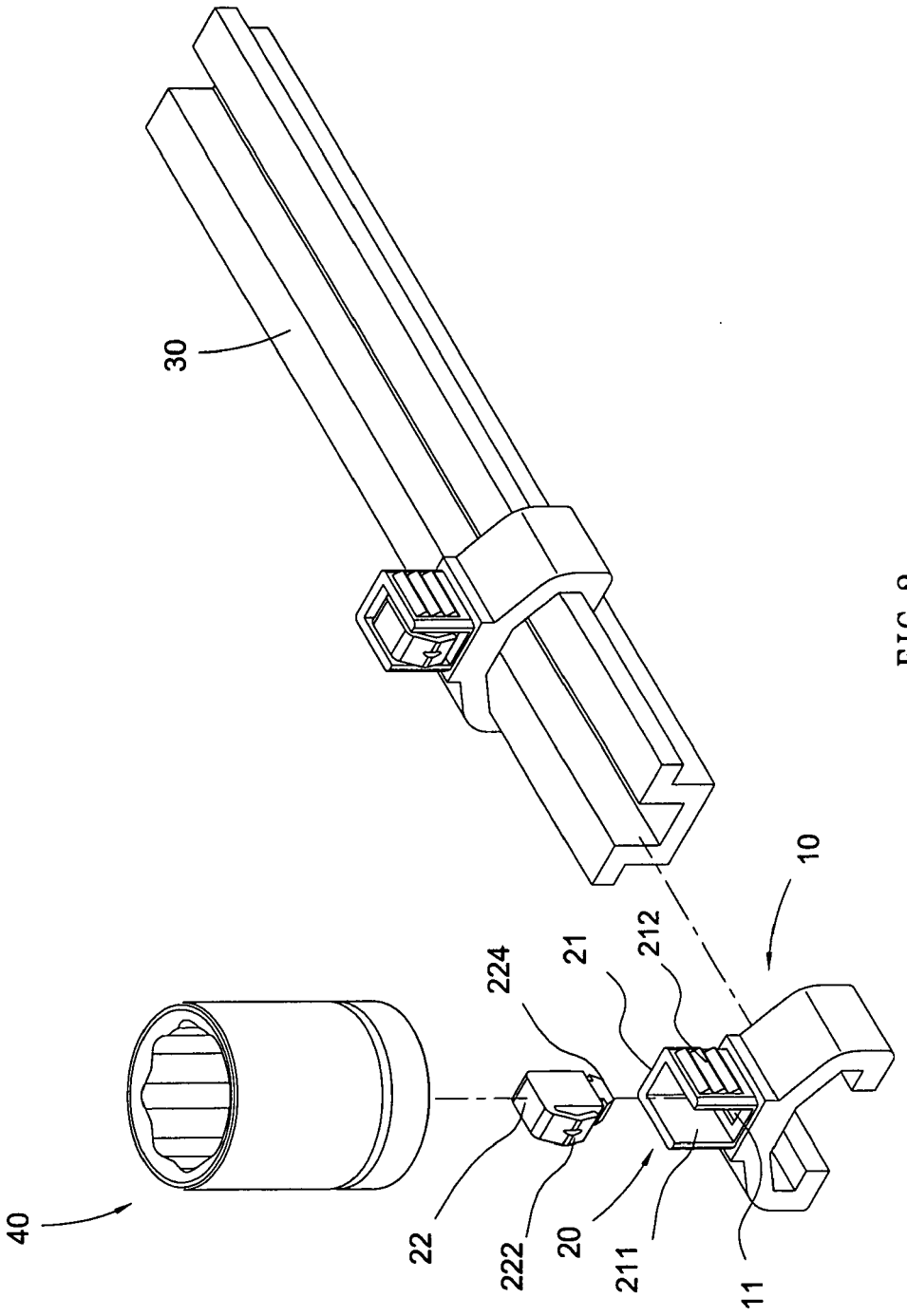

FIG. 2

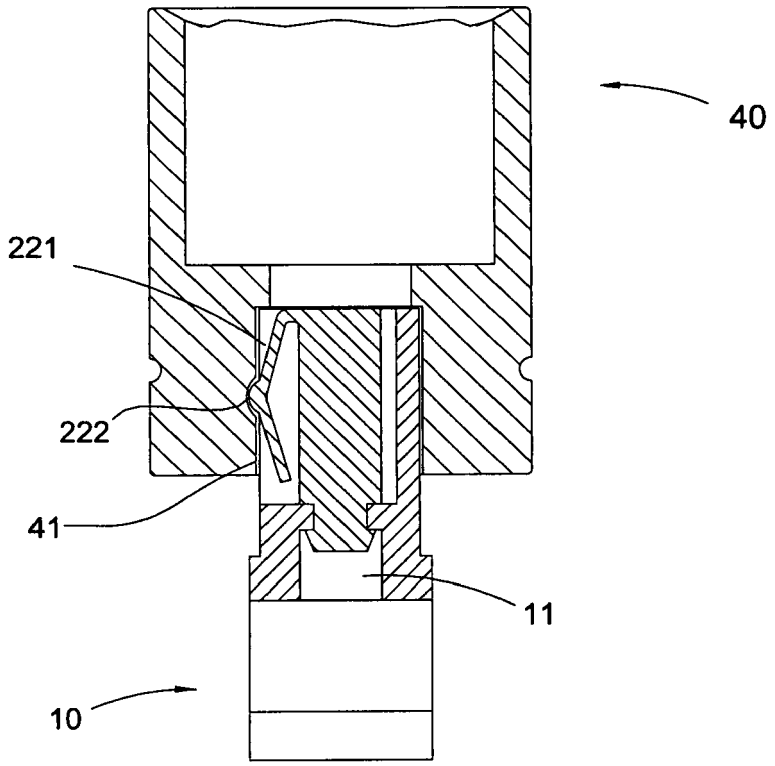

FIG. 3

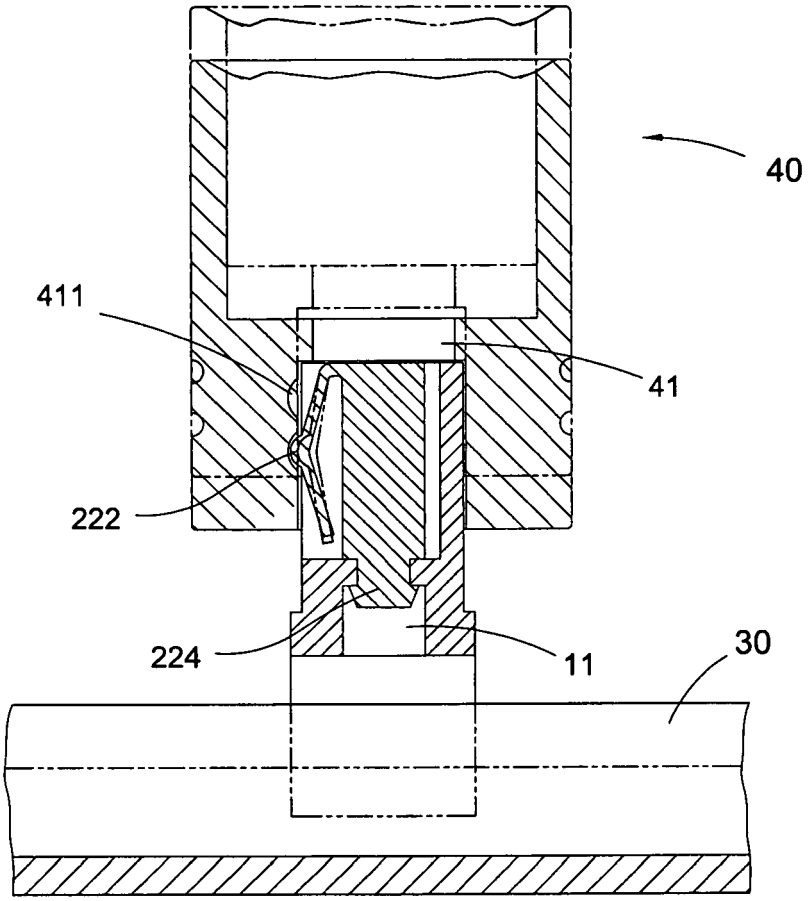

FIG. 4

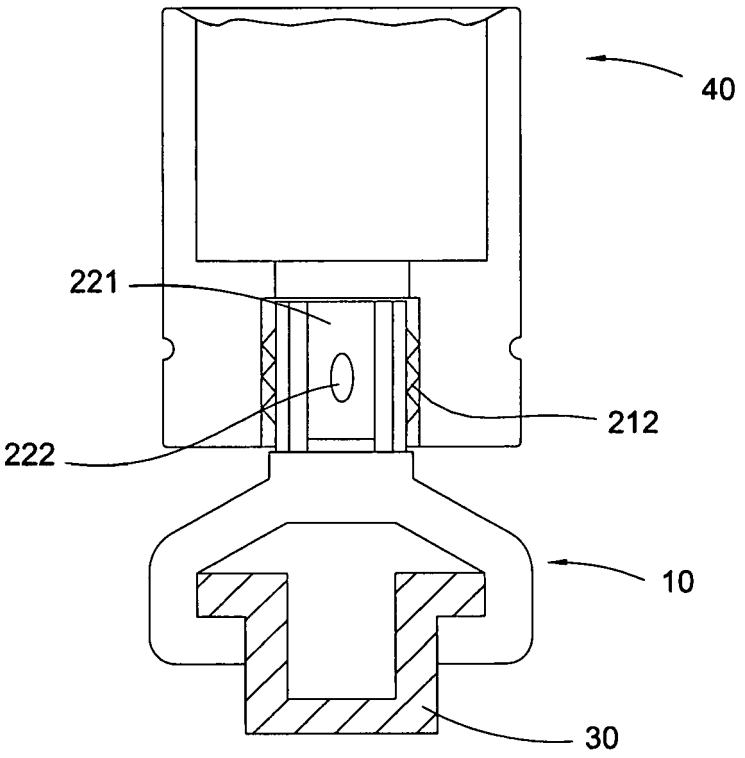

FIG. 5

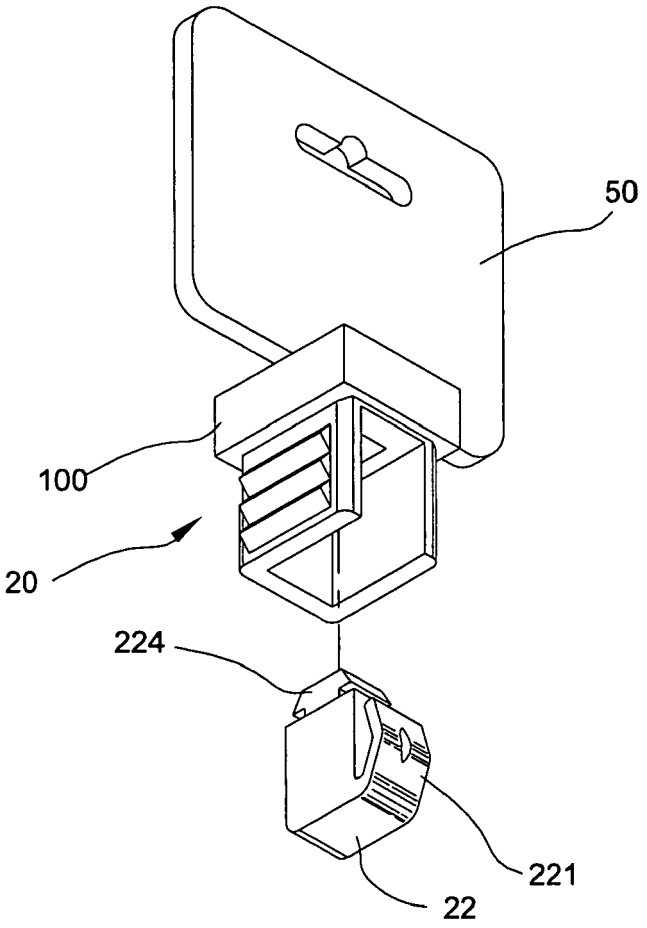

FIG. 6

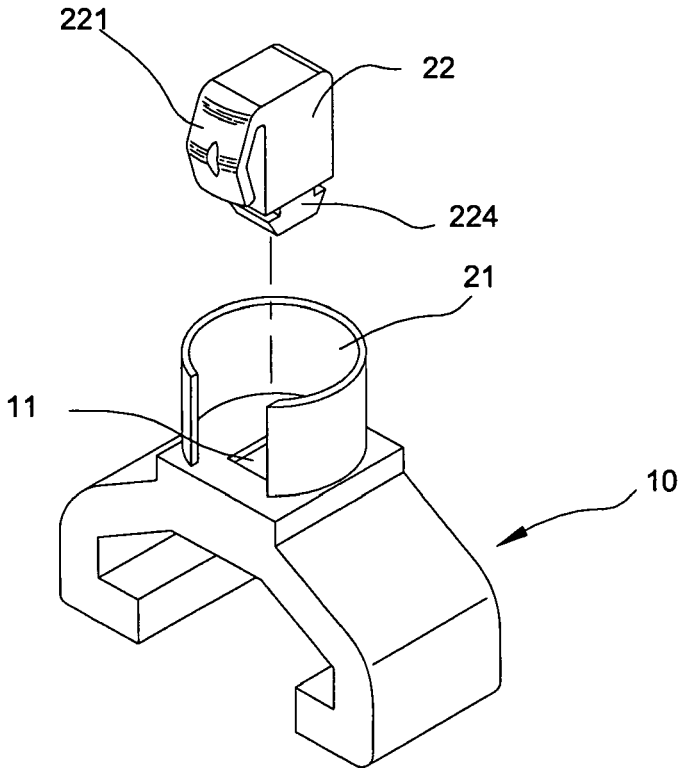

FIG. 7

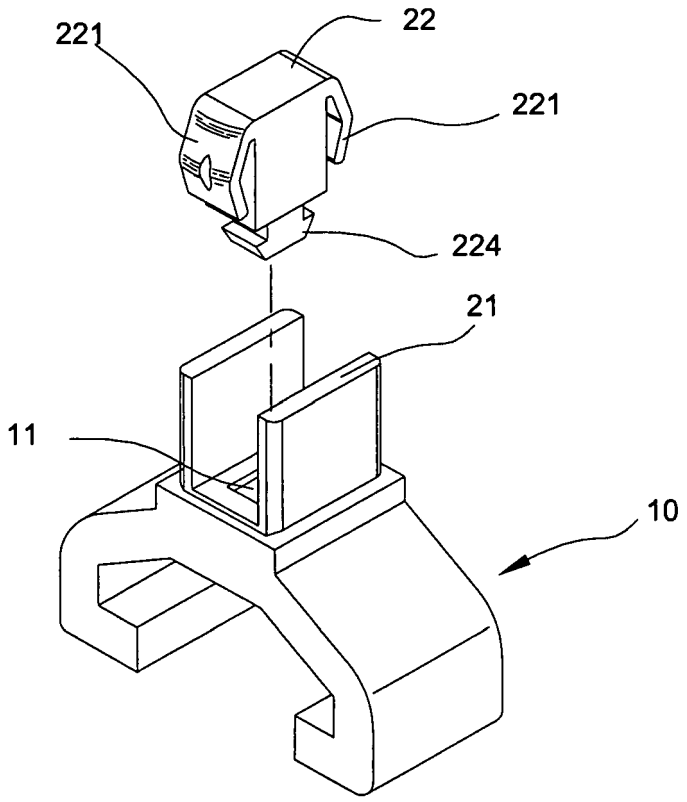

FIG. 8

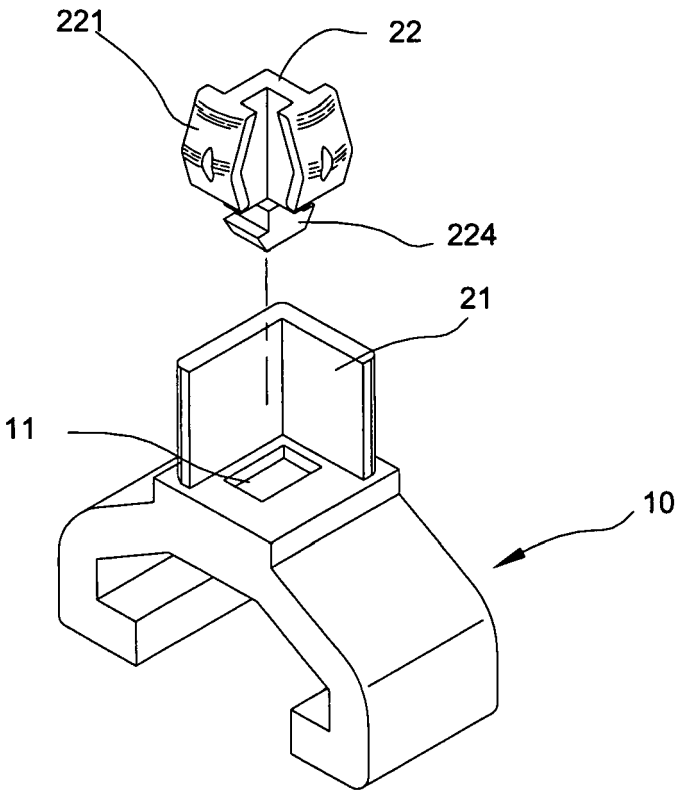

FIG. 9

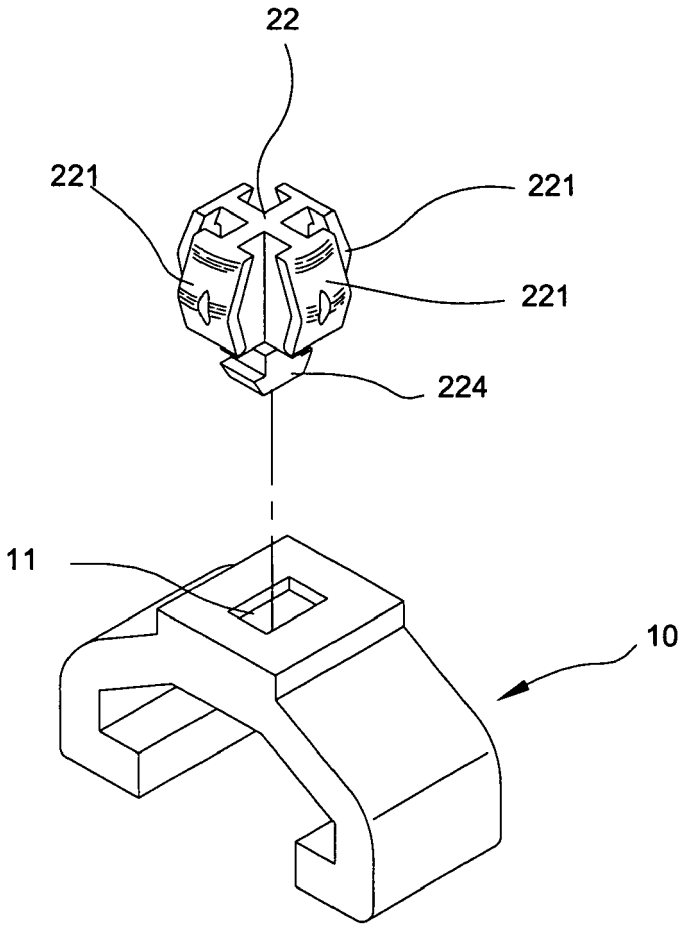

FIG. 10

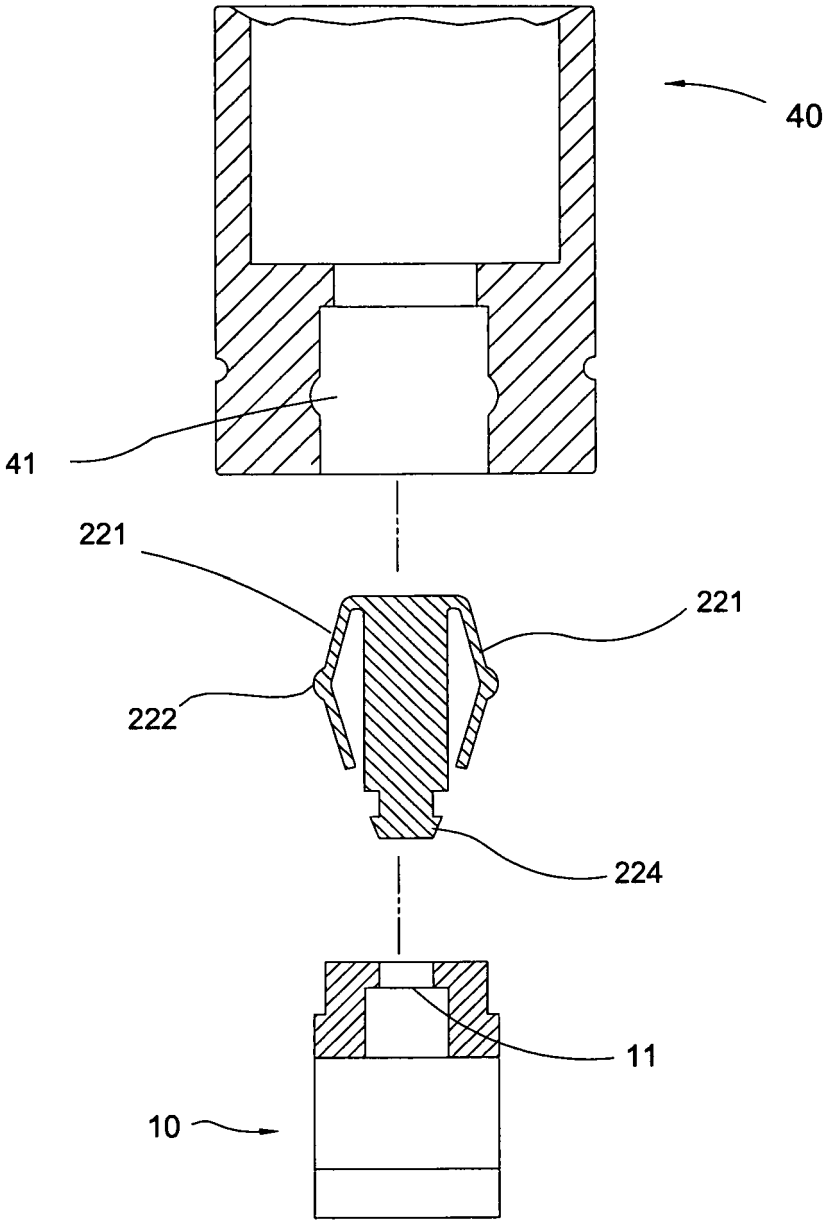

FIG. 11

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 00 3470

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	DE 20 2004 004794 U1 (TONG, HUI LIN) 3 June 2004 (2004-06-03) * figure 2 *	1,4	B25H3/00
Y		5,6,13, 14	
Y	US 6 386 363 B1 (HUANG STEVE) 14 May 2002 (2002-05-14) * figure 7 *	5,13	
Y	US 6 581 894 B1 (TONG HUI LIN) 24 June 2003 (2003-06-24) * figure 3 *	6,14	
A	US 6 095 329 A (KAO ET AL) 1 August 2000 (2000-08-01) * figures 3-6 *	1-6	
A	US 2004/211691 A1 (WINNARD STANLEY D) 28 October 2004 (2004-10-28) * figure 2 *	1-3	
A	US 2003/019775 A1 (ERNST GREGORY R) 30 January 2003 (2003-01-30) * figure 1 *	1,4,5,7, 8,10,11, 13	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B25H
A	US 2001/001197 A1 (RAMSEY EDWARD ET AL) 17 May 2001 (2001-05-17) * figures 1,2 *	1,6,9, 12,14	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25 August 2005	David, R.A.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 00 3470

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25-08-2005

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202004004794 U1	03-06-2004	NONE	
US 6386363 B1	14-05-2002	NONE	
US 6581894 B1	24-06-2003	NONE	
US 6095329 A	01-08-2000	DE 19941809 A1	22-03-2001
US 2004211691 A1	28-10-2004	NONE	
US 2003019775 A1	30-01-2003	NONE	
US 2001001197 A1	17-05-2001	US 6168018 B1	02-01-2001

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82