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(54) **HOLDING APPARATUS FOR FASTENERS**

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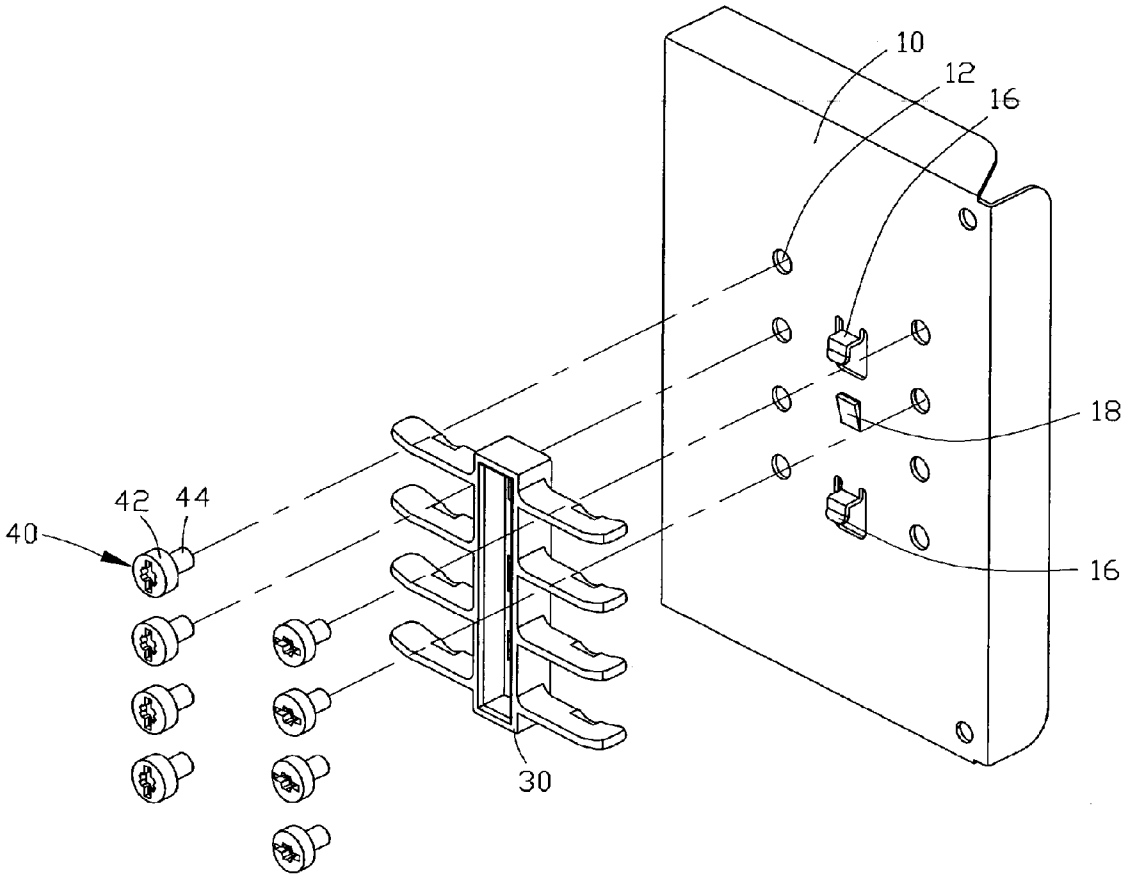
(57) **ABSTRACT**

A holding apparatus for a fastener (**40**) includes a board (**10**) and a holding member (**30**). The board defines at least one hole (**12**) for receiving the fastener. The holding member is attached to the board. At least one resilient arm (**34**) is formed on the holding member adjacent to the at least one hole for supporting the fastener.



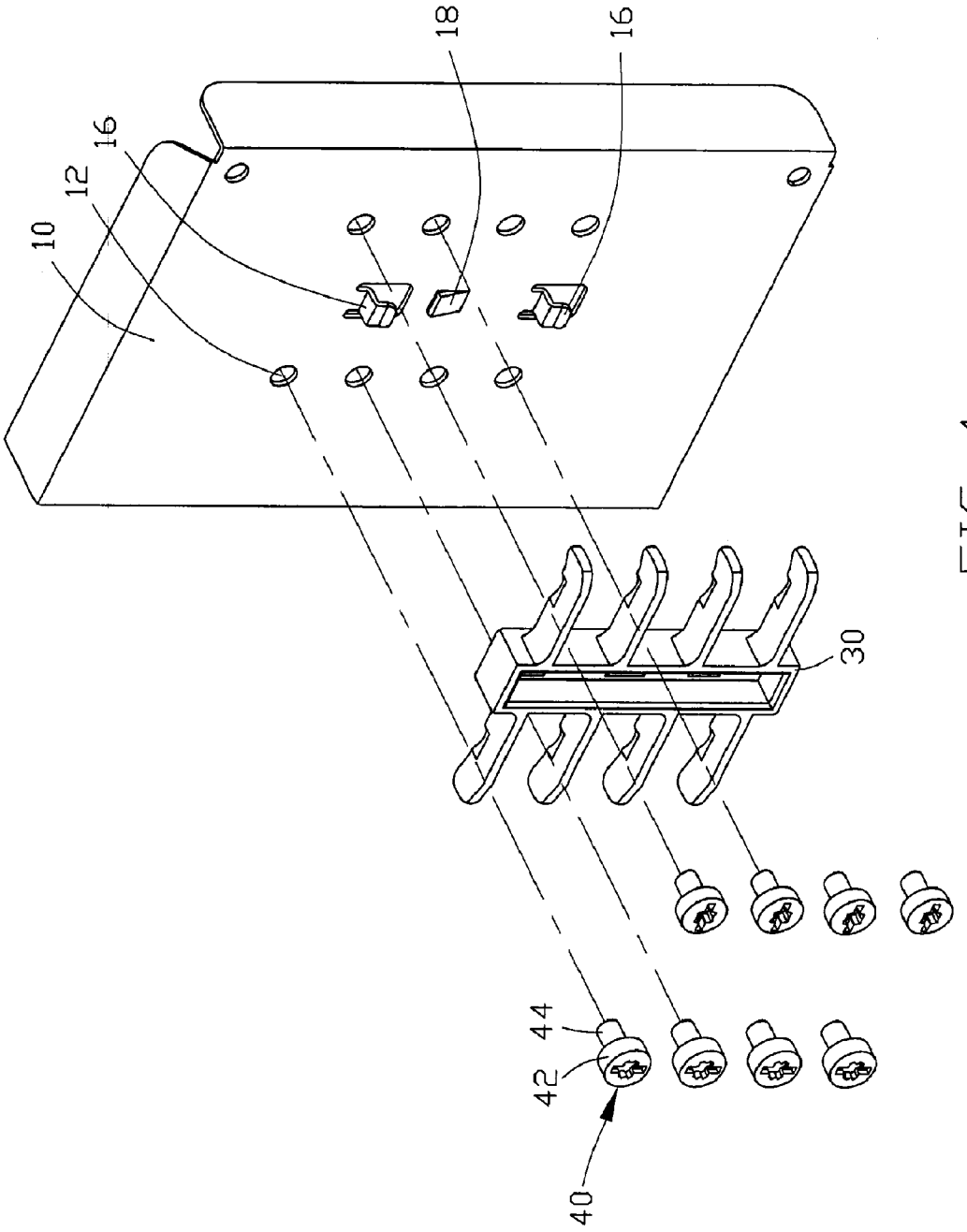


FIG. 1

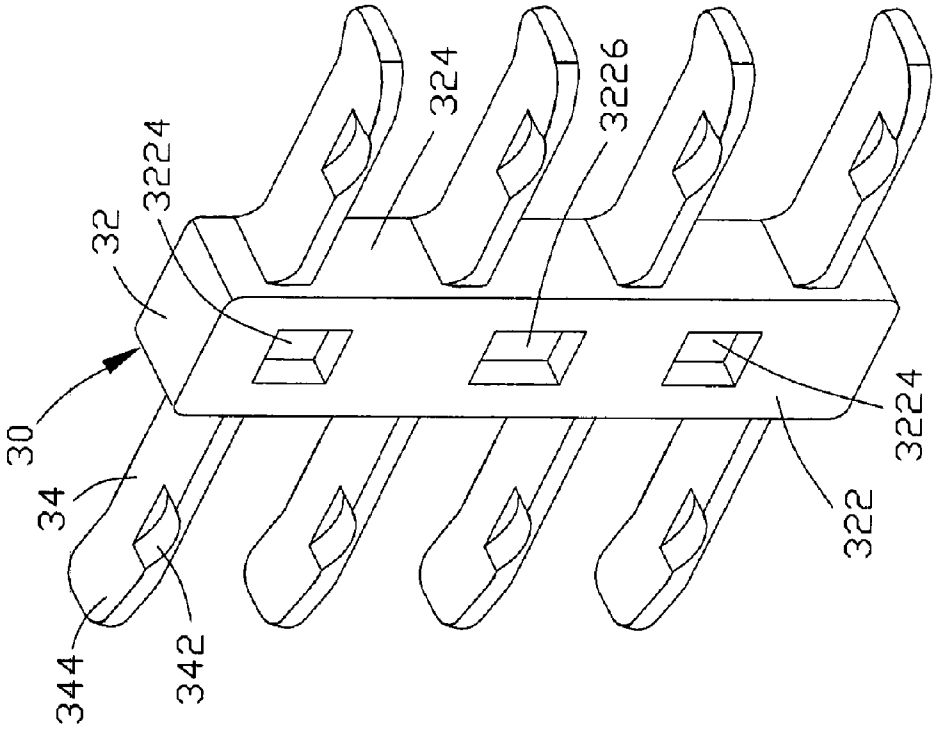


FIG. 2

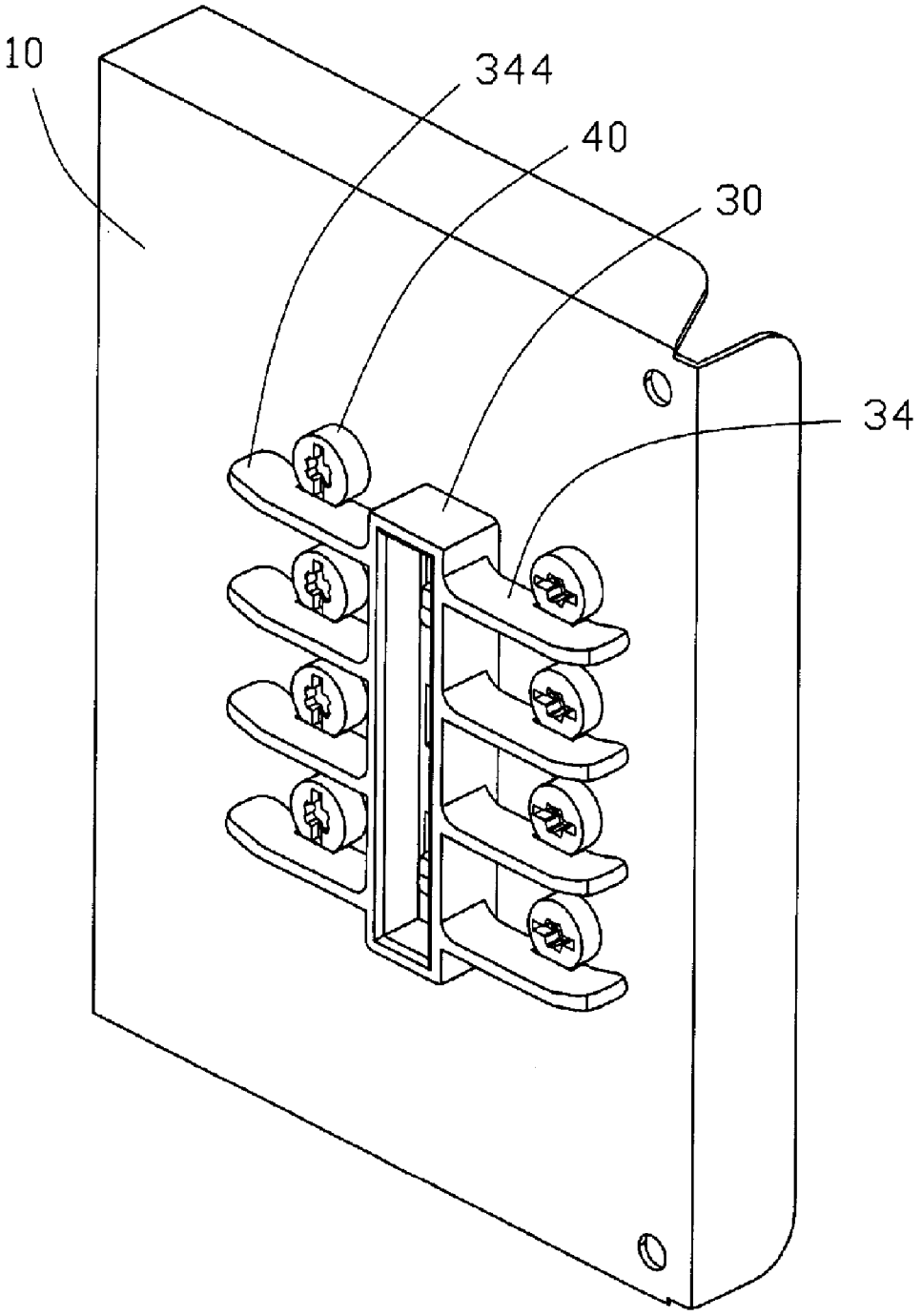


FIG. 3

HOLDING APPARATUS FOR FASTENERS

FIELD OF THE INVENTION

[0001] The present invention relates to holding apparatuses, and more particularly to a holding apparatus for conveniently retaining and detaching fasteners.

DESCRIPTION OF RELATED ART

[0002] In many devices or apparatuses, such as computers, screws are often uses as convenient mounting means to secure elements to the devices or apparatuses. However, in operation of the devices or apparatuses, vibration often has the screws loosing from the devices of apparatuses. After long-time vibration, the screws would be detached from the devices or apparatuses. If the screws disengage from the devices or apparatuses, the loss of the screws would result in inconvenient reinstallation of element to the device for finding same type of screws.

[0003] What is needed, therefore, is a holding apparatus for conveniently retaining and detaching spare fasteners easy to use after the screws on a device are lost.

SUMMARY OF INVENTION

[0004] A holding apparatus for a fastener includes a board and a holding member. The board defines at least one hole for receiving the fastener. The holding member is attached to the board. At least one resilient arm is formed on the holding member adjacent to the at least one hole for supporting the fastener.

[0005] Other advantages and novel features will be drawn from the following detailed description of a preferred embodiment with attached drawings, in which:

BRIEF DESCRIPTION OF DRAWINGS

[0006] FIG. **1** is an exploded, isometric view of a holding apparatus for spare fasteners of a preferred embodiment of the present invention, the holding apparatus including a board, and a holding member;

[0007] FIG. **2** is an isometric, view of the holding member of FIG. **1**;

[0008] FIG. **3** is an assembled, isometric view of the holding apparatus of FIG. **1**;

DETAILED DESCRIPTION

[0009] Referring to FIG. **1**, a holding apparatus for holding a plurality of fasteners, such as screws **40**, includes a board **10** and a holding member **30**. Each screw **40** includes a head **42** and a post **44**.

[0010] A pair of L-shaped hooks **16** is formed down aligning along a vertical direction on the board **10**. A resilient tab **18** is formed between the two hooks **16**. An extending direction of the resilient tab **18** is opposite to that of the hooks **16**. A free distal of the resilient tab **18** is bent out at some angle. The board **10** defines a plurality of holes **12** at both sides of the hooks **16**. The holes **12** are aligned along vertical direction.

[0011] Referring also to FIG. **2**, the holding member **30** includes a body **32** and a deformable mechanism. The mechanism includes a plurality of resilient arms **34**. The body **32** includes a front wall **322**, and a pair of side walls **324**. The front wall **322** defines two rectangular openings **3224** corresponding to the hooks **16** of the board **10**, and a securing opening **3226** corresponding to the resilient tab **18** of the board **10**. A width of each opening **3224** is generally equal to a width of the corresponding hook **16**. The resilient arms **34** are respectively formed on opposite side walls **324** of the body **32**. Each resilient arm **34** has an operating portion **344** at a distal end. An arcuate receiving space **342** is defined at a proper portion of each resilient arm **34**.

[0012] Referring also to FIG. **3**, in assembling the holding member **30** to the board **10**. The hooks **16** are positioned into the corresponding openings **3224** of the holding member **30**. The resilient tab **18** is pressed toward the board **10** by the front wall **322** of the holding member **30**. The holding member **30** is pushed up, until a bottom edge of each opening **3224** abuts against a bottom end of the corresponding hook **16** of the board **10**. The securing opening **3226** just moves over the resilient tab **18** of the board **10**. The resilient tab **18** rebounds to the original form. The free distal of resilient tab **18** abuts against a top edge of the securing opening **3226**. The holes **12** of the board **10** are in alignment with the corresponding resilient arms **34** of the holding member **30**. Thus, the holding member **30** is secured to the board **10**.

[0013] In securing one of the screws **40** into the board **10**, one of the resilient arms **34** of the holding member **30** is pressed down. Then, the corresponding hole **12** of the board **10** is revealed. The post **44** of the screw **40** is inserted into the corresponding hole **12** of the board **10**. The head **42** of the screw **40** abuts on the board **10**. When the resilient arm **34** is released, the resilient arm **34** rebounds to the original position. The head **42** of screw **40** is received in the receiving space **342** of the resilient arm **34**. Then the screw **42** is retained on the board **10** with the holding member **30**. The other screws **40** can be retained on the board **10** in the same way. When the screws **40** are needed, the resilient arms **34** of the holding member **30** are deflected down. The screws **40** then can be removed from the board **10**.

[0014] In this description of a preferred embodiment, the board **10** can be set in or be one part of a machine for providing spare fasteners. The screws **40** can be assembled in different specs for needed. The securing method of the holding member **30** with the board **10** is not exclusive.

[0015] When the holding apparatus is used as in the description of a preferred embodiment, a holding member of the holding apparatus is secured to a side panel of a computer for holding a plurality of spare screws thereon. When an expansion card or any functional drive is added in the computer, an assembler can conveniently get a screw from the holding apparatus to secure the expansion card to the computer.

[0016] Furthermore, the screws **40** and the holding member **30** can be utilized as a securing apparatus for securing electronic devices behind the board **10**, for example, a securing apparatus for securing disk drives in a bracket of a computer. The bracket has a base and a pair of side boards **10** extending perpendicularly from opposite sides of the base. The disk drives are mounted between the side boards **10**. The holding member **30** and the plurality of screws **40** are mounted outside one of the side boards **10**. The disk drive defines holes for receiving the posts **44** of the screws

40. Thereby, assemblers can conveniently assemble the screws for securing the screws to the disk drives without orientating the screws by hand.

[0017] It is to be understood, however, that even though numerous characteristics and advantages have been set forth in the foregoing description of a preferred embodiment, together with details of the structure and function of the preferred embodiment, the disclosure is illustrative only, and changes may be made in detail, 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 holding apparatus for a fastener, comprising:

a board defining at least one hole for receiving the fastener; and

a holding member attached to the board, and at least one resilient arm formed on the holding member adjacent to the at least one hole for supporting the fastener.

2. The holding apparatus as described in claim 1, wherein a hook is formed on the board, and the holding member defines an opening corresponding to the hook.

3. The holding apparatus as described in claim 2, wherein the hook is generally L-shaped.

4. The holding apparatus as described in claim 3, wherein a width of the opening is generally equal to a width of the hook.

5. The holding apparatus as described in claim 4, wherein a resilient tab is formed on the board, an extending direction of the resilient tab is opposite to that of the hook, and a securing opening is defined in the board corresponding to the resilient tab.

6. The holding apparatus as described in claim 5, wherein a free distal end of the resilient tab is bent at some angle.

7. The holding apparatus as described in claim 1, wherein the resilient arm is formed on a side of the holding member.

8. The holding apparatus as described in claim 7, wherein an operating portion is formed on the resilient arm.

9. The holding apparatus as described in claim 7, wherein a receiving space is defined in the resilient arm for supporting the fastener.

10. A holding apparatus for fasteners, comprising:

a board defining a plurality of holes for receiving the fasteners; and

a holding member attached to the board, the holding member comprising a deformable mechanism urging the fasteners to be retained in the plurality of holes of the board respectively, wherein when the deformable mechanism is deformed, the fasteners are ready to be taken from the board.

11. The holding apparatus as described in claim 10, wherein a hook is formed on the board, and the holding member defines an opening corresponding to the hook.

12. The holding apparatus as described in claim 11, wherein a width of the opening is generally equal to a width of the hook.

13. The holding apparatus as described in claim 12, wherein a resilient tab is formed on the board, an extending direction of the resilient tab is opposite to that of the hook, and a securing opening is defined in the board corresponding to the resilient tab.

14. The holding apparatus as described in claim 13, wherein a free distal end of the resilient tab is bent at some angle.

15. The holding apparatus as described in claim 10, wherein the deformable mechanism comprises a plurality of resilient arm formed on opposite sides thereof.

16. The holding apparatus as described in claim 15, wherein a plurality of receiving space is defined in the resilient arm for receiving the fasteners.

17. An operation system comprising:

a board defining a plurality of holes therein along a side thereof;

a fastener removably receivable in each of said plurality of holes, said fastener defining an operable head to allow user's operation thereon and said head exposable out of said side of said board when said fastener stays in said each of said plurality of holes; and

a holding member removably attachable to said side of said board, said holding member movable along said side of said board between a first position thereof where said holding member engages with said fastener staying in said each of said plurality of holes to block a removable path of said fastener out of said each of said plurality of holes, and a second position thereof where said holding member moves away from said first position thereof to release said fastener for removal thereof.

18. The system as described in claim 17, wherein said head of said fastener staying in said each of said plurality of holes is operably exposable when said holder member is in said first position thereof.

19. The system as described in claim 17, wherein said holder member comprises a deformable mechanism movably extending toward said fastener staying in said each of said plurality of holes so as to retainably urge said fastener to stay in said each of said plurality of holes.

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