Feb. 18, 1964 MASAJI HAYASHI 3,121,365

DRAWING PIN WITH DETACHABLE PLASTIC LEAD

Filed Feb. 24, 1961

FIG. 1.

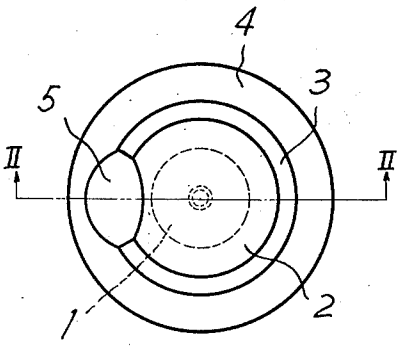


FIG. 2.

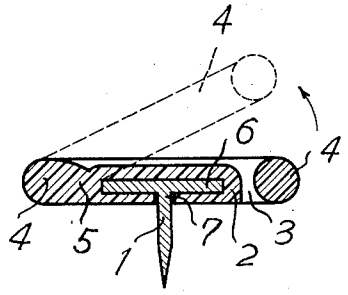


FIG. 3.

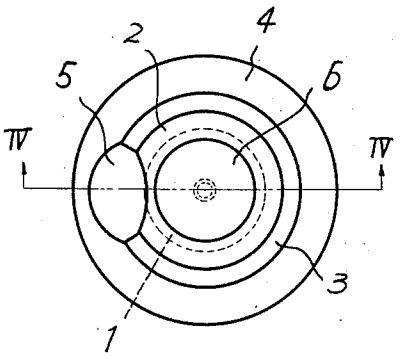
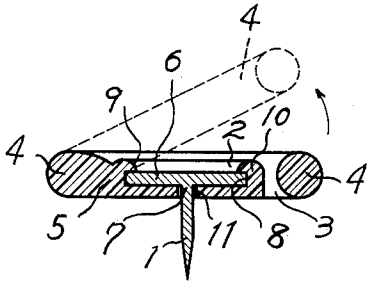


FIG. 4.



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DRAWING PIN WITH DETACHABLE PLASTIC LEAD

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1 Claim. (Cl. 85—16)

The present invention relates to drawing pins which are extremely easy to remove and simultaneously of a large utility value.

Usually, since drawing pins are entirely made of metal, or only heads of drawing pins are made of plastics or fibers, and those heads are pushed against a wall or panel with thumb, in which they are then penetrated up to the back surface thereafter, when said pins are intended to be detached, it is difficult to take off such pins. Accordingly, the utility value of such pins is disadvantageously low, because the detachment of the pin head become difficult thereby.

Contrary thereto, the present invention is contemplated to remove said disadvantages, and the substance of this invention lies in a drawing pin which comprises a pin proper of a resilient material, a member of a similar material as said pin proper and encircling said pin proper, and a joint portion for uniting the pin proper with said member encircling the pin proper, with leaving a circular clearance, whereby a portion comprising the pin head and the needle body is positioned at the center of said pin proper during molding.

Thus, because the drawing pin according to this invention is formed as referred to above, one may have first a portion to encircle said pin proper, for instance, an annular portion and push on the pin surface with his thumb, then the needle portion of said pin can be easily inserted in a surface through which said pin is inserted, thus completing the fixing operation with the drawing pin. Further, when the pin is pulled out, one grasps first the annular portion of a resilient material, for instance, a flexible synthetic resin, with fingers, and raises up said portion, and then withdraws the pin, while being urged to turn rightward and then leftward repeatedly. Thus, it may be easily pulled out without giving scratches on finger tips.

On the other hand, the drawing pin according to this invention is adapted advantageously to accomplish a practical effect, for instance, to act as an annular hanger for hanging down a thing such as a sheet of paper, while being clipped between said annular body and said drawing pin proper, without leaving any scars such as a hole of a pin proper.

In the following, the present invention will be further described in detail; however, the present invention will never be limited to the descriptions which follow, by way of example with respect particularly to two embodiments in reference to the accompanying drawings, in which:

FIG. 1 is plan illustrating the first embodiment of the drawing pin according to this invention;

FIG. 2 is a sectional elevation on line II—II of FIG. 1;

FIG. 3 is a plan illustrating the second embodiment of the drawing pin according to this invention; and

FIG. 4 is a sectional plan of the drawing pin on line IV—IV of FIG. 3.

In this connection, it should be understood that the present invention is not limited to the following descriptions and, of course, can be made various modifications appropriately with respect to its details, unless they would not be departed from the spirit and scope of this invention as described in the claims of this invention later. In addition, it should also be noted that similar parts have similar symbols throughout the drawings.

Referring to FIGS. 1 and 2 representing the first embodiment of the drawing pin according to this invention, by **1** is meant a needle body and **2** a pin proper, **3** a clearance between an annular body **4** and said pin proper **2**, and **5** is a joint portion between said pin proper **2** and said annular body **4**. The pin proper **2**, annular body **4** and joint portion **5** all can be made of a resilient material, for instance, flexible synthetic resin and the like, such as polyethylene, etc. in one body. In cases of such a shaping operation, a pin head portion **6** is positioned at the center of pin proper **2** and it is preferable to partially bury a root portion **7** of needle body **1**. Moreover, annular body **4** is positioned concentrically with pin proper **2**, and it is preferable to form a notched annular clearance **3** interrupted with joint portion **5** between said annular body and said pin proper.

Thus, as the drawing pin according to the present invention is constructed as described before, the annular body is grasped with fingers, and the pin proper **2** is pushed with a thumb when said pin is in use, the pin proper **2** can be not only easily fixed by rendering it enter into a thing to be fixed therewith, but it can also be advantageously pulled out without injuring at the finger tip, by pulling it while rotating several times leftward and rightward (as shown in dotted lines in FIG. 2) after being raised anticlockwise by picking up with fingers an annular body **4** made of a flexible and tough synthetic resin such as polyethylene, etc.

Since the annular body **4** of said drawing pin is made of a flexible synthetic resin, such as said polyethylene, for instance, sheets of paper may be successfully held between said annular body **4** and notched annular clearance **3** of pin proper **2**, without leaving pin holes by needle body **1** in the sheet of paper. Thus, a large practical effect can be accomplished.

Referring to FIGS. 3 and 4 illustrating, the second embodiment of the drawing pin according to this invention, a needle body is embedded in the drawing pin of the first embodiment, while said drawing pin and said needle body are arranged to be separatable. Namely, as in said first embodiment, **1** is a needle body, **2** a pin body, **3** a notched annular clearance, **4** an annular body, **5** a joint portion, and **6** a head of the pin respectively. In this embodiment, the head portion **6** of the pin is not embedded in the pin proper, but it is arranged to be detachable from said pin proper. As illustrated in FIG. 4, pin proper **2** constitues a pin base **10** having a recess **8** for seating the head of pin **6**. Particularly, in this case, said pin base **10** is formed with an annular flange **9** to prevent the departing of pin head.

Further, **11** represents a hole formed in pin base **10**; through said hole **11** penetrates the needle **1**. The other portions are composed similarly as in the first embodiment. The pin proper **2**, annular body **4** and joint portion **5** are all made of resilient material, for instance, a flexible synthetic resin such as polyethylene and the like, in one body. In this case, in the molding said pin head portion **6** is positioned at the center of pin proper **2**, and moreover, a pin base **10** has preferably an annular flange **9** as well as a recess portion **8**; and the needle body **1** penetrates a perforation **11**, and the pin head portion **6** is preferably placed in said recess portion **8**.

Thus, as the drawing pin according to this invention is composed as described above, as similarly as in the first example of the embodiment of this invention, it is not only possible, that the needle body **1** is easily forced into a not-illustrated thing being fixed by pushing the pin proper **2**, i.e. the surface of pin head portion **6** with thumb, after the annular body **4** being grasped with fingers; but, for said drawing pin to be drawn out, it is also possible to detach it by revolving two or three times to the left or to the right after raising by holding between fingers the annular body **4** of a flexible and tough synthetic

resin such as said polyethylene to the dotted line position in the direction of arrow of FIG. 4.

The drawing pin as referred to above is also utilized as a hanger ring for hanging things clamped between annular body **4** and pin base **10**, after the pin proper **2** being attached to the thing being fixed therewith.

Since annular body **4** of said drawing pin is made of resilient material such as a flexible and tough synthetic resin, for instance, polyester and the like, a sheet of paper can be held easily by annular clearance **3** between annular body **4** and pin base **10** conveniently without injuring the sheet of paper by needle body **1**.

Further, since said drawing pin can insert the pin body **2** detachably in the recess portion **8** of pin base **10**, when, for instance, needle body **1** is damaged, only the pin proper **2** can not only be exchanged easily, but also it is firmly held in the recess **8** due to its elasticity and flexibility without easily detaching. Furthermore, said pin base **10** as well as annular body **4** can be molded from said synthetic resin in one body. Therefore, there is an advantage of enabling a mass production at low production cost.

Furthermore, it is also possible to adapt to our taste by colouring the drawing pin referred to above in various colours in harmony with its shape. The joint portion connecting said annular body with said pin proper may be not only one, but also two or three, without departing from the spirit of this invention. In addition, said pin proper and said annular body are not particularly limited to a circular form, but it is also possible to choose any suitable form.

What I claim is:

A drawing pin comprising a metallic pin having a pointed needle section and a pin head section integral therewith, said pin head section formed in a flat, planar shape with said needle section extending perpendicularly therefrom on one side thereof, a holder made of resilient synthetic resin material having a middle portion formed with an internal annular groove holding said pin head section therein, and a circumferentially continuous ring portion encircling said middle portion and being radially spaced therefrom and united thereto by a joint body extending along minimum peripheral portions of said middle portion and the inner periphery of said ring portion, said ring portion being flexible for displacement relative to said middle portion, said middle portion having means defining an opening on one side thereof adjacent said annular groove and a flexible lip portion coextensive with said annular groove retaining said pin head section in said annular groove, said lip portion being flexibly displaced to permit removal of said pin head section from said annular groove through said opening.

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