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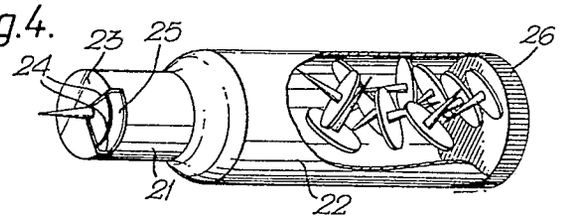
(54) Drawing pin inserter and extractor.

(57) A tool is provided for inserting and extracting drawing pins which has a hollow cylindrical barrel (22), serving as a holder and also a container for drawing pins, and a tool head (21) at one end of the barrel (22), preferably of reduced diameter, the extreme axial end face of which is in the form of an inwardly-directed radial flange (23) to retain the head of a drawing pin engaged behind it while allowing the shank of the pin to project axially. For insertion and removal of the drawing pin heads, either the end flange (23) is annular and surrounds a circular aperture large enough to allow axial passage of a drawing pin head, or the flange (23) and the rim bearing it are formed with a sectoral cut-out (24) to allow lateral passage. An axial well in the tool head behind the flange contains a small permanent magnet (20).

Fig.4.



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Description

DRAWING PIN INSERTER AND EXTRACTOR

This invention relates to the insertion and withdrawal of drawing pins (thumb tacks).

Although drawing pins are intended to be inserted by thumb pressure and withdrawn with the fingers, it can be beyond comfortable thumb pressure of many persons to insert them into a comparatively hard material and, once inserted, they may be impossible to withdraw with the fingers alone. All kinds of implements not intended for the purpose are therefore employed both to force in and extract drawing pins, with consequent inconvenience to and sometimes risk to the hands of the users and the possibility that pins will become bent and unusable. It is an object of this invention to make the insertion and withdrawal of drawing pins easier and safer with less likelihood of damage to the pins.

The present invention provides a tool for inserting and extracting drawing pins, comprising a hollow barrel, and a tool head fixed on one end of the barrel having a recess to receive and temporarily retain the head of a drawing pin, with the shank of the pin projecting out axially therefrom, while the pin is inserted by axial pressure of the tool, the tool head being disengageable from the pin head after the pin is inserted, said recess being defined in part by an inwardly directed thin radial flange forming the extreme axial end face of the tool head behind which the pin head is engaged and which surrounds or is formed with an aperture that allows both the pin head to be inserted into and removed from the recess and also the emergence of the pin shank to project axially.

Preferably, a small magnet is provided at the bottom of the tool recess, to retain the head of a pin during insertion or after withdrawal.

Arrangements in accordance with the invention will now be described by way of example with reference to the accompanying drawings, in which:-

Figure 1 is a pictorial view of a first embodiment according to the invention,

Figure 2 is a view showing a drawing pin held in the tool of Figure 1,

Figure 3 is a view of the tool head in axial section, and

Figure 4 is a pictorial view, partly cut away, of a second embodiment.

The tool shown in Figures 1 to 3 of the drawings has a hollow cylindrical barrel 10 of plastics material with circular metal end closures 11, 12 the end closure 11 being a tool head fixed to the barrel 10 while the end closure 12 is a removable cap that gives access to the interior of the barrel which is used as a container for drawing pins. The tool head 11 is comparatively deep axially and is formed with a central circular axial recess 13 in its exterior end face which recess is undercut, as at 14, the mouth of the recess being formed by a radially inwardly directed retaining flange 15 that is comparatively sharp-edged at its inner periphery, as at 16. The circular entry hole 17 surrounded by the flange 15 is large enough in diameter to pass the head of a drawing pin and the undercut 14 is deep enough axially to allow part of the peripheral margin of the pin head to be then shifted laterally into it very readily. In the floor of the recess 13 a central circular well 18 is formed into which is fixed a small permanent magnet 20 (not shown in Figure 3).

In use, the head of a drawing pin is placed in the recess 13 where it will be retained by the magnet with the pin portion protruding from the head of the tool as at 19. The drawing pin can then easily be pushed into the material intended to receive it by axial pressure of the tool and when the pin is inserted the tool can be disengaged from its head and removed. To extract the pin, the tool is replaced with the recess 13 covering the head of the pin and the tool is shifted slightly laterally to engage a portion of the peripheral margin of the pin head behind the flange 15. The pin can then be easily withdrawn by a pull on the tool.

It will be seen that when the tool is used to insert a drawing pin, the pin cannot be pushed in beyond the depth at which it is still easy subsequently to withdraw the pin by means of the tool in the manner described. Also, providing a straight axial push and pull are used for inserting and removing a drawing pin, there is substantially no likelihood of bending the pin in a manner that would render it useless.

If, instead of the arrangement shown in Figures 1 to 3, a side entry for the pin head is provided into the tool recess it is not necessary for the opening defined by the inner periphery of the retaining flange to be large enough to pass the pin head; and it may also be possible to retain the pin in the tool reasonably well without a magnet. However, the arrangement with the magnet is preferred.

Figure 4 shows a modified arrangement as just described in which the end closure or head 21 on the tool barrel 22 is of reduced cross-section so that the whole tool in this instance becomes substantially bottle-shaped. The inwardly-directed retaining flange 23 on the tool head 21 and the rim of the tool head bearing the flange now have a sector of somewhat over 90° cut out, as at 24, so that the pin head can be inserted and removed laterally through the gap 25 thus provided. Now the circular aperture in the end face of the tool head is substantially unnecessary because the apex of the sectoral cut-out 24 is able to accommodate passage of the pin shank. As before, there is a small permanent magnet housed in a central well under the pin head.

Suitable materials for the embodiment of Figure 4 are A.B.S. plastics (QE 1092) for the barrel 22 and the end cap 26, and any of glass-fibre-reinforced nylon, acetal polymer M90-04 and polycarbonate plastics for the tool head 21. A particular feature of the embodiment of Figure 4 is that the tool head being in the form of a reduced nose of the tool, with a diameter only slightly greater than that of a drawing pin head, enables the user to insert drawing pins with greater positional precision, as compared with the case of a tool with an end much wider than the

drawing pin head which makes it difficult or impossible for the user to see the place where the pin is to be inserted.

Other modifications of the arrangements described are, of course, possible without departing from the scope of the invention. Thus, the barrel can be extended to accommodate a greater supply of drawing pins - 100 pins may be a convenient number and the barrel can easily be made large enough to receive that number. Also, the removable end cap 12 or 26 can be domed, if desired, for more comfort to the user's hand when pushing on the tool.

Claims

1. A tool for inserting and extracting drawing pins, comprising a hollow barrel, and a tool head fixed on one end of the barrel having a recess to receive and temporarily retain the head of a drawing pin, with the shank of the pin projecting out axially therefrom, while the pin is inserted by axial pressure of the tool, the tool head being disengageable from the pin head after the pin is inserted, said recess being defined in part by an inwardly directed thin radial flange forming the extreme axial end face of the tool head behind which the pin head is engaged and which surrounds or is formed with an aperture that allows both the pin head to be inserted into and removed from the recess and also the emergence of the pin shank to project axially.

2. A tool according to Claim 1, wherein the recess in the tool head has an axial well in its floor containing a small permanent magnet.

3. A tool according to Claim 1 or Claim 2, wherein the inwardly directed flange on the tool head is annular and surrounds an aperture large enough to allow a drawing pin head to pass through axially.

4. A tool according to Claim 3, wherein the inner periphery of the flange is substantially sharp-edged.

5. A tool according to Claim 1 or Claim 2, wherein the inwardly-directed flange on the tool head consists essentially of a disc on the rim of the tool head with a sector cut out of both the disc and the rim to provide a gap large enough to allow passage of a drawing pin head laterally into and out of the recess.

6. A tool according to Claim 5, wherein the edges of the flange bounding the sectoral cut-out are substantially sharp-edged.

7. A tool according to any preceding Claim, wherein the barrel serves as a container for drawing pins and has an open back end closed by a removable cap.

8. A tool according to any preceding Claim, wherein the tool head is of reduced diameter as compared with the barrel, with a diameter only slightly greater than that of the drawing pin head.

9. A tool according to any preceding Claim, wherein the tool head is made of a stronger, stiffer material than the barrel.

10. A tool according to any preceding Claim, wherein both the barrel and the tool head are made of plastics material, the tool head being of stronger, stiffer plastics material such as reinforced nylon, acetal polymer or polycarbonate plastics.

Fig.1.

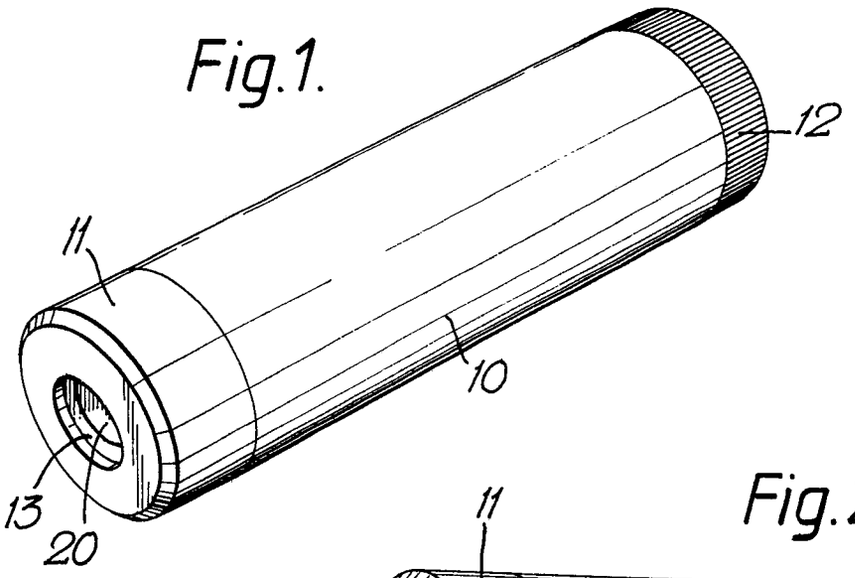


Fig.2

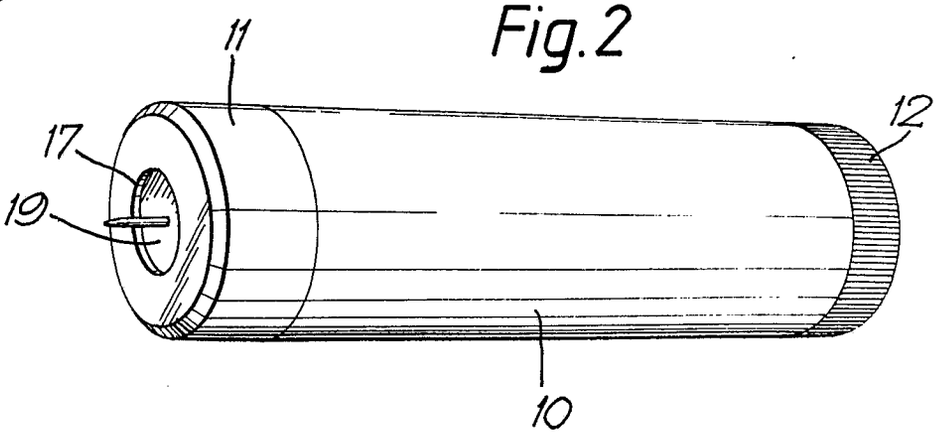


Fig.3.

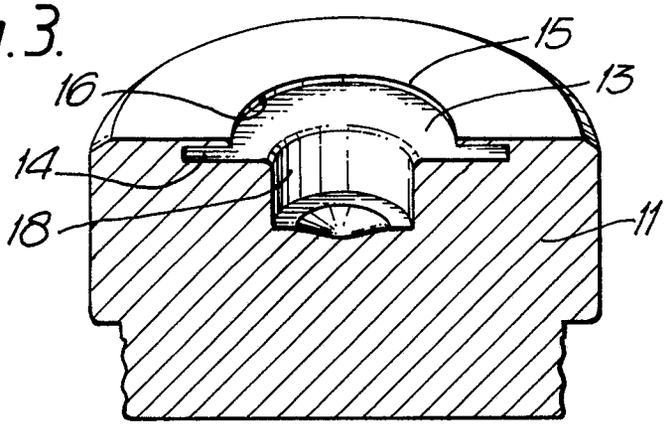
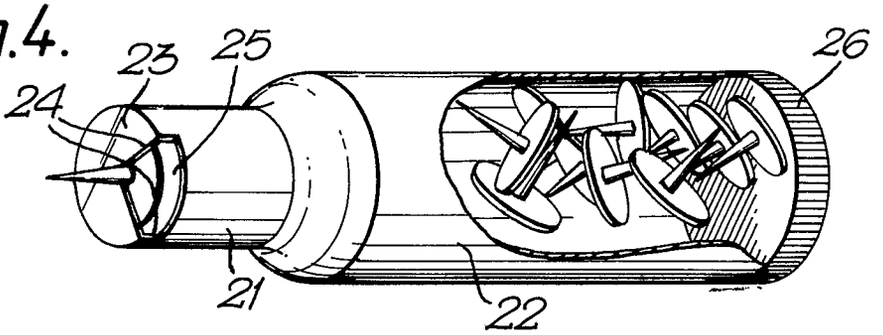


Fig.4.



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EUROPEAN SEARCH REPORT

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT

EP 89304309.1

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	US - A - 3 218 030 (BARO) * Fig. 1-4 * --	1-4	B 25 C 11/00
P,A	GB - A - 2 207 077 (HILLS) * Fig. 1,3 * --	1,5	
A	DE - C - 51 727 (BOUVERON) * Fig. 1-4 * --	1,7	
A	GB - A - 2 172 835 (STEVENS) * Fig. 1 * ----	1,8	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

B 25 C 11/00
B 43 M 17/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	10-07-1989	KNAUER

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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