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DISPENSER FOR ARTICLES OF MAGNETIC MATERIAL

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7 Claims. (Cl. 312—79)

This invention relates to a dispenser for needles or like objects of magnetic material and particularly to a dispenser in which the objects are normally concealed and from which they are caused to project, for convenient removal at the time of use.

The invention is especially satisfactory for use with needles and will be illustrated by description in connection with such use.

The invention provides a dispenser which is positive and effective, attractive in appearance, and characterized by a minimum of mechanical parts. The dispenser includes a magnetic carrier for the needles and construction that eliminates the usual spring or other mechanical contrivance required to return the magnetic carrier, after use, to the normal or rest position. Because the magnetic force extends from side to side of the carrier, the dispenser is effective in retaining the needles against the force of gravity, even though the magnetic carrier itself is small.

Briefly stated, the invention comprises a dispenser for needle-like objects of magnetic material provided in an end portion thereof with an opening or openings to receive one or more of the objects, a magnetic carrier for the objects, and means for moving the carrier towards or away from the said holes. In the preferred embodiment, the invention comprises magnetic material disposed in the end of the case opposite the holes, so as to exert a pull at all times upon the magnetic carrier, this material being itself preferably a magnet and having a polarity of the upper surface opposite the polarity of the lower surface of the magnetic carrier. In a commercial form, the invention includes a handle or button for moving the carrier, the handle being a projection from the carrier which fits within a slot in the side wall of the case and serves to maintain the carrier in alignment, that is, at all times at approximately a right angle to the length of the case.

The invention will be further illustrated by description in connection with the attached drawings to which reference is made.

Fig. 1 is a perspective view of the needle dispenser with the needles projecting through the openings in the upper part of the case.

Fig. 2 is a sectional view on line 2—2 of Fig. 1 with the magnetic carrier at the down position, away from the discharge holes, so that the needles are completely concealed within the dispenser.

Fig. 3 is a sectional view on line 3—3 of Fig. 1.

Fig. 4 is a similar view of the construction with the carrier in the down position.

Fig. 5 are detailed views in perspective of the magnetic carrier and the bar of magnetic material.

Fig. 6 is a sectional view, on a reduced scale, of a modified form of the invention.

Fig. 7 is a sectional view on line 1—1 of Fig. 6.

There is shown the needle dispenser, with case 10 and a closure part 12 for an end of the case. This part is provided with spaced holes 14 which are slightly oversized with respect to the needles 16 and are, therefore, adapted to receive the needles. The closure part has substantial depth, from top to bottom, so that the holes serve as means for alining the needles.

A magnetic carrier or support 18 is disposed within the case. The carrier is mounted movably within the case, as by the handle 20 of plane sides fitting movably within the slot 22, so that the fitting of the handle 20 within the slot maintains the alinement of the magnetic support 18 at all times. This keeps the support in generally horizontal position as it moves upwardly and downwardly when the case is in vertical position.

In general, this alignment maintains the magnetic support at approximately a right angle to the direction of extent of the needles 16 and of the length of the case 10. The handle carries a convenient form of button 24.

A bar of magnetic material 25 is mounted in the lower or closed end 26 of the case, in order to exert, upon the magnetic carrier, a force tending to pull the carrier towards the end of the case opposite the end provided with the holes.

It will be observed that the maximum distance between the position of the carrier 18 (i.e., the upper end of it) and the lower end of the closure part 12 carrying the holes 14 is less that the length of the needles. The lower end of the case, either with or without parts 28 or 36, constitutes a stop. This stop limits the movement of the carrier in direction away from the end provided with the holes, so that the needles, when the carrier strikes the stop, remain engaged in the holes. As a result the needles are disengagable from the holes 14 only when the needles are withdrawn outwardly through the holes.

One magnetic pole extends completely across the upper surface of the member 18, that is, from side to side. In the drawing, this is shown as the south pole "S." As a result the magnetic force also extends from side to side of the magnet. The force does not approach zero at any point on the upper surface, as would be the case if the left end of the magnet in Fig. 8, for instance, were one pole and the right end the other pole. In like manner, the second "N" pole of the magnet
extends completely from side to side of the lower surface of the magnetic carrier.

The upper surface of the magnetic support or carrier is provided with an irregularity of surface to receive the ends of the needles.

In the preferred embodiment, the irregularity of the upper surface is V-shaped and is provided at the lower part of the V-shape with a groove 30. This groove is somewhat oversize with respect to the ends of the needles to be received within the groove. In use, the sloping sides of the V-shape of the upper part of the magnetic support direct the ends of the needles into the groove 30. Here the ends are subjected to magnetic force not only from the material below the ends of the needles, but also from the material constituting the sides of the groove 30. Stud 32 is integral at one end with the carrier and, at the other end, is threaded to receive the button.

The bar of magnetic material 28 is suitably itself a magnet with the polarity “S” of the upper surface opposite that of the polarity of the lower surface of the magnetic support 18. This magnetism of the bar and dissimilarity of poles turned toward each other increases the attraction of the bar 28 for the support 18. The lower surface of the bar is the “N” pole, it being understood that all poles of the carrier and bar may be reversed.

Fig. 6 and 7 have parts corresponding to those described but circular in form. This gives an article of the general appearance of a lipstick holder.

Thus, these Figs. 6 and 7 show case 34 provided with slot 44, a magnetic material carrier 32, in which the case magnetic carrier 38, needle receiving recess or irregularity 46, button 42, and the upper end closing part provided with holes 46 suitably arranged annularly.

The magnetic polarity of parts 36 and 38 are as stated above for members 18 and 28.

The operation of the dispenser will be largely evident from the detailed description that has been given.

To charge the dispenser, a supply of needles is introduced through the holes, to give such an assembly as shown in Figs. 1–4 and 6. In the normal position, the magnetic support 16 or 36 is drawn to the part 23 or 35. This causes the needles to recede within the case, as illustrated in Figs. 2 and 4.

When it is desired to project the needles above the holes, so that one or more of the needles may be withdrawn for use, the operator moves the button 24 or 42 manually towards the discharge end of the case, into the position shown in Figs. 1 and 3. After the needle or needles that are to be used have been withdrawn by hand, release of the button 24 or 42 causes the carrier 18 or 38 to move at once to the bar of magnetic material 28 or 36, with an accompanying withdrawal of the remaining needles from view, within the case.

As to materials of construction, the case 16 is formed of material that is non-magnetic under the conditions of use. Suitable non-magnetic materials are silver, aluminum, and the common plastics such as those of styrene, urea and formaldehyde, phenol and formaldehyde, and methyl methacrylate. The button 24 and the closure member 12 are suitably constructed of the same material.

The magnet 18 or 38 is of any suitable magnetic material magnetized in a conventional manner. Examples of materials that may be used for this purpose are steel, nickel, cobalt, and alloys that are known to be magnetic, as for instance, the aluminum, nickel, and cobalt alloy known as “Alnico.”

The material of the bar 28 or part 36 must also be one which is magnetic, so that it may have attraction for the magnetic support 18 or 38. Best results are obtained when the bar 28 or part 36 is itself magnetized, in which case the upper part must be of polarity opposite that of the lower part of the carrier 18 or 38.

The dispenser of the kind described is compact, light in weight, and effective and dependable for the purpose of retaining needles or like elongated magnetic members within a case and then exposing them for withdrawal from the case as desired.

What we claim is:

1. A needle dispenser including a case of non-magnetic material; a closure for the upper end of the case consisting of strip material provided with spaced holes arranged side by side, extending in the direction of the length of the case, and being of diameter somewhat greater than the diameter of the needles to be dispensed; a magnetic carrier extending inside the case and in line with the said holes, provided with depression of the upper surface to receive the ends of the needles, and fitting movably so that it may be moved lengthwise of the case, towards either end thereof; a side wall of the case provided with a slot extending lengthwise of the case; a handle for the magnetic carrier extending through the said slot in movable manner, so that movement of the handle towards an end of the case causes a corresponding movement of the magnetic carrier; and a bar of magnetic material disposed in the bottom part of the case so as to exert attraction for the magnetic carrier.

2. A needle dispenser as described in claim 1, the said handle having plane sides and substantial length and fitting within the said slot so that the handle is aligned by the slot and the handle maintains the magnetic carrier in alignment as the carrier is moved within the case.

3. A needle dispenser comprising a case for needles, an end of the case provided with spaced holes for insertion of the needles, a bar magnetic carrier for the needles provided with a support area below its upper edge to receive the ends of the needles, a stop disposed in the end of the case opposite the said holes for limiting movement of the carrier in direction away from the holes, means mounting the carrier within the case and movably in the space between the said stop and the end provided with the holes, and a handle secured to the carrier and extending outside the case for moving the said carrier within the case, the spacing of the stop from the end provided with the holes being such that when the carrier rests upon the stop the needles received in the said support area will extend into the said holes.

4. A structure as specified in claim 3 in which the bar magnet includes a sloping face leading from its upper edge down to said support area.

5. A needle dispenser comprising a case for needles, an end of the case provided with spaced holes for insertion of the needles, a bar magnetic carrier for the needles provided with a support area below its upper edge to receive the ends of the needles, a stop disposed in the end of the case opposite the said holes for limiting movement of the carrier in direction away from the holes, means mounting the carrier within the case and movable in the space between the said stop and the end provided with the holes, a han-
dle secured to the carrier and extending outside the case for moving the said carrier within the case and magnetic material disposed at a fixed position within said case and adjacent to the end thereof opposite the said holes so as to exert an attraction upon the magnetic carrier, the spacing of the stop from the end provided with the holes being such that when the carrier rests upon the stop, the needles received in the said support area will extend into the said holes.

6. A dispenser as described in claim 5, in which the fixed magnetic material is arranged with a magnetic pole extending from side to side of the upper surface of the magnet and the polarity of this upper surface is the opposite of the polarity of the lower surface of the magnetic carrier.

7. A dispenser as described in claim 5, in which the upper surface of the magnetic carrier is generally V-shaped in cross section throughout its length and, at the bottom of the V-shape, has a groove of width only slightly greater than the diameter of the needles so that the ends of the needles are guided by the sloping side walls of the V-shape into the groove and the needles within the groove are subjected to magnetic force from the sides of the groove.

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References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>72,271</td>
<td>Cummings</td>
<td>Dec. 17, 1877</td>
</tr>
<tr>
<td>162,989</td>
<td>Yeomans</td>
<td>May 4, 1875</td>
</tr>
<tr>
<td>407,477</td>
<td>Esell</td>
<td>July 23, 1889</td>
</tr>
<tr>
<td>512,381</td>
<td>Keyes</td>
<td>Jan. 9, 1894</td>
</tr>
<tr>
<td>559,176</td>
<td>Hussey</td>
<td>Apr. 28, 1899</td>
</tr>
<tr>
<td>1,758,168</td>
<td>Olivaux</td>
<td>May 13, 1930</td>
</tr>
<tr>
<td>2,144,199</td>
<td>Press</td>
<td>Jan. 17, 1939</td>
</tr>
<tr>
<td>2,212,268</td>
<td>Ivanoff</td>
<td>Aug. 20, 1940</td>
</tr>
<tr>
<td>2,388,887</td>
<td>Boxer</td>
<td>Sept. 15, 1942</td>
</tr>
<tr>
<td>2,438,070</td>
<td>Wilson</td>
<td>Jan. 11, 1949</td>
</tr>
</tbody>
</table>

FOREIGN PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Country</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,418</td>
<td>Great Britain</td>
<td>1889</td>
</tr>
<tr>
<td>339,656</td>
<td>Great Britain</td>
<td>Nov. 27, 1930</td>
</tr>
</tbody>
</table>