

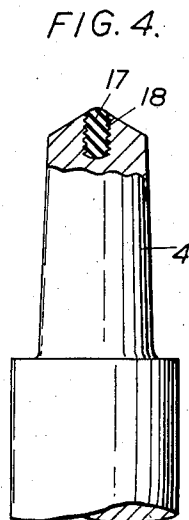
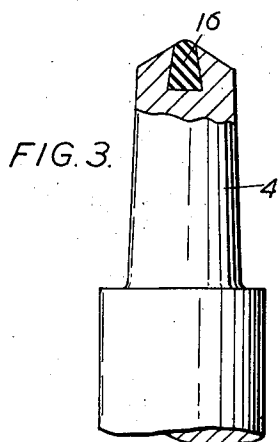
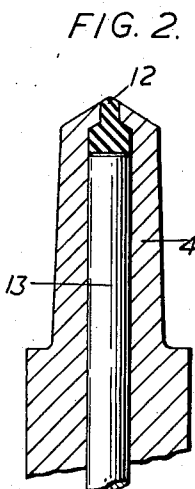
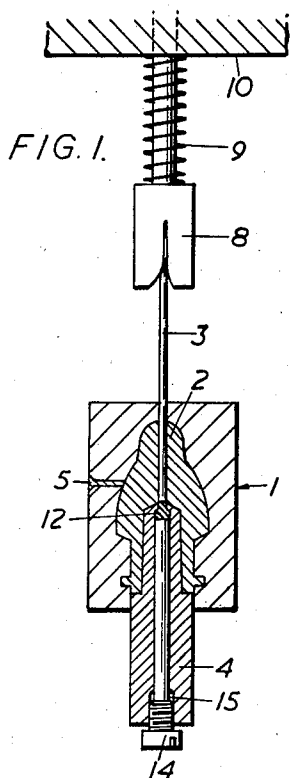
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HYPODERMIC NEEDLES

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2,946,093

HYPODERMIC NEEDLES

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In order to secure hypodermic needles in their mounts it is frequently the practice to die cast the mount directly onto the needle. The mould used for this purpose has a hole at one side for the insertion of the rear end of the needle and at the other side an opening is left for the insertion of a tapered core pin which, during casting, forms the recess in the body of the mount which ultimately fits over the nozzle of the syringe. When the mount has been cast there must, of course, be direct communication between the recess and the bore in the needle and to prevent the flow of metal into this bore during casting, the core pin is formed with a sharply tapered point which enters the bore of the needle. During the casting process the needle is held firmly against this point and this proves quite effective in preventing the metal from entering the bore of the needle. It is somewhat difficult, however, to press the needle effectively against the point on the core pin and in quantity production a relatively large proportion of faulty mounts are produced. This renders the process costly both in labour and material and, moreover, the mould upkeep is expensive since the core pins in particular require frequent replacement.

According to the present invention the tip of the core pin is fitted with a resilient sealing member for closing the rear end of the bore of a needle instead of with a sharp point for insertion into the bore. This sealing member is pressed against the rear of the needle and provides a cushioning effect enabling an extremely effective seal to be produced without any appreciable difficulty in holding the needle in position. The seal produced is, in fact, so efficient that it is possible to use a synthetic plastic material such as polythene or nylon for the body of the mount in place of the metal previously used. This has not previously been practicable owing to the fact that it is considerably more difficult to obtain a seal when using a plastic material of this nature than when using metal.

Preferably the sealing member is retained within a recess in the tip of the core pin. The member may be held in position by means of an axially extending rod engaging the rear of the member and controlled by means of a screw at the rear of the core pin. This rod may be designed so as to apply a variable degree of compression to the member, so as to allow for the effects of wear. The sealing member may conveniently be made of rubber or of similar rubbery material such, for example, as silicone rubber.

Examples of constructions in accordance with the invention will now be described in more detail by way of example with reference to the accompanying drawings in which;

Figure 1 shows a general arrangement of a mould in accordance with the invention during the process of moulding a mount onto a hypodermic needle;

Figure 2 is a cross sectional view to an enlarged scale of part of a core pin shown in Figure 1; and

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Figures 3 and 4 are views corresponding to Figure 2 of modified forms of core pin.

Referring first to Figure 1 a mould shown as 1 is used for the production of a mount 2 for a hypodermic needle 3. The mount 2 is formed at its rear end with a recess which is ultimately intended to fit over the nozzle of a hypodermic syringe but which during moulding is occupied by the end of a core pin 4 which closes the rear end of the mould 1. The mould 1 is formed with an inlet 5 for the moulding material which, as previously mentioned, may be either a metal or a synthetic plastic material such as polythene or nylon. The mould 1 is split so that after the moulding process is complete it may be removed from the completed mount 2.

During the moulding operation it is essential that the moulding material should be prevented from entering the bore of the needle 3 and for this purpose the rear end of the bore requires to be pressed tightly against the tip of the core pin 4. The mould 1, together with the core pin 4, is firmly held in position on a support (not shown) while the needle 3 is engaged by a point locator 8 acted on by a spring 9, the other end of which abuts against a surface 10. The thrust of the spring 9 forces the end of the bore of the needle 3 against the tip of the core pin 4 where a seal is effected by means of a resilient sealing member 12 seen in more detail in Figure 2.

This member is made of a rubbery material such as silicone rubber and is fitted within a recess in the core pin 4. It is held in position by means of an axially extending rod 13 controlled by means of a screw 14 which is screwed into a tapped bore 15 in the rear end of the core pin 4. By tightening the screw 14 the compression of the sealing member 12 can be increased. This increases its resistance to wear and also helps to allow for any erosion of the sealing member in operation.

In the simplified construction of Figure 3 a sealing member shown as 16 performs exactly the same function as the member 12 but is not subjected to adjustable compression. As will be seen it is located in a recess formed with a mouth of reduced area so that in effect the sealing member 16 is dovetailed into the core pin 4. It may be moulded in position or subsequently inserted.

Figure 4 shows a further modification in which a sealing member shown as 17 which is cylindrical in shape is formed with a screw thread which engages a corresponding thread in a tapped bore 18 in the tip of the core pin 4.

In each of the constructions shown the presence of the respective sealing member forms an effective seal with the rear end of the needle 3, thus very substantially reducing the possibility of the casting material entering the bore of the needle and reducing the upkeep of the mould to negligible proportions.

I claim:

1. A mold for a mount for a hypodermic needle, said mold comprising a mould body having a hole at one side for the insertion of the rear end of a needle and an opening at the opposite side for the insertion of a core pin, a core pin adapted to fit within said opening, said core pin having a resilient sealing member at the tip thereof and adapted to close the bore of a needle inserted in said hole, an axially slidable rod within said core pin, one end of said rod engaging said sealing member, and means for adjusting said rod to compress said sealing member.

2. A mould for a mount for a hypodermic needle according to claim 1 wherein said adjusting means comprises a screw fitted in a threaded bore at the rear of said core pin.

3. A mould for a mount for a hypodermic needle ac-

according to claim 1 wherein said sealing member is fitted within a recess in the tip of said core pin.

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