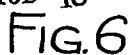


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MAGNIFYING ATTACHMENT FOR SYRINGES

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1 Claim. (Cl. 88—39)

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This invention relates to an attachment for medical equipment, including syringes, for use in administering to a patient by means of a needle, a predetermined amount of medicine, and thermometers. The attachment is removably and slidably mounted on the syringe or thermometer, in superposed relation to the graduations and numbers for the latter. The attachment includes a magnifying media and therefore it is particularly adapted for use by nurses, doctors and other persons whose eyesight is impaired.

The attachment is also advantageously used by a person who makes self-injection operations, as in the injection of insulin, since the graduations and numbers therefor on the syringe are magnified to insure easy, quick and accurate reading, so that danger of error in injecting an under or over-sufficient amount of insulin is avoided.

However, the use of the attachment by nurses and doctors is greatly facilitated as the digits and graduations on syringes and thermometers are made plainly readable and therefore it tends to reduce errors.

The attachment can be readily sterilized as it is resistant to temperatures utilized for sterilizing tools and other equipment used in medical and surgical practice; the attachment may be snapped on the syringe after the latter and the needle therefor have been sterilized and assembled and provides for a quick and accurate reading of the indices on the syringe when an injection operation is to be effected. The snap-on characteristic of the attachment permits it to be readily removed following a reading of the indices; however, the syringe may be operated in the usual manner without first removing the attachment therefrom.

One object of the invention is to provide an improved removable attachment for syringes, thermometers and other medical equipment having a magnifying media, whereby the graduations and/or index numbers thereon are made plainly readable, to the end that accurate readings may be quickly made.

Another object of the invention is to provide an improved removable attachment for syringes, thermometers and other medical equipment for magnifying the graduations and index numbers thereon, the attaching elements for the attachment being of the snap-on and snap-off type and permitting the attachment when assembled on the equipment, to be moved endwise and rota-

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tively thereof, to position the magnifying media over the indicia on the equipment.

Another object of the invention is to provide an improved attachment of the character set forth having a magnifying media formed of a transparent synthetic material capable of being economically and readily shaped, does not chip or break and is not affected by heat within limits required for sterilization.

Another object of the invention is to provide an improved attachment for a syringe consisting of a section of magnifying media and resilient attachment devices fixed to the media and adapted to be snapped on and yieldably engage the walls of the syringe, whereby the latter, after it and the needle therefor are sterilized and assembled for use, may be held by one hand by the user while, with the user's other hand, the attachment may be positioned on the syringe without affecting that portion of the syringe and needle that must remain sterile.

Another object of the invention is to provide an improved attachment of the character set forth having few parts and capable of ready fabrication.

Other objects of the invention will be apparent to those skilled in the art to which my invention relates from the following description taken in connection with the accompanying drawing, wherein

Fig. 1 is a perspective view of a syringe showing an attachment embodying my invention mounted thereon;

Fig. 2 is a plan view, parts being broken away;

Fig. 3 is an end elevation looking toward the right of Fig. 2;

Fig. 4 is a view similar to Fig. 3 but showing the position of the attachment when it is to be snapped on a syringe;

Figs. 5, 6, 7 and 8 are top plan, side, bottom plan and end elevational views, respectively, of the attachment;

Fig. 9 is a section on the line 9—9 of Fig. 6;

Fig. 9a is an end elevation showing a modified form of construction; and

Figs. 10, 11 and 12 are similar to Figs. 2, 3 and 4, respectively, but showing the attachment for use with a thermometer.

In the drawings, referring to Figs. 1 to 9, inclusive, 1 indicates as an entirety an instrument or equipment, such as a syringe having a needle for making injections for treating humans. The syringe consists of a cylindrical body 1a one end portion of which is reduced, as shown at 1b, to form interiorly thereof an annular wall 1c. The

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opposite end of the body 1a is open to receive a plunger 2 which loosely slidably fits the inner wall of the body 1a, the inward movement of the plunger 2 being limited by the shoulder or wall 1c. The opposite or open end of the body 1a is provided exteriorly with integral, laterally extending lugs 1d which are utilized as an anchor for a portion of a device 3 which is formed of resilient material and provided with extensions frictionally engaging opposite sides of the plunger 2 to prevent the latter from falling out of the body 1a while being handled from time to time. The outer end of the plunger 2 is provided with a head 2a which enables it to be readily handled after it is sterilized and operated to effect an injection. The reduced end portion 1b telescopically accommodates a fitting 4 to which the inner end of the injection needle 5 is secured in a well known manner. The body 1a is provided exteriorly with transverse uniformly spaced long and intermediate lines forming graduations 1x (the long lines indicating units the usual numbering of which is omitted), whereby—in supplying into the body 1a the fluid to be injected—the desired amount of fluid required for any specific injection operation can be measured by reference to the graduations, and thus insure that the amount supplied to the body 1a is not less nor greater than called for by a prescription or instructions to the person who is to make an injection.

The attachment is indicated as an entirety at 6 and comprises a section of suitable material 6a which is transparent and exteriorly shaped to effect magnification and attachment devices 6b, 6b'. The section of transparent material 6a is elongated so as to extend over a relatively long longitudinal area of the syringe body 1a to magnify several contiguous units indicated by the graduations 1x, as shown in Fig. 2. The section 6a is provided with a convex top wall 8, which is later referred to, and a bottom wall 7, which engages the body 1a and having a width throughout its length greater than the outside diameter of the body 1a. The bottom wall 7 may be concave in cross section as shown at 7' in Fig. 9a or flat as shown at 7 in Figs. 1 to 9, inclusive. The top wall 8, as shown herein, is curved transversely about an imaginary longitudinally extending axis, which lies in the plane of the bottom wall 7 and midway the opposite side edges 7a thereof. The top wall 8 preferably extends from one side edge 7a of the bottom wall to the other side edge 7a thereof, as shown in Figs. 3, 4, 8 and 9. The opposite end walls 9 of the transparent section 6a are disposed transversely thereto and extend upwardly and inwardly from the end edges of the bottom wall 7; as shown in Figs. 2, 5 and 6. This inclination of the end walls 9 serves to admit more light rays to the indicia 1x as compared to that if the walls were perpendicular to the bottom wall 7.

By inclining the end walls 9 of the section 6a as above set forth, those end portions of the magnifying section which would impair magnifying effect are removed, so that the top surface 8 from end to end thereof can be utilized.

The transparent section 6a may be shaped in various ways; i. e., by molding, or by an extruding operation and cutting to the desired shape. Also, it may be formed of various materials, such as polystyrene and methylmethacrylate, each of which is relatively light in weight, is easily fabricated, is non-breakable, is not affected by water, is inert to various kinds of alcohol except benzyl

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alcohol, and may be washed with soap and water. I prefer to use the material known as methacrylate since it is not affected by heat below 250 degrees F. and therefore it may be sterilized when found to be desirable. The section shaped as above set forth and formed of either of these materials is capable of magnifying the indicia approximately twice the size thereof.

The attachment devices 6b, 6b', consist of sections of resilient wire 10, 10—such as piano wire—preferably having a gage of .020 to 0.21. Each wire section consists of an elongated bar 10a extending longitudinally of the transparent section 6a and spaced from and disposed parallel to the bar 10a of the other wire section 10. The bar 10a of each wire section 10 terminates at its opposite ends in laterally disposed legs 10b the free ends of which extend into and have a pressed-in fit in openings 7x formed in the bottom wall 7. In this arrangement the devices 6b do not extend beyond either end of the section 6a, so that the latter is movable from end to end of the body 1a. As will be understood from Figs. 2 and 3, the legs 10b at corresponding ends of the bars 10a are spaced and positioned at opposite sides of the body 1a, when the attachment is assembled on the latter. By preference the adjacent legs at the opposite ends of the bars 10a are spaced so as to frictionally engage the opposite sides of the syringe body 1a and those portions of the legs 10b adjacent their connections with the bars 10a are bent inwardly, as shown at 10a', so as to support the latter against and below that portion of the body 1a remote from the section 6a.

Fig. 4 shows the attachment in position to be applied to the syringe body 1a so that by a bodily movement of the attachment in a direction at right angles to the body 1a it may be moved to the Fig. 3 position. In this movement, the bars 10a ride the wall of the body 1a to the position shown in Fig. 3 and effect engagement of the bottom wall 7 therewith. In this assembled position, the bars 10a and wall 7 have a frictional pressure engagement with the wall of the body 1a, whereby the attachment may be moved rotatively and longitudinally thereof to position the section 6a in superposed relation to the graduations 1x, which, being magnified, may be quickly and accurately read to check the contents of the body 1a. Due to the fact that the attachment wires are resilient, it may be snapped on and snapped off the body 1a when operated as above set forth with a quick movement and therefore the attachment does not have to be operated telescopically over the needle 5 and thereby run the risk of damaging or making the sterilized needle useless for injection purposes.

As shown in Figs. 10, 11 and 12, the attachment may be applied to a clinic thermometer 1' to facilitate readings thereof. In this use of the attachment, the legs 10b' of the attachment wires are spaced closer together to support the bars 10a' in position to engage that side of the thermometer remote from the transparent sections 6a.

Fig. 9a shows a modified form of construction wherein the bottom wall 7x of the section of magnifying media 6x is concave from end to end of the latter.

To those skilled in the art to which my invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. My disclosures and the description herein

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are purely illustrative and are not intended to be in any sense limiting.

What I claim is:

An attachment for a syringe or other medical instrument having on its surface graduations and consisting of an elongated section of synthetic resin material adapted to be removably positioned over the graduations, uniformly transparent from end to end and having a top wall shaped transversely curved throughout its length to effect magnification of the graduations and a pair of parallel spaced elongated loops the legs of which are spacedly embedded in the bottom wall of said section, said loops being of less length than said section and formed of resilient wire, the outer ends of the legs being inturned and those portions of the loops between their respective legs extending rectilineally and parallel to and

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spaced from the bottom of said section and adapted to removably and frictionally engage the sides of the instrument by a snap-on movement, said section of material being of less length than the instrument and adapted to be adjusted endwise thereof relative to the graduations on the instrument.

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