

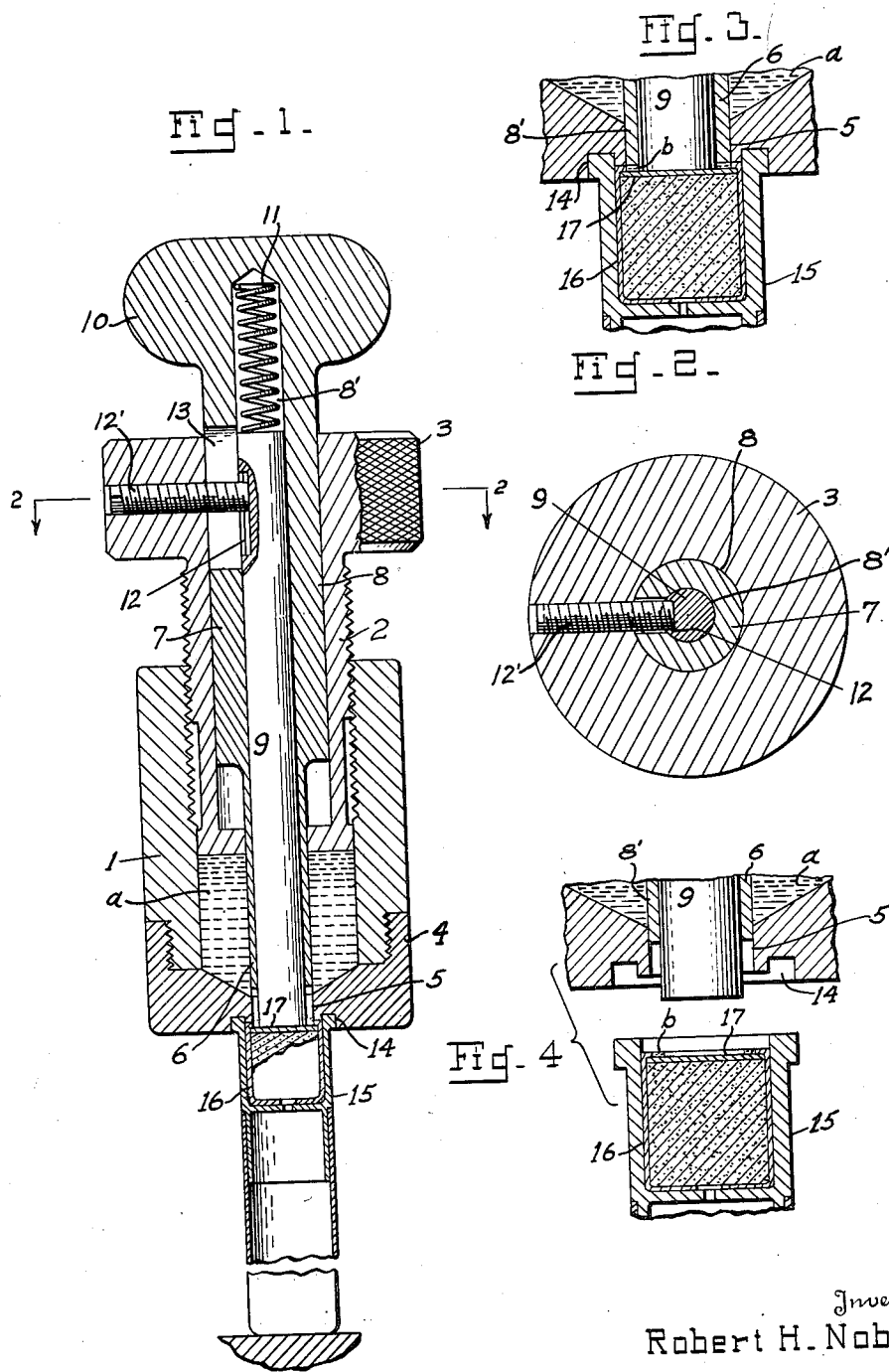
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APPLICATOR

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APPLICATOR

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to an applicator particularly adapted for applying semiplastic material, such as wax and the like into small and relatively confined areas or passageways. While the invention will be described in its particular application as a means for applying a wax sealing ring to the recess in the head of artillery primers, it is to be understood that the invention is not limited thereto.

The present practice in applying wax, or other waterproofing compound, to the recess of primer heads above the usual closure disk is to apply the compound by hand. This is accomplished by smearing wax over the entire primer head, forcing the wax manually into the recess and wiping off the excess. It is obvious that this mode of application is slow, and expensive.

The primary object of the present invention is to provide mechanical means for applying a pre-formed ring of wax into relatively confined areas.

The invention can best be understood from the following description to be read in view of the attached sheet of drawing, in which:

Figure 1 shows a cross sectional view of the preferred embodiment of the invention, and

Figure 2 is a section taken on the line 2—2 of Figure 1.

Figure 3 is an enlarged sectional view of the lower end of the applicator and a portion of a primer holder and primer cup showing the parts in position when a sealing ring has just been applied.

Figure 4 is a similar view showing the primer holder and primer cup separated and after the ring has been applied.

Referring to the drawing, the numeral 1 designates a hollow cylindrical body preferably metal, internally threaded for the reception of the correspondingly threaded shank 2 of a feed wheel 3. The bottom of the body is closed by a closure 4 threaded thereon, there being in the closure a central circular aperture 5 for the passage of the reduced end 6 of a punch 7 mounted for smooth reciprocation in a bore 8 in the shank 2 of the feed wheel. The punch has a bore 8' therethrough for the reception of a guide rod 9 which has a sliding fit in the bore. The punch is formed with a knob 10 at its upper end in which there is a continuation of the bore 8' forming a chamber to receive a spring 11 which bears upon the upper end of the guide rod and

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causes it to act yieldingly upon the object to be sealed in carrying out the purposes for which the applicator is especially designed. The guide rod is provided with a groove 12 for the reception of the end of a screw 12' which is let into the feed wheel and through an elongated slot 13 formed in the punch, the slot in the punch determining the extent of sweep of the punch and determining the play of the rod.

The lower end of the shank 2 acts as a piston in the body 1, which according to the use for which the device is contrived, is partially filled with a charge *a* of wax or other material possessing the plasticity enabling it to be molded.

The bottom of the body 1 is provided with an annular recess 14 for the reception of the flanged upper end of a primer holder 15 in which is shown an ammunition-filled primer cup 16 whose upper edge crimped, as usual, over the usual frangible disk 17, there being shown best in Figures 3 and 4, a sealing ring *b* of the plastic material from the reservoir of the body 1.

The diameter of the opening 5 is equal to that of the reduced portion of the punch. The diameter of the punch bore is the same as the guide rod, and the thickness of the wall of said reduced portion determines the width of the sealing ring applied to the primer head.

In operation, the primer holder and primer, which in this use acts as an abutment for the guide rod, is placed, by any suitable means, beneath the body in the position shown in Figure 3. In placing the primer holder and its contained primer, the guide rod will be moved yieldingly upward with its lower end bearing upon the frangible disk on the primer, leaving a narrow annular recess between the inner edge of the primer crimp and the guide rod, and it is this recess that is to be filled by the sealing ring. The punch is raised manually sufficiently to take a bite of the plastic material upon its downward movement, which is effected by depressing the punch. With each operation the feed wheel is very slightly rotated to maintain the desired pressure upon the plastic material in the reservoir of the body. It will be observed that the inside bottom of the body slopes downwardly toward the opening 5. This is to facilitate the movement of the material to a point under the punch where it may be sheared off from the main material and pressed against the primer head by the punch.

When the seating or positioning of the wax has been accomplished either the applicator or the primer head is given a partial turn to iron out

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the wax and force it firmly in place to completely seal the annular groove and effect a waterproof joint.

In lieu of the manual control of the applicator as described, it is to be understood that any suitable form of automatic or mechanical operation can be supplied for the functioning of the device.

While the invention has been described in particular as applied to the application of wax to a primer head it is obvious that the applicator described can be utilized for the placement of any plastic material in any depression.

What is claimed as new is:

1. An applicator of the character described, comprising a hollow body containing plastic moldable material under pressure, said body having an opening through which increments of said material are successively fed, a punch supported reciprocally in said body with its lower end in said material and adjacent said opening, said punch being adapted to be reciprocated to shear and thereafter compress said material against an abutment supported adjacent said opening to receive the said molded increment, and a rod carried by the punch and extending through said opening, said rod being smaller than said opening and defining, with said opening, the peripheral dimensions of the compressed increment.

2. An applicator of the character described, comprising a hollow body adapted to contain a plastic moldable material and having a circular opening at its bottom for the passage of said material, a punch mounted for reciprocation in said body and having a working end terminating adjacent the inner end of said opening and of a diameter equal to that of the opening, the punch being provided with a bore longitudinally thereof, a rod slidable in said bore and extending through the opening and of a diameter less than that of the opening whereby a space is formed between the walls of the opening and said rod through which the plastic material is pressed upon the depression of the punch.

3. The invention of claim 2 characterized in

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that there is means carried by the body for limiting the relative sliding movement of the rod with respect to the body, and spring means carried by the punch urging said rod to its lowermost position relative to the body.

4. An applicator comprising a container having an efflux orifice in one wall thereof, means to force fluid contents from said container into said orifice and means limiting the efflux of said contents comprising a central member normally occupying less than the total area of said orifice and a member surrounding said central member and mounted for reciprocation with respect thereto and to the applicator through the remainder of the orifice, said surrounding member being normally displaced above the orifice to permit displacement of the contents by said forcing means beneath said member and into said orifice, and upon reciprocation functioning to compress the displaced contents around the central member and in the remainder of the orifice.

5. In an applicator as in claim 4, spring means urging the central member and its surrounding member to their normal positions.

6. In an applicator as in claim 4, spring means urging the central member and its surrounding member to their normal positions, and means connecting the forcing means and the central member, said means being constructed and arranged to permit displacement between the elements so connected.

7. An applicator comprising a container having an efflux orifice and means to exude fluid contents through said orifice, the improvement comprising means movable through the orifice to delimit the effective size of said orifice and punch means movable relative to said delimiting means into the remainder of said orifice to compress the exuded portion of said fluid.

8. An applicator as in claim 7 in which said delimiting means is circular in section and located centrally of the said orifice and said punch means is annular in section.

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