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P. RIECK

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DEHORNING FLUID EJECTOR

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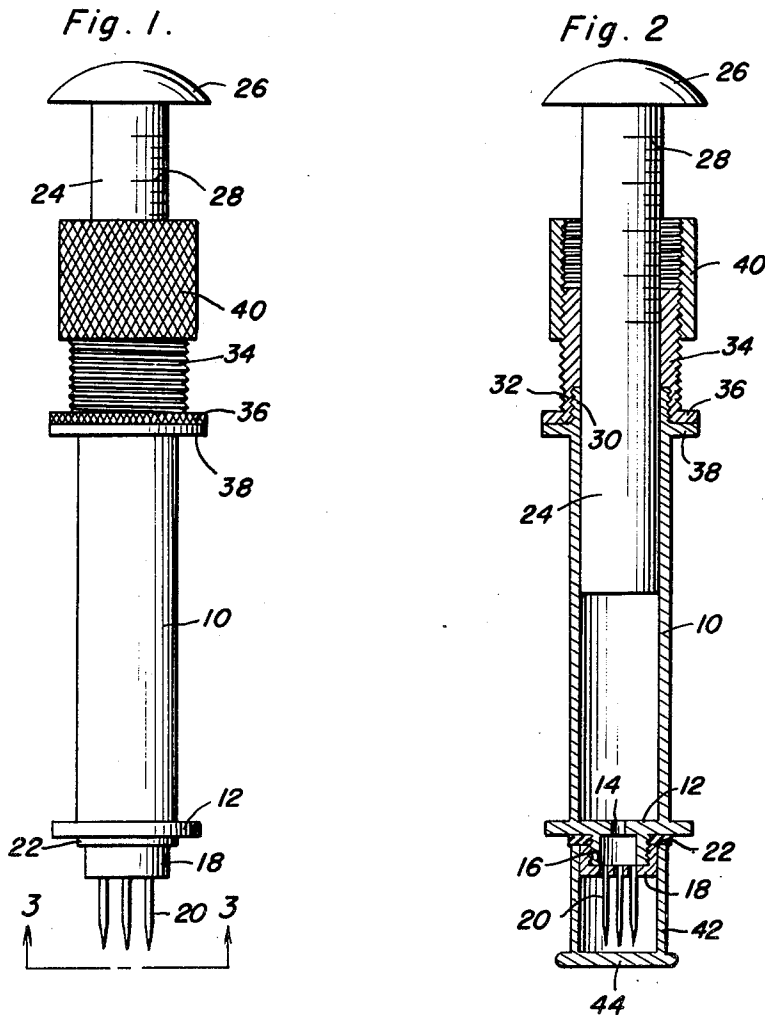


Fig. 5.

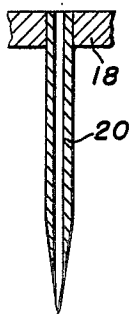


Fig. 3

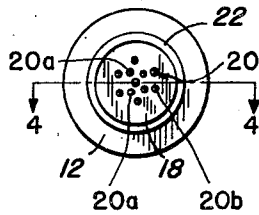
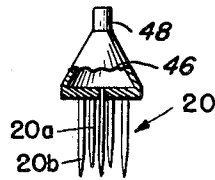


Fig. 4



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## DEHORNING FLUID EJECTOR

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5 Claims. (Cl. 128—260)

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This invention relates to new and useful improvements in vaccine ejectors and the primary object of the present invention is to provide a device for holding a caustic or the like so that the same may be injected into the skin of a calf adjacent a horn button in a safe and sanitary manner for removing the horns from a calf.

Another important object of the present invention is to provide a novel and improved ejector that will permit a horn removing caustic such as potassium hydroxide to be injected into the skin of a calf adjacent the horn button of the same in such a manner as to eliminate the previous unsatisfactory and harmful procedure of first clipping a calf's hair about the horn, applying a grease compound about the horn and then applying a caustic stick to the horn that is to be removed, thus preventing damage to the eyes, skin or clothing of an attendant or the eyes, hair or skin of the calf.

A further object of the present invention is to provide a vaccine ejector that is extremely small and compact in structure and which includes separable elements which will permit the same to be quickly and readily cleaned in a convenient manner.

A still further aim of the present invention is to provide a caustic ejector for dehorning calves that is simple and practical in construction, strong and reliable in use, efficient and sanitary in operation, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the present invention, the needle guard removed therefrom;

Figure 2 is a longitudinal vertical sectional view of Figure 1, the needle guard applied thereto;

Figure 3 is an end view taken substantially on the plane of section line 3—3 of Figure 1;

Figure 4 is a sectional view taken substantially on the plane of section line 4—4 of Figure 3; and,

Figure 5 is an enlarged fragmentary vertical sectional view illustrating one of the needles used in conjunction with the present invention.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a transparent

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cylinder or barrel having an integral closure plate 12 at one end that is centrally apertured as at 14.

Integrally formed with the plate 12 and projecting outwardly therefrom about the aperture 14 is an externally threaded delivery nipple 16 that receivably engages the internal threads of a needle holder or cup 18 from which there extends a plurality of spaced, parallel hollow hypodermic needles 20 the outer pointed extremities of which are disposed to conform to the contour of a horn button. The needles 20 include an inner series of circumferentially spaced needles 20a and an outer series of circumferentially spaced needles 20b with the needles of the inner series being of a length less than the needles of the outer series.

A resilient washer or sealing gasket 22 embraces the nipple 16 and is forced against the closure plate 12 by the cup 18 to prevent a solution within the barrel from seeping through between the nipple and cup.

Workable in the barrel 10, is a plunger 24 having a head portion or stop 26 that will limit the inward sliding movement of the plunger into the barrel. The outer periphery of the plunger 24 is preferably provided with indicia or graduations 28 that will indicate the amount of a solution that is ejected by the plunger from the barrel.

The open end 30 of the barrel 10 is externally threaded to receivably engage an internally threaded recess 32 formed in the inner periphery of a guide sleeve 34, and the inner end of the sleeve 34 is provided with an annular flange 36 that bears against an annular bearing shoulder 38 that is integral with the barrel 10 adjacent the open end 30 thereof.

The inner periphery of the sleeve 34 is coplanar or flush with the inner periphery of the barrel 10 to provide a guide and support for the plunger 24.

The outer surface of the guide sleeve 34 is externally threaded to receive the internal threads of a knurled surfaced sleeve or finger grip 40.

When the present invention is being transported or handled, a guard or sleeve 42 is frictionally fitted about the cup 18 and embraces and shields the needles 20 by the closed outer end 44 thereof.

Figure 4 illustrates the needle holder in slightly modified form wherein the same is hollow and conical as at 46 with a cylindrical projection 48 that will frictionally engage in the aperture 14 or the conventional opening in many known syringes.

In practical use of the present invention, a caustic such as potassium hydroxide is sucked or placed in the barrel, and the needles 20 are forced

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into a calf's skin adjacent and above the horn button.

The plunger 24 is then depressed and the chemical in the barrel will be injected into the calf in a safe and humane manner with the sleeve 40 functioning as a stop to limit the longitudinal movement of the plunger in one direction.

Obviously, the present invention is also applicable for applying a vaccine or for other such purposes where a solution is to be injected into an animal in an experienced manner without the necessity of having to remove the animal's hair by clippers or the like prior to the injection.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and by the scope of the appended claims.

Having thus described the invention, what is claimed as new is:

1. A device for injecting dehorning fluid into the skin of a calf adjacent a horn button, said device comprising a barrel, a plunger slidably received in said barrel, a needle holder secured to one end of said barrel, and a plurality of spaced parallel needles carried by said holder, said needles including an inner series of circumferentially spaced needles and an outer series of circumferentially spaced needles, the needles of said inner series being of a length less than the needles of the outer series.

2. A vaccine injector comprising a barrel having a delivery nipple, a plunger slidable in said barrel, a needle holding cup removably carried by said nipple, a plurality of needles carried by said cup, a guard sleeve embracing said cup and said needles, means sealing said cup to said nipple, and a sleeve threaded on said barrel for limiting the sliding movement of said plunger in one direction.

3. A device for injecting dehorning fluid into the skin of a calf adjacent a horn button, said device comprising a barrel having first and

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second end portions, a plunger slidably received in said barrel, a guide sleeve threaded to the first end portion of said barrel slidably receiving said plunger, a stop sleeve threaded on said guide sleeve, said plunger having an enlarged end portion for engaging said stop sleeve to limit sliding movement of said plunger into said barrel, a delivery nipple at the second end portion of said barrel, and a needle holder carried by said nipple.

4. A device for injecting dehorning fluid into the skin of a calf adjacent a horn button, said device comprising a barrel having first and second end portions, a plunger slidably received in said barrel, a guide sleeve threaded to the first end portion of said barrel slidably receiving said plunger, a stop sleeve threaded on said guide sleeve, said plunger having an enlarged end portion for engaging said stop sleeve to limit sliding movement of said plunger into said barrel, a delivery nipple at the second end portion of said barrel, a needle holder threaded on said nipple, and a plurality of spaced parallel needles carried by said holder, said needles including an inner series of circumferentially spaced needles and an outer series of circumferentially spaced needles, the needles of said inner series being of a length less than the needles of the outer series.

5. The combination of claim 3 and graduations on said plunger for indicating the amount of solution ejected by the plunger from the barrel.

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