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J. HEIDRICH

2,643,653

PILL INJECTOR

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FIG. 1.

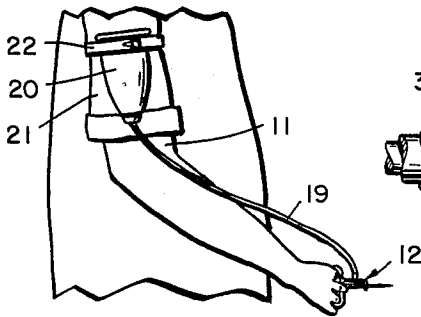


FIG. 3.

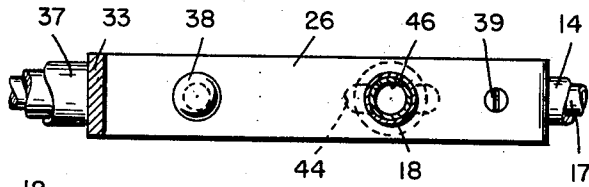


FIG. 2.

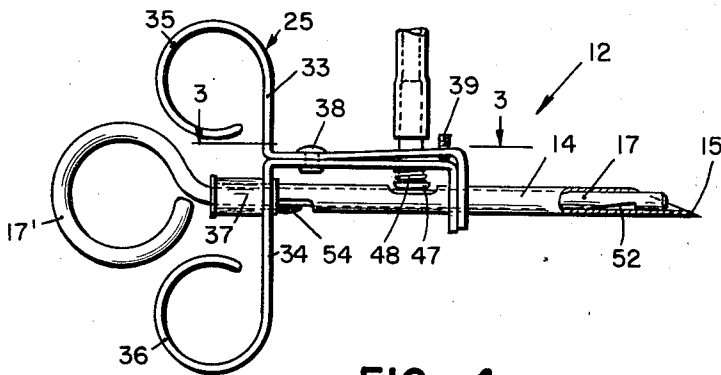


FIG. 4.

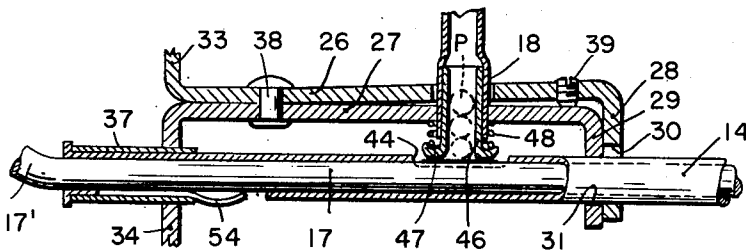
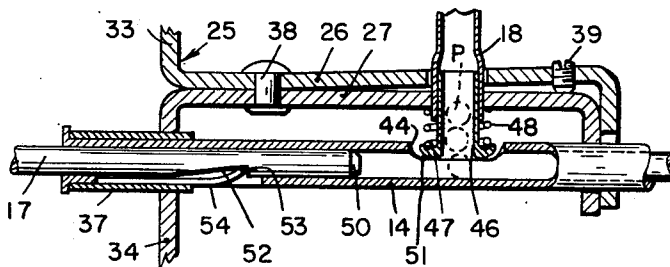


FIG. 5.



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PILL INJECTOR

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6 Claims. (Cl. 128-217)

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This invention has to do with devices for inserting a pill or pellet beneath the skin of an animal or person.

As an example of the use for such a device, domestic fowl are often treated in one manner or another to prematurely fatten them for market. In the case of young chickens it is common to plant a hormone-containing pellet or other pill beneath the skin of the fowl for this purpose.

An object of this invention is to provide a novel instrument for accomplishing this but useful generally for injecting a pill beneath the skin of an animal or a person.

A particular object of the invention is to provide a device or instrument for inserting a pill or pellet beneath the skin which is easy to use and which can be readily disassembled for cleaning.

Another object is to provide a device of the type indicated embodying a hollow needle, a plunger operable within the needle for propelling a pill therethrough, and novel means for feeding a supply of pills to the needle in a manner to deliver one pill for each complete reciprocation of the plunger.

A further object is to provide novel means in such a device for controlling the feed of the pills to the needle in a manner such that when the plunger is retracted a pill will be fed to the needle and thereafter be held against substantial movement therein until it is moved by the plunger thereby preventing premature delivery of the pill through the needle. Another object is to provide such a mechanism which serves to agitate the pills to promote free feeding thereof.

A further object is to provide an instrument which can be readily manufactured.

These and other objects will be apparent from the drawing and the following description.

Referring to the drawing:

Fig. 1 is a schematic view showing the arm of a person and the manner of use of the device;

Fig. 2 is a side elevational view of a device embodying the invention, partly broken away;

Fig. 3 is a partial sectional view of the device of Fig. 2;

Fig. 4 is an enlarged fragmentary longitudinal sectional view showing the device with the plunger extended; and

Fig. 5 is a view similar to Fig. 4 but showing the plunger retracted.

More particularly describing the invention, in Fig. 1, I show the arm 11 of a person using the instrument 12 of my invention. The instrument includes a hollow needle 14 which is sharpened

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at 15 to facilitate piercing the skin. Operable slidably within the needle is a plunger 17 having a finger loop 17'. The plunger delivers pills P supplied to the needle through a delivery tube 18 to which can be connected a flexible supply tube 19 leading from a container 20 attached to the sleeve 21 of the user as by strap means 22.

The device 12 has a handle, generally indicated by 25, which, in the form illustrated, includes two members of strip metal. Each of these members has a straight main section contiguous to the other, the sections being indicated by 26 and 27, respectively. The strips are bent to provide contiguous, laterally projecting end sections 28 and 29, apertured at 30 and 31 to receive the needle. The handle also includes laterally oppositely projecting sections 33 and 34 which terminate in finger-receiving bands 35 and 36. Section 34 is apertured and fitted therein with a bushing 37 receiving the needle.

The main sections 26 and 27 of the handle are secured together by a rivet 38 some distance from end sections 28, 29. A screw 39 is threaded in the section 26 and this is screwed against the member 27 normally to force the parts apart as shown in the drawing to cause opposite sides of the openings 30 and 31, which are of greater diameter than the needle, to grip the needle. It will be apparent that by loosening the screw the needle may be quickly removed from the handle.

A somewhat elongated opening 44 is provided in the upper wall of the needle intermediate its ends. The inlet tube 18 is mounted in the section 27 of the handle in any suitable manner directly above opening 44 in the needle. The lower end of the tube is enlarged to receive what I will term a valve tube 46 having a flange 47 at its lower end. A compression spring 48 is interposed between this flange and the section 27 of the handle. When the plunger is extended the valve tube 46 rests upon the plunger as shown in Fig. 4. However, when the plunger is retracted, as shown in Fig. 5, the plunger moves downwardly and a pill P is delivered to the needle as shown in Fig. 5. The valve tube 46 serves to hold the delivered pill from substantial movement in the needle until the plunger is returned under the valve tube. The plunger serves to cam the valve upwardly to the position of Fig. 4 as it moves from left to right. In this connection the end of the plunger is provided with a tapered surface 50 on its end and the flange 47 is rounded or beveled at 51 so that it can be cammed out of the way readily by engagement with the surface 50.

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In order to limit retraction, the plunger is provided with a recess 52 forming a shoulder 53 adapted to be engaged by a spring leaf 54 mounted in the bushing 37.

In the operation of the device a person can readily grasp the device by inserting two fingers in the finger bands of the handle and inserting the thumb in the loop at the end of the plunger. It will be apparent that only one pill will be delivered each time the plunger is reciprocated and that the pills delivered to the needle will each be held in place therein against falling out until the valve tube is moved out of the way by the plunger. Also, the action of the valve tube tends to agitate the pills in the delivery tube to promote free movement thereof in feeding.

While I have illustrated and described a preferred form of my invention, I contemplate that various changes and modifications can be made without departing from the invention, the scope of which is indicated by the following claims.

I claim:

1. An instrument for injecting pills, comprising a handle member, a hollow needle mounted on said member, a plunger supported in said needle for axial movement therein, said needle having an opening in the side thereof intermediate its ends, a pill delivery tube supported on said handle member and terminating adjacent said opening, and a spring-biased axially movable tubular extension forming a continuation of said delivery tube constructed and arranged to partially enter said needle through said opening therein and trap a pill delivered to said needle from substantial movement in said needle, said extension being movable out of said needle by camming action of said plunger.

2. An instrument for injecting pills, comprising a handle member, a hollow needle mounted on said member, a plunger supported in said needle for axial movement therein, said needle having an opening in the side thereof intermediate its ends, a pill delivery tube supported on said handle member and terminating adjacent said opening, and a spring-biased tubular extension mounted at the end of said tube for axial movement relative thereto and projecting beyond said tube, said extension having an external flange at its end, a compression spring between said handle member and said flange, said extension being adapted to partially enter said needle through said opening therein and being limited in its movement by engagement with said needle.

3. In an instrument for injecting pills having a hollow needle with an axially movable plunger therein, a handle means for said needle comprising a pair of strips of metal each including a main portion contiguous to the main portion of the other, contiguous, laterally projecting, apertured end sections at one end of said main portions, said sections receiving said needle, laterally and oppositely projecting sections at the other end of said main sections, one of said oppositely projecting sections being apertured to receive said needle, said oppositely projecting sections termi-

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nating in finger-receiving bands, means securing said main sections together in a region spaced from said apertured end sections, and means adjacent said end sections for releasably holding said main sections in sprung-apart relation whereby to cause said apertured end sections to grip said needle.

4. In an instrument for injecting pills having a hollow needle with an axially movable plunger therein, a handle means for said needle comprising a pair of strips of metal each including a main portion contiguous to the main portion of the other, contiguous, laterally projecting, apertured end sections at one end of said main portions, said sections receiving said needle, laterally and oppositely projecting sections at the other end of said main sections, one of said oppositely projecting sections being apertured to receive said needle, means securing said main sections together in a region spaced from said apertured end sections, and means adjacent said end sections for releasably holding said main sections in sprung-apart relation whereby to cause said apertured end sections to grip said needle, said last-mentioned means comprising a screw threadedly mounted in one of said main portions and adapted to bear against the other of said main portions.

5. An instrument for injecting pills, comprising a handle member, a hollow needle mounted on said member, a plunger supported in said needle for axial movement therein, said needle having an opening in the side thereof intermediate its ends, a pill delivery tube supported on said handle member and terminating adjacent said opening, and means on the end of said tube constructed and arranged to partially enter said needle through said opening therein for conducting a pill from the tube to said needle and for holding said pill against substantial movement therein until displaced by said plunger, said means including a tubular extension on said tube mounted for limited axial movement.

6. In a device of the type described, means providing an elongated open-ended, pill-dispensing passage, said means having a lateral opening into said passage, a plunger supported in said means and reciprocable in said passage, a pill-delivery tube mounted on said means and terminating adjacent said opening, a tubular extension mounted at the end of said tube for limited axial movement, spring means yieldably urging said tubular extension into said opening and partially into said passage, and interengageable cam surface means at the inner end of said plunger and on the end of said tubular extension whereby to permit of said tubular extension being cammed out of said passage by movement of said plunger thereagainst.

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