

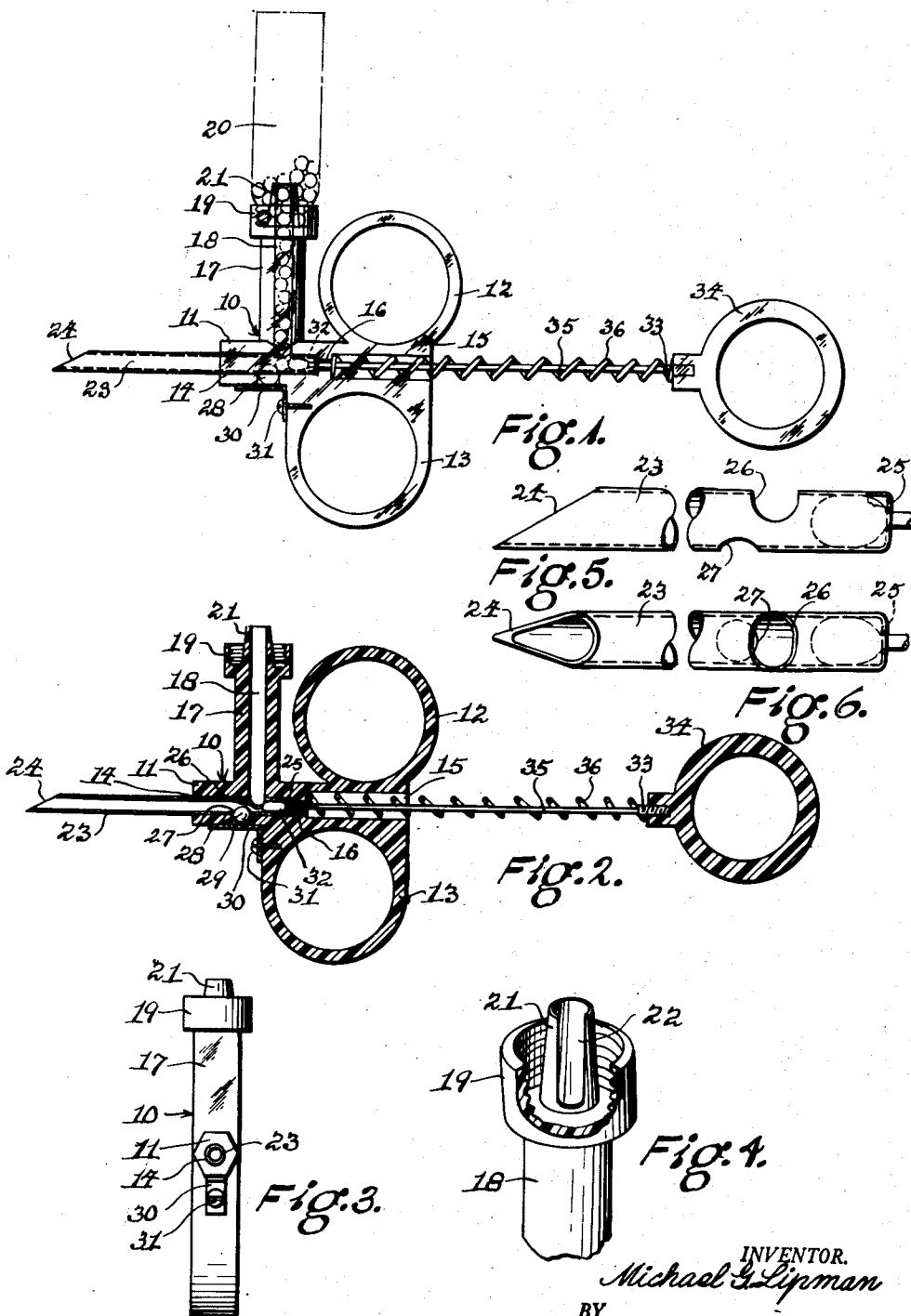
Nov. 17, 1953

M. G. LIPMAN

2,659,369

PELLET IMPLANTER

Filed Nov. 13, 1952



INVENTOR.
Michael G. Lipman
BY
W. H. Williamson
ATTORNEY

UNITED STATES PATENT OFFICE

2,659,369

PELLET IMPLANTER

Michael G. Lipman, Vineland, N. J.

Application November 13, 1952, Serial No. 320,186

7 Claims. (Cl. 128—217)

1

My invention relates to a new and useful pellet implanter employed for injecting medicinal preparations in tablet or pellet form subcutaneously into fowls and animals of various types for therapeutic and other purposes.

One of the objects of the present invention is to produce a simple and inexpensive device of this character which is easy to manipulate, highly efficient and practically fool-proof in operation.

Another object of this invention is to so construct the implanter that a plurality of pellets in a receptacle may be delivered accurately, one at a time, to a tubular metallic needle and discharged therefrom by a manually or mechanically propelled spring retracted plunger slidably mounted in said needle.

Another object of the invention is to produce a pellet implanter consisting essentially of a body, which may be formed from plastic or other appropriate material, a tubular needle and a plunger, said body including a barrel in which the needle is mounted in a particular manner and in which are also disposed portions of a plunger stem and plunger retracting spring, a hollow pillar leading to and communicating with said barrel for the conveyance of pellets from a receptacle detachably mounted on the pillar through the barrel to the needle, and means whereby the device may be grasped by either the right or left hand of the operator for actuating the instrument.

Another object of the invention is to provide the pillar with an interiorly threaded head to receive the neck of a receptacle, said head having a centrally located conical baffle therein with a lateral opening for directing the pellets into the bore of the pillar.

Another object of the invention is to provide a spring pressed stop, preferably in the form of a ball positioned ahead of the bore of the pillar to prevent accidental discharge of the pellets while permitting them to be propelled past the stop by the plunger without the possibility of crushing or the likelihood of scratching said pellets.

A further object of this invention is to produce the needle from a stainless metal tube having one end bevelled or sharpened and the opposite end turned inwardly to provide a flange functioning to limit the retraction of the plunger slidably mounted in said needle which also has holes adjacent the flanged end spaced apart and in diametrically opposite sides of said needle to provide an inlet for the pellets and an entrance for the stop ball.

2

A still further object of the present invention is to fashion the plunger, stem and threaded tail-piece of said stem from a single strand of wire of suitable diameter thereby reducing to a minimum the chances of any section parting from the others and resulting in a much stronger construction.

With the above and other objects in view this invention consists of the details of construction and combination of elements hereinafter set forth and then designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same I will describe its construction in detail referring by numerals to the accompanying drawing forming a part hereof, in which:

Fig. 1 is a side elevation of the pellet implanter constructed according to my invention with the position of a pellet containing receptacle thereon shown in dotted lines.

Fig. 2 is a longitudinal sectional view of the implanter taken in a vertical plane in Fig. 1.

Fig. 3 is a front end view of the implanter.

Fig. 4 is an enlarged fragmentary isometric view of the hollow pillar with a portion of the head broken out to illustrate details of construction.

Fig. 5 is an enlarged broken side elevation of the needle with a portion shown in section to illustrate structural details.

Fig. 6 is a top plan view thereof.

In carrying out my invention as herein embodied 10 represents the body of the implanter produced from any suitable material, preferably transparent plastic, and including a barrel 11 from the rear portion of which project the opposed fingerholds 12 and 13. A bore is formed through the barrel from end to end and includes a needle receiving chamber 14 of one size at the forward end of the body, a socket 15 preferably larger than said chamber and located at the rear of the body, and a small duct 16 forming a communication between the chamber and socket portions of the bore.

The difference in sizes of the needle receiving chamber, socket and duct provides shoulders, one at each end of said duct for purposes to be described below.

From the barrel 11 at right angles thereto and forward of the fingerhold 12 projects a hollow pillar 17 the bore 18 of which is in communication at its lower end with the needle receiving chamber 14 of the bore of the barrel a suitable distance forward of the duct 16 whereby the point of communication between the bores of the pillar

3

and barrel is spaced from the shoulder forward of said duct or at the inner end of the bore 14 of the barrel 11. The upper end of the pillar 17 is enlarged to provide a hollow or socketed head 19 having interior threads for removable attachment of a receptacle 20 in which a quantity of pellets are packed and sold. In the axial center of the head is a cone shaped baffle 21 spaced from the circular walls of said head sufficiently to accommodate the mouth of the receptacle 20 and the bore of the pillar continues through said cone shaped baffle to provide an uninterrupted feed passageway for the pellets. The cone baffle 21 has a lateral opening 22, Fig. 4, extending substantially the full length or height thereof and leading to the bore of the pillar to function as a feed for pellets which drop below the upper or outer end of said cone baffle whereby they will enter the interior thereof.

The tubular needle 23 is produced from a suitable stainless metal and the forward or outer end is bevelled or pointed as at 24. The inner or rear end of the needle is provided with an annular inward turned flange 25, Fig. 5, to act as a stop for the plunger, to be described below, as said plunger is retracted. The formation of the flange leaves a hole which aligns with the duct portion 13 of the barrel bore for the passage of the plunger stem. The needle 23 is permanently mounted in the needle receiving chamber portion 14 of the barrel bore with the flanged inner end against the shoulder in front of the duct 13 and the forward pointed end protruding a considerable distance beyond the forward end of the barrel 11 or the implanter body as a hole. Formed in a wall of the needle is a hole 26 adjacent to but spaced from the inner flanged end a sufficient distance to align with the bore 18 of the pillar 17 and the surrounding edge of said hole 26 is appropriately bevelled to permit pellets to freely pass into the bore of the hollow needle. Another hole 27 is formed in the needle forward of the hole 26 and in a diametrically opposed portion of the needle wall to that in which the hole 26 is formed. In other words, these holes are at opposite sides of the axis of the needle. The hole 27 is smaller than the hole 26 and aligns with an aperture 29 in the underside of the barrel and in which said ball 28 is located. A portion of the ball protrudes into the bore of the tubular needle and is acted upon by a light tensioned spring 30. The spring illustrated is of the flat leaf type bent to provide two sections at right angles to one another and fastened to the forward face of the fingerhold 13 of the body by a self tapping screw 31 projected through one of the spring sections and into the implanter body leaving the other spring section free to urge the ball inwardly. The ball 28 functions as a spring pressed stop to prevent pellets from accidentally rolling out of the needle but permitting the pellets to be forced past the stop ball by the use of very light pressure so that said pellets will not be crushed, scratched or even slightly marred which might cause an accumulation of powder in the barrel.

A suitable section of copper coated stiff wire is fashioned to provide an enlargement at both ends, one of which functions as a plunger 32 having a sliding fit in the bore of the tubular needle and the other enlarged end acts as a leg 33 on which threads are formed for connection to a thumbpiece 34 and the portion between the two enlarged ends is the stem 35. The plunger 32 is rounded at both ends for sliding past the ball 28 and beneath the leading pellet in the

4

bore 18 as the plunger is retracted. A coil spring 36 surrounds the stem and has one end seated in the socket 15 of the implanter body while the other end of said spring engages the thumbpiece 34 to urge the latter outwardly for retracting the plunger which will engage and be stopped by the flange 25 at the inner end of the needle 23.

In practice, a receptacle of pellets is mounted on the head of the pillar 17 and when said receptacle is in a substantially inverted position the pellets will flow through the bore 18 until one enters the bore of the tubular needle which bore is practically the same diameter as a single pellet. The other pellets within the pillar will rest on top of one another in a vertical column and as they are ejected through the needle those in the receptacle will gradually enter the pillar through the top of the cone baffle or through the lateral opening 22 and when the pellets in the receptacle reach a position below the top of the cone baffle the balance of the pellets will all pass through said lateral opening 22 until the very last pellet is fed into the pillar thus preventing the retention of unused pellets in the receptacle. As each pellet enters the tubular needle it assumes a position back of the spring actuated stop or ball 28 and in front of the plunger 32. Upon propulsion of the plunger by moving the thumbpiece 34 forwardly against the action of the spring 36 the pellet in the bore of the tubular needle will be carried past the stop or ball 28 as the latter is depressed against the action of its spring 30, and ejected from the pointed end of said needle which has previously been injected under the skin or into the flesh of a fowl or animal to be treated. The plunger stem 35 is of such length that when the plunger 32 reaches the pointed end of the needle or its extreme forward movement the thumbpiece 34 will engage the rear end of the implanter body and stop any further forward movement of the plunger thus eliminating the possibility of accidents and indicating to the operator when to withdraw the needle from the patient. As soon as the needle is withdrawn pressure on the thumbpiece may be released and the spring 36 will retract the plunger until the latter contacts the flange 25 at the rear of the needle when said plunger will be in position for the succeeding pellet to drop into the needle between the plunger and spring actuated stop or ball 28. During the retracting action of the plunger it will lift the pellets and disturb them sufficiently to release any pellets which may have become wedged in the receptacle or passageways leading to the needle. The body of the implanter being of transparent plastic, by preference, the pellets will be visible at all times whereby the operator may ascertain when the supply in the implanter has become exhausted.

From the foregoing it will be apparent that I have produced a pellet implanter which is easy to manipulate, semi-automatic in operation, highly efficient for the purpose intended, can be used by the layman as well as the professional and in which the pellet content is always visible.

Of course I do not wish to be limited to the exact details of construction herein shown and described as these may be varied within the scope of the appended claims without departing from the spirit of my invention.

Having described my invention what I claim as new and useful is:

1. In a pellet implanter for use in injecting a medicinal pellet beneath the skin of fowls and animals, comprising a body including a barrel having a longitudinal bore therethrough with

5

6

opposed shoulders intermediate the ends of said bore, said bore consisting of a needle receiving chamber at the forward end and a socket at the rear end with a communicating duct between said chamber and socket, a pellet feeding pillar formed with said barrel and having a bore communicating with the chamber portion of the barrel bore and provided with means at the outer end of said pillar to demountably receive a receptacle for holding a quantity of pellets to flow through the pillar to the barrel, and fingerholds at opposite sides of the rear end of the barrel, an elongated tubular needle having an inturned flange at its inner end permanently mounted in the chamber portion of the barrel bore with flanged end abutting a shoulder in said barrel bore, said needle having an opening aligned with the bore of the pillar whereby pellets may enter the bore of the needle, a spring actuated stop located forward of said needle opening a sufficient distance to temporarily retain a pellet in the needle directly in line with the bore of the pillar, a plunger slidably mounted in the needle and being stopped in its retracted position by the flanged end of said needle, a stem projecting from the plunger and extending through the flanged inner end of the needle, the duct and the socket and protruding an appropriate distance beyond the rear end of the barrel and provided with a thumbpiece for propelling the plunger forward and limiting the forward movement of the plunger to the forward end of the needle by engagement of the thumbpiece with the rear end of the barrel, and a spring seated in the socket portion of the barrel bore and engaging the thumbpiece to retract the plunger.

2. The pellet implanter of claim 1 wherein the body is of transparent plastic whereby the pellet content is visible at all times.

3. The pellet implanter according to claim 1 wherein the feed opening leading to the interior of the needle has a bevelled perimeter.

4. The pellet implanter according to claim 1 wherein the spring actuated stop comprises a ball positioned in an aperture in the barrel and partially projecting through another opening in the needle into the bore of said needle, said other opening being smaller than the ball whereby to limit the inward projection of said ball, and a flat leaf spring having a portion secured to the implanter body by a self-tapping screw and another portion coacting with the ball to constantly urge the latter forward.

5. The structure according to claim 1 wherein the means to demountably receive a receptacle consists of an enlarged interiorly threaded cup-like head.

6. The structure of claim 5 in combination with a cone shaped baffle having a lateral opening from the top to substantially the bottom thereof.

7. In an implanter of the kind described, a tubular needle having a pointed outer end, and an inturned flange at the inner end, for a plunger slidably mounted in said needle and having its retracting movements limited by said flange, said needle having two openings appropriately spaced from the flange and from each other longitudinally of the needle and on opposite sides of the axis of said needle, and a spring to retract said plunger.

MICHAEL G. LIPMAN.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,643,653	Heidrich	June 20, 1953