April 11, 1950 A. J. KISSILEFF 2,503,341

INSEMINATOR

Filed May 17, 1946

Fig. 1

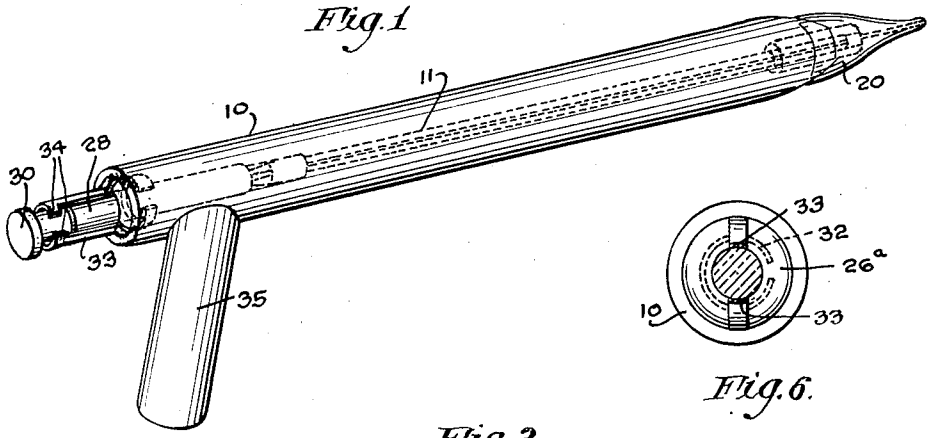


Fig. 6.

Fig. 2.

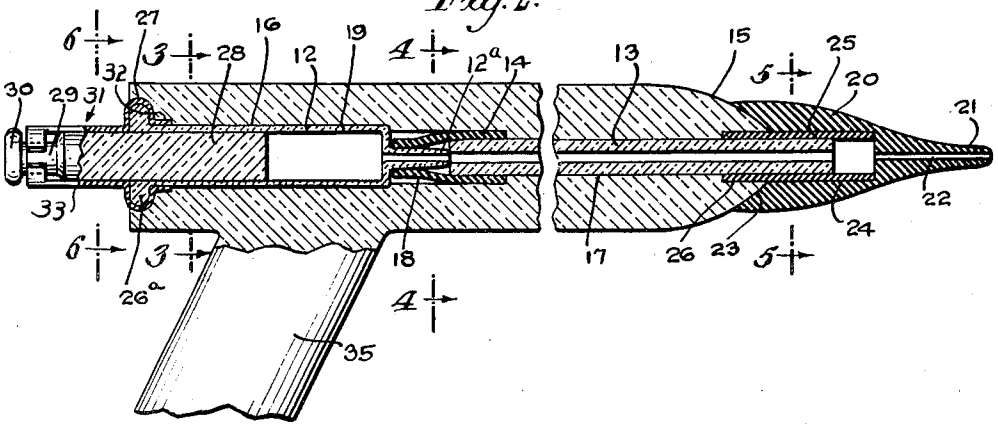


Fig. 3

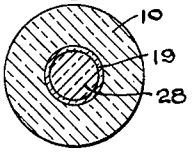


Fig. 4.

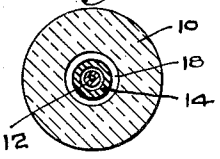


Fig. 5.

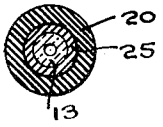
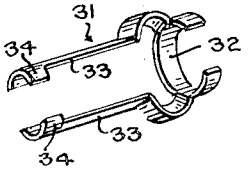


Fig. 7.



Inventor

ALFRED J. KISSILEFF

By Leon Edelson

Attorney.

Patented Apr. 11, 1950 2,503,341

UNITED STATES PATENT OFFICE

2,503,341

INSEMINATOR

Alfred J. Kissileff, Flourtown, Pa.

Application May 17, 1946, Serial No. 670,331

8 Claims. (Cl. 128—218)

1

This invention relates to a veterinarian's instrument especially adapted for injecting a seminal fluid into the womb of an animal for producing pregnancy, it being among the principal objects of the present invention to provide an instrument so designed and operative that by its use in the artificial insemination of animals, such as cows, natural service is closely simulated.

As will appear more fully hereinafter, the instrument of the present invention is of single action type requiring a minimum of technical skill to operate, it eliminates undue exploration and manipulation of the internal organs of the animal during the inseminating procedure, it increases the conception rate by eliciting to high degree a favorable response in the animal undergoing treatment, and it maintains the impregnating fluid at uniform temperature to thereby preserve and insure its effectiveness.

In addition to the foregoing, the device of the present invention is of a construction wherein the inseminator is so combined with a supporting body therefor as to provide a combination shipping container and inseminator unit which reduces to a minimum excessive and deleterious handling of the seminal fluid, the unit being so easily charged with the necessary supply of seminal fluid that it may be loaded by the operator at the farm where it is to be used, or it may be loaded at the laboratory and then safely shipped to its point of use.

Other objects and advantages of the present invention will appear more fully hereinafter, it being understood that the present invention consists substantially in the combination, construction, location and relative arrangement of parts, all as will be described in detail in the following specification, as shown in the accompanying drawings and as finally pointed out in the appended claims.

In the drawings, which illustrate a preferred form of the invention, Figure 1 is a perspective view showing an instrument constructed in accordance with and embodying the principles of the present invention;

Figure 2 is a longitudinal sectional view thereof;

Figures 3, 4 and 5 are transverse sectional views taken respectively on the lines 3—3, 4—4 and 5—5 of Figure 2;

Figure 6 is a transverse sectional view taken on the line 6—6 of Figure 2; and

Figure 7 is a perspective view of the guard clip employed to maintain the inseminator locked

2

against premature discharge of the seminal fluid.

Referring now to the drawings, it will be observed that the instrument of the present invention essentially includes a main outer body 10 of generally cylindrical form having a longitudinally extending bore 11 therethrough in which is accommodated an ampoule 12 similar to those used in hypodermic syringes and a glass discharge tube 13 connected to the discharge end of the syringe by a flexible connector 14. The outer body 10 is preferably formed of a transparent plastic, such as polystyrene, and is of an external size and shape adapting it to be slipped easily into the vagina of the animal up to the cervix. The forward extremity of the body 10 is smoothly tapered, as at 15, to provide a terminal end of generally conical form.

The longitudinally extending central bore 11 of the body 10 is of stepped cross-sectional configuration, the rear portion 16 of this bore being of greatest diameter and the forward portion 17 of least diameter, the portions 16 and 17 being joined by an intermediate bore 18 of a diameter somewhat less than that of the portion 16.

Removably fitted in the bore portion 16 of greatest diameter is the cylindrical body 19 of the ampoule 12, the reduced discharge end 12a of the latter being disposed in the intermediate bore 18. The glass discharge tube 13 is removably fitted in the bore 17 with its rear end abutting the discharge end of the syringe, the discharge end 12a of the ampoule and the adjoining end of the tube being joined together by the connector 14, preferably of rubber, the intermediate bore 18 being of a diameter and length sufficiently large to snugly accommodate this connector 14. When so assembled within the body 10, the discharge bore of the syringe and the bore of the tube 13 provide a continuous passage for the seminal fluid leading to a point somewhat in advance of the forward extremity of the outer body member 10. It will be noted in this connection that the tube 13 projects freely beyond said forward extremity of the body 10.

Secured to the freely projecting end of the tube 13 is a rubber nipple 20 of generally conical form having an elongated terminal end 21 which is longitudinally bored, as at 22, to provide a discharge passage in communication with the passage through the tube 13. The inner end of the rubber nipple 20 is recessed, as at 23, to snugly accommodate the tapered end 15 of the body 10, the nipple being further internally recessed, as at 24, to receive a rubber connector 25 which interconnects the nipple and tube 13

as shown. Preferably, this connector 25 extends into a counterbore 26 formed in the terminal end of the body 10 so that the connector may assist in securing the nipple in position upon the terminal end of the body 10. It will be observed that the nipple is of such external shape that its external surface more or less smoothly merges with that of the body 10 to facilitate easy insertion of the instrument into the vagina of the animal.

The body 19 of the syringe is provided at its free end with a flange 26a which is adapted to rest in a recess 27 provided therefor in the outer end of the body member 10. A plunger 28 is slidably fitted in the syringe body 19, the outer end thereof being provided with a reduced neck 29 terminating in an enlarged tip 30 for manipulating the plunger. When properly charged with the seminal fluid, the plunger is in the relative position shown in Figures 1 and 2 and to lock it in this position against premature discharge of the fluid from the syringe, a locking clip 31 is employed such as is shown most clearly in Figures 1, 2, 6 and 7.

This locking clip 31, preferably formed of spring metal, consists of a split collar element 32 adapted to embrace the syringe body 19 immediately below its flange 26 and a pair of diametrically opposed substantially parallel arms 33—33 respectively terminating in arcuately shaped elements 34—34 which are adapted to embrace opposite sides of the reduced neck 29 of the plunger. The arms 33—33 are normally spring-biased to maintain the elements 34—34 in engagement with the plunger neck as shown in Figures 1 and 2 and when in such engagement it will be apparent that the plunger will be restrained against movement in either direction. When, however, the arms 33—33 are sprung apart to free the elements 34—34 from the neck of the plunger, the latter is then free to be moved to effect discharge of the seminal fluid from the syringe into the cervical canal by way of the longitudinal passage extending through the several assembled parts of the instrument.

In use of the inseminator of the present invention, the animal selected for treatment, as, for example, a cow in the proper stage of the estrual period, is restrained in a stanchion or stall, and after cleansing the external genital parts, the instrument is inserted into the vagina with a firm upward and forward thrust until firm resistance is met. To facilitate such manipulation of the instrument, the body 10 thereof may be provided with a handle 35 formed as an integral part of the body. Upon meeting such resistance, the terminal tip of the nipple 20 will be in close contact with the cervical canal. The locking clip elements 34—34 are then disengaged from the plunger, following which the plunger is gently pushed forward to force the seminal fluid from the syringe into the cervical canal. By proper insertion of the instrument into the vagina, cooperative peristaltic activity in the genital tract is stimulated to help convey the impregnating fluid through the cervical canal to the immediate point of fertilization of the ovum.

Not only does the instrument of the present invention permit artificial insemination of the animal by a simple and effective single action procedure, but also it permits of accurate loading of and discharge from the syringe by virtue of the fact that the casing or holder for the syringe and discharge tube is formed of transparent material affording at all times a clear

view of the seminal fluid. Further, by enclosing the syringe and discharge tube in the transparent holder therefor, the seminal fluid contained in the syringe and flowing through the discharge tube is effectively insulated against temperature variations, thereby effectively maintaining the vitality of the fluid. In addition, the design of the instrument is such that the several component parts thereof are readily assembled and disassembled without the use of any special tools or the need of any special skill, in consequence of which all parts of the instrument may be readily cleaned and sterilized.

It will be understood, of course, that the present invention is susceptible of various changes and modifications which may be made from time to time without departing from the real spirit or general principles thereof, and it is accordingly intended to claim the same broadly as well as specifically as indicated in the appended claims.

What is claimed as new and useful is:

1. An instrument of the character described comprising a main body member having a longitudinal bore therethrough, the rear portion of said bore being enlarged to provide an annular shoulder interiorly of said body member, a plunger type ampoule removably fitted in said enlarged portion of the bore with its forward end in engagement with said shoulder, said ampoule having a reduced discharge end projecting axially into the reduced forward portion of said bore, a nipple removably fitted on the forward end of said body member, and a tube disposed in said forward portion of the bore and extending between said ampoule and nipple, the opposite ends of said tube being respectively detachably connected to the discharge end of said ampoule and to said nipple whereby to maintain the ampoule and nipple in axially spaced fixed relation with respect to said body member, said nipple having a passage therethrough communicating with the discharge end of said ampoule by way of the bore of said tube.

2. In an instrument of the character defined in claim 1 wherein said body member is of a transparent material affording a view of the fluid contained in said ampoule for discharge through said tube and nipple.

3. In an instrument of the character defined in claim 2 wherein said body member is of cylindrical form having a tapered forward extremity and said nipple is of generally conical form having a basal recess adapted to snugly accommodate the tapered extremity of said body member.

4. In an instrument of the character defined in claim 1 wherein said ampoule includes an axially movable plunger element, and wherein said ampoule is provided with spring pressed releasable elements which engage and maintain said plunger element locked in retracted position against premature movement thereof.

5. An instrument of the character described comprising an ampoule unit including a container for a seminal fluid and a plunger movable in said container for effecting the discharge of the fluid therefrom, an elongated delivery tube for the fluid detachably connected to and in communication with the fluid container, a rubber nipple detachably connected to the delivery tube having a passage therethrough for the discharge of the fluid delivered through said tube, and a one-piece main body member of cylindrical shape externally enveloping said ampoule and tube, the opposite ends of said body member

being respectively engaged by said ampoule and nipple to maintain the latter elements in assembled, axially fixed relation with respect to their intervening delivery tube.

6. An instrument of the character described comprising an ampoule unit including a container for a seminal fluid and a plunger movable in said container for effecting the discharge of the fluid therefrom, an elongated delivery tube for the fluid detachably connected to and in communication with the fluid container, a rubber nipple detachably connected to the delivery tube having a passage therethrough for the discharge of the fluid delivered through said tube, and a main body member of cylindrical shape operatively associated with said ampoule, tube and nipple to secure the same in assembled, axially fixed relation, said body member being longitudinally bored to permit axial projection of said ampoule and tube as a unitary assembly into said bore through the rear end thereof with the forward end of said tube projecting freely of said body member for securement of said nipple thereto, said body member being formed of a transparent material operative to insulate the ampoule and tube against substantial variations in temperature.

7. An instrument of the character described comprising an ampoule unit including a container for a seminal fluid and a plunger movable in said container for effecting the discharge of the fluid therefrom, an elongated delivery tube for the fluid in communication with the fluid container, a rubber nipple associated with the delivery tube having a passage therethrough for the discharge of the fluid delivered through said tube, and a main body member of cylindrical shape operatively associated with said ampoule, tube and nipple to secure the same in assembled, axially fixed relation, said body member being longitudinally bored to permit axial projection of said ampoule and tube as a unitary assembly into said bore through the rear end thereof with the forward end of said tube projecting freely of said body member for securement of said nipple thereto, and a clip member operatively

associated with the ampoule unit having elements detachably engageable with the plunger to secure the latter in retracted position against unintentional movement relatively to the fluid container.

8. An instrument of the character described comprising an ampoule unit including a container for a seminal fluid and a plunger movable in said container for effecting the discharge of the fluid therefrom, an elongated delivery tube for the fluid in communication with the fluid container, a rubber nipple associated with the delivery tube having a passage therethrough for the discharge of the fluid delivered through said tube, and a main body member of cylindrical shape operatively associated with said ampoule, tube and nipple to secure the same in assembled, axially fixed relation, said body member being longitudinally bored to permit axial projection of said ampoule and tube as a unitary assembly into said bore through the rear end thereof with the forward end of said tube projecting freely of said body member for securement of said nipple thereto, said nipple being of generally conical form and having a basal recess adapted to snugly accommodate the forward end of said main body member whereby to insure smooth mergence of the external surfaces of said nipple and body member in the region of their engagement with each other.

ALFRED J. KISSILEFF.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
504,764	Ware	Sept. 12, 1893
546,148	Hall, Jr.	Sept. 10, 1895
1,315,885	Wackenhuth	Sept. 9, 1919
1,559,978	Page	Nov. 3, 1925
1,838,039	Montuori	Dec. 22, 1931
2,014,493	Eisele	Sept. 17, 1935
2,399,936	Nagle	May 7, 1946