Aug. 21, 1962 R. D. HOFFMAN 3,050,060

SPECULUM LINER AND INSEMINATION ROD COMBINATION

Filed Sept. 16, 1959

Fig. 1

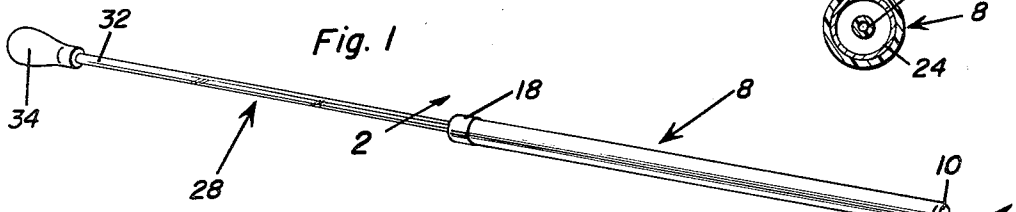


Fig. 5

Fig. 2

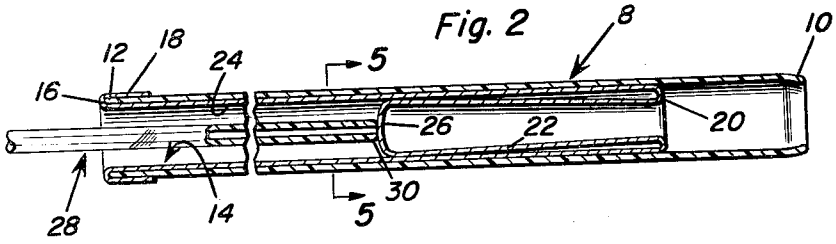


Fig. 3

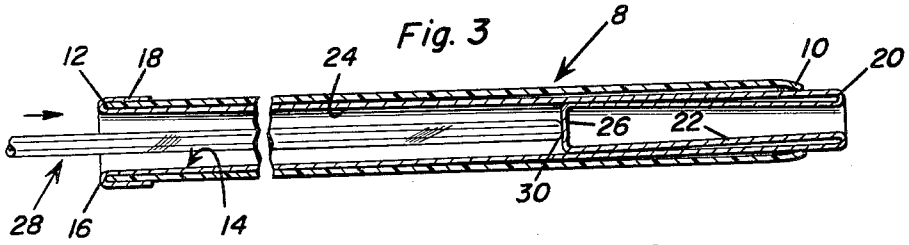


Fig. 4

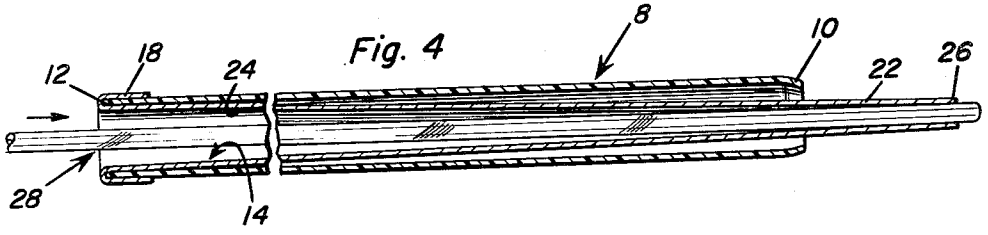


Fig. 6

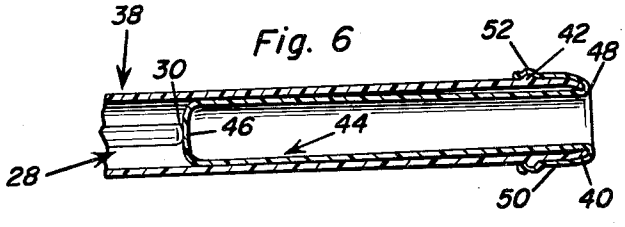
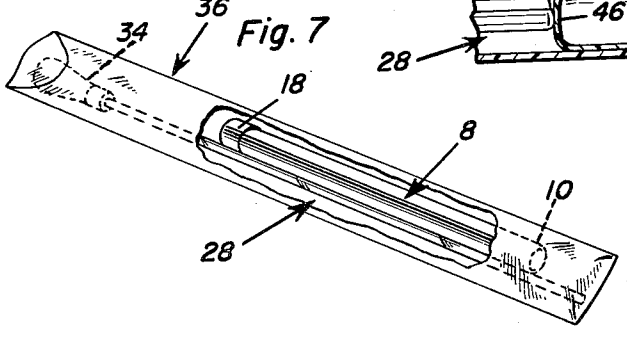


Fig. 7



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United States Patent Office 3,050,060 Patented Aug. 21, 1962

3,050,060
SPECULUM LINER AND INSEMINATION ROD COMBINATION

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Filed Sept. 16, 1959, Ser. No. 840,293
2 Claims. (Cl. 128—260)

This invention relates, broadly construed, to bovine breeding equipment, more particularly to an improved speculum and aseptically clean means cooperatively carried by the speculum whereby a conventional-type artificial insemination rod may be kept free of disease germs and bacteria at the time it is passed through the speculum inserted in an animal's vaginal cavity and, of course, without possibility of contaminating the rod or the semen carried in the rod.

As is apparent from the preceding general statement of the invention, there has long existed the problem of effectually handling a speculum and insemination rod because of the possibility of contaminating both the rod and the semen. It follows that the present invention provides a highly satisfactory ways and means of properly solving the problem.

In carrying out the preferred embodiment of the invention the insemination rod, usually a glass tube some eighteen inches in length, remains unchanged but is to be construed as a component of the over-all combination. The speculum comprises a pasteboard, plastic or an equivalent tube which, as usual, is open ended and about six inches long. However, this speculum tube is improved in that it is equipped with novel and practical anti-contaminating means; more specifically, a simple paper or an equivalent liner.

To achieve the desired and improved result, it was found that the liner had best take the form of a paper bag or envelope with the major portion and the closed end protectively sheathed in the bore or passage of the speculum tube. The open end of the bag is bent or folded over the desired end (either end) of the speculum tube, wrapped tightly and attached permanently. Consequently, when the insemination rod is inserted and passed through the bore of the tube the distal or leading end presses upon the closed imperforate end of the liner and it will gradually evert until the closed end projects a few inches beyond the leading end of the speculum tube and, when the envelope is tautened, the rod is forced through and beyond the closed end to do its intended job.

Another object of the invention is to provide equipment in the catagory stated which is economical of manufacture in that the components or parts are made of inexpensive disposable or throw-away materials whereby the same may be employed for a single use and then discarded. Then, too, these components embody the desired hygienic properties and, in fact, the insemination rod and the improved lined speculum tube are put up for sale in an appropriate bag or an equivalent marketable container.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying illustrative, but not restrictive, drawing.

In the drawing, wherein like numerals are employed to designate like parts throughout the views:

FIG. 1 is a perspective view showing the over-all combination device constructed in accordance with the principles of the present invention;

FIG. 2 is an enlarged view in section and elevation taken on the plane of the line 2—2 of FIG. 1, looking in the direction of the arrows, and showing the distal or leading end of the rod in contact or engagement with the imperforate closed end of the sheathed liner;

FIG. 3 is a view similar to FIG. 2 but showing the relative movement and relationship of the rod and liner, the latter partially projected;

FIG. 4 is a view which shows the liner fully projected and perforated or punctured and the distal end of the rod extending through the then existing perforation;

FIG. 5 is a cross-section on the line 5—5 of FIG. 2;

FIG. 6 is a fragmentary view in section and elevation similar to FIG. 2 but showing a modification wherein a short liner attachable to the right hand end of the speculum tube is used; and

FIG. 7 is a perspective view of the package containing the ready-to-use components, namely the insemination rod and the improved safety-lined speculum tube.

Referring now to the drawings the speculum or speculum tube, is denoted by the numeral 8. This tube as stated, is about 6 inches long and is similar to that commonly employed for bovine breeding and it may be, of course, be made of glass, suitable commercial plastic material, or as has been experimented with, made of an appropriate grade of pasteboard. In any event, it is open ended and the leading end 10 is slightly beveled and made appropriately blunt to facilitate insertion into the vaginal cavity. The opposite or trailing end 12 has the improved protective anti-contaminating means 14 attached thereto. In practice it has been found that a flexible paper sack, or envelope will do. The open end or mouth portion of the envelope is folded or bent as at 16 and formed into a collar 18 which is wrapped tightly around the exterior of the tube 8 and is fixed thereto. The opposite or right hand end portion of this liner (also referred to as a bag or envelope) is bent upon itself as at 20 to provide a reversely bent portion 22 which, thus inverted, telescopes into the body portion 24 forming the main liner. The closed end 26 is of course imperforate. The length of the liner is greater than the length of the tube and is such that it may be progressively everted from the normal sheathed or stored position in FIG. 2 to the tautened distended rod releasing position seen in FIG. 4. FIG. 3 shows the intermediate step. FIG. 4 illustrates the final step wherein the gradually tapering end portion of the liner has been pushed through and slightly beyond the leading end 10 and ruptured or punctured.

The insemination rod is more or less conventional and it is denoted by the numeral 28. The distal end is denoted at 30 and the proximal end 32 is provided with the usual rubber or equivalent bulb 34.

It will be evident that as the insemination rod 28 is inserted, as shown in FIGS. 1 and 2 and, is pushed through the bore or passage of the speculum tube the distal end 30 engages the closed end 26 of the inturned liner and the liner is gradually everted until it passes approximately three inches more or less through the open leading end 10 of the pasteboard speculum tube and then through the opening provided and into the uterus. In this respect the flexible projectible liner (envelope, sack or bag) constitutes a protective shield and, as before stated, accomplishes the desired job satisfactorily minus any possibility of contaminating either the inseminating rod or semen therein.

In FIG. 7 the numeral 36 designates a suitable paper or an equivalent bag, sack or the like in which the component parts are packaged for sanitary handling and sale.

In the modification seen in FIG. 6 the construction is basically the same as already covered. Here the speculum tube 38 is the same except that the tapered leading end 40 has an external bead 42 thereon. The liner or sack in this instance, also of flexible paper or equivalent throw-away material is denoted at 44, has a closed end 46 protectively sheathed in the bore or passage of the speculum tube. The right hand end is simply bent out and over at 48 forming an attaching collar 50 which is

connected securely with the bead 42 as shown at 52. The operation here is the same as already described and therefore need not be further discussed.

Minor changes in shape, size, materials and rearrangement of component parts may be resorted to, in actual practice, if desired, without departing from the spirit of the invention or the scope of the invention as claimed.

What is claimed as new is as follows:

1. For use in expediting the steps pursued by a veterinarian when using a semen-charged inseminating rod; bovine impregnating means comprising, in combination, a rigid open ended speculum tube, and a contamination preventing envelope open at an outer end and closed at an inner end, said envelope being made of inelastic sheet material, being elongated and fitting telescopically into the passage of said speculum tube, the inwardly disposed and confined end of said envelope being normally closed but frangible, the rearward end being open and having a terminal portion folded over, surrounding the rearward end of the tube and being fastened thereto, said envelope providing a protective liner for the tube and an anti-contamination shield for the aforementioned insertable inseminating rod and being of a length, compared to the length of the tube that the normally enclosed end may be forcibly projected beyond the leading end of the tube by passing an insemination rod through the tube and forcibly pressing the distal end thereof against the closed frangible end of said envelope and extending the envelope to a position where it is sufficiently taut that said distal end is caused to rupture the envelope, whereby to allow the rod to pass through and beyond the ruptured portion of said envelope prior to entering the animal's vagina.

2. An anti-contaminating inseminating rod applicator and protector consisting of an elongated rigid open-ended tube having a forward distal end and a rearward proximal end, and an elongated collapsible envelope made of sterile inelastic sheet material and substantially lining the bore of said tube, the envelope being connected to the rearward proximal end of said tube and being otherwise free of positive connection with the body of said tube, the forward end of said envelope being normally closed but puncturable and openable when the distal end of a semen-loaded inseminating rod is forced against it and through it, said envelope being of a length greater than the length of said tube when being used whereby a limited portion of the penetrable end is allowed to project through and beyond the distal end of the tube, and the forward closed end portion being inverted and telescoping into the body portion of the envelope preparatory to the reverting, tautening, rod-puncturing step.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,050,060 August 21, 1962

Roy D. Hoffman

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 3, for "vagina" read -- cervix --.

Signed and sealed this 5th day of November 1963.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWIN L. REYNOLDS
Acting Commissioner of Patents