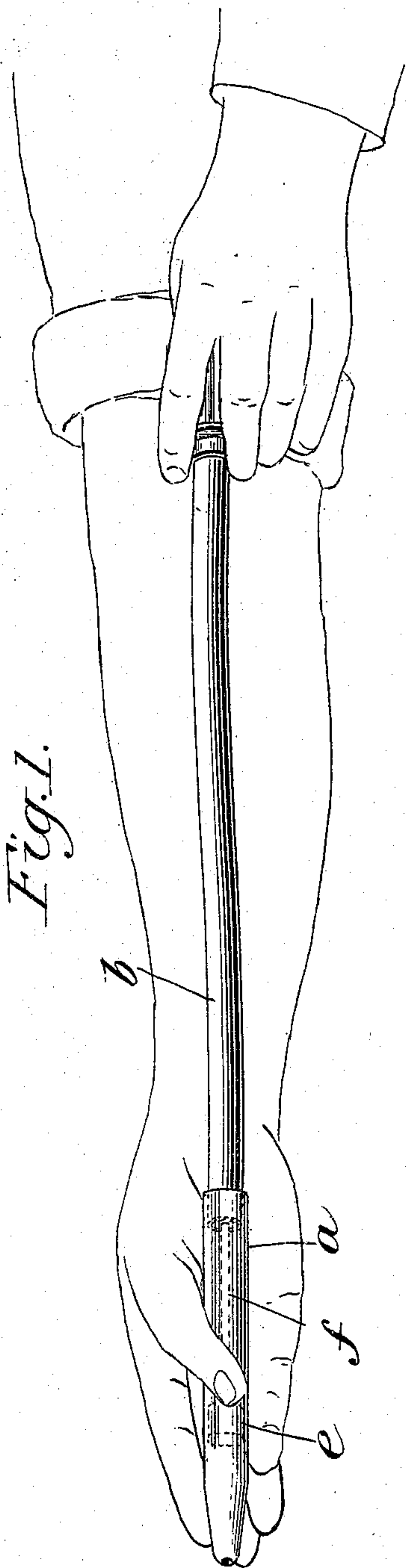


No. 840,472.

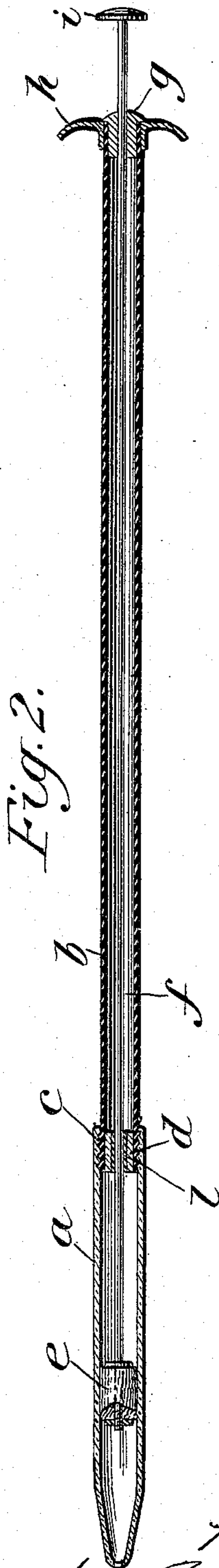
PATENTED JAN. 8, 1907.

R. C. BROOKES.
SYRINGE.

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UNITED STATES PATENT OFFICE.

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SYRINGE.

No. 840,472.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT C. BROOKES, a citizen of the United States, residing at Waelder, county of Gonzales, State of Texas, have
5 invented certain new and useful Improvements in Syringes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable
10 others skilled in the art to which it appertains to make and use the same.

The object of the invention is to provide a simple and efficient form of syringe by means of which a number of animals may be im-
pregnated with the semen from a single serv-
15 ice of the male and contemplates the provision of a thoroughly aseptic instrument by means of which an accurately-gaged quantity of semen may be readily injected into the
20 womb-cavity to the exclusion of air and other deleterious matter, as will be more particularly set forth in the following description.

In the accompanying drawings, Figure 1 is a perspective view of the apparatus, showing the mode of manipulating the same. Fig. 2
25 is a longitudinal section of the apparatus. Fig. 3 is a detail showing a slightly-modified form of piston.

In the breeding of live stock, more particularly in the case of mares and jennets, it has
30 been found feasible to catch the seminal discharge of the male in the act of coition in a so-called "breeding-bag," to withdraw portions of the discharge from the breeding-bag by means of a syringe or like instrument, and
35 to discharge such portion from the syringe into the womb of a female to be bred, so that a number of animals may be impregnated from the discharge of a single stand or service of the male.

40 The present invention contemplates the provision of an instrument for effecting the impregnation of mares and the like and is designed to insure the effectiveness of each impregnation and to economize in the use of the
45 semen by providing an apparatus for taking up a definite regulable portion of semen for each injection, which portion is visible in the instrument, so that the quantity and condition thereof may be observed prior to injection,
50 said apparatus also being so organized as to prevent the entrance of air along with the semen into the womb-cavity to insure the ready and accurate penetration of the mouth of the womb, to prevent laceration of the
55 parts, and to permit the moving parts of the apparatus to be manipulated with certainty

and facility. In addition to these advantages the apparatus is constructed so as to be capable of ready dismemberment for purposes of sterilization and renewal of parts. 60

Referring to the drawings, *a* indicates the body or barrel of the syringe-like apparatus, which is conveniently formed of glass or other rigid transparent material, through which
65 the charge may be observed and examined by the operator. The distal end of the barrel is preferably provided with a smooth and slightly conical nozzle with a rounded tip to insure the end passing freely into the mouth
70 of the womb without catching in the folds or convolutions of the mucous membrane forming the lining thereof.

Fitted within the bore of the barrel *a* is a piston *e*, comprising a body portion which
75 may be made of wood, cork, leather, rubber, or the like, or fibrous material—such as cotton, flax, or the like—which will insure a tight fit between the piston and the walls of the barrel. The body portion is held in position
80 on the rod by means of two metal disks or washers, which may be removably and adjustably secured upon the rod by a screw-threaded engagement therewith, if cork or
85 rubber or like material be used, or the disks may be soldered or otherwise fixed to the rod if fibrous material be used, or a metal spool
may be removably and adjustably secured to the rod with screws, as shown in Fig. 3, in
90 which *e'* indicates the metal spool secured to rod *f* by set-screw *f'* and holding the pack-
ing *e*.

Secured to piston *e* is a rod *f*, by means of which the piston is moved backward and forward in the barrel. Said rod *f* is of sufficient
95 length to permit the proximal end thereof to project well out from the vagina when the distal end of the barrel is inserted into the womb, and the end of the rod is provided with a button or finger-piece *i*. Said button
100 is provided with a screw-threaded engagement with the rod to permit the button to be removed.

Secured to the rear end of the barrel *a* is a flexible tube *b* of sufficient length to extend
105 out through the vagina when the apparatus is in position. The end of the tube *b* is attached to the barrel *a* by means of a stopper or filler *d*, of cork or the like, inserted in the end of the tube and serving to expand the
110 same into close contact with the wall of the barrel, which is conveniently corrugated or screw-threaded, as at *c*, to prevent the parts

slipping or becoming displaced, also to facilitate uniting and separating the tube and barrel.

The stopper *d* is perforated centrally to permit the passage of piston-rod *f* and to prevent the stopper collapsing on the rod, and to insure the easy working of the rod through the stopper the perforation is provided with a metal tubular lining or bushing *l*.

The proximal end of the tube *b* is likewise provided with a perforated stopper *g*, serving as a guide for rod *f* and also as a means for securing a short sleeve provided with lateral extensions forming a finger-piece *h* to the tube *b*.

In applying the apparatus to its intended use the barrel *a* is filled with semen from the breeding-bag, and the proper amount, as well as the general condition of the semen, may be ascertained by reason of the transparency of the barrel *a*. The nozzle of barrel *a* is then introduced into the animal's womb, the operator guiding the barrel along his forearm to the finger, which has been first entered into the mouth of the womb. The flexibility of the tube *b* and rod *f* facilitates the introduction of the syringe in that it permits the parts to follow and conform to the movements or bends of the hand and arm of the operator and causes the tube to lie closely along the forearm. After the nozzle of the barrel has been introduced into the womb the contents of the barrel are discharged directly into the womb-cavity by forcing the piston forward by means of the thumb, first, and second fingers of the left hand engaging the finger-pieces *i* *h*. Inasmuch as the barrel is filled with semen and there is no following air-blast, as in the bulb type of syringe, no air or other deleterious matter enters the womb to endanger the success of the operation.

The syringe is then withdrawn and filled with semen for the impregnation of another animal, and the operation repeated until the supply in the breeding-bag is exhausted. It is essential that the piston-packing, if made

of fibrous material, be renewed and the piston and barrel be sterilized after a series of services, or at least once each day, for the reason that the semen decomposes very quickly, and when decomposition once sets in it is impossible to destroy the stench emanating from the fibrous packing, and, furthermore, the bacteria developed destroy or greatly impair the potency of the spermatozoa, and therefore render the subsequent impregnations by means of the instrument futile. By taking out the piston, removing the packing, and boiling or otherwise sterilizing the barrel and piston, repacking the piston and reassembling the parts the apparatus may be rendered thoroughly aseptic, so that the impregnation of from eight to ten mares, for example, from a single service of the male may be effected.

Having thus described my invention, what I claim is—

1. An impregnating-syringe, comprising a rigid barrel, a piston therein, a flexible tube connected to said barrel, and a flexible piston-rod passing through said tube and connected to the piston in the barrel.

2. An impregnating-syringe, comprising a rigid barrel, a piston therein, a flexible tube connected to said barrel, a flexible piston-rod passing through said tube and connected to the piston in the barrel, and a stopper for securing the end of the tube in the barrel.

3. An impregnating-syringe, a transparent barrel of glass or the like, a piston therein, a flexible tube connected to the barrel, a stopper for removably securing the tube in the end of the barrel, a flexible rod passing through said tube and connected to the piston and finger-pieces on the ends of the tube and rod, respectively.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT C. BROOKES.

Witnesses:

P. D. DAVIS,
C. A. TAYLOR.