No. 730,596. PATENTED JUNE 9, 1903.

F. M. BAKER.

SYRINGE.

APPLICATION FILED JUNE 18, 1902.

NO MODEL.

Fig. 1.

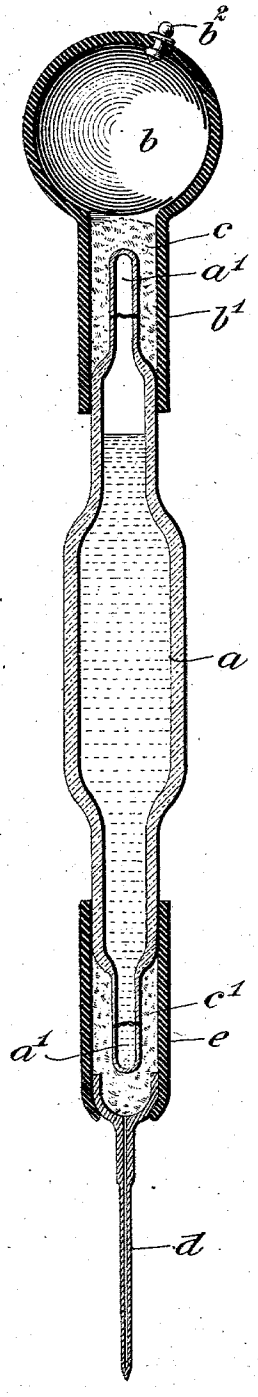
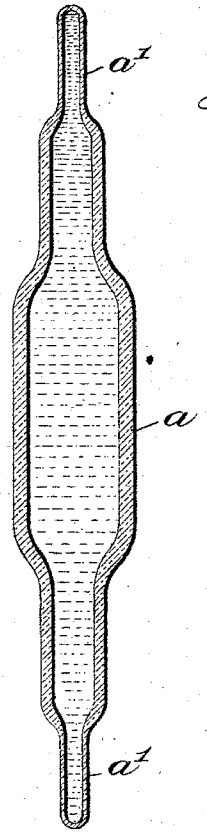


Fig. 2.



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No. 730,596. Patented June 9, 1903.

UNITED STATES PATENT OFFICE.

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SYRINGE.

SPECIFICATION forming part of Letters Patent No. 730,596, dated June 9, 1903.

Application filed June 18, 1902. Serial No. 112,192. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. BAKER, a citizen of the United States, and a resident of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a new and Improved Syringe, of which the following is a full, clear, and exact description.

This invention relates to a syringe especially intended for effecting hypodermic and other like injections under the skin of persons.

The prime object of the invention is to so construct the device that the proper surgical cleanliness will be insured, thus avoiding all possibility of the presence of poisonous foreign matter. This end I attain by constructing a receiver in which the injection is placed, said receiver being hermetically sealed in the laboratory and formed with friable portions capable of being broken away when the injection is to be made. This receiver has fitted to one of its friable portions a bulb or other means for forcing a current of air, and this bulb has a yielding or flexible portion which facilitates fracturing the receptacle without exposing the fractured portion to the atmosphere. On the other friable portion of the receiver a needle is placed through the medium of a flexible tube or like object, which not only connects the needle with the receiver containing the liquid to be injected, but also enables the said second friable portion of the receiver to be broken without exposing the broken portion to the atmosphere. This device will be constructed and assembled in the laboratory and placed in a sterilized package, where it is kept until used. It should then be taken from the package, the needle inserted under the skin of the patient, and the two friable portions of the receiver fractured, after which upon operating the bulb or other means for forcing air the liquid may be ejected without having been at any time exposed to the atmosphere or in contact with the operator's fingers.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a sectional view of the syringe complete, and Fig. 2 is a sectional view of the receiver before being fractured.

The receiver is indicated at a and is preferably constructed of glass or other like material. a' indicates the reduced end portions thereof, and these are adapted to be broken, as above described. If desired, they may be slightly weakened by a file-mark; but this is not essential. This receiver should be constructed in the laboratory, and the substance forming the injection should be placed therein during the construction of the receiver and the receiver hermetically sealed, as shown in Fig. 2. At one end of the receiver is located a bulb b or any other means which may be desired for forcing a current of air. This bulb has a contracted portion or neck b', formed of soft flexible rubber, which is fitted tightly around the end portion of the receiver a. In this neck and surrounding the adjacent frangible portion a' is a mass c of sterilized cotton or other material capable of filtering the air which passes through it. The bulb b is provided with a removable stopper b^2. At the other end of the receiver is arranged the hypodermic needle d, with the head of which is connected a tube e, of soft rubber or like material. This tube is fitted tightly over the end of the receiver and incloses the second frangible portion a' thereof. In the tube e and surrounding said second frangible portion a' of the receiver is a mass c' of sterilized cotton or like material, the same as the mass c.

As will be seen from Fig. 1, the flexible necks b' and e do not engage the friable portions of my syringe, but engage the larger reduced portions thereof. This makes the syringe much stronger and more easily handled and much less liable to accidental breakage than if said necks were secured to the friable portions just referred to.

The syringe when assembled will appear as in Fig. 1, excepting that the portions a' of the receiver will not be fractured. It is preferred to pack the syringe thus assembled in a sterilized case, in which it should be kept until used. Then the needle is inserted under the skin, and the surgeon by bending the parts b' and e may fracture the ends a' of the receiver. Then by pressing the bulb b a volume of air will pass into the upper end of the

receiver and force the liquid out through the lower end of the needle, thus effecting the injection. If the bulb should not contain sufficient air to complete the operation, the stopper b^2 may be removed and a second volume of air admitted into the bulb, after which the opening in the bulb may be closed by the thumb of the operator or the stopper b^2 may be removed and a second volume of air admitted into the bulb, after which the opening in the bulb may be closed by the thumb or finger of the operator or the stopper may be replaced and the bulb again compressed. In this case the atmospheric air introduced into the bulb will be filtered and sterilized by its passage through the mass c'. It will be observed, therefore, that by means of this invention an injection may be effected without exposing the material injected at any time, and if the syringe is properly assembled in the laboratory it is clear that the presence of disease-breeding bacteria will be absolutely avoided.

Various changes in the form and details of my invention may be resorted to at will without departing from the spirit of my invention. Hence I consider myself entitled to all forms of the invention as may lie within the intent of my claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A syringe, comprising a reservoir having a friable portion, a syringe outlet-pipe, a connection between the reservoir and said syringe-pipe, said connection being flexible, for the purpose specified, and inclosing the friable portion of the reservoir, the external diameter of said friable portion being smaller than the internal diameter of said flexible connection and a filtering material surrounding said friable portion of the reservoir and located within the said connection.

2. A syringe, comprising a reservoir having at each end a friable portion of reduced diameter, a needle, a flexible tube connecting the needle and one end of the reservoir above its friable portion, said tube inclosing the friable portion, a bulb, said bulb having a flexible tubular stem connected with the other end of the reservoir above the friable portion at that end and inclosing the same, and filtering material surrounding each friable portion of the reservoir.

3. A reservoir for syringes, said reservoir being hermetically sealed and having at each end a friable portion and filtering material around each of said friable portions, for the purpose specified.

4. A syringe having a reservoir containing a portion of fluid to be injected hypodermically, said fluid being hermetically sealed within said reservoir; said reservoir terminating at each end in a reduced friable portion; a yielding bulb for one end of the reservoir and a hypodermic needle for the other end; said needle and bulb being each directly connected with their respective ends of the reservoir by flexible necks which surround said reduced portions and engage the respective ends of the reservoir above said portions, leaving a cavity within each neck into which cavity one of the said reduced portions is centrally projected with a space intervening between its sides and the surrounding flexible neck, and between its end and the inlet-opening of the needle at one end of the reservoir, and between the end of the other reduced portion and the bulb, at the other end of the reservoir; and filtering material within said cavities surrounding the sides and ends of said friable portions and in direct contact therewith and filling the space in one of the necks between the end of the friable portion and the opening at the inner end of the needle and in the other neck filling the space between the end of the friable portion and the bulb, as specified and for the purpose set forth.

5. A syringe, comprising a reservoir having a reduced friable portion at each end thereof, a bulb at one end of the reservoir, a neck connecting the bulb with one end of the reservoir, said neck surrounding the adjacent friable portion, filtering material within said neck and in contact with the said friable portion, a needle at the opposite end of the reservoir, a flexible neck connecting the needle with the reservoir at that end and inclosing the adjacent friable portion of the reservoir, and filtering material within said neck and in direct contact with said friable portion surrounded thereby, as specified and for the purpose set forth.

6. A syringe, comprising a reservoir terminating at each end in a reduced friable portion, a needle, a flexible tube connecting the needle and one end of the reservoir, said tube inclosing the adjacent friable portion, a bulb, said bulb having a flexible tubular stem engaging the other end of the reservoir and inclosing its friable portion, filtering material inclosed within the flexible tube which connects the needle and one of the reduced ends of the reservoir, said filtering material surrounding and in contact with the friable portion of the reservoir adjacent said tube, whereby the fluid within the reservoir is filtered as it passes from the reservoir to the needle, as specified and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANCIS M. BAKER.

Witnesses:
L. L. HOLFORD,
W. E. GIBSON.