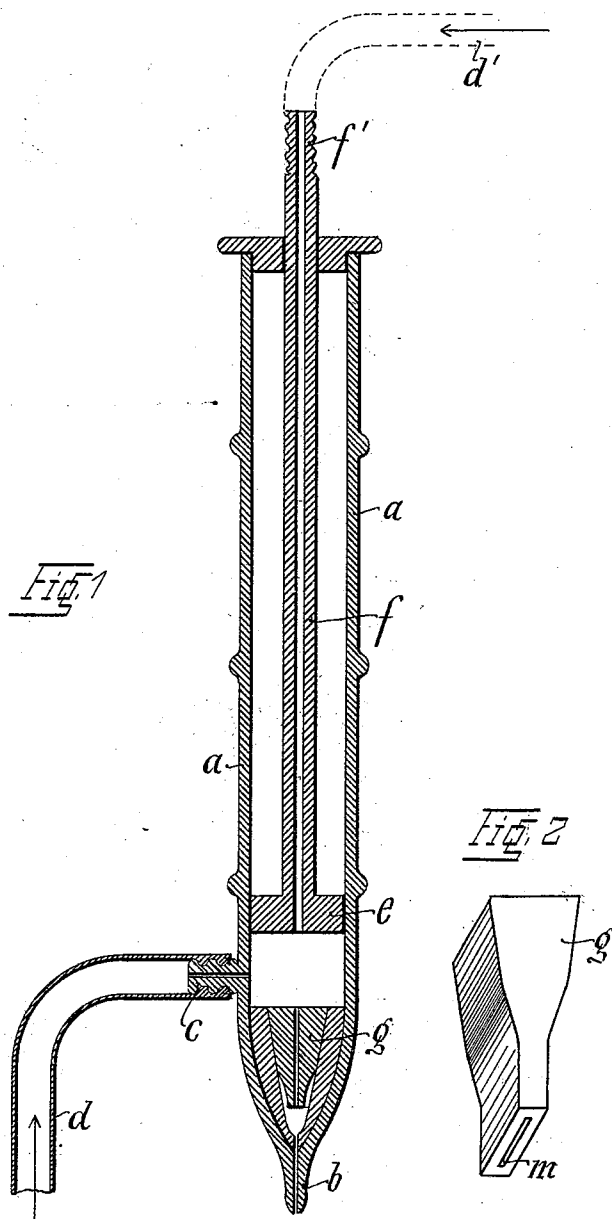


(No Model.)

R. BEYER.
SYRINGE.

No. 554,614.

Patented Feb. 11, 1896.



Witnesses:
Max Frankbach
Hermann Gerde

Inventor:
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UNITED STATES PATENT OFFICE.

RICHARD BEYER, OF BERLIN, GERMANY.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 554,614, dated February 11, 1896.

Application filed May 31, 1895. Serial No. 551,268. (No model.) Patented in Germany October 25, 1894, No. 81,613.

To all whom it may concern:

Be it known that I, RICHARD BEYER, pharmacist, a citizen of the Kingdom of Prussia, and a resident of Berlin, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Injection-Syringes, of which the following is a specification.

The invention relates to an improvement in injection-syringes, the advantage of which is that the nozzle by which the injection of the liquid is made is not used also for the suction of the liquid, but the filling of the syringe is done by a proper suction-pipe laterally provided to the cylinder. In this way is obviated an infecting of the injection liquid with contagious germs, else easily possible by immersing the injection-nozzle after an injection into the medicament.

In the accompanying drawings, Figure 1 is a vertical central section of such a syringe; Fig. 2, a valve put into it.

The syringe consists of a cylinder *a*, above whose nozzle *b* is put a valve *g*, forming an elastic body perforated by a slit *m*. Above the top of this valve-body there is a socket *c*, prolonged by an elastic tube *d*. The piston *e* and its rod *f* have a hollow axis, and to the top of *f* is also put off an elastic tube *d'*. In order to fill the syringe, the bore of *f* is shut by squeezing the tube *d'* with the fingers, the tube *d* is immersed into the vessel containing the fluid to be injected, and by raising the rod *f* the liquid enters the syringe through the socket *c*. In the same time by atmospheric pressure the valve *g* and the slit *m* are closed. If now the piston *e* is pressed downward, the liquid is prevented from escaping

there and takes it away through the valve *g* now opened and through the nozzle *b*.

For the manipulation as described a hollow piston and rod are properly not required and these parts could also be full ones; but for female patients, for injections into female genitals, it is more advantageous to have a hollow rod. The syringe is here filled by immersing the tube *d'* into the liquid. If the piston is raised while the socket *d* is squeezed, the liquid is sucked into the cylinder through the pipe *d'* and the injection is made by pressing down the piston *e*. A return valve in *d'* prevents the escape of the liquid through this tube. The syringe shown in the drawings would be applicable for each case, for masculine and also for female patients, but could, by providing a full or a hollow piston and reciprocally adding or leaving the socket *d*, be confined to the one or the other use. For the full piston could also be substituted a hollow elastic bulb directly above the suction-pipe *d* or fixed to the socket *c*.

What I claim is—

An injection-syringe consisting of a cylinder into which, above the nozzle *b* is put a downward opening valve *g* and having a hollow piston *e*, a hollow rod *f* and, above the valve *g*, a lateral suction-pipe *d*, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

RICHARD BEYER.

Witnesses:

CHAS. H. DUNN,
WM. HAUPT.