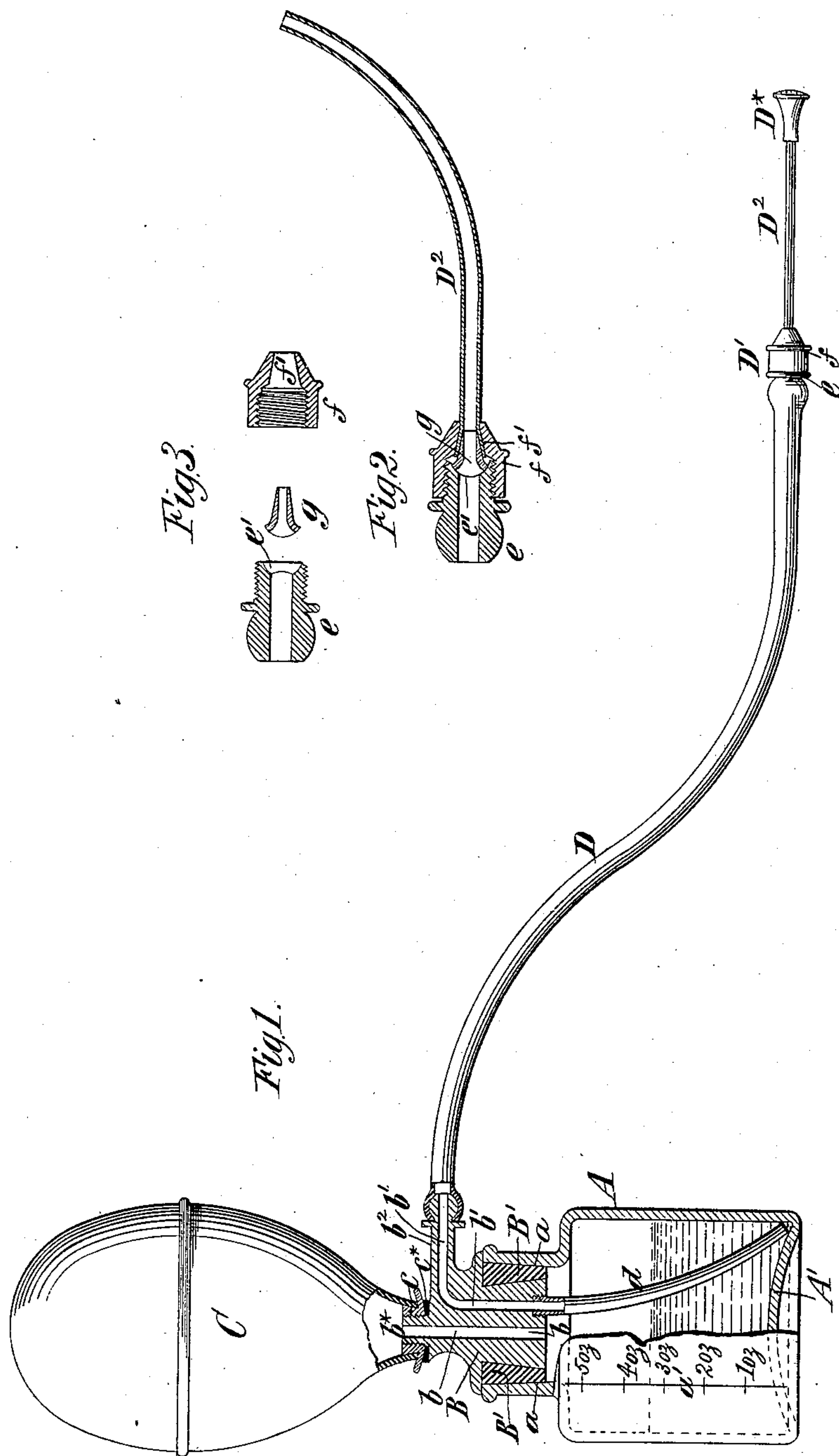


(No Model.)

M. HART.
SYRINGE.

No. 322,598.

Patented July 21, 1885.



Witnesses:
Emil Hertor.
C. Sundgren

Inventor:
Margaret Hart
By her Atty
Brown Hall

UNITED STATES PATENT OFFICE.

MARGARET HART, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
CHARLES T. MOORE, OF SAME PLACE.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 322,598, dated July 21, 1885.

Application filed May 1, 1885. (No model.)

To all whom it may concern:

Be it known that I, MARGARET HART, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Syringes and Injecting Apparatus, of which the following is a specification.

My invention relates to syringes and injecting apparatus in which the liquid contents of a bottle or receptacle may be forcibly expelled through a discharge-tube by compressing an elastic india-rubber bulb or air-chamber, whereby air will be compressed within the bottle or receptacle to expel the liquid, and particularly to syringes or injecting apparatus for the rectal injection of medicines, and nourishment for uterine purposes, and for the syringing of wounds.

In syringes or apparatus of the kind described it is very desirable to employ with the discharge-tube small flexible nozzle or tip sections which may be bent to give them the proper curve, and will not injure any part of the body with which they come in contact; and the object of my invention is to provide a simple and effective coupling for attaching such tip-sections or nozzle-sections to the discharge-tube, so that they may be readily renewed when worn out, and attached and detached without abrasion or injury to them.

The invention consists in a novel combination of parts hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 represents a partly sectional elevation of an apparatus embodying my invention. Fig. 2 is a sectional view, upon a larger scale, of the coupling which is employed to connect the flexible delivery nozzle or tube with the main discharge-tube, including, also, a sectional view of the flexible curved delivery nozzle or tube; and Fig. 3 is a sectional view of the several parts of the coupling detached from each other, and upon the same scale as Fig. 2.

Similar letters of reference designate corresponding parts in the several figures.

A designates a bottle or receptacle for liquid, and B designates a stopper-body which has upon it a bushing or packing, B', which will fit tightly in the neck or mouth *a* of the bottle or receptacle A.

Through the stopper B extend two passages, *b b'*. The former of these passages, *b*, extends upward from the stopper and through a nipple, *b**, to which is secured the compressible chamber C, of india-rubber. The bulb or chamber C may have a nut, *c*, by which it is secured to the nipple *b**, a packing-washer, *c**, being interposed, thereby forming an air-tight joint. Into the stopper B is inserted a downwardly-projecting tube, *d*, which communicates with the passage *b'*, and said passage at its upper end is prolonged through a laterally-projecting nipple or stem, *b²*, with which a flexible discharge pipe or tube, D, is connected.

The bottle or receptacle A has marked or delineated upon its exterior a scale, *a'*, indicating different quantities of liquid by the height to which they fill the bottle. The outer end of the discharge-pipe D is provided with a coupling, D', whereby a flexible discharge tube or nozzle, D², may be connected with the discharge-pipe. In some cases it may be desirable to provide the discharge tube or nozzle D² with a sprinkler or rose-head, D*, through which liquid may be discharged in the form of spray for fumigating a sick-room. Such a sprinkler is shown in Fig. 1.

The coupling D', which is best represented in Figs. 2 and 3, consists of a body-piece, *e*, and sleeve *f*, having a screw-threaded connection with said body-piece *e*, and a central core or spreader, *g*, which is clamped between the body-piece *e* and the sleeve *f* when they are secured together. The central core or spreader, *g*, has a slightly conical exterior and a convex or rounded rear end, which fits against a corresponding concave seat, *e'*, in the end of the body-piece *e*. The sleeve *f* has a conical bore or interior, *f'*, the taper of which corresponds to the conical exterior of the central core or spreader *g*.

The discharge nozzle or tube D² may consist of a tubular woven fabric coated with an india-rubber compound, which serves to stiffen it and maintain it in shape, and at the same time render it sufficiently flexible so that it may be bent or curved to any desired form, and will then retain the shape which is given to it.

The tubing for the nozzles D² may be made in pieces of any length, and cut off to a length

desired when they are to be connected with the discharge-pipe D.

In attaching a nozzle-section by means of the coupling to the discharge pipe or tube D, the end of the flexible tube D² is inserted through the sleeve *f*; the conical spreader *g* is then introduced into its end, and the sleeve *f* is then screwed upon the body-piece *e*. By screwing up the sleeve *f* to the position shown in Fig. 2 the conical spreader will come to a tight bearing in the conical seat *e'*, provided for it in the end of the body *e*, and will be forced into the flexible tube D², thereby spreading the end of the same into conical form and clamping it tightly into the bore of the sleeve *f*. When it is desired to attach a new nozzle, D², all that is necessary is to unscrew the sleeve *f* from the body *e* and take out the conical spreader *g*. A new tube, D², may then be inserted and secured in place in the coupling, as above described.

It will be observed that the discharge nozzles or tubes D² will be inexpensive, as they consist simply of a piece of flexible tubing, and may easily be renewed by the person using the apparatus at a very small cost.

The bottle or receptacle A may be filled either by removing the stopper B and introducing the liquid thereinto, or it may be filled by compressing the bulb C, and then introducing the nozzle-tube D² into the liquid; then releasing the bulb C and allowing it to expand, the rarefaction of air in the bottle being sufficient to cause the liquid to flow through the tube D into the bottle.

I am aware that a rubber tube has been secured to a fixed nipple by stretching it over the end portion of the nipple, and then screwing upon the nipple a gland or collar which fits outside of and clamps upon the rubber tube.

By employing a conical spreader for entering the rubber or other flexible tube, and which is separate from the nipple on which the gland is screwed, I leave the conical spreader and tube both free to turn with the gland or sleeve when the latter is screwed into place, and hence there is no abrasion of the tube by turning or rotating it upon the part which enters it, or by turning or rotating the sleeve or gland upon the tube.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with the discharge-pipe of an injecting-apparatus and a flexible nozzle-section to be connected therewith, of a coupling consisting of a body-piece and sleeve connected by a screw-thread, the sleeve having a conical interior, and a central conical spreader or core which is inserted in the end of the flexible nozzle-section, and which by screwing the sleeve upon the body is brought to a bearing upon the said body, substantially as and for the purpose herein described.

MARGARET HART.

Witnesses:

CHAS. T. MOORE,
C. HALL.