(No Model.)

W. W. GUPTILL.

SYRINGE.

No. 441,238. Patented Nov. 25, 1890.

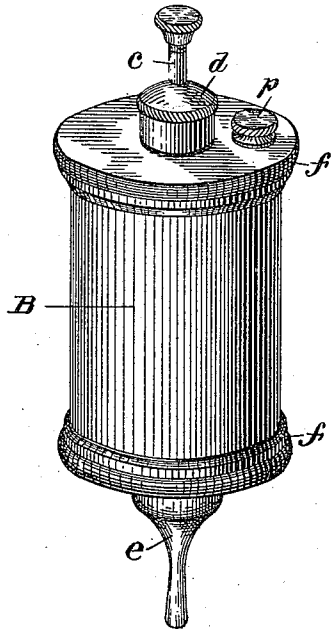


Fig. 1.

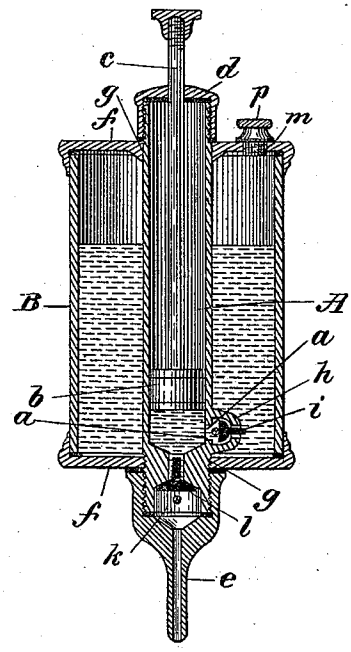


Fig. 2.

WITNESSES.

R. Henry Marsh.

Harry A. Hilken.

INVENTOR.

Winslow W. Guptill

By J. E. Ilsekemacher

Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WINSLOW W. GUPTILL, OF BOSTON, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO CLARENCE W. FOX, OF SAUGUS, MASSACHUSETTS.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 441,238, dated November 25, 1890.

Application filed February 17, 1890. Serial No. 340,790. (No model.)

To all whom it may concern:

Be it known that I, WINSLOW W. GUPTILL, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Syringes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a syringe constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section of the same.

My invention consists in a syringe having its barrel surrounded by a tight reservoir or casing adapted to contain a supply of the liquid to be used, said barrel being provided at its lower end with a self-acting inlet-valve communicating with the interior of the reservoir, and a self-acting outlet or discharge valve adapted to close when the inlet-valve is opened, and vice versa, the arrangement of the valves being such that when the piston is drawn up the outlet-valve will be closed and the inlet-valve opened, thereby allowing the liquid to flow from the reservoir into the barrel to fill the same, the downward movement of the piston causing the inlet-valve to close and the outlet-valve to open to permit the liquid to be discharged through the nozzle, as hereinafter more particularly set forth.

In the said drawings, A represents the barrel of the syringe, which is provided, as usual, with a piston *b* and piston-rod *c*, the latter passing through a cap *d*, which is screwed onto the upper end of the barrel A. The lower end of the barrel is provided with a removable nozzle *e*, which is screwed thereupon, as seen in Fig. 2.

B is a leak-tight reservoir or casing, which surrounds the barrel A and is adapted to contain a supply of the liquid to be used in the syringe. The size of this reservoir may be varied to enable it to contain a quantity of the liquid sufficient to recharge the barrel any desired number of times, and said reservoir may be made of cylindrical form, as shown, or of flat, oval, or other desired shape, as taste or fancy may dictate, or to adapt it to be conveniently carried in the pocket if so desired. Each end of the casing B is provided with a removable head *f*, having a central opening *g*, through which the end of the barrel projects, the upper head being held in place by the cap *d*, which is screwed tightly down thereon, while the lower head is held in place by the removable nozzle *e*, which is screwed tightly up against it, as seen in Fig. 2. All of the joints are provided with suitable packing-rings to prevent any possibility of leakage.

Projecting from the lower end of the barrel within the reservoir B is a short tubular branch or offset *h*, through which the liquid in the reservoir can pass into the barrel A, and within this offset is formed a chamber containing a self-acting inlet-valve *i*, which is adapted to open inward when the piston is drawn up, thereby permitting the liquid to flow through the inlet-aperture *a* into the barrel to charge the same. At the bottom of the barrel, or within its nozzle, is a chamber *k*, within which is placed a self-acting outlet or discharge valve *l*, opening downward and adapted to be drawn up tightly against its seat when the piston is raised to fill the barrel. With this arrangement, as the piston is drawn up, the outlet-valve will close and the inlet-valve will be simultaneously opened, thus permitting the liquid to be drawn therethrough from the reservoir B into the barrel A to fill the same. When, however, the piston is forced down the inlet-valve will be instantly closed and the outlet-valve opened to permit the liquid in the barrel to be discharged through the nozzle *e*, after which the operation can be repeated as many times as may be desired, until the supply of liquid in the reservoir B becomes exhausted, when the latter can be refilled through an aperture *m* in the upper head, which is closed by a screw-plug *p*. When the piston *b* is forced down to the bottom of the barrel, it will fit tightly over the inlet-aperture *a*, and as the piston is provided with a packing it will tightly close the said inlet-aperture *a*, and thus effectually prevent the liquid in the reservoir B from leaking into the barrel, and thence escaping through the nozzle *e* when the syringe is not in use or is being carried in the pocket.

The above-described syringe is of simple construction, has few parts, and can be easily cleansed and kept in order, as the several parts of the syringe can be readily separated from each other.

A syringe constructed as above described will be found particularly well adapted for the use of travelers and others in cases where a vessel into which to pour out the liquid to be used is not always at hand, while when the syringe is employed by veterinary and other surgeons the liability of spilling the solutions or liquids used is entirely avoided, and the operation of administering medicines, &c., greatly facilitated.

I am aware that a syringe susceptible of being charged from the contents of a flask or casing surrounding the barrel is not broadly new, the same being shown and described in the United States patent of John L. Dibble, No. 213,978, dated April 8, 1879, and I therefore lay no claim to the construction or any of the devices shown in the aforesaid patent. The syringe shown in the said patent of Dibble is provided with a single valve only, which controls the inlet-aperture through which the liquid is drawn into the barrel from the casing which surrounds it, and it is therefore necessary after removing the cap to place the finger over the end of the nozzle to prevent the entrance of air while the barrel is being charged. My improved syringe differs from this in having a second valve arranged to co-operate with the valve through which the liquid is drawn from the reservoir into the barrel in such a manner as to automatically prevent air from being drawn into the barrel as the piston is raised, the syringe being consequently at all times in condition for immediate use without the necessity of removing any screw-cap from the nozzle or placing the finger over the end of the latter to exclude the air, which is often inconvenient and liable to be forgotten.

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

A syringe having its barrel surrounded by a tight reservoir or casing adapted to contain a supply of the liquid to be used, said barrel being provided at its lower end with a self-acting inlet-valve communicating with the interior of the reservoir, whereby the barrel may be filled therefrom as the piston is drawn up, and a self-acting outlet or discharge valve adapted to close when the inlet-valve is opened and open when the inlet-valve is closed to permit the liquid to be discharged from the nozzle, substantially as described.

Witness my hand this 12th day of February, A. D. 1890.

WINSLOW W. GUPTILL.

In presence of—
P. E. TESCHEMACHER,
HARRY W. AIKEN.