D. C. PERKINS & J. DAVOL.

Syringe.

No. 212,975 Patented Mar. 4, 1879.

Fig. 1.

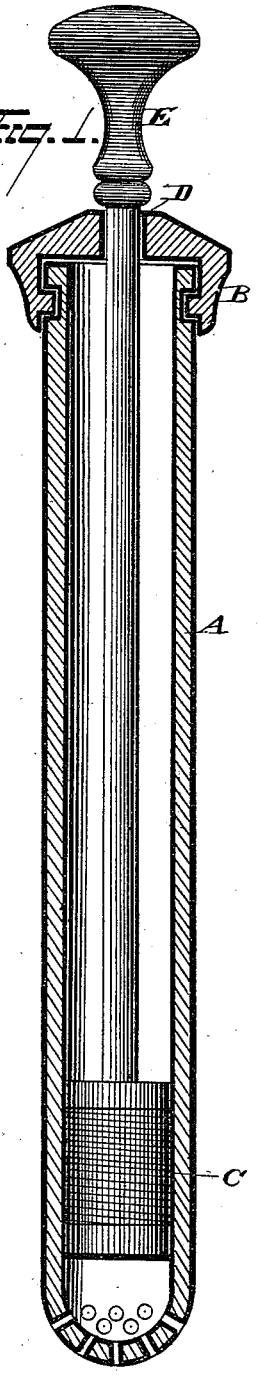


Fig. 2.

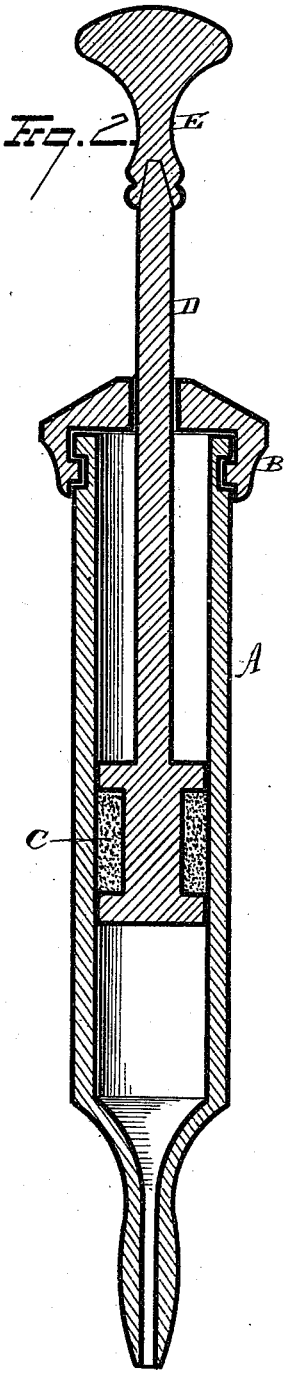
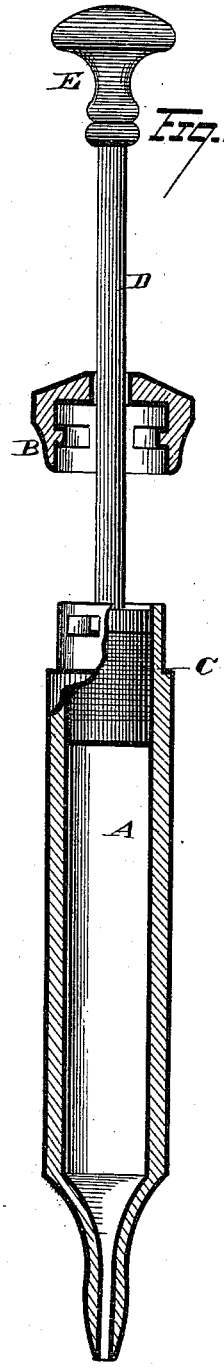


Fig. 3.



WITNESSES

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DANIEL C. PERKINS AND JOSEPH DAVOL, OF PROVIDENCE, RHODE ISLAND; SAID D. C. PERKINS ASSIGNOR TO SAID JOSEPH DAVOL.

IMPROVEMENT IN SYRINGES.

Specification forming part of Letters Patent No. **212,975**, dated March 4, 1879; application filed July 10, 1878.

To all whom it may concern:

Be it known that we, DANIEL C. PERKINS and JOSEPH DAVOL, both of the city and county of Providence, and State of Rhode Island, have invented new and useful Improvements in Syringes; and we hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to syringes, and is designed to provide such a construction that the same may be economical in cost, light in weight, and clean in use, while at the same time they are durable in wear and not liable to be easily broken.

Heretofore syringes made of glass have been used to great extent by reason of their imperviousness to the liquids with which they may be charged, and also because they can be easily kept clean and untainted, or rather unaffected by the action of such liquids, whether the latter be acids or water; but they are subject to the disadvantage of being readily broken, thus requiring careful handling in use and safe packing during transit. They are also quite expensive, both on account of the greater initial cost of glass compared to wood, and also because workers in glass receive higher remuneration than workers in wood. On the other hand, metallic syringes are heavy in their weight, expensive in cost, and are not capable of being easily kept in clean condition, since many acids attack and discolor the same when used therewith.

The objection heretofore existing against wooden syringes is, that they are very porous, and thus subject to alternate conditions of swelling and shrinking corresponding with their use and disuse. They also become, to a greater or less degree, tainted and affected by any pungent acid or chemical liquid with which they may be used. Our improvement obviates these disadvantages, and permits of the use of wooden syringes, which, with the above-noted objections overcome, are desirable by reason of their lightness, non-liability to break, and their small cost.

The invention consists, first, of a wooden syringe provided both on its inner and outer surface with an enamel coating adapted to preserve the same from the action of water and acids; second, of a wooden syringe whose inner surface is provided with an enamel coating adapted to render the same impervious to the liquids which may be introduced within the syringe; third, of the combination, in a syringe, of a piston and piston-rod, formed in single wooden piece, and provided with an enamel coating, the same being thereby adapted to withstand the action of the liquids to which they may be subjected.

Referring to the drawings, Figures 1, 2, and 3 respectively illustrate different forms of syringe, each of which embodies the improvement.

The body A of the syringe is made of wood and of any desired form. It is provided with a cap, B, also made of wood, and with suitable means of engagement with the syringe-body. Both the inner and the outer surface of the syringe, including the cap, are provided with a coating of acid and water-proof enamel, the latter being well laid thereon, so as to cover and protect all points of the same.

The piston C is formed, together with piston-rod D, of a single piece of wood, the two thus being without joint-connection, so as to leave no seam or opening which will admit of the introduction of liquid between them. The handle E, being made readily detachable from the piston-rod, permits the latter to be inserted in the opening of the cap, within which it works. This piston and piston-rod are also coated with enamel of the character described, and are thus protected against all attacks of acid or water.

It is apparent that the invention is not restricted to the instance of a syringe provided in all its parts and surfaces with the enamel, since a good and useful result obtains if the inner surface of the syringe-body alone is thus coated, or if the piston and piston-rod are formed and enameled as set forth.

One kind of enamel we use consists of linseed-oil, one gallon; coach-black, four ounces; black oxide of manganese, one-half ounce; Prussian blue, four ounces, reduced by naphtha. The enamel is applied to the wood, which

is then heated in an oven to from 120° to 150° Fahrenheit. It is then coated with a finishing composition made by boiling together linseed-oil, one gallon; Prussian blue, three ounces; and black oxide of manganese, one-half ounce, reduced by naphtha, and is again heated for two hours at 150° Fahrenheit. Other enamels composed of linseed-oil, asphaltum, sugar of lead, and crude turpentine may be used in the same manner; but we would have it understood that we do not restrict ourselves to any particular kind of enamel.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A wooden syringe provided both on its inner and outer surface with an enamel coating adapted to preserve the same from the action of water and acids, substantially as set forth.

2. A wooden syringe whose inner surface is provided with an enamel coating adapted to render the same impervious to the liquids which may be introduced within the syringe, substantially as set forth.

3. In a syringe, the combination of a piston and piston-rod, formed in single wooden piece, and provided with an enamel coating, the same being thereby adapted to withstand the action of the liquids to which they may be subjected, substantially as set forth.

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