

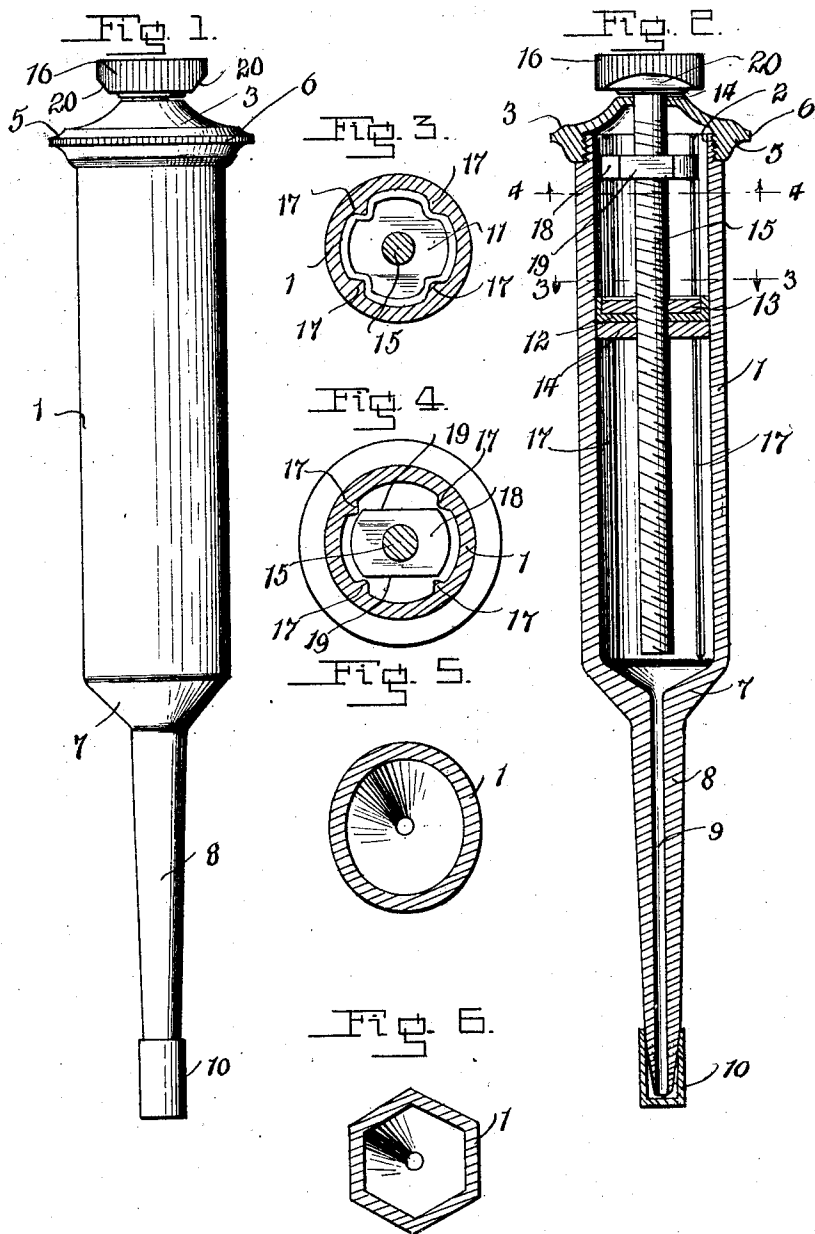
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SYRINGE

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UNITED STATES PATENT OFFICE.

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SYRINGE.

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This invention relates to syringes and more particularly to a syringe adapted to inject ointments and liquid or semi-liquid medicines into the nasal passage or other passages of the body and may further be employed to inject antiseptic solutions or healing medicines into incisions formed when operating or resulting from injuries received in accidents.

At the present time syringes are employed for applying ointment and other medicines but they have been found unsatisfactory as they cannot be readily inserted and also the quantity of medicine discharged from the syringe cannot be easily gaged. Therefore, one object of the invention is to provide a syringe having an elongated nozzle which may be easily inserted and a desired quantity of medicine discharged from the syringe.

Another object of the invention is to permit the syringe to be readily employed to discharge either liquid or a salve-like ointment.

Another object of the invention is to prevent the piston of the syringe from having rotary movement in the barrel when a threaded stem is rotated or slid longitudinally in the barrel to impart movement to the piston.

Another object of the invention is to provide a syringe, the parts of which are formed of hard rubber and may be readily taken apart and thoroughly cleaned.

The invention is illustrated in the accompanying drawing, wherein

Figure 1 is a view showing the syringe in side elevation;

Fig. 2 is a longitudinal sectional view through the syringe;

Fig. 3 is a transverse sectional view through the syringe taken on the line 3—3 of Fig. 2;

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is a transverse sectional view through the barrel of a syringe of a slightly modified construction, and

Fig. 6 is a view similar to Fig. 5 showing another modified form of barrel.

The syringe constituting the subject-matter of this invention includes a barrel 1, preferably formed of hard rubber, and having one end portion externally reduced to form an extension 2. The reduced end portion 2 of the barrel is externally threaded and carries an internally threaded cap 3

formed with a centrally disposed unthreaded opening 4. The cap has its peripheral portion extended, as shown at 5, and formed with a milled marginal edge 6 so that the cap may be tightly screwed upon the barrel but readily removed therefrom when necessary. The other end portion of the barrel 1 which may be referred to as its forward end is formed with a head 7 which tapers outwardly and carries an elongated nozzle 8 having an axially disposed bore 9 which communicates with the interior of the barrel. The nozzle is formed integral with the head 7 and tapers towards its free end, as clearly shown in Fig. 2, so that, when the protecting cap 10 is removed and the syringe in use, the nozzle may be readily inserted without injury to the person using the same.

A piston, indicated in general by the numeral 11, operates in the barrel 1 and consists of a cup 12 formed of flexible material and disposed between disks 13 and 14 of hard rubber. The cup and the disks are formed with aligned openings to receive a threaded operating stem 15, the stem being formed with a left hand thread and the openings of the disks 13 and 14 having companion threads so that, when the stem is rotated through the medium of its turning head 16 and the piston held against rotation in the barrel, sliding movement may be imparted to the piston longitudinally of the barrel. In order to prevent the piston from rotating in the barrel, the two disks 13 and 14 are provided with marginal recesses in which portions of the flexible cup 12 are received, as shown in Fig. 3. These recesses accommodate longitudinally extending ribs 17 which extend longitudinally upon the walls of the barrel and allow the piston to slide freely longitudinally in the barrel but very effectively prevent the piston from rotating. If desired, the ribs and grooves may be omitted and the barrel formed with a ground inner surface contacting with a ground peripheral edge face of the disk 14 to prevent the piston from rotating. It should also be noted that, in order to more positively prevent rotation of the piston when the ribs and grooves are omitted, the barrel may be elliptical, hexagonal or any other desired non-circular shape in cross section, as shown in Figs. 5 and 6. A disk 18 is threaded upon the stem 15 above the piston and is formed with opposed flat side faces 19. These flattened side faces are provided so that the disk 18 may

be readily grasped from opposite sides and held stationary while the stem is rotated to adjust the disk longitudinally upon the stem. By this arrangement the disk may be disposed either close to the inner surface of the cap to prevent longitudinal sliding of the stem or it may be moved away from the cap, as shown in Fig. 2, in order to allow the stem to be moved longitudinally and impart a quick sliding movement to the piston instead of a slow movement. Flattened faces 20 are formed at opposite sides of the head 16 so that the head may be readily grasped and the stem drawn outwardly when the disk is disposed in spaced relation to the cap.

When the syringe is in use, the barrel is filled with ointment and when the cap is applied the stem may be rotated to move the piston towards the forward end of the barrel and force the ointment through the bore 9 of the nozzle 8. If the ointment is of a semi-fluid nature or liquid medicine is to be discharged from the syringe, the disk will be moved away from the cap in order to permit the stem to be slid longitudinally through the cap and the piston moved rapidly in the barrel. It should be further noted that by properly adjusting the disk upon the stem the extent to which the piston may be moved by reciprocating the stem may be controlled. This construction will, therefore, provide a gage so that a desired quantity of the medicine or ointment in the syringe may be easily discharged without danger of too great a quantity being forced from the syringe. After the syringe has been used and it is desired to clean the same before refilling it, it is merely necessary to unscrew the cap and the stem and piston may be withdrawn from the barrel and the piston and disk 18 unscrewed from the stem. A thorough cleaning operation can then be performed and the parts of the syringe reassembled.

Having thus described the invention, I claim:

1. A syringe comprising an elongated cylindrical barrel open at one end, a nozzle extending from the other end of said barrel and tapered towards its free end, said nozzle being formed with an axially extending bore communicating with said barrel, a cap removably engaged with the open end of said barrel and formed at its center with an unthreaded opening, a threaded stem slidably passed through the opening of said cap and provided with a turning head at its outer end, the inner end of said stem terminating adjacent the other end of said barrel, a disk threaded upon said stem and movable thereon towards and away from the inner face of the cap, and a piston threaded upon said stem and fitting snugly in said barrel and held against rotation therein and moved longitudinally therein when the stem is rotated.

2. A syringe comprising an elongated cylindrical barrel having one end reduced and externally threaded, a nozzle extending from the other end of said barrel and tapered towards its free end, said nozzle being formed with an axially extending bore communicating with said barrel, a cap screwed upon the reduced and threaded end of said barrel and formed at its center with an unthreaded opening, a threaded stem passed through the opening of said cap and provided with a turning head at its outer end having opposed portions of its marginal face beveled to form flat faces and permit the head to be readily grasped and the stem drawn outwardly, a disk threaded upon said stem and movable thereon towards and away from the inner face of said cap, said disk having opposed marginal portions flattened whereby it may be held and the stem rotated to adjust the disk longitudinally thereon, and a piston threaded upon said stem and held against rotation in the barrel.

In testimony whereof I affix my signature.

LENGE S. MORGAN. [L.S.]