PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in Fountain Pens

We, HENRY FREDERICK CHARLES BURNHAM and HENRY CHARLES WILLIAM BURNHAM, both British Subjects, and both of No. 2a, Selhurst Road, South Norwood, London, S.E.25 do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in fountain pens and has for its object to provide a simple and reliable filling means which may be capable of successive operations in order to obtain a desired charge of ink.

According to this invention the charging is effected by the twisting and untwisting of an elastic or flexible tube or container, the twisting causing expulsion of air due to contraction of volume so that the subsequent untwisting causes a charge of ink to be sucked in. Thus the sac or container may be a rubber or flexible tube secured to the nib holder and fitted with means for enabling it to be twisted. If a tube of small diameter extends from the nib holder to near the closed end of the rubber tube, a charge of ink is drawn into the container through the small tube by the twisting and untwisting operation. This charge may only partially fill the container, in which case the flexible tube may be twisted again for the sucking in of a further charge or charges for the filling of the container.

According to one construction, a rubber tube is closed at one end by means of an ebonite plug formed with a stem. At its opposite end there is plugged into it a cylindrical extension on the nib holder or nozzle. The feeder is fitted with a relatively long tube of small bore so that when the feeder is inserted into the nib holder or nozzle, the said small bore tube extends almost to the end of the rubber tube or container. The rubber tube is inserted into the barrel of a pen, and the stem of the plug in the end of the rubber tube passes freely through a central hole formed in the end of the barrel, or in a plug fixed in the butt end of the barrel. This end of the barrel or the plug may be externally screw threaded to receive a cap having a central perforation which is entered by the said stem. A diametric rivet pin is inserted through the cap and stem to couple these two together. This rivet may be hidden and prevented from endwise movement by an ornamental metal band which is made to encircle the cap and reside in a small annular groove in which the rivet ends appear. The nib holder at the opposite end of the rubber tube fits tightly into the opposite end of the barrel.

It will now be apparent that the pen may be filled by holding it upright with the nib holder immersed in a body of ink and by giving a partial turn to the cap. The cap, being coupled to the stem of the plug in the end of the rubber tube, imparts such turn to the end of the tube, causing the latter to be twisted within the barrel. Upon releasing the cap, the elasticity of the rubber tube restores the latter to its untwisted condition, whereupon a charge of ink is drawn into the container through the small bore tube as already explained.

Dated this 14th day of February, 1936.

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London, W.C.2,
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COMPLETE SPECIFICATION

Improvements in Fountain Pens

We, HENRY FREDERICK CHARLES BURNHAM and HENRY CHARLES WILLIAM BURNHAM, both British Subjects, and both of No. 2a, Selhurst Road, South Norwood, London, S.E.25, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in fountain pens of the twistable-sac type

[*Price* 1/-]

and has for its principal object to provide a simple and reliable pen with a large ink-capacity.

Pens of the twistable-sac type have already been proposed wherein an air-tube extending from the nib-section projects into the twistable sac secured, at the end remote from the nib-section, to a socket-member which is mounted inside the barrel and is connected by a stem-part, directly or through a self-releasing clutch-device, to a button located outside the barrel and adapted for being turned in relation to the barrel for the purpose of twisting the sac.

According to the invention, in a pen of the twistable-sac type, an air-tube is provided which extends from the nib-section and projects into the twistable sac secured at the end remote from the nib-section to a member which is mounted inside the barrel and is connected by a stem-part to a cap-like member located outside the barrel and adapted for being screwed in and out to a limited extent upon the end of the barrel or an extension thereof. If the end of the sac nearer to the nib-section is secured upon an inward extension of the said section, the air-tube will advantageously extend within the sac nearly to the other end thereof. If, on the other hand, the first-named end of the sac is secured upon an upward extension of the lower section of a barrel comprising two sections, the air-tube will extend beyond the said lower section into the sac in per se known manner.

Two constructional embodiments of the invention are illustrated by way of example in the accompanying drawing, in which:—

Figure 1 is a longitudinal section of one form of pen, showing a rubber ink-tube in its normal condition,

Fig. 2 is a similar view, showing the tube in its twisted condition, and

Fig. 3 is a similar view of another form of pen.

In the embodiment illustrated in Figs. 1 and 2, the barrel 1 of the pen freely encloses a flexible rubber tube 2 which is closed at one end by being secured over a cylindrical part 3, for example of ebonite, and is open at the other end to the nib-section 4 by way of a reduced cylindrical extension 5 thereof over which the said tube is secured. The tube 2 is secured over the parts 3, 5 by adhesive and a tight permanent joint is ensured by metal clamping bands 6. The nib-section, which fits tightly into the end of the barrel, is provided with a feed bar having a relatively long breather or air-tube 7 of fine bore which projects freely through the rubber-tube 2 and preferably extends nearly to the upper end of the latter.

The part 3 is formed with an outwardly extending axial stem 8 which passes through a central bore 9 in a reduced extension 10 on the barrel 1. If desired, this extension may be a separate part securely fixed to the end of the barrel. The extension 10 is externally threaded to receive a cap 11 having a central bore 12 which is entered by the stem 8. A pin 13 or a rivet is inserted diametrically through the cap 11 and stem 8 to couple these two parts securely together. This pin may be hidden and precluded from endwise movement by an ornamental metal band 14 which encircles the cap 11 in a shallow annular groove therein. It is to be noted that there is a certain play between the faces of the shoulder 15 on the barrel and the respectively opposed faces of the part 3 and the cap 11. This play is sufficient to permit of the cap 11 being screwed up and down on the extension 10 to a limited extent, such screwing resulting in twisting and untwisting of the flexible rubber tube 2 within the barrel 1. Preferably and as illustrated, the arrangement is made such that unscrewing of the cap effects twisting of the tube.

It will now be apparent that the pen may be filled by holding it with the nib-section dipping into the ink and screwing the cap 11 first in one direction and then in the other. Screwing of the cap in one direction imparts a turn to the adjacent end of the tube 2 and causes the latter to be twisted so that air is expelled from the tube. Upon screwing the cap in the other direction or allowing it to be returned by the effect of the elasticity of the tube, the latter is restored to its normal untwisted form so that a charge of ink is drawn into the tube. This charge may only partially fill the tube, in which case the cap may be operated again to draw in a further charge or charges until the pen is full. Preferably the play permitted to the cap 11 is sufficient only to allow of it being given a partial turn or, at most, one turn. If desired, however, the arrangement might be made such that more than one turn could be given to the cap. Care must be taken, however, that excessive twisting of the tube is not permitted. The screw-engagement between the cap 11 and extension 10 allows of the twisting action being limited in the above-described simple fashion.

The invention may be applied to pen-constructions in which the open lower end of a shorter tubular flexible container, a tube or sac, is mounted at an intermediate point in the pen and in

which the pen-barrel itself constitutes a part or the whole of the ink-holding space. The invention is also applicable to pen-constructions wherein a part of the barrel, preferably the part nearer to the nib-section, or the whole of the barrel is made of a transparent or translucent material so that the state of filling of the pen can be observed.

The application of the invention to a pen of this kind is illustrated in Fig. 3. In this pen, the lower barrel-section 16 is of translucent material and the upper barrel-section 16^1 of normal opaque material. The lower end of the short rubber tube 17 is not secured upon the nib-section, but upon a reduced upward extension 18 of the lower barrel-section 16; the air-tube 7 projects beyond the extension 18 of the lower section 16 into the sac-tube 17. The construction of this pen is otherwise similar to that of Figs. 1 and 2 and the mode of use of the pen is the same.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. Fountain pen of the twistable-sac type, wherein an air-tube extending from the nib-section projects into the twistable sac secured at the end remote from the nib-section to a member which is mounted inside the barrel and is connected by a stem-part to a cap-like member located outside the barrel and adapted for being screwed in and out to a limited extent upon the end of the barrel or an extension thereof.

2. Fountain pen in accordance with claim 1 wherein the end of the sac nearer to the nib-section is secured upon an inward extension of the said section and the air-tube extends within the sac nearly to the other end thereof.

3. Fountain pen in accordance with claim 1, wherein the end of the sac nearer to the nib-section is secured upon an upward extension of the lower section, preferably of translucent or transparent material, of a barrel comprising two sections and the air-tube extends beyond the lower-section into the sac.

4. Fountain pen in accordance with any one of the preceding claims, wherein the screwing movement of the connected members is limited by abutment of the said members against shoulder-faces formed upon the barrel.

5. The fountain pens constructed, arranged and adapted for operation substantially as described with reference to the accompanying drawing.

Dated the 15th day of February, 1937.
JENSEN & SON,
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London, W.C.2,
Chartered Patent Agents.

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FIG. 1.

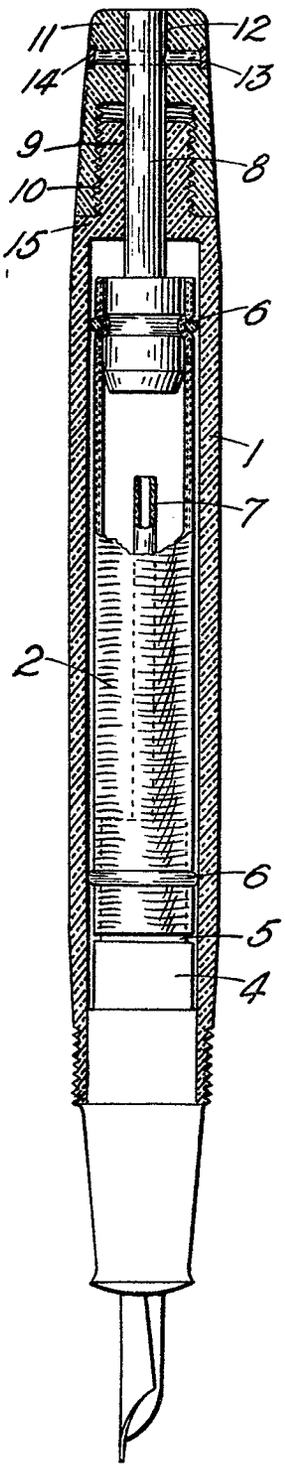


FIG. 2.

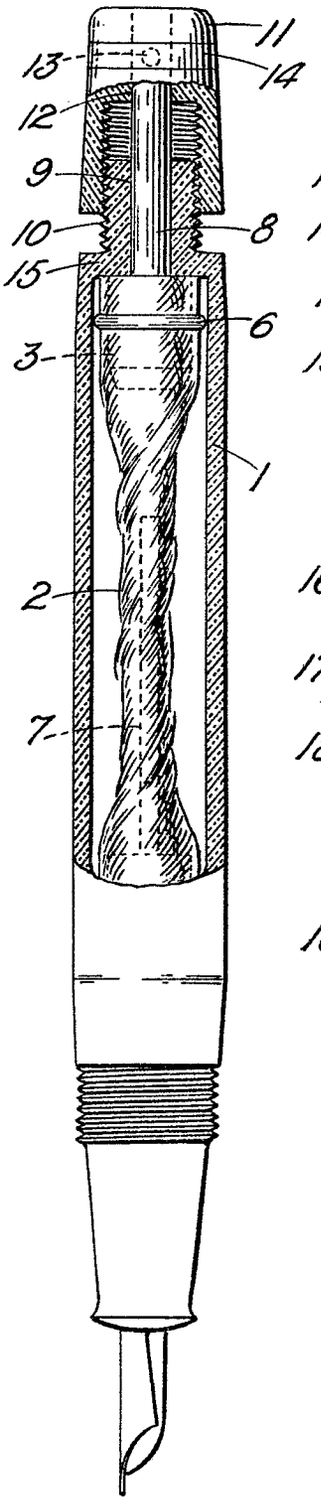
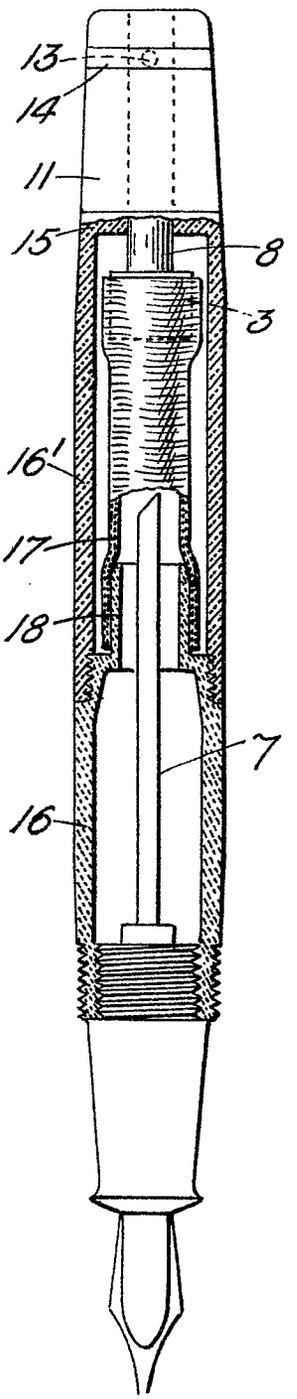


FIG. 3.



[This Drawing is a reproduction of the Original on a reduced scale.]

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