AMENDED SPECIFICATION.

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PATENT SPECIFICATION

269,614

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Complete Left: Oct. 18, 1926.

Complete Accepted: April 19, 1927.

PROVISIONAL SPECIFICATION.

Improvements in and relating to Devices for Filling Self-filling Fountain Pens.

We, EMANUEL FELDORF, Dane, of 28, Onslow Avenue, Richmond, Surrey, PETER ANDRESEN, Dane, of 22, Gloucester Road, Kingston, Surrey, and GERTRUDE ELLEN WADE, British, "Mayleigh", Petersham, Surrey, do hereby declare the nature of this invention to be as follows:—

The object of our invention is to enable a self-filling fountain pen to be filled without necessitating the pen being wiped after filling, and further to enable all the contents of the ink bottle to be used without having to refill the main bottle.

This invention consists of a receptacle made of vulcanite, glass or other suitable material. For average requirements this receptacle would consist of a tube about 2½ inches long, the upper end, and for about 1½ inches downward would be bored to about 7/8th of an inch. This bore would then taper off to a bore of not less than 3/8ths. The outside would correspond in shape to the inside bore.

The external diameter of the small end would be surrounded by a ring of cork or other suitable material, to enable it to fit into the neck or aperture of any ordinary bottle of ink. A round ball of glass, stone or other material of a size not less than about ½ an inch diameter, is then placed in the receptacle so that it rests on the small hole in that portion of the tube that tapers off from the larger to the smaller diameter, thus covering and sealing the small aperture.

We then insert in the larger bore of the receptacle, a bridge of very thin material about one inch in height and to exactly fit the main bore. The lower portion of this bridge is arched so that the ball is able to roll freely within the arch, and the two lower edges of the bridge rest on the beginning of the taper of the inside bore, the ball is thus prevented from being accidentally removed, the arch having to be first taken out.

This arch has for its objects—

First, to keep the ball from being accidentally removed,

Secondly, to act as a rest for the vulcanite section of the fountain pen when inserted for filling.

Thirdly, to prevent the nib of the pen when in the position for filling, touching the ball and removing same, it being necessary that the ball is not removed so long as the ink in the receptacle is required.

An ordinary cork is placed in the top end of the receptacle to seal same and is of a length so that when pressed home it just about meets the top edge of the bridge referred to.

The receptacle can now be placed in any bottle with a suitable sized neck to take a cork ring on lower or smaller end.

The bottle with receptacle fitted and cork in place is then turned upside down, the weight of the ball uncovers the small bore which is of sufficient diameter to allow the ink to pass freely downwards and the air upwards until the receptacle is full of ink, the air previously contained in the receptacle having passed upwards into the inverted bottle. By turning the bottle and receptacle into their normal position, the ball seals the small aperture and holds the ink in the receptacle. Remove the cork, the ink is then on a level with the top of the bridge and the pen can be filled without the necessity of wiping.

A most important feature of this invention is that it is equally suitable for large or small bottle, or even a 20 gallon jar, the alteration necessary being the thickness of the cork ring at the lower end, so that the receptacle can be marketed entirely separate from the

[Price 1/-]

supply of ink or ink bottles; being made in standard sizes to fit standard bottles now on the market.

Another important feature is that every drop of ink contained in the bottle can be passed into the receptacle and at least one half of the ink in the receptacle used in filling the self-filling pen, so that within the last few drops the whole contents of the bottle can be used.

The extreme cheapness of manufacture owing to the simplicity is a valuable feature, and its construction has been designed partly with this object in view, and that of being fitted to any ordinary glass or other ink bottles now on the market.

Dated this 14th day of December, 1925.

EM. FELDORF,
P. ANDRESEN,
G. E. WADE.

COMPLETE SPECIFICATION (AMENDED).

Improvements in and relating to Devices for Filling Self-filling Fountain Pens.

We, EMANUEL FELDORF (Danish nationality), of 28, Onslow Avenue, Richmond, in the County of Surrey, PETER ANDRESEN (Danish nationality), of 22, Gloucester Road, Kingston, in the County of Surrey, and (Mrs.) GERTRUDE ELLEN WADE (British nationality), of "Mayleigh", Petersham, in the County of Surrey, 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:—

The object of our invention is to enable a self-filling fountain pen to be filled without necessitating the pen being wiped after filling, and further to enable all the contents of the ink bottle to be used without having to refill the main bottle.

It has already been proposed to utilise an extension formed or plugged into the main ink bottle for the purpose of collecting or separating sufficient ink from the reservoir to fill the pen. With this object in view the filling receptacle is fed from the main reservoir through openings formed in a separating plug of such size that they will permit ink to flow from the reservoir into the filling receptacle when the bottle is inverted and swung or shaken, but will not permit the ink to return freely, so that once it enters the filling receptacle it is retained there.

According to our invention we increase the size of the hole in the separating plug to such a size that no capillary action takes place. In other words a free flow of ink is permitted. In order to trap or retain the ink in the filling chamber we insert a ball stopper or valve together with retaining bridge as set out more particularly below.

In the accompanying sheet of drawings Fig. 1 shows the reservoir bottle with filling chamber in place, Fig. 2 shows the bridge in plan, whilst Figs. 3, 4A and 4B show modifications of the bridge piece, and 5A and 5B modification of the stopper closing the filling receptacle.

The filling receptacle B is made of vulcanite, glass or other suitable material. For average requirements this receptacle would consist of a tube about 2½ inches long, the upper end of which for about 1½ inches downward would be bored to about 7/8ths of an inch as shown at *a*.

This bore would then taper off to a bore of not less than 3/8ths of an inch as shown at *d*. The outside would correspond in shape to the inside bore.

The external diameter of the small end is surrounded by a ring of cork or other suitable material C, to enable it to fit into the neck or aperture of any ordinary bottle of ink A. In the receptacle is then placed a round ball E of glass, stone or other material of a size not less than about ½ an inch diameter, so that it rests on the small hole *d* in that portion of the tube that tapers off from the larger to the smaller diameter thus covering and sealing the small aperture.

We then insert in the larger bore of the receptacle a bridge F of very thin material about one inch in height and to exactly fit the main bore. The ball is able to roll freely underneath the bridge as shown, but the distance between the lower part of the bridge and the top of the ball should not exceed about 1/8th of an inch.

This bridge has for its object:—

First, to keep the ball from being accidentally removed from the filling receptacle,

Secondly, to act as a rest for the vulcanite section of the fountain pen when inserted for filling,

Thirdly, to prevent the nib of the pen when in the position for filling, touching the ball and removing same, it being necessary that the ball is not removed so

long as the ink in the receptacle is required.

An ordinary cork G is placed in the top end of the receptacle to seal same, and is of a length so that when pressed home it just about meets the top edge of the bridge referred to.

The receptacle can now be placed in any bottle with a suitably sized neck to take the cork ring on lower or smaller end.

The bottle with receptacle fitted and cork in place is then turned upside down; the weight of the ball uncovers the small bore which is of sufficient diameter to allow the ink to pass freely downwards and the air upwards until the receptacle is full of ink, the air previously contained in the receptacle having passed upwards into the inverted bottle. By turning the bottle and receptacle into their normal position, the ball seals the small aperture and holds the ink in the receptacle. Remove the cork, the ink is then on a level with the top of the bridge and the pen can be filled without the necessity of wiping, the top of the bridge affording a convenient support for the section of the pen, allowing the nib only to enter the ink, thus keeping the section clean.

Instead of using a plain bridge F as shown in elevation in Fig. 1 and in plan in Fig. 2, a cruciform shape may be employed as shown in plan in Fig. 3. Alternatively, as shown in Figs. 4A and 4B, two sheets M, N may be cemented together so as to form a closed tube P for the entry of the nib only. This has the effect of slightly increasing the effective depth of ink inside the tube when the nib is inserted for filling, owing to the smaller channel and resulting capillary action.

Instead of using a cork G as shown in Fig. 1, a double screw stopper may be used as shown in Figs. 5A and 5B, T being the main screw stopper and V a smaller screw stopper closing an aperture in the upper part of T, which when open gives access to the fountain pen for filling without the necessity of removing T. This arrangement prevents any possible trouble arising from overflow of ink through raising the large cork G, as in Fig. 1.

An important feature of this invention is that it is equally suitable for large or small bottles, or even a 20 gallon jar, the alteration necessary being the thickness of the cork ring at the lower end, so that the receptacle can be marketed entirely separate from the supply of ink or ink bottles, being made in standard sizes to fit standard bottles now on the market.

Another important feature is that every drop of ink contained in the bottle can be passed into the receptacle and a large part of the ink in the receptacle used in filling the self-filling pen, so that within the last few drops the whole contents of the bottle can be used.

The extreme cheapness of manufacture owing to the simplicity is a valuable feature, and its construction has been designed partly with this object in view, and that of being fitted to any ordinary glass or other ink bottle now on the market.

We are aware that a ball stopper forming a one-way valve has been used in connection with non-refillable bottles, and also that a ball stopper without a bridge piece has been proposed to separate the contents of an inkstand into two portions, and we make no claim to these arrangements.

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. A filling receptacle for fountain pens of the kind described, characterized by the feature that the filling hole in the separating plug between the main reservoir and the filling chamber is of such a size that it allows a free flow of ink without any capillary retardation, in combination with a ball stopper or valve and a bridge piece substantially as described and illustrated in Figs. 1 and 2.

2. A filling device as set out in Claim 1, provided with an internal bridge piece of cruciform shape substantially as described and illustrated in Fig. 3.

3. A filling device as set out in Claim 1 provided with an internal bridge piece having a tubular aperture substantially as described and illustrated in Figs. 4A and 4B.

4. A filling device as set out in Claim 1 provided with a double screw stopper substantially as described and illustrated in Figs. 5A and 5B.

5. A filling device for self-filling fountain pens substantially as hereinbefore described, and illustrated in the accompanying drawings.

Dated the 15th day of October, 1926.

JOHN HINDLEY WALKER,
139, Dale Street, Liverpool,
Patent Agent for the Applicants.

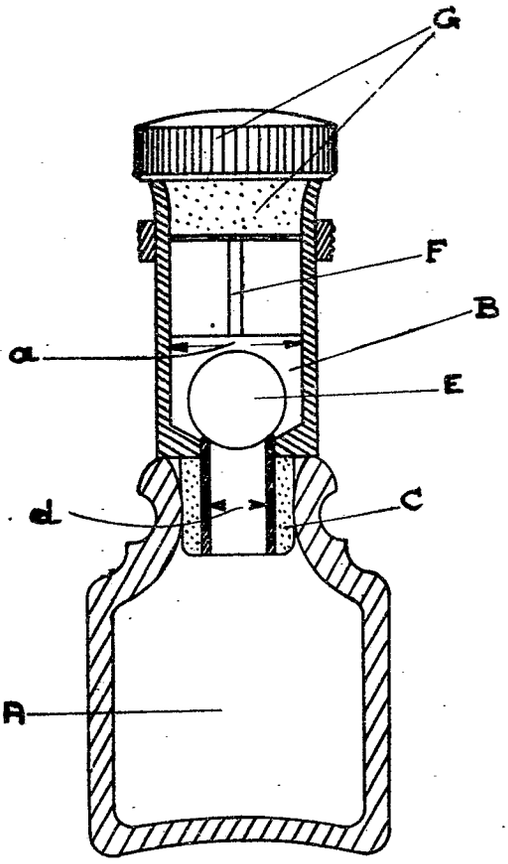

FIG 1

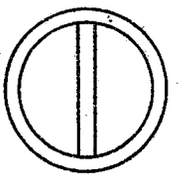

FIG 2

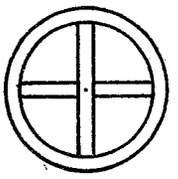

FIG 3

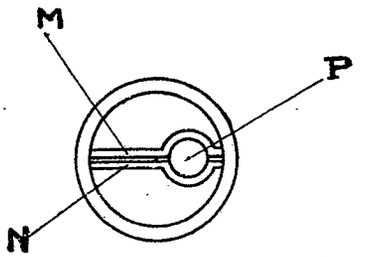

FIG 4A

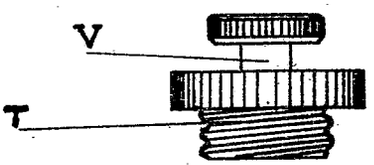

FIG 5A

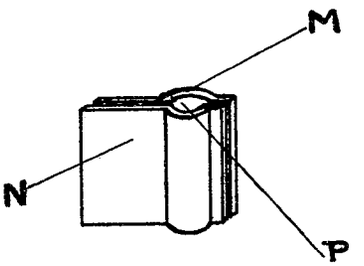

FIG 4B

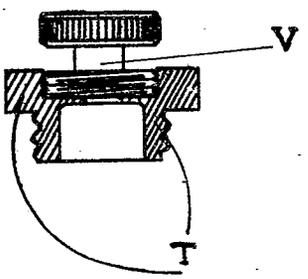

FIG 5B

Charles & Read Ltd. Photo Litho.