PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

Improvements in and relating to fountain pens

I, ERIC ERNEST SAMUEL WADE, a British Subject of The Lang Pen Company Limited, 13 Hope Street, Liverpool in the County of Lancashire, do hereby declare the nature of this invention to be as follows:—

This invention relates to sell-filling fountain pens with more especial reference to those in which, during the filling operation, compression of the rubber sac or reservoir is effected by the lateral pressure of a rigid presser bar moved by a lever pivoted in a slot or box in the side wall of the pen barrel.

Customarily, to facilitate manipulation of the lever in such pens it has been furnished with a flat tine or extension under which the thumb or finger nail can be readily inserted to lift the lever from its normal position in the barrel slot or box preparatory to the filling operation at the conclusion whereof the lever is returned to this position. Hitherto however, the lever has not been positively held in its normal closed position and there has always been the likelihood that the tine would be left projecting from the barrel with the result that the lever is liable to be inadvertently caught on the edge of the pocket or some other obstruction and the ink contents discharged from the pen.

The present invention has for its object to remove this disadvantage by providing means for holding the lever in its normal closed position until released preparatory to a filling operation.

In the improved self-filling fountain pen according to the present invention a self-locking lever is provided which includes a spring catch operative to hold the lever in its normal closed position until released.

Conveniently, the catch comprises a spring pressed ball or plunger under the lever tine or extension, such ball or plunger being adapted to engage the end wall of the lever slot or box, which end wall is undercut for the purpose of co-operating with the ball or plunger to hold the lever in its normal closed position and preferably with its external surface flush with that of the pen barrel.

In a preferred embodiment of the invention where the lever is made of channel section metal, a coil spring is housed in the channel and the pivot upon which the lever is mounted serves as a base or abutment for such spring.

The flange lips of the channel are bent inwardly in order to retain the spring in position and, to mount the ball, elongated slots may be cut in such flanges near the end of the lever having the tine or extension. Between these slotted flanges the ball of the catch is sprung into place when diametrically opposite lands on its surface engage in the slots and thus prevent it from being pushed out of the channel by the spring.

The end wall of the lever slot or box is undercut as aforementioned and on the lever being pressed to its normal closed position, the ball catch engages the undercut wall and prevents an inadvertent movement of the lever until it is forced upwardly by the positive engagement of some such member as the thumbnail under the tine.

Supplementary to or as an alternative to the slotted channel walls for holding the ball and preventing its being ejected from the lever housing by the spring, the same purpose may be achieved by turning in the ends of the channel flanges under the flat tine or extension for which the conventional nail groove may be furnished on the outer surface of the pen barrel.

Dated this 24th day of January, 1946.

O'DONNELL, LIVSEY & CO.,
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47, Victoria Street, London, S.W.1,
Agents for Applicant.

COMPLETE SPECIFICATION.

Improvements in and relating to fountain pens

I, ERIC ERNEST SAMUEL WADE, a British Subject of The Lang Pen Company Limited, 13 Hope Street, Liverpool 1, in the County of Lancashire, 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 self-filling fountain pens in which, during the filling operation, compression of the rubber sac or reservoir is effected by the lateral pressure of a rigid presser bar moved by a lever pivoted in a slot or box in the side wall of the pen barrel.

Customarily, to facilitate manipulation of the lever in pens of this character, such lever has been furnished with a flat tine or extension under which the thumb or finger nail can be readily inserted to lift the lever from its normal position in the barrel slot or box preparatory to the filling operation at the conclusion of which operation the lever is returned to this position. Hitherto, various proposals have been made to provide projections on the lever engaging the walls of the barrel slot or box with a view to positively holding the lever in its closed position, and the present invention has for its object to provide an improved lever construction and means for holding the lever in its normal closed position until released preparatory to a filling operation.

In the improved self-filling fountain pen according to the present invention a self-locking lever is provided which includes a spring ball or bolt catch operative to hold the lever in its normal closed position until released.

Conveniently, the catch comprises a spring pressed ball or plunger under the lever tine or extension, such ball or plunger being adapted to engage the end wall of the lever slot or box, which end wall is undercut for the purpose of cooperating with the ball or plunger to hold the lever in its normal closed position and preferably with its external surface flush with that of the pen barrel.

It will be appreciated that owing to the rolling and resilient action of the spring pressed ball on the end wall of the lever slot, frictional contact and wear is avoided and the locking device remains effective over long periods of use.

In a preferred embodiment of the invention where the lever is made of channel section metal, a coil spring is housed in the channel and the pivot upon which the lever is mounted serves as a base or abutment for such spring.

The flange lips of the channel are bent inwardly in order to retain the spring in position and, to mount the ball, the ends of the flanges under the tine are bent inwardly thereby preventing the ball being pushed out of the channel by the spring.

The end wall of the lever slot or box is undercut as aforementioned and on the lever being pressed to its normal closed position, the ball catch engages the undercut wall and prevents any inadvertent movement of the lever until it is forced upwardly by the positive engagement of some such member as the thumbnail under the tine.

The invention will be further described with reference to the accompanying drawings which illustrate the preferred embodiment of self-locking lever by way of example and in which

Fig. 1 is a part sectional view twice full size of a self-filling fountain pen with the improved lever raised during a filling operation,

Figs. 2 and 3 are respectively a sectional elevation and an underside view of the lever to a still larger scale,

Fig. 4 is an end view, while

Figs. 5 and 6 are respectively a plan view and side elevation partly in section of a box or frame which may be provided in conjunction with the improved lever.

Referring now to the drawings, the fountain pen illustrated in Fig. 1 is of conventional form having a tubular body or barrel 1 mounting a nib section 2 at its front end and housing a collapsible rubber sac 3 carried by the nib section in which are fitted a nib 4 and feed bar 5.

The barrel is slotted at 6 to take a lever 7 which is pivotted at 8 on a spring ring 9 located in a groove 10 formed for the purpose in the cylindrical wall of the barrel 1, the lever 7 having projecting claws 11 which engage a flanged presser bar 12. The presser bar 12 is of channel section so as to be effectively rigid and has inturned flanges at 13 underneath which the claws 11 of the lever 7 ride when it is actuated during a filling operation.

The lever 7 is formed with a tine 14 for its convenient manipulation which is further facilitated by a corresponding depression 15 in the surface of the barrel 1 under the tine when the lever is in the closed or normal position flush with the barrel.

To retain the lever in this position against inadvertent actuation, a spring

pressed ball catch 16 projects from the end of the lever under the tine 14 and co-operates with an abutment stop 17, the wall of which is undercut, at the end of the slot 6 in the barrel accommodating the lever.

Referring more particularly to Figs. 2 to 4, it will be seen that the lever is of channel section with side walls 19 and 20 which have inturned flanges at 21 and 22 respectively to form a housing for the ball 16 and its coil compression spring 23. The lever pivot ring 9 constitutes an abutment for the spring 23, a block or washer 24 being interposed in this embodiment as only a short spring is necessary owing to the limited movement of the ball when engaging the stop 17.

As will be seen more clearly from Fig. 4, to limit the outward movement of the ball 16 in its housing under the pressure of the spring, the ends of the lever side walls 19 and 20 and their flanges 21 and 22 are bent inwardly at 25 so as to engage the spherical surface of the ball while leaving a sufficient portion of it projecting to rollingly engage the abutment 17 and hold the lever in its normal closed position.

As an alternative method of retaining the ball 16, the side walls 19 and 20 may be slotted and between these slotted walls the ball is sprung into place when diametrically opposite lands on its surface engage in the slots and thus prevent it from being pushed out of the channel by the spring.

In place of the abutment 17 being formed integral with the pen barrel 1, a separate fitting may be furnished to constitute the abutment or stop engaged by the spring ball catch 16 and may comprise a rivet or wire bridging the lever slot 6 or a spring ring similar to 9 but of flat section located in an annular recess in the barrel.

As a further alternative, a metal yoke may run from the pivot ring 9 on each side of the lever 7 and may carry the abutment for engagement by the ball catch 16.

Where it is preferred to employ a boxed lever, the arrangement shown in Figs. 5 and 6 may be adopted where 26 is a sheet metal box or frame having a bearing 27 for the lever pivot and lips 28 which, after the box has been located in the barrel slot 6 are bent to the position shown so as to engage the barrel wall.

In this arrangement the abutment indicated at 29 is formed as an inward extension of the lip 28 of the box which lies under the lever tine 14, although as will be appreciated, such abutment may be constituted by a pin or rivet bridging the side walls of the box as described in the case of the ring mounted lever.

Furthermore, a spring bolt or plunger having a part spherical end may replace the ball 16 and the spring, instead of being at the end of the lever slot, may be positioned between the end of the plunger and the lever pivot.

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

1. A lever actuated sac self-filling fountain pen wherein the lever is rendered self-locking by a spring ball or bolt catch holding it in its normal closed position until released preparatory to a filling operation.

2. A lever actuated sac self-filling fountain pen according to the preceding claim wherein the catch comprises a spring pressed ball or plunger carried by the lever and adapted to engage an abutment in the lever slot provided for the purpose in the pen barrel.

3. A lever actuated sac self-filling pen according to either of the preceding claims wherein the lever is furnished with a tine or extension and the ball catch projects from the end of the lever under such tine to engage an abutment in the end of the lever slot.

4. A lever actuated sac self-filling pen according to any of the preceding claims wherein the lever is of channel section and the walls of the channel are flanged to provide a housing for the ball catch and spring.

5. A lever actuated sac self-filling pen according to the preceding claim wherein the pivot upon which the lever is mounted serves as a base or abutment for the spring of the ball catch.

6. A lever actuated sac self-filling pen according to any of the preceding claims wherein a sheet metal box is provided for the lever and the end wall or lip of the box extends inwardly for engagement with the ball catch.

7. A lever actuated sac self-filling pen with a self-locking lever constructed and adapted to operate substantially as described with reference to the accompanying drawings.

Dated this 24th day of January, 1947.
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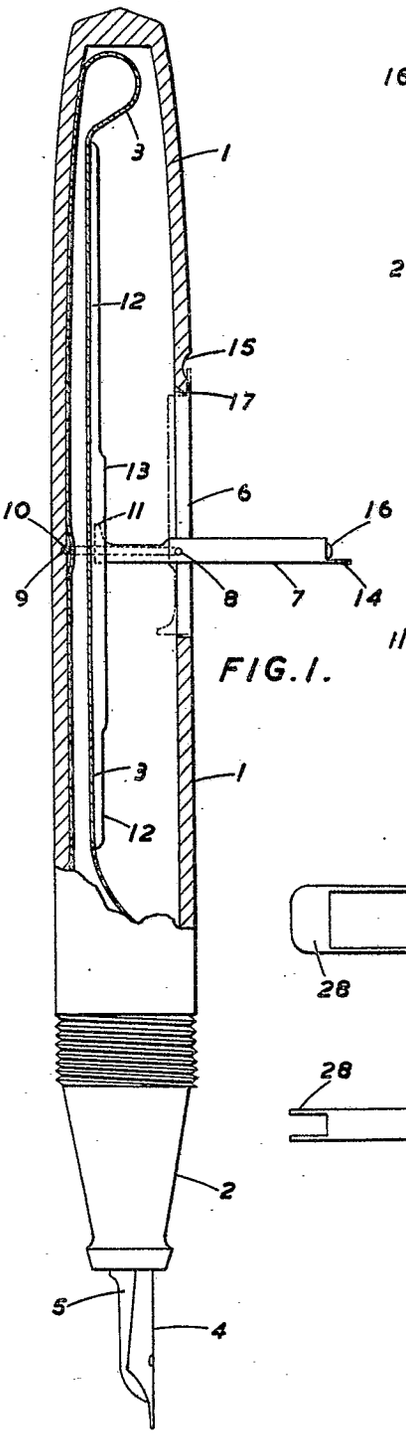

FIG. 1.

FIG. 2.

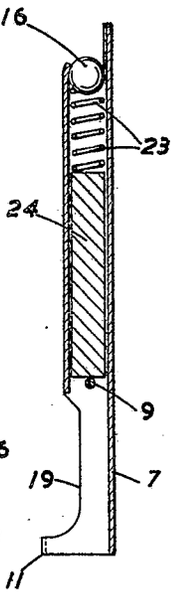

FIG. 3.

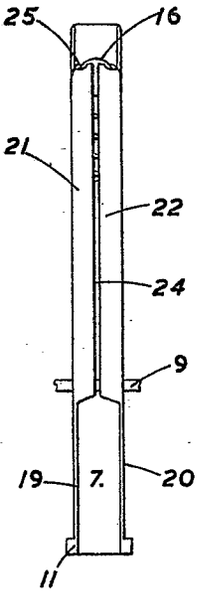

FIG. 4.

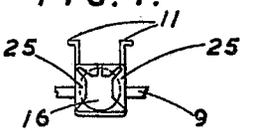

FIG. 5.

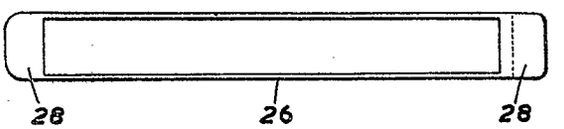

FIG. 6.