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Date of Application, 23rd Mar., 1910.

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PROVISIONAL SPECIFICATION.

Improvements in or connected with "Self-filling" Reservoir Pens.

We, HARRY CLEMENT JOHNSON, of 13, Hope Street, Liverpool, in the County of Lancaster, Jeweller, and ERNEST MACAULEY WADE, of 13, Hope Street, Liverpool, in the County of Lancaster, Manufacturer, do hereby declare the nature of this invention to be as follows:—

5 This invention has reference to reservoir pens, and more particularly to that kind of such pen in which the reservoir for containing the ink is adapted to be filled or charged by a liquid induction or forcing means, as a plunger within it, and such plunger is actuated by a readily attachable and detachable actuating means; and the primary object of this invention is to provide improvements in
10 connection with such pen by which the actuation of the plunger is rendered simple, and the device or means used also simple, and a pen of the character referred to, generally improved.

In the following description of pen of the kind referred to, the improvements hereunder are comprised.

15 Within the pen, that is, in the reservoir, there is provided a plunger or piston which is adapted to be moved up and down in it, and when moved up—after having been first moved down by the actuating means—draws up the ink through the nib holding portion.

20 The actuating means consists of a bar or rod with the means on its end adapted to engage the piston or plunger end when at the upper end of the stroke; whilst the body or holding portion of the pen is provided with a sheath, that is, an aperture parallel with the body of the pen, which is adapted to receive the said actuating rod or bar and hold it under normal conditions. Generally, the engaging end will be uppermost.

25 Thus, according to this invention, the body or holding portion of the pen is made to act as a carrier or holder for the plunger or piston operating means, as well as serving as the reservoir or ink container. In use, the engaging end of the actuating bar or rod can be taken hold of, and the rod withdrawn from the sheath; and then the engaging end be made to engage with the plunger or piston, whereupon the plunger can be pushed down and pulled up, in which stroke the
30 ink is drawn in and the reservoir filled. After this, it—the actuating rod or bar—is disengaged from the plunger, and then inserted in the sheath or aperture.

In one form, the actuating means may consist of a flat and thin strip or bar—either plain or ribbed or irregular—having at its end a knob or projection; whilst the outer end of the plunger head has a hole or recess in it extending
35 laterally through it, and a narrow gap extending between such hole at the outer end, so that the knob of the actuating device can be inserted in the hole of the plunger head, and when so inserted, the engagement is effected and the action specified can be made.

40 In some cases, the outer end of the plunger head having the engaging portion, will normally lie in a part in the upper end of the body; and this body part will also have an aperture in it corresponding with the apertures in the plunger head; and when inserting the actuating means, the engaging part of it will have to pass through the aperture in the body end before inserting it in and engaging

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the plunger head; these two sets of apertures being coincident when the plunger or piston is in its normal position.

In some cases, the sheath or aperture for the actuating device may be formed in a vulcanite body of the reservoir; or it may be formed within a metal sheath, or tube, or fitting on same. 5

The engaging device and means of the actuating rod or device, and plunger, may, instead of being a knob or projection, be of a screw or bayonet or equivalent kind.

In some cases, the upper end of the pen in which the piston lies, may be adapted to hold the pen cap, and may be formed in the body or screwed into it. 10

Dated the 22nd day of March, 1910.

E. R. ROYSTON & Co.,
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Tower Building, Water Street, Liverpool, and
265, Strand, London, W.C. 15

COMPLETE SPECIFICATION.

Improvements in or connected with "Self-filling" Reservoir Pens.

We, HARRY CLEMENT JOHNSON, of 13, Hope Street, Liverpool, in the County of Lancaster, Jeweller, and ERNEST MACAULEY WADE, of 13, Hope Street, Liverpool, in the County of Lancaster, Manufacturer, do hereby declare the nature 20 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 has reference to reservoir pens, and more particularly to that kind of such pen in which the reservoir for containing the ink is adapted to be filled or charged by a liquid induction or forcing means, as a plunger within it, 25 and such plunger is actuated by a readily attachable and detachable actuating means; and the primary object of this invention is to provide improvements in connection with such pen by which the actuation of the plunger is rendered simple, and the device or means used also simple, and a pen of the character referred to, generally improved. 30

In the following description of pen of the kind referred to, the improvements hereunder are comprised.

Within the pen, that is, in the reservoir, there is provided a plunger or piston which is adapted to be moved up and down in it, and when moved up—after having been first moved down by the actuating means—draws up the ink through 35 the nib holding portion.

The actuating means consists of a bar or rod with the means on its end adapted to engage the piston or plunger end when at the upper end of the stroke; whilst the body portion of the pen is provided with a sheath, that is an aperture parallel with it, which is adapted to receive the said actuating rod 40 or bar and hold it under normal conditions.

Thus, according to this invention, the body or holding portion of the pen is made to act as a carrier or holder for the plunger or piston operating means, as well as serving as the reservoir or ink container.

In some cases, the sheath or aperture for the actuating device may be formed 45 in the vulcanite body of the reservoir; or it may be formed within a metal sheath or tube on same, or a fitting on same.

Referring now to the drawing in which this invention is illustrated, Figure 1 is a longitudinal section of pen illustrating the improvements; and Figures 2 and 3 are outside end view, and cross section of the pen, respectively. 50

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Figure 4 is a view showing the piston detached from the body, and its actuating device.

In Figure 5, which is a longitudinal elevation partly in section illustrating the characteristics of this invention applied to a fitting of the pen body; and Figure 6 is a view of the actuating device.

Referring to the drawing, *a* represents the reservoir or body portion of the pen, *b* the nib portion, *c* the piston or plunger, *d* a plug at the upper end of the pen body, and *e* the actuating device.

The actuating device *e*, shown in Figure 4, is introduced through the end plug *d*, and in the case shown consists of a thin and flat flexible strip, or bar, having at its one end, *viz.* the end held by the fingers in using it a knob or projection *e'*.

The sheath consists of an aperture *i* parallel with and extending down the body of the pen; and in Figure 1 this aperture is formed between the outer portion of the pen body *a*, and an inner tube *f*, the inside surface of the part *a* being slightly recessed to make a groove of a size and form to receive the flat strip or bar *e*; and the head *e'* of this bar lies in a gap formed by cutting away the one side of the head of the plug *d*, so as to expose the upper end of the sheath groove *i*; and the head *e'* is made so as to practically fill this gap, so that when it is in position, the head will externally, be of the general contour of the pen at this end.

The engaging end of the actuating strip or bar *e*, shown in Figure 4, is in the form of a hook, the end of which is adapted to engage with a hole *e²* in the end or short stem *c'* of the piston *c*; and the plug *d* is provided with a slot *d'* extending between the centre portion, and its edge, and of a width adapted to receive the strip or bar *e*; it being in the case shown, disposed at right angles to the plane of the sheath groove *i*, and the flattened portion of the plug against which the head *h* of the bar lies, when it is sheathed.

The head or stem *c'* of the plunger *c*, normally lies within the plug *d*, which forms or closes the upper end of the body *a*; and when the plunger is pulled out by the bar *e*, the engaging hole or part of the plunger head *c'*, and the slot or aperture *d'*, through which the strip *e* is introduced, will be parallel, and the piston will lie normally in this position; and the planes in which these two apertures *e²* and *d'* lie being coincident when the plunger is in its normal position, the engaging end of the strip or bar *e*, when inserted, will surely engage the engaging head *c'* of the plunger *c*.

In action, the attachment end of the bar or strip *e* is introduced into the cut or slot *d'* of the plug *d*, and by moving it in the place of the slot, its hook end will readily enter the hole *e²* of the piston stem *c'* and engage it; and when so engaged the plunger can be pushed down, and afterwards pulled up, in which stroke the ink is drawn in through the nib end of the pen, which is dipped into it, and the reservoir portion *a* is filled. After this it—the actuating bar or strip *e*—is disengaged from the plunger *c*, and then sheathed in the sheath *i*.

In some cases, instead of the upper end of the pen in which the piston head *c'* normally lies, being in the form of a plug *d* screwed into the body end, it may be formed on the body.

The engaging device or part of the piston actuating rod or device, and that of the piston, instead of being of the kind herein shown, may be of a screw, bayonet, or other suitable known kind of engaging and disengaging device.

In the case shown in Figure 1 of the drawing, the sheath or aperture *i* for the piston actuating device, is formed in the vulcanite body reservoir portion *a*; but in some cases it may be formed within a metal sheath or tube on same, or a fitting on same; and in Figure 5, the fitting of the body in which it is provided, consists of the tubular cap *k*, which is placed over the upper end of the body when writing with the pen, and over the nib when the pen is not in use.

In this latter case, as shown in Figure 5, the sheath groove *i* is formed on the interior of the cap *k*, and the upper end which is in the form of a screwed in

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plug, is gapped or cut away at the side, precisely as has been described with reference to the pen or construction shown in Figure 1.

The engaging end of the actuating rod e in the construction shown in Figure 6, is provided with a gap e^2 , smaller at the entrance part than in the upper part of it; and the jaw so formed is adapted to engage with a pin e^3 5 passing through a slot in the piston stem c^1 ; it being so arranged and formed, that it requires some pressure to pass the end of the bar e over the pin, that is it requires to be "sprung" over the pin; and when so sprung over the engagement is such, that when the bar e is pulled up, after having pushed down the piston, it—the piston—will be pulled up with it, and when the stem e is in its 10 normal position, in the plug d , and stopped by it, by pulling at the bar e , it will release itself.

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 15 what we claim is:—

1. A self-filling pen of the kind having within it a movable plunger adapted to be actuated by a readily attachable and detachable means, wherein the body of the reservoir, or a fitting on or connected with same, is adapted to serve as a sheath for the said plunger or piston operating means, said sheath being eccentric 20 to the bore of the reservoir part within which the piston or plunger works; substantially as set forth.

2. A self-filling pen of the kind having within it a movable plunger adapted to be actuated by a readily attachable and detachable means, the sheath 25 formed in the wall of the pen body a , and parallel with the ink reservoir thereof; or, alternately, in the cap fitting k thereof; substantially as set forth.

3. In or connected with a self-filling pen of the kind having within it a moveable plunger adapted to be actuated by a readily attachable and detachable means, a flat flexible strip or bar, as e , having its inner end adapted to engage with a part of the piston, and a narrow slot as d^1 in the upper end of the body or a plug therein, through which said strip or bar passes, and operating in con- 30 nection with the piston as described; substantially as set forth.

4. A self-filling pen of the kind having within it a movable plunger adapted to be actuated by a readily attachable and detachable means, a plug d , fitting therein, having a narrow slot, as d^1 , and constructed, and adapted to serve as and 35 for the purposes set forth.

5. A self-filling reservoir pen having parts constructed and arranged, and adapted to operate, as set forth with reference to Figures 1, 2, 3, and Figure 4, respectively of the drawings.

Dated this 22nd day of September, 1910.

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

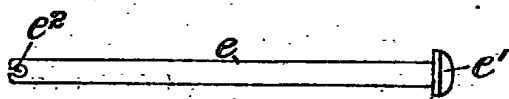
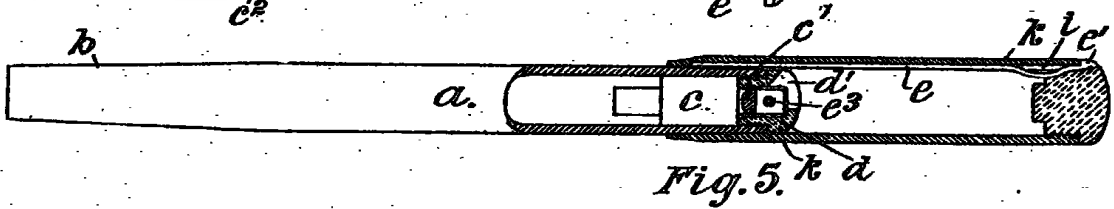
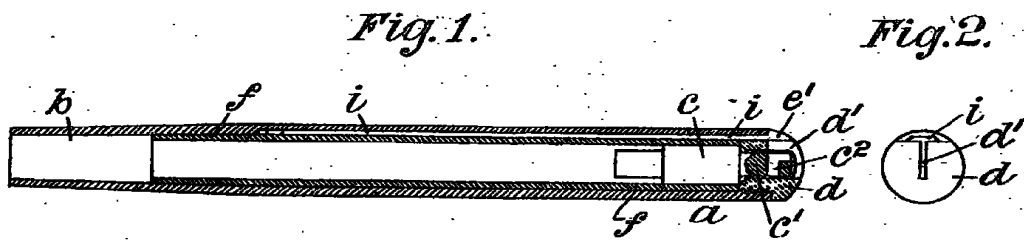


Fig. 6.

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