

N<sup>o</sup> 4787



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PROVISIONAL SPECIFICATION.

Improvements in Fountain Pens

GEORGE SWEETSER of 25, Camden Hill Road Upper Norwood in the County of London, Mechanical Engineer, do hereby declare the nature of this invention to be as follows:—

5 The object of this invention is to provide a fountain pen that shall be readily filled without a separate filler. A pen made according to this invention is provided with a piston, the piston rod of which works loosely in the piston, and has an enlargement, so forming a valve seated in the piston and opening inwards or towards the rear end of the pen, the other end of the piston rod extends through the rear end of the pen and is fitted with a milled head. When 10 the pen is to be filled the milled head is drawn rearward, the air in the rear portion of the reservoir passing through the valve in the piston, and upon the return stroke a vacuum is formed behind the piston. To prevent the piston following, by the pressure of the atmosphere, in pulling the valve off its seating in the piston to admit ink to the reservoir, the piston engages a hook or wedges 15 into the rear end of the pen carrier, formed preferably by boring up the pen carrier and slitting it longitudinally, so forming a spring ring. Sometimes the aforesaid valve is rendered automatic in its action by increasing its area to nearly the diameter of the piston, so that the pressure of the atmosphere will lift it off its seating, upon relieving the pressure of the hand upon the milled 20 head of the piston rod; and sometimes a spring is inserted between the piston and the valve to help lift it off. Preferably the fore end of the piston rod is so formed as to act as a valve in the well known manner to shut off the supply of ink to the nib when the pen is not in use.

25 Dated this 27th day of February 1907.

GEORGE SWEETSER.

COMPLETE SPECIFICATION.

“Improvements in Fountain Pens.”

I, GEORGE SWEETSER, of 25 Camden Hill Road, Upper Norwood, in the County of London, Mechanical Engineer, do hereby declare the nature of this invention 30 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 pens of the class which are filled without a separate filler by creating a vacuum in them.

35 A pen made according to this invention is shown in sectional elevation at Figure 1. It is as usual provided with a piston *a* (shown separately at Figure 2) the piston rod *b* (Figure 3) of which works loosely in the piston as shown in the

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*Sweetser's Improvements in Fountain Pens.*

local section on the line 5—5 Figure 1, and has an enlargement  $b^1$ , so forming a valve (the seat of which is the piston) opening inwards or towards the rear end of the pen. The other end of the piston rod  $b$  extends through the rear end of the pen and is fitted with a milled head  $b^2$ . When the pen is to be filled the milled head is drawn rearward carrying the piston  $a$  with it, the air in the rear portion of the reservoir passing through the piston. Upon the return stroke the enlargement  $b^1$  comes against the piston closing the passage through it and a vacuum is formed behind the piston. To fill the reservoir the nib or point is dipped into the inkstand and the valve formed by the enlargement  $b^1$  and the piston  $a$  is opened by pulling the head  $b^2$  rearwards whilst the piston  $a$  is held stationary as hereinafter described whereupon the ink is sucked by the vacuum into the reservoir.

According to this invention in order to prevent the piston following the piston rod, by pressure of the atmosphere, in pulling the valve off its seating in the piston to admit ink to the reservoir, the piston engages a hook, or wedges into the rear end of the pen carrier. Such hooks  $c^1$  are as shown formed preferably by boring up the pen carrier  $c$  and slitting it longitudinally, so forming a spring ring as shown in section at Figure 4. The valve may be rendered automatic in its action by increasing its area as shown to nearly the diameter of the piston, so that when the piston is held by the hooks  $c^1$  as above described the pressure of the atmosphere will lift the valve off its seating, upon relieving the pressure of the hand upon the milled head of the piston rod. A spring may also be inserted between the piston and the valve to help lift it off. Preferably the fore end  $b^3$  of the piston rod is so formed as to act as a valve in the well known manner to shut off the supply of ink to the nib when the pen is not in use. The hooks  $c^1$  are so formed that the piston can be released from them by pulling the piston rod  $b$ .

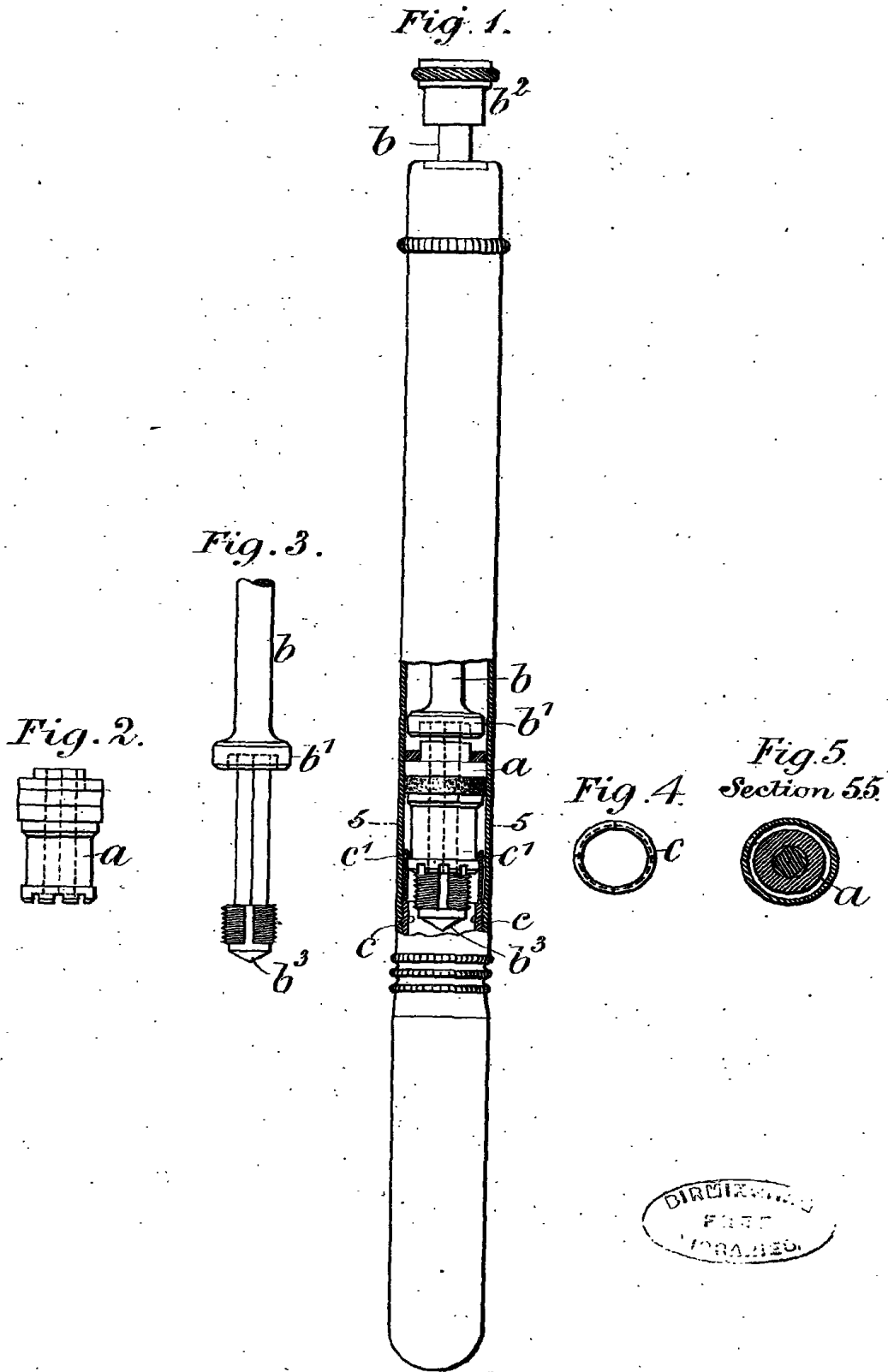
Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is;—

1. The combination with pens of the class above referred to of means for retaining the piston at the end of its stroke substantially as described.
2. Fountain pens substantially as described and illustrated in the drawings.

Dated this 22nd day of August 1907.

GEORGE SWEETSER.

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



DIMENSIONS  
FIRST  
DRAWING