

N^o 8860



A.D. 1901

Date of Application, 30th Apr., 1901—Accepted, 1st June, 1901

COMPLETE SPECIFICATION.

Improvements in Stylographic Pens.

We, WILLIAM WELLS SANFORD, of 65 North 18th Street, in the City of East Orange, State of New Jersey, U.S.A., Manufacturer, and FREDERICK DODDRIDGE BENNETT, of 17 West Main Street, in the City of Freehold State of New Jersey, U.S.A., Manufacturer, do hereby declare the nature of this invention and in what
5 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 stylographic pens.

It is an especial purpose of the invention to produce such a construction and arrangement of the ink reservoir and the head as to permit of assembling all the
10 working parts of the pen on or in the head and to dispense with the air tube now commonly used in stylographic pens, and which extends from the head up through the reservoir, thereby much reducing the capacity of the said reservoir to contain ink. By thus assembling all the said working parts of the pen on or
15 in the head and dispensing with the air tube we greatly increase the capacity of the reservoir to contain ink, and correspondingly reduce the frequency with which the reservoir needs to be refilled.

It is a further purpose of the invention to permit of a certain movement of the stylus or needle longitudinally in the head in such a manner that the needle shall always write smoothly and without scratching, and which movement of the
20 needle shall also permit the user to write with the stylograph inclined as if an ordinary pen-holder, as well as with it upright, and this movement of the needle is effected automatically without the use of springs by weighting the said needle as hereinafter described.

It is a further purpose of the invention to so construct the conical tip, the
25 section and the tube, which constitute parts of the aforesaid head, that the necessary supply of air enters the reservoir by way of said tip, section and tube, and in connection with the supply of air we so construct the said parts that a bubble cannot prevent the proper feed of ink to the needle and point of discharge. By our construction and arrangement of parts we insure a regular and even feed of
30 the ink, and overcome the tendency to sudden spurting, which is a defect of other stylographic pens.

Referring to the drawings which accompany the specification to aid the description, and which drawings are on a larger scale than are the actual pens;

Fig. 1 is a sectional elevation of a stylographic pen constructed according to
35 this invention;

Fig. 2 is a cross section on the line 2—2 of Fig. 1;

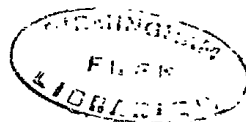
Fig. 3 is a side elevation;

Fig. 4 a front elevation and

Fig. 5 a plan view of the tube in which is hung the weight of the needle.
40

Into the lower, open end of the ink reservoir 1, which is permanently closed at the upper end, is threaded the section 3, which is preferably shaped as shown, with the outwardly flaring lower edge 7, to catch a drop of ink should any leak through the air-channel 8, (which is however a very unusual occurrence), and with the internal shoulders 6 and 9, against which respectively abut the end of

[Price 8d.]



Sunford and Bennett's Improvements in Stylographic Pens.

the tube 4 and the conical tip 5, said tube and tip fitting tightly into said section, and the said shoulders 6 and 9 thus serving to accurately position the said tube and tip in the said section.

On the inside of said section 3 is cut a small longitudinal groove 8, the upper end of which registers with a small hole 10 through said conical tip, and said groove 8 and hole 10 form the air inlet, the air pressing therethrough into the interior of the tube 4 and thence into the reservoir 1. We may also cut a similar longitudinal groove on the outside of said tip 5, (Figs. 1 and 2), and we may of course have only the groove in the said tip 5, dispensing with that in the section 3, or have only that in said section 3, dispensing with the groove in said tip 5.

Said tube 4 is preferably partly cut away on one side, as at 13 in Fig. 3, and slotted as at 14 in Fig. 4, whereby the fitting of the said tube 4 tightly into the section 2 is facilitated, and the cutting away of said tube, as at 13, also prevents a bubble from stopping the flow of the ink to the point, should a bubble form on the end of said tube 4. For even if a bubble should form there, there will be ink below said bubble to supply the point, and the bubble will be soon broken by the draft of the ink. Small diametrically opposite holes or slots 12 in said tube 4 support the ends of the cross wire 16 by which the weight 18 of the needle 19 is suspended, and said holes 12 are of a little greater dimension, parallel to the length of the pen, than is the diameter of said wire 16 and so as to permit of a little endwise motion of said weight 18 and needle 19, the amount of said motion being just sufficient to permit said needle to draw in flush with the outer end of the needle tube 20, which tube is firmly fixed in the outer end of said conical tip 5.

Said needle 19, which is firmly fixed in the lower end of said weight 18, and said needle tube 20 are preferably of platinum, said cross-wire 16 of silver, and said weight 18 of any metal which ink will not corrode.

When the pen is not in use the point is protected by the cap 22, which has the usual air-hole 23; when the pen is in use said cap 22 is fitted on the boss 24 in the usual manner.

To fill the reservoir 1, which, it will be apparent, is hermetically closed at its upper end, the section 2 is unscrewed from the reservoir, carrying with it the tube 4 and conical tip 5, together with the weight 18 and needle 19. After the reservoir is filled the section is screwed back to place in said reservoir, and it will be evident from the foregoing description that all the working parts are assembled in or on the head, leaving practically the entire capacity of said reservoir to contain ink, so that the quantity of ink contained is greatly increased over that of any other stylographic pen of the same size.

The weight 18 and needle 19 being movable longitudinally, insure smooth writing, whether the pen is held at an inclination or upright, for in the latter case the needle 19 pushes upward until its end is just flush with the end of the needle tube 20, and in the former case the weight projects the said needle 19 a little beyond said tube 20, to enable the pen to write when inclined.

The said needle 19 never drawing far enough inwardly to be out of said tube 20 always closes the needle-like aperture through said tube 20 sufficiently to prevent evaporation or leakage of the ink.

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. The combination in a stylographic pen of an ink reservoir and a head on which are assembled all the working parts of the pen, whereby the whole interior of said reservoir is left free for ink, substantially as described.

2. The combination in a stylographic pen, of an ink reservoir, a head and a needle adapted to have a slight longitudinal movement in said head, substantially as described.

3. The combination in a stylographic pen, of an ink reservoir, a head and a

Sanford and Bennett's Improvements in Stylographic Pens.

weighted needle adapted to have a slight longitudinal movement in said head, substantially as described.

4. The combination in a stylographic pen, of an ink reservoir, a head, a tube in said pen, and a weighted needle suspended in said tube and adapted to have a slight longitudinal movement, substantially as described.

5. The combination in a stylographic pen, of a head, a tube therein cut away on one side and communicating with the outside atmosphere, and a needle, substantially as described.

6. The combination in a stylographic pen, of an ink reservoir and a head on which the working parts of the pen are assembled, and an air channel through said head to the interior of said reservoir, substantially as described.

7. The combination in a stylographic pen of an ink reservoir hermetically closed at one end, of a needle longitudinally movable at the other end of said reservoir, substantially as described.

8. The combination in a stylographic pen of an ink reservoir, closed at the upper end and communicating at its lower end to atmosphere, a head in said lower end, and a tip connected therewith and provided with an opening to connect the said reservoir with atmosphere, substantially as described.

9. In a stylographic pen, a head comprising a tube 4 in which is movably suspended a weighted needle, a section 3 and a conical tip 5 in the outer end of said section, and an air channel 8 and hole 10 communicating with the interior of said tube 4, substantially as described.

10. In a stylographic pen, a needle 19 and weight 18 having a slight longitudinal motion in said pen, substantially as described.

11. In a stylographic pen, the tube 4 provided with the cutaway portion 13, and the slot 14, and serving as the support for the needle, substantially as described.

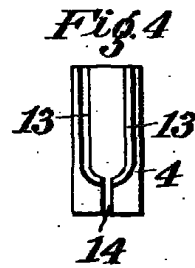
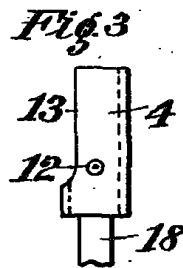
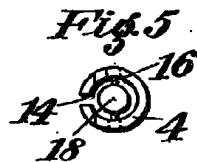
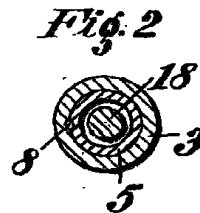
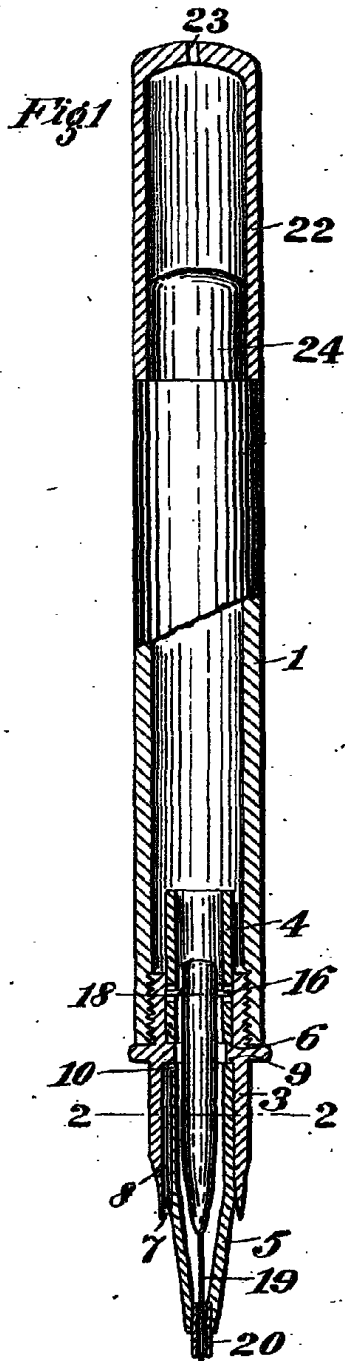
12. In a stylographic pen, the section 3 provided with the shoulders 3 and 6 and the air channel 8, substantially as described.

30 Dated this 29th. day of April, 1901.

CRUIKSHANK & FAIRWEATHER.

Chartered Patent Agents,

62 Saint Vincent Street, Glasgow. Agents for the Applicants.



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