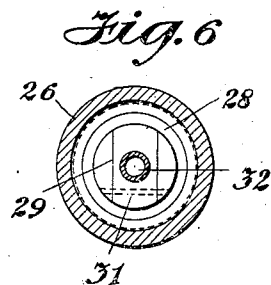
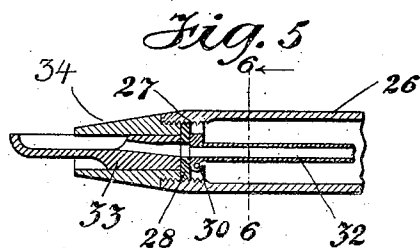
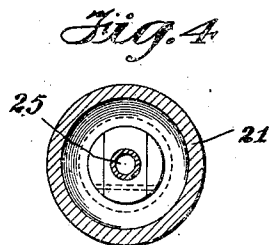
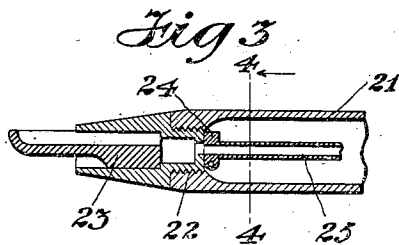
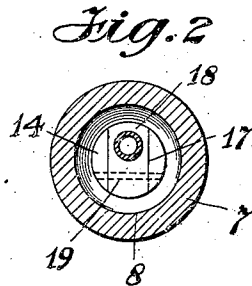
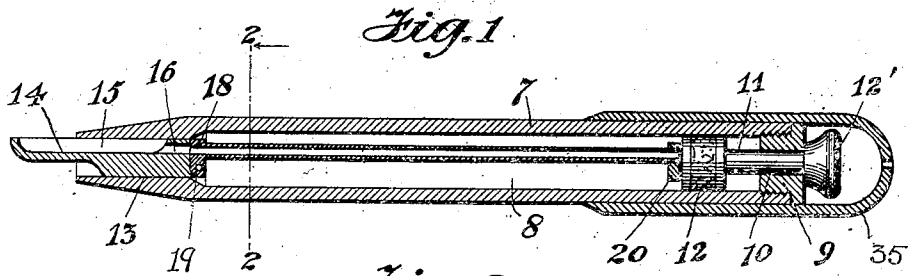


F. M. ASHLEY.
 FOUNTAIN PEN.
 APPLICATION FILED DEC. 3, 1906

978,829.

Patented Dec. 20, 1910.



Witnesses
Chas. Clagett
M. Miller

Inventor
Frank M. Ashley

UNITED STATES PATENT OFFICE.

FRANK M. ASHLEY, OF NEW YORK, N. Y.

FOUNTAIN-PEN.

978,829.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed December 3, 1906. Serial No. 345,980.

To all whom it may concern:

Be it known that I, FRANK M. ASHLEY, a citizen of the United States, residing at West Sixth street and Davey avenue, Coney Island, New York city, New York, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

My invention relates to fountain pens of that type known as "self fillers" and the object of my invention is to provide a pen of this character which will be simple and durable, and composed of hard rubber parts in a considerable degree, since this material has been found to be the most desirable for this purpose, but the parts may be made of other suitable material if preferred. In filling pens of this character, it is necessary that the air contained in the reservoir should be expelled in order that ink may be introduced therein, and it is desirable that the pen should hold as large a quantity of ink as possible and therefore it is necessary to reduce the bulk of the mechanism which is within the reservoir, to the smallest possible dimensions.

Referring to the drawings which form a part of this specification, Figure 1, is a longitudinal sectional view through the casing and valve mechanism of the pen. Fig. 2, is a cross sectional view on line 2-2 of Fig. 1. Fig. 3, is a fragmental view of a modified form of valve connection and pen section holder. Fig. 4, is a cross sectional view on line 4-4 of Fig. 3. Fig. 5, is another modified form of construction of the arrangement of the valve within the casing, and Fig. 6, is a cross sectional view of same on line 6-6 of Fig. 5.

No. 7 indicates the casing of the pen which has a reservoir 8 therein, and 9 is a plug attached to the casing, and having an opening 10 in which is located a piston rod 11 which is attached to a piston 12, which piston closely fits the interior of the casing 7 in sliding engagement therewith. The piston rod projects beyond the rear end of the casing and ends in a knob 12'.

The casing 7 is provided with a cylindrical opening 13 in which is located the pen-section 14, which is constructed in the usual manner so far as relates to holding the pen point to the casing, and which is provided with an ink duct 15 and a passage from the rear end of said duct to the rear end of the

pen section which is indicated by 16, and which terminates in a vertical groove 17 (see Fig. 2.) and located in said groove is a hinged valve 18 secured in position by the pin 19 which serves as the hinge-pin.

Attached to the valve 18 and extending to the rear end of the casing, is a small tube, the bore of which is in line with the passage 16 when the valve is in its closed position, and in open communication therewith, and said tube is provided at its rear end with a cam or eccentric 20 which is adjusted to regulate the degree of opening of the valve 18 according to the inner diameter of the casing 7, by rotating the same on the tube, and the weight of said eccentric assists in operating the valve as will be more fully explained hereinafter. The piston is arranged to abut the rear end of the tube and close the opening therein to prevent escape of ink there-through when the pen is carried in the pocket of the wearer.

Referring to Fig. 3, the casing 21 is provided with a thread 22 and the section-holder 23 is also provided with a thread to engage therewith and the valve 24 is held in the same manner as described for Fig. 1, except that the bore of the tube 25 is located in the center of the casing in Fig. 3, whereas in Fig. 1, the tube is connected above the center of the valve in order to provide a greater range of movement therefor.

In Fig. 1, the section holder is made integral with the casing whereas in Fig. 3, it is made separate, but in both cases the diameter of the valve and parts is such that they may be passed into the reservoir and removed therefrom without being detached from the valve holding parts.

In Fig. 3, the pen-section may be moved longitudinally without moving the valve in adjusting the pen point, and there is no possibility of moving the pen section by abutment with the piston.

Referring to Fig. 5, the casing 26 is provided with a thread 27 into which is screwed a disk 28 which is provided with a groove 29, (see Fig. 6.) similar to the groove 17 of Fig. 2, and having the valve 30 fitted therein and hinged on a hinge-pin 31, and provided with a tube 32 as before described. After the disk 28 is screwed into position carrying with it the valve 30, the section-holder 33 is screwed into position and the pen-section 34 is placed in the section holder

and may be adjusted therein without moving the valve 30. This arrangement of parts allows of a larger valve than can be used in the other forms, which in small sizes of pens is a desirable feature.

The construction is so simple that further description of the parts is not thought necessary.

To fill the reservoir, the cap 35 is removed and the opening 13 submerged in ink, when by reciprocating the piston, ink will be drawn in on the outward stroke of the piston and air expelled through the tube on the inward stroke, the number of strokes to fill the reservoir depending on the degree of movement of the piston and size of the reservoir, as will be clearly understood by those skilled in the art.

I prefer, in filling this pen, to hold the casing so that the valve will be normally closed by gravity, so that the suction of the piston will open the valve and the valve close by gravity immediately thereafter so that no ink will escape therethrough on the inward stroke of the piston. In order to operate easily in this position, the diameter of the passage 16 should be somewhat larger than that of the passage through the tube 25 to permit the incoming ink to exert a pressure on the face of the valve 18 which will assist in opening same, since the friction of the ink in passing through said tube serves to act as a pull to swing the valve open. The pen may also be easily filled by holding it sideways, the incoming ink passing partly through the valve and partly through the tube, and the valve swinging shut on the in-stroke of the piston, the ink being forced against the back of the valve and closing same, and the air being expelled through the tube to the atmosphere, or it may be filled with the top side up, the valve being open by gravity permitting the ink to flow into the reservoir on the out stroke of the piston, and on the in stroke thereof, the ink will be forced against the back of the valve and swing it closed, since the ink in the tube serves to close this exit for the moment and the force of the ink is placed on the back of the valve to close same.

Any other form of pump may be used if preferred to the form shown, without departing from the broad features of novelty set forth.

It will be noted that there are no springs or parts likely to be deranged in this construction and that the construction permits of a large supply of ink in the reservoir and easy filling means.

I do not wish to be limited to the exact detail of construction shown but reserve the right to such changes as come within the scope of my claims as hereinafter presented.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is,

1. In combination, a casing, a pen-section having an ink duct, a check valve provided with a tube having a passage therethrough communicating with said ink duct, and means cooperating with said valve for introducing ink into said casing and expelling air therefrom.

2. In combination, a casing, a pen-section, a check valve constructed to swing open and admit ink into said casing and close to trap ink therein, a tube extending from said valve to the rear end of said casing, and means for expelling air from within said casing through said tube to the atmosphere.

3. In combination, a casing, a pen-section connected therewith, a swing check valve having a tube connected thereto, and means for drawing ink through said valve into said casing and expelling the air therefrom.

4. In combination, a casing, a pen-section, a swing valve having a tube extending therefrom toward the rear end of the casing, and means cooperating with said valve for introducing ink into said casing therethrough.

5. In combination, a casing, a pen-section, a swing check valve having a tube cooperating therewith and extending from said valve toward the rear end of said casing, and means cooperating with said valve for holding same in its closed position.

6. In combination, a casing, a pen-section, a swing check valve having a tube cooperating therewith and extending from said valve toward one end of said casing, means by which said valve may be operated, and adjustable means for limiting the degree of movement of said valve.

7. In combination, a casing, a pen-section held in cooperative relation with said casing, a swing check valve held in cooperative relation with said pen-section and adapted to be removed from the casing therewith, a tube extending from said valve toward the rear end of said casing, and means cooperating with said valve to trap ink within said casing and expel air therefrom.

8. In combination, a casing, a pen-section, a swing check valve connected to said pen-section, a tube connected to said valve, and means cooperating with said valve to trap ink in said casing.

9. In combination, a casing, a pen section, a valve, a tube connected to said valve, and means for changing the air pressure in said casing and thereby operating said valve.

10. In combination, a casing, a valve, a tube connected to said valve, and a pump, the operation of which serves to operate said valve.

11. In combination, a casing, a pen-section having an ink duct, a check valve having a tube in open communication with the ink duct at one end and with the interior

of the casing at its opposite end which extends from the front nearly to the rear end of the casing, and means for drawing ink into said casing and expelling air therefrom.

In testimony whereof, I, FRANK M. ASHLEY have signed my name to this specifica-

tion in the presence of two subscribing witnesses.

FRANK M. ASHLEY.

Witnesses:

H. J. DORGELOH,
N. C. MILLER.