

D. J. LA FRANCE AND W. P. DE WITT.

FOUNTAIN PEN.

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1,340,277.

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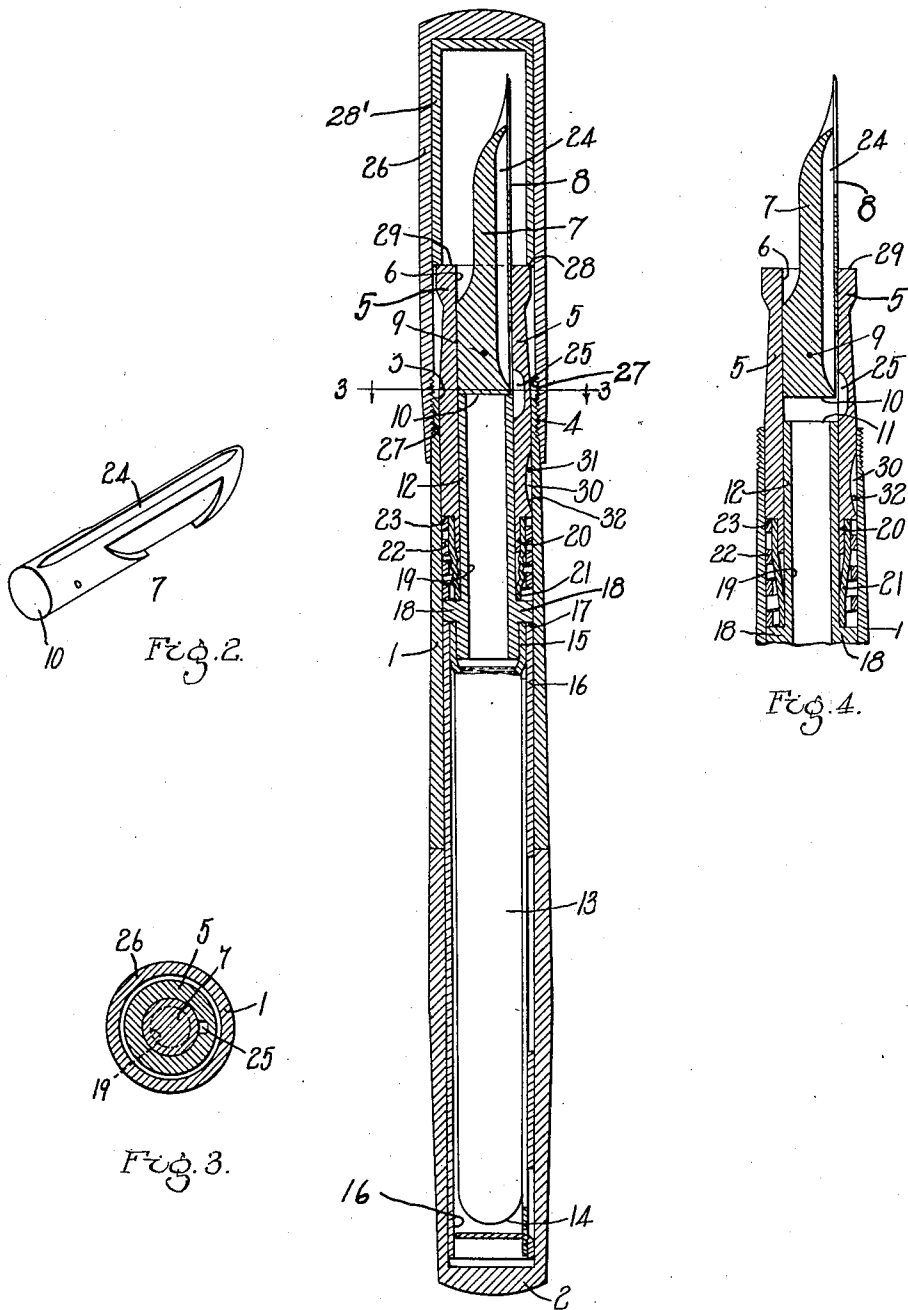


FIG. 1.

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UNITED STATES PATENT OFFICE.

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NERSHIP COMPOSED OF DAVID J. LA FRANCE AND WILLIAM P. DE WITT.

FOUNTAIN-PEN.

1,340,277.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, DAVID J. LA FRANCE and WILLIAM P. DE WITT, citizens of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to improvements in fountain pens, the object thereof being to provide a simple, safe and reliable pen and one having provision for feeding ink directly to the feed section thereof so as to eliminate all possibility of skipping in the feeding of the ink to the pen during its use and for positively shutting off the supply of ink when the pen is not in use so that it may be carried in any position without danger of leaking.

Another object of the invention is to provide means for firmly holding the pen secured within the casing when the ink feed is open to eliminate any movement of the pen and pen section relatively to the casing when the same is being used.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims.

Referring to the drawings:

Figure 1 is a longitudinal section of a pen embodying our invention, illustrating the same closed and in carrying position.

Fig. 2 is a detail perspective view of the feed section of the pen.

Fig. 3 is a transverse section taken on the line 3-3 of Fig. 1.

Fig. 4 is a longitudinal section of the portion of the pen illustrated in Fig. 1, illustrating the pen with the parts thereof in writing condition.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 1 is a pen casing which is closed at the end 2 and open at the end 3, said end 3 being externally screw threaded at 4. A pen section 5 is arranged within said casing adjacent to the open end 3 thereof and has limited movement longitudinally of said casing. The pen section 5 has a central cylindrical bore 6 extending the entire length thereof and within the outer end of said pen section is arranged a feed section 7 and a pen 8, said feed section being secured

in said pen section preferably by means of a transverse pin 9.

The inner end 10 of the feed section 7 is preferably squared off and is constructed and arranged to seat against the end 11 of a feed tube 12 arranged in telescopic relation to said pen section 5 within the bore 6 thereof. An ink reservoir 13 is arranged within the closed end portion of said casing 1, said ink reservoir in the present embodiment consisting of a flexible rubber sack closed at the innermost end 14, the other end 15 being open and secured to the inner end of the feed tube 12 in such a manner as to prevent any leakage of ink through the joined portion of said sack and said feed tube.

The sack 13 forms a part of self feeding means for the pen, which self feeding means is but one of the many types such as may be used in connection with the features of the pen embodying this invention.

Forming part of the pen filling instrumentalities is a sleeve 16, preferably of metal, which substantially fits the interior of the casing 1, one end of said sleeve terminating adjacent to the closed end 2 of said casing while the opposite end 17 thereof forms a shoulder against which is seated an annular shoulder 18 formed upon said feed tube 12, said annular shoulder 18 being adapted to substantially fit the bore of said casing. The feed tube 12 has a central cylindrical bore 19 extending from end to end thereof which constitutes a duct for conducting ink from the ink reservoir 13 to the feed section 7.

As hereinbefore stated, the feed tube 12 has telescopic engagement with the interior of said pen section 5 and is substantially of the same diameter as the portion of the feed section 7 which is secured within said pen section, thus making a reasonably tight sliding fit between said feed tube and said pen section. The inner end of the pen section 5 is substantially reduced in diameter at 20, and this reduced end has secured thereto a sleeve 21 of flexible material, which sleeve extends inwardly to the annular shoulder 18 and is secured to the feed tube 12 adjacent to said annular shoulder, thus absolutely preventing the escape of any ink from said feed tube to the exterior thereof and to the exterior of said pen section.

A spring 22 is interposed between a shoulder 23 formed by the reducing of said pen section 5 and the outer face of the annular shoulder 18, said spring being arranged exteriorly of the flexible sleeve 21 and thus insulated from direct contact with the ink. The purpose of the spring 22 is to exert a yielding pressure against the inner end of said pen section to maintain the feed ducts of the pen open.

The feed section 7 is provided with a groove or ink channel 24 on the side thereof adjacent to the pen 8, said channel extending longitudinally of said feed section and terminating adjacent to or at a slight distance from the end of said feed section which seats against said tube. By terminating the inner end of said channel 24 at a distance from the inner squared end 10 of said feed section, there will be no communication between said channel 24 and the interior of the feed tube 12 when said feed section is seated against the outer end of said feed tube, as illustrated in Fig. 1, and at this time the supply of ink to the pen or feed section will be entirely cut off.

Formed in one side of the pen section 5 adjacent to the inner terminal point of the groove 24 and disposed in alinement with said groove is a recess 25 constituting a by-pass or duct by means of which ink may be conducted from the interior of the pen section 5 adjacent to the squared end 10 of said feed section to the groove 24 formed therein, but only at a time when the inner end 10 of the feed section 7 is removed from its seat at the adjacent or abutting portion of the feed tube 12, as shown in Fig. 4.

A cap 26 is arranged to fit over the protruding end of the pen section 5, said cap having an internally screw threaded portion 27 which is adapted to engage the externally screw threaded portion 4 of the casing 1. The cap 26 has a shoulder 28 formed therein at a distance from the screw threaded end of said cap, said shoulder being preferably the end of a sleeve 28' which is fixed in said cap and is adapted to be moved into engagement with the outer end 29 of said pen section so that upon the rotation of the cap 26 in one direction, the cooperation of the screw threads 27 with the screw threads 4 will force the pen section longitudinally into said casing, depressing the spring 22 and causing the squared face 10 of the feed section to positively seat against the adjacent end 11 of the feed tube 12, thereby completely cutting off the supply of ink to the groove 24 of said feed section.

The shoulder 28, seating against the end 29 of the pen section, will likewise positively close communication between the interior of the cap 26 containing the pen 8 and the portion of said cap surrounding said pen section so that there will be absolutely no

chance of the escape of any ink from the pen or feed section and by tightly sealing the chamber containing said pen and said feed section, the ink remaining in the groove 24 will be prevented from drying up for a considerable length of time.

To prevent the rotation of the pen section 5 relatively to the casing 1 and also to limit the outward movement of said pen section under the influence of the spring 22, said pen section is recessed at 30, and a pin 31 is inserted in the wall of said casing through said recess and engages the flattened face thereof, thus allowing a limited longitudinal movement of said pen section, but preventing any rotary movement thereof.

The inner end of said recess extends outwardly to form an inclined face 32 which is forced by the spring 22, when the cap 26 is removed from the casing, against the pin 31, thus wedging the pen section 5 firmly against the opposite side of the casing 1 and maintaining said pen section rigid while in its writing position.

It will be seen that with the ink ducts hereinbefore described the ink will have a direct passage from the reservoir through the center of the feed tube to the end of the feed section 7, and the bore of said feed section being large and straight the ink will readily flow from the reservoir to said feed section without danger of interruption by clogging and from this point, upon the opening of the passage by the movement of the end of the feed section 7 away from the end of said tube, a clear passage will be provided through the by-pass or duct 25 to the groove 24 in said feed section, thus insuring a continuous supply of ink to the pen. Furthermore, the simplicity and small number of parts embodying the construction herein described enable the pen to be easily taken apart and cleaned when necessary.

Having thus described our invention, what we claim and desire by Letters Patent to secure is:

1. A fountain pen having, in combination, a casing, a pen section movable longitudinally of said casing, a feed section secured in said pen section and provided with an ink channel terminating adjacent to the inner end of said feed section, a feed tube arranged in telescopic and substantially coaxial relation with said pen section, said feed section being arranged to seat against the end of said feed tube to close said tube, said pen section having a duct formed at one side thereof in alinement with said ink channel, adapted to provide communication between said channel and the interior of said pen section at the end of said feed section, means for moving said feed section away from said feed tube to open said tube, and a cap having screw threaded engagement with

said casing, adapted to engage said pen section and positively seat said feed section against said feed tube, whereby said tube will be closed.

5 2. A fountain pen having, in combination, a casing, a pen section movable longitudinally of said casing, a feed section secured in said pen section and provided with an ink channel terminating adjacent to the inner
10 end of said feed section, a feed tube, the end of said feed tube constituting a seat for said feed section, said pen section having a duct formed therein in alinement with said ink channel, adapted to provide communication
15 between said channel and the interior of said pen section at the end of said feed section, means for moving said feed section away from said feed tube to open said tube, and a cap having screw threaded engagement
20 with said casing, adapted to engage said pen section and positively seat said feed section against said feed tube, whereby said tube will be closed.

25 3. A fountain pen having, in combination, a casing, a pen section movable longitudinally of said casing, a feed section secured in said pen section and provided with an ink channel terminating adjacent to the inner end of said feed section, a feed tube,
30 the end of said tube constituting a seat for said feed section, means for providing communication between said ink channel and the interior of said pen section at the end of said feed section, means for yieldingly moving said feed section away from its seat to open said feed tube, and a cap having screw threaded engagement with said casing,
35 adapted to engage said pen section and positively seat said feed section against said feed tube, whereby said tube will be closed.

40 4. A fountain pen having, in combination, a casing, a pen section movable longitudinally of said casing, a feed section secured in said pen section and provided with an ink channel terminating adjacent to the inner end of said feed section, an ink reservoir, a feed tube having telescopic engagement with said pen section, adapted to provide communication between said reservoir and the interior of said pen section adjacent to the inner end of said feed section, the end of said tube constituting a seat for said feed section, said pen section having an ink duct formed at one side thereof, adapted to provide communication between said ink channel and the interior of said pen section adjacent to the inner end of said feed section, means for moving said feed section away from its seat to open said tube and provide communication between said tube and said channel, and means for positively moving said feed section against its seat to close said tube.

5 5. In a fountain pen, a casing, a seat in said casing, a pen section having a sub-

stantially cylindrical bore extending entirely therethrough, a feed section fastened in said pen section, said feed section having an ink channel extending along one side thereof and terminating at a slight distance
70 from the inner end of said feed section, said pen section having a by-pass formed in its inner wall adapted to provide communication between said ink channel and the bore of said pen section adjacent to the inner end
75 of said feed section and said seat and means to move the inner end of said feed section against said seat, whereby said communication will be closed.

6. A fountain pen having, in combination, a casing, a pen section arranged within and movable longitudinally of said casing, an ink reservoir, means for feeding ink from said reservoir to said pen section, adapted to be opened and closed by the
85 movements of said pen section longitudinally of said casing, and means to exert lateral pressure on said pen section for holding said pen section rigid in said casing when said ink feeding means are open.

7. A fountain pen having, in combination, a casing, a pen section arranged within and movable longitudinally of said casing, an ink reservoir, means for feeding ink from said reservoir to said pen section, adapted to be opened and closed by the movements of said pen section longitudinally of said casing, means for holding said pen section rigid in said casing when said ink feeding means are open, said means including a pin disposed transversely of said casing, and an inclined surface formed upon said pen section, adapted to be moved into engagement with said transverse pin when said ink feeding means are open.

8. A fountain pen having, in combination, a casing, a pen section arranged within and movable longitudinally of said casing, a spring adapted to move said pen section in one direction, means for preventing the rotation of said pen section relatively to said casing and for holding said pen section rigid in said casing, said means including a recess formed in one side of said pen section, one end of said recess terminating in an inclined surface, and a pin disposed transversely of said casing within said recess, adapted to be engaged by said inclined surface under the action of said spring to force said pen section against the opposite wall of said casing.

9. A fountain pen having, in combination, a casing, a pen section arranged within and movable longitudinally of said casing, said pen section having a central cylindrical bore extending the length thereof, a feed section secured in said pen section and provided with an ink channel terminating adjacent to the inner end of said feed section, a feed tube arranged in telescopic and substan-

tially coaxial relation with said pen section, said feed section being arranged to seat against the end of said feed tube to close said tube, means for providing communication between said ink channel and the end of said feed tube when said tube is open, a spring interposed between said pen section and said tube, adapted to yieldingly move said feed section away from said tube to open said tube, and a flexible sleeve interposed between said feed tube inside of said spring, adapted to prevent the ink from contacting with said spring.

10. A fountain pen having, in combination, a casing, a pen section arranged within and movable longitudinally of said casing, said pen section having a central cylindrical bore extending the length thereof, a feed tube arranged in telescopic relation with said pen section within said cylindrical bore, said tube having a shoulder adapted to seat in said casing, means carried by said pen section, adapted to seat against the end of said tube to shut off the supply of ink, a spring interposed between said pen section and said shoulder, adapted to exert a yielding pressure upon said pen section to open said tube, and a flexible sleeve interposed between said pen section and said tube within said spring, adapted to prevent ink from contacting with said spring.

11. A fountain pen having, in combination, a casing, a pen section movable longitudinally of said casing, a reservoir, a feed tube arranged in said casing having a central bore adapted to provide communication between said reservoir and said pen section, and means operated by said pen section, adapted to open and close said feed tube, a flexible sleeve open at its opposite ends, one end of said flexible sleeve forming a liquid tight joint with the lower end of said pen section, the other end of said sleeve forming a liquid tight joint with said feed tube.

12. A fountain pen having, in combination, a casing, a pen section movable longitudinally of said casing, a reservoir, a feed tube arranged in said casing having a central bore adapted to provide communication between said reservoir and said pen section, and means operated by said pen section, adapted to open and close said feed tube, a flexible sleeve open at its opposite ends, one end of said flexible sleeve forming a liquid tight joint with the lower end of said pen section, the other end of said sleeve forming a liquid tight joint with said feed tube, and a spring encircling said flexible tube and

bearing at one end against said pen section and at the other end against said feed tube and operating to move said pen section outwardly in said casing.

13. A fountain pen having, in combination, a casing, a pen section movable longitudinally of said casing, a reservoir, a feed tube fast to said casing having a free central bore extending throughout its entire length and adapted to provide communication between said reservoir and said pen section, and means operated by said pen section adapted to contact with the outer end of said feed tube and alternately open and close the same.

14. In a fountain pen, a pen section having a bore extending therethrough, a feed section secured in said pen section, said feed section having a channel extending along one side thereof and terminating adjacent to the inner end of said feed section, said pen section having a by-pass in its inner wall, the inner end of said feed section terminating between the opposite ends of said by-pass, whereby said by-pass forms a channel of communication between said channel and the bore of said pen section.

15. In a fountain pen, a pen section having a bore, a feed section secured in said pen section, said feed section having a channel extending along one side thereof, said pen section having a by-pass in its inner wall opening into said bore, the inner end of said channel terminating between the opposite ends of said by-pass, whereby said by-pass forms a channel of communication between said channel and the bore of said pen section.

16. In a fountain pen, a casing, a pen section having a bore extending therethrough, a feed section secured in said pen section, said feed section having a channel extending along one side thereof and terminating adjacent to the inner end of said feed section, said pen section having a by-pass in its inner wall, the inner end of said feed section terminating between the opposite ends of said by-pass, whereby said by-pass forms a channel of communication between said channel and the bore of said pen section.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

DAVID J. LA FRANCE.
WILLIAM P. DE WITT.

Witnesses:

CHARLES S. GOODING,
SYDNEY E. TAFT.