

March 14, 1950

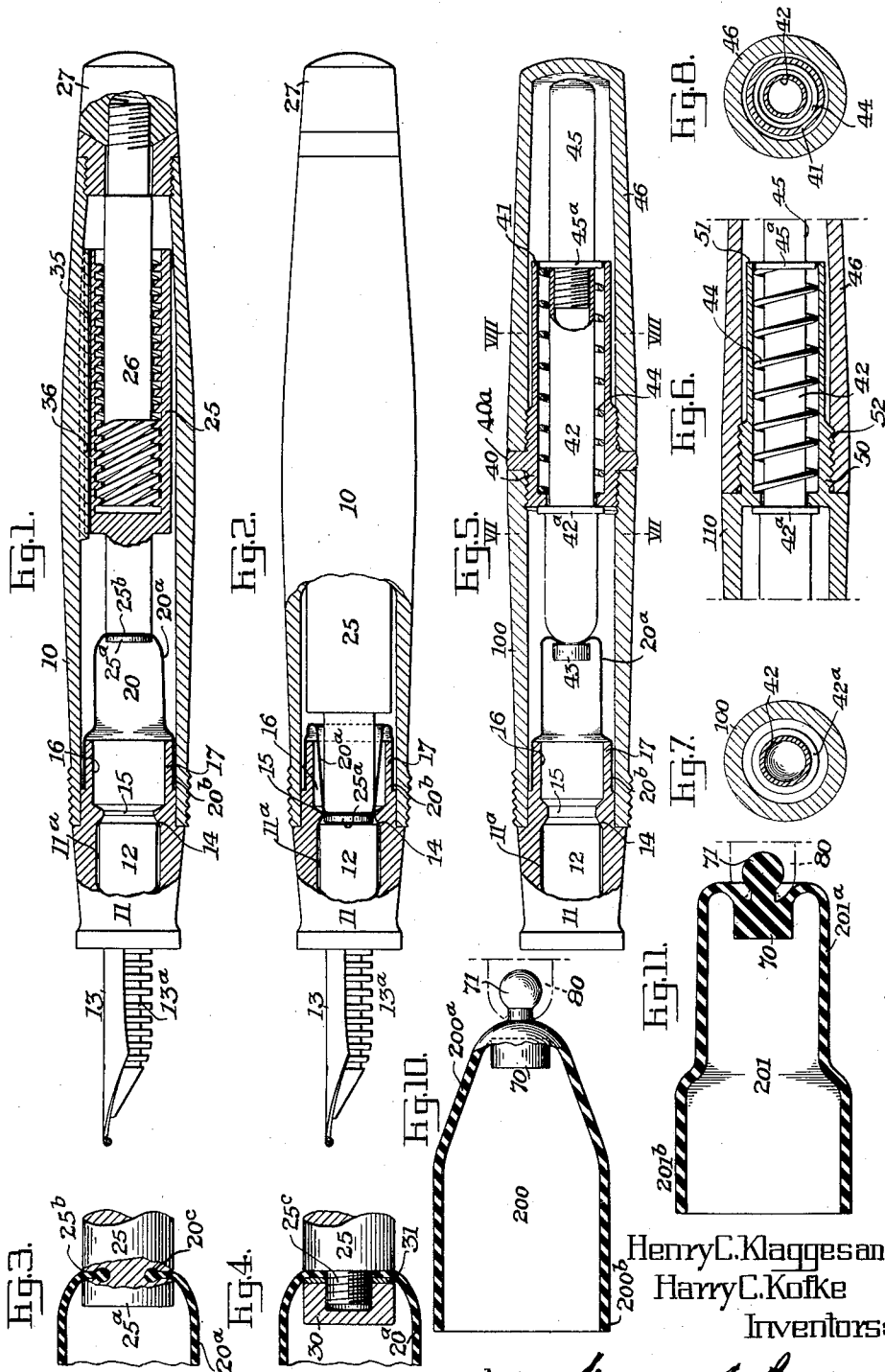
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2,500,833

FOUNTAIN PEN

Filed Oct. 20, 1944

2 Sheets-Sheet 1



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# UNITED STATES PATENT OFFICE

2,500,833

## FOUNTAIN PEN

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Application October 20, 1944, Serial No. 559,514

18 Claims. (Cl. 120—47)

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Our invention relates to writing implements of the type or character of fountain pens, and to simple and efficient means for supplying the same with ink for writing purposes.

One object of our invention is to provide simple and efficient pumping means that will displace air when operated in one direction and will draw in ink when operated in another direction.

A further object of our invention is to provide an ink sac which, in connection with a bore portion of the pen section, constitutes the entire ink reservoir; which reservoir may be substantially filled with ink by a single stroke of mechanism operatively connected with the ink sac.

A further object of our invention is to provide a relatively short ink sac, which may be molded into a more or less special shape from rubber or similar elastic material, and so constructed and/or arranged that a portion of the same may be telescoped longitudinally within another portion thereof to displace substantially all of the air contained within said sac and then retracted to permit ink to enter and substantially fill the entire space formerly containing air.

A further object of our invention is to provide simple and efficient means for operating the ink sac in both directions; preferably by a single stroke in each direction.

A further object of our invention is to provide operating means having or being associated with a plug element disposed internally of the ink sac and designed to enter a bore portion of the pen section so as to effect substantially complete displacement of air therefrom and insure that the sac and the pen section—together constituting the sole reservoir—shall be filled with a maximum amount of ink.

A further object of our invention is to provide screw mechanism for imparting reciprocative movement to the ink sac.

A further object of our invention is to provide means for telescoping the ink sac in the form of a longitudinally reciprocable plunger so proportioned and arranged that a single stroke of the same toward the nib end of the writing implement will be sufficient to completely telescope or collapse the ink sac and cause the plug element disposed within the same to enter a bore portion of the pen section and effect substantially complete displacement of air within the same as well as that within the ink sac so that when the plunger is retracted, a supply of ink will substantially fill the ink sac as well as

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the bore portion of the pen section. A coiled spring may be employed to return the plunger to its initial position and the shell or casing of the writing implement—the barrel, for instance—may be provided with a removable cap sleeve whereby access to the operating stem of the plunger may be gained.

A further object of our invention is to provide lever-operated means directly accessible externally of the shell or casing of the writing implement for effecting reciprocative movement of a plunger designed to telescope or collapse the ink sac.

A further object of our invention is to provide operating mechanism for the ink sac of such a character that it as well as the ink sac may be inserted in the shell or casing of the writing implement and removed therefrom as a complete assembly or entity.

A further object of our invention is to provide the plug element disposed internally of the ink sac and designed to enter a bore portion of the pen section as an integral part of such ink sac.

And a still further object of our invention is to provide a separate plug element arranged to enter a bore portion of the pen section and to employ such separate plug element as cooperative means in attaching the ink sac to the plunger of the operating mechanism.

These and other features of our invention are more fully set forth hereinafter; reference being had to the accompanying drawings, more or less diagrammatic in character, in which:

Figure 1 is a longitudinal sectional view of a writing implement of the fountain pen type equipped with filling means within the scope of our invention and showing one form of operating mechanism therefor.

Fig. 2 is a similar view, partly in section, showing portions of the structure illustrated in Fig. 1 in another position.

Figs. 3 and 4 are fragmentary views in section and on a larger scale illustrating details of construction within the scope of our invention.

Fig. 5 is a longitudinal sectional view, similar to Fig. 1, illustrating another form of fountain pen structure and another form of operating mechanism designed to effect the telescoping of the ink sac in a filling operation.

Fig. 6 is a fragmentary sectional view illustrating a further modification in fountain pen construction.

Figs. 7 and 8 are cross sectional views on the lines VII—VII and VIII—VIII, Fig. 5.

Fig. 9 is a longitudinal sectional view, similar to Figs. 1 and 5, illustrating a form of lever-operated mechanism within the scope of our invention for telescoping the ink sac.

Figs. 10, 11 and 12 are enlarged sectional views of forms of ink sacs within the scope of our invention.

Figs. 13 and 14 are fragmentary sectional views on a larger scale illustrating another form of ink sac and its relation to the pen section within the scope of our invention; Fig. 13 showing the ink sac in its normal position and functioning as an ink reservoir when the pen is in use, and Fig. 14 showing the ink sac in its telescoped condition preliminary to a filling operation, and

Fig. 15 illustrates a detail of construction within the scope of our invention.

Our improvements are preferably, but not necessarily, associated with a fountain pen of the type in which the barrel thereof or the pen section mounted in the end of such barrel receives an insertible sleeve carrying a pen nib and feed-bar assembly—more or less familiarly known as a “renew-point” insert.

The pen section which we employ in our improved structure, as distinguished from ordinary or usual pen sections common to present-day fountain pens, is provided with a plurality of bore portions axially aligned; an outer bore portion receiving the sleeve of the “renew-point” insert which is preferably in threaded engagement therewith, an inner bore portion which is considerably enlarged in cross-sectional dimension and which may be cup-shaped, and a short intermediate bore portion which connects the inner enlarged bore portion and the sleeve-receiving bore portion and is of less diameter.

With this pen section—and it will be understood, of course, that the outer-sleeve-receiving bore portion of the same may be fitted with any form of pen nib and feed-bar assembly that will extend to the intermediate bore portion—we employ a special form of telescopic ink sac—which may be of two dimensions in cross-sectional area longitudinally of the same—with the outer and larger portion permanently attached to that portion of the pen section having the enlarged bore portion.

The outer wall surface of such inner enlarged bore portion of the pen section is spaced from the inner wall surface of the shell or casing of the pen structure—the barrel, for instance—to an extent just sufficient to receive the wall of the ink sac which will lie between the same and the inner wall surface of the shell or casing in such relation that the pen section, with the ink sac permanently attached thereto, may be readily inserted in such shell or casing when the parts of the pen structure are assembled.

The principal feature of our invention is the provision, in a writing implement of the fountain pen type, of a special form of ink sac specially arranged or associated with our improved pen section; which ink sac is intended primarily, in connection with the space defined by the inner enlarged bore portion of the pen section, to serve as the entire ink reservoir of the fountain pen. Such ink sac is highly flexible or elastic so that it may be telescoped within itself and the enlarged bore portion of the pen section to displace substantially the entire content of air therein when a portion of such sac is moved in one direction whereby, upon dipping the nib of the fountain pen in a supply of ink, the latter will substantially fill the space defined by the enlarged

bore portion of the pen section and the interior of the ink sac after the latter has been retracted to its normal position.

In the drawings, and referring more particularly to Fig. 1 of the same, the shell or casing of the writing implement—the barrel of a fountain pen, for instance—is indicated at 10, and the forward end of the same carries a pen section 11; which may be made of any usual material—transparent or not, as may be desired. In the present instance the pen section is shown as having a bore portion 11<sup>a</sup> receiving a “renew-point” insert consisting of a sleeve 12 which may be in threaded engagement with said bore portion 11<sup>a</sup>, with a nib or pen-point 13, and a feed-bar 13<sup>a</sup> carried by said sleeve. In the present instance, the sleeve 12 is shown as engaging a seat 14 within the pen section. It is within the scope of our invention to employ other forms of pen nib and feed-bar assemblies which may be in frictional engagement with the outer bore portion 11<sup>a</sup> of the pen section with a feed-bar extending substantially to the seat 14. Beyond the inner end of the “renew-point” insert (or other form of pen nib and feed-bar assembly), the pen section is provided with a short intermediate bore portion 15 of less diameter than the bore portion 11<sup>a</sup>, and this bore portion 15 opens into an enlarged bore portion 16 formed within the inner end portion 17 of the pen section and preferably of rounded, cup-like form. The pen section 11 may be fitted to the shell or casing 10 in any usual way.

Carried by the inner portion 17 of the pen section is an ink sac 20; which may be of the shape shown, that is to say, it may be molded with portions 20<sup>a</sup> and 20<sup>b</sup> of different diameters so related to each other that the outer wall surface of the smaller portion 20<sup>a</sup> may be aligned with the inner wall surface of the enlarged bore portion 16 of the pen section, for a purpose to be described. The other end of the ink sac is permanently attached to the pen section.

The free end of the ink sac, in the form of fountain pen structure illustrated in Fig. 1, is operatively connected to the end of a screw element 25, in the present instance an internally threaded sleeve, which serves as a nut and may be reciprocated in the shell or casing of the fountain pen; being in operative engagement with a screw stem 26 rotatably mounted in the rear of the same. This screw stem may be turned by manipulating an external knob 27 but is held against longitudinal movement. It will be understood therefore that turning of the knob 27 will effect rotation of the screw stem 26 and reciprocation of the sleeve 25 whose inner end is attached to the ink sac 20. This ink sac, which may be of the shape shown, is arranged to telescope, as illustrated in Fig. 2, to displace air therefrom and from the pen section, and this is effected by the screw stem 26 when the latter is turned in one direction; movement of such screw stem in the opposite direction retracting the sleeve 25 and returning the ink sac to its normal position with the simultaneous inflow of ink when the nib end of the fountain pen is immersed in a supply of the same. As illustrated, movement of the screw stem 26 counterclockwise will telescope the ink sac, and movement in a clock-wise direction will retract the same.

The screw element 25, in the present instance the threaded sleeve, has a plug portion 25<sup>a</sup> disposed within the ink sac, and when the smaller portion 20<sup>a</sup> of such sac is telescoped into itself and the bore portion 16 of the pen section, this

plug portion enters the bore portion 15 of the pen section, substantially to the seat for the "renew-point" insert; thereby effecting displacement of substantially all of the air within the ink sac and/or the pen section. Then, upon dipping the nib end of the fountain pen structure into an ink supply and manipulating the knob 27 in the proper direction—clock-wise in the present instance—the telescoped portion of the ink sac will be retracted and a supply of ink will follow and substantially fill the sac in its fully extended position as well as the larger bore portion 16 of the pen section. This telescoping of the wall of the ink sac is facilitated by the fact that its smaller portion 20<sup>a</sup> may enter the enlarged bore portion 16 of the pen section without undue friction and under slight force and may be retracted under similar conditions.

The inner end of the ink sac 20 may be secured to the operative element—in this instance, the sleeve 25—in various ways. As illustrated in Figs. 1 and 2, the reduced end of the sleeve 25 may be annularly grooved at 25<sup>b</sup>—the portion beyond the groove providing the plug element 25<sup>a</sup>—and the inner end of the smaller portion 20<sup>a</sup> of the ink sac may be apertured so that the wall of the sac surrounding such aperture may be crowded into such groove, as more clearly illustrated in Fig. 3. It may be desirable to bead the edge of the sac aperture, as indicated at 20<sup>c</sup>; the beaded portion entering the rounded root of the groove 25<sup>b</sup>. In lieu of this, the end of the sleeve 25 may be further reduced and threaded, as indicated at 25<sup>c</sup>, Fig. 4, and the plug element disposed within the ink sac may be of nut-form (30) fitting the threaded end 25<sup>c</sup> and capable, with the use of an interposed washer 31, of crowding the wall edge of the sac aperture whether beaded or not, against the end of the sleeve 25.

The threaded sleeve may be provided with a groove at its side, indicated at 35, to engage a rib 36 formed on the wall of the shell or casing 10, or on a sleeve inserted in the barrel and properly fixed with relation to the same. This insures that the sleeve 25 will move longitudinally only, without rotation. It will be understood, of course, that this mechanism may be reversely arranged so that the sleeve 25 may rotate without longitudinal movement by connecting the same to the knob 27, with the screw stem 26 connected to the ink sac and arranged to move longitudinally without rotation. Such modified arrangement is within the scope of our invention.

In lieu of the screw mechanism illustrated in Figs. 1 and 2 for effecting the telescoping of the ink sac, we may employ a spring-supported plunger for such operation; a single stroke of such plunger being effective for the purpose.

One form of plunger mechanism within the scope of our invention is shown in Figs. 5, 6, et seq., wherein the shell or casing of the writing implement—the fountain pen barrel—is indicated at 100, which may carry the same form of pen section with the pen nib and feed-bar assembly as illustrated in Figs. 1 and 2. The barrel 100 is much shorter than the shell or casing 10 shown in Figs. 1 and 2, and in the present instance it is shown in threaded engagement with a collar sleeve 40, which may be disposed substantially midway the length of the writing implement; such sleeve collar having a rearwardly or upwardly extending tubular portion 41.

Within said sleeve collar a plunger 42 is ar-

ranged for longitudinally reciprocative movement; the forward end of such plunger being provided with a plug element 43 adapted to enter the smaller bore portion 15 of the pen section, and the ink sac being attached to such plunger in a manner substantially similar to the attachment with the longitudinally reciprocative member 25 of the screw mechanism, illustrated in Figs. 1 and 2.

The plunger 42 is provided with an annular shoulder 42<sup>a</sup> which abuts the inner end of the collar sleeve 40, and the portion of such plunger within the collar sleeve 40 and its tubular extension 41 is surrounded by a coiled spring 44. The plunger 42 is preferably tubular, as illustrated, and may be of metal or of any suitable plastic—Celluloid, or the like. Threaded or otherwise connected with the upper end of the plunger 42 is an operating stem 45 extending beyond the tubular portion of the collar sleeve 40, indicated at 41, and such stem 45 is provided with an annular shoulder or flange 45<sup>a</sup> against which the upper end of the coiled spring 44 abuts. This mechanism may be enclosed by a cap sleeve 46, following the contour of the fountain pen barrel 100, and such sleeve may be in threaded or frictional engagement with the collar sleeve 40 to which the fountain pen barrel 100 is attached.

The collar sleeve may have an annular flange or shoulder 40<sup>a</sup> lying between the shell or casing portion 100 and the cap sleeve 46, and substantially flush with their outer surfaces. This flange 40<sup>a</sup> may be of an ornamental character, and its outer or exposed surface may be covered with a precious or semi-precious metal to enhance the appearance of the writing implement.

The parts of the plunger mechanism illustrated in Figs. 5 and 6 are so arranged and proportioned that a single stroke of the stem will serve to telescope the ink-sac and at the same time compress the spring 44 to store power for the retraction of the plunger 42 to the normal position, illustrated in Fig. 5. While we have shown in Figs. 5 and 6 a specific plunger mechanism for telescoping the ink-sac, we do not wish to be limited to the same, and other forms of plunger mechanism are within the scope of our invention.

In lieu of the construction illustrated in Fig. 5 wherein a sleeve collar 40 is employed as a connection for the shell portion 100 and a guide and support for the plunger mechanism as well as a connection for the sleeve cap 46, the shell or casing—or barrel portion—may be constructed as indicated at 110, Fig. 6. In this arrangement, the body of the shell or casing 110 is internally thickened as indicated at 50, with a rearwardly or upwardly extending portion 51, tubular in character, receiving the plunger 42, surrounded by the spring 44. The thickened portion 50 may be reduced circumferentially and threaded at 52 for engagement by the sleeve cap 46, and further reduced to space the tubular portion 51 from the wall of the sleeve cap 46 when the latter is in place.

It is also within the scope of our invention to employ a separate tubular section in lieu of the extension 51, which tubular section may be of the same material as the shell or casing and which may be in threaded engagement therewith to provide the guide and support the plunger mechanism.

In either or both of the modified arrangements noted, a metal collar or ring may be inter-

posed between the inner end of the cap sleeve 46 and the shell or casing—the pen barrel—to give the writing implement an attractive appearance.

A further modification within the scope of our invention is illustrated in Fig. 9, wherein we have shown lever-actuated mechanism for operating a plunger. In this arrangement we employ lever means, that is to say, an actuating member substantially like the well-known devices for collapsing the ink sacs of ordinary fountain pens through the medium of a presser-bar.

The ink sac of the structure illustrated in Fig. 9 will be of substantially the same character as those illustrated in the other figures of the drawings and is shown as connected to a pen section having a cup-shaped bore portion. To the free end of such sac we may connect a plunger 55 arranged for longitudinal reciprocative movement within the shell or casing of the writing implement. This plunger may be guided through a hollow sleeve section 56, which may be of metal secured to the shell or casing in a fixed position. Between the lower end or bottom of the same and a flange 55<sup>a</sup> at the upper end of the plunger 55, a coiled spring 57 may be arranged, to assist in retracting the plunger after it has been actuated to telescope the ink sac.

To impart longitudinal movement to the plunger—forwardly to telescope the ink sac and rearwardly to retract the same—we provide the lever 60 which may be pivotally mounted at 61 in the wall of the shell or casing of the fountain pen structure. This lever is disposed in a reversely arranged position as compared with the usual levers of fountain pens in that it is arranged to be lifted or moved toward the rear or upper end of the fountain pen to operate the plunger 55, instead of being moved downwardly or forwardly like the usual lever which serves to compress an ink sac through the medium of a presser-bar. The rear or upper end of this lever 60 may be pivotally connected at 62 to a link 63, and the lower or forward end of this link may be connected at 64 to the plunger 55. By lifting the lever and giving it a full movement or to the extent indicated by the dotted lines, Fig. 9, the plunger 55 will be given a forward or downward movement to an extent sufficient to telescope the ink sac into the enlarged bore portion of the pen section to the position indicated by the dotted lines.

In order that the link 63 may occupy its normal position with respect to the lever connection and its connection with the plunger 55, the latter will be slotted for a short distance at its upper end, as indicated at 55<sup>b</sup>, to allow space for the movement of said link. It may be possible to avoid this slotting by employing a curved link, and in the case of fountain pens having barrels of small diameter, a suitable double-link motion may be employed to obtain the desired stroke.

The operation of the plunger mechanism shown in Fig. 9, like that illustrated in Figs. 5 and 6, is effected by a single stroke. Such single stroke is of the same extent as the complete movement of the screw mechanism illustrated in Figs. 1 and 2, but is much faster. As in the other forms of structures illustrated in the drawings, the plunger 55 has, at its connection with the ink sac, a plug portion 55<sup>c</sup> to enter the intermediate smaller bore portion of the pen section when the ink sac is fully telescoped, as indicated by the dotted lines.

Other forms of mechanism designed to completely telescope the ink sac with respect to the

pen section in a single stroke are within the scope of our invention.

In the several forms of our improved filling mechanism; illustrated in Figs. 1, 5, 9, et seq., we have shown the plug portion disposed internally of the ink sac and designed to enter the intermediate bore portion 15 of the pen section—such plug portion being indicated at 25<sup>a</sup>, Fig. 1; at 43, Fig. 5, and at 55<sup>c</sup>, Fig. 9—as a part of or connected to the reciprocative member; the screw sleeve 25 of the structure illustrated in Fig. 1, or the plunger elements illustrated in Figs. 5 and 9. Such arrangement necessitates an aperture at the smaller or free end of the ink sac.

It is within the scope of our invention to provide an ink sac without this aperture and to mold with the same a plug portion designed to enter the smaller intermediate bore portion 15 of the pen section, together with an external knob or projection for attachment to the reciprocative member of the operating mechanism, and sacs of such type are illustrated in Figs. 10 and 11.

The form of ink sac shown in Fig. 10 is of the same general type as those illustrated in the other figures of the drawings with an internal plug portion and an external knob portion, both integral therewith. The sac is indicated at 200, having in the present instance a tapering portion 200<sup>a</sup> and a portion 200<sup>b</sup> of larger diameter for permanent or substantially permanent attachment with the portion 17 of the pen section and into which and the bore portion 16 of such pen section, the smaller tapered portion 200<sup>a</sup> may be telescoped. The internal and integral plug portion is indicated at 70 and the external and integral knob or projection is indicated at 71. The element of the operative mechanism with which this knob is engaged may have a socket to receive the same, as indicated by dotted lines, with a lateral opening whereby the parts may be readily assembled in a detachable manner; such form of connection being entirely effective in view of the rectilinear movement imparted by the operating mechanism.

Another form of ink sac of the same general type as those shown in the other figures of drawing is illustrated in Fig. 11, which also has an internal and integral plug portion 70 and an external and integral knob or projection 71. In this view, the sac is indicated at 201, having a portion 201<sup>a</sup> of one diameter, which may be telescoped and a portion 201<sup>b</sup> of larger diameter which is the part attached to the portion 17 of the pen section. In all instances the plug portion, whether that illustrated at 70, Figs. 10 and 11, or those illustrated in the other views of the drawings is designed to have a sliding fit with the intermediate bore portion 15 of the pen section and its dimension longitudinally of any ink sac will be determined by the length of said bore portion.

A further form of ink sac within the scope of our invention is illustrated in Figs. 12, 13 and 14. This form of sac which may be slightly contracted at one end or may be of the same diameter throughout, is indicated at 300; one end being expanded to fit over the portion 17 of the pen section. Instead of providing this form of ink sac with an internal plug portion to enter the smaller intermediate bore portion 15 of the pen section when telescoped toward the same, the free end of the ink sac is shaped to provide a socket 300<sup>a</sup> to fit over the end of a separate member 75 having more or less the shape of a dumb-bell; including a portion 75<sup>a</sup> to function as the plug portion, a reduced stem 75<sup>b</sup>, and a projection or head 75<sup>c</sup> at its opposite end which enters the

socket 300<sup>a</sup> in the shaped portion of the ink sac, as clearly indicated in Figs. 13 and 14. This member 75 is of relatively hard non-compressible material and cooperates in the attachment of the ink sac to the operating mechanism.

The end of the reciprocative member of the mechanism designed to effect the telescoping of the ink sac, which may be the screw mechanism illustrated in Fig. 1, or the plungers illustrated in Figs. 5 and 9, is shaped to provide a socket, or may be provided with a socket member 80, such as illustrated in Fig. 15. This socket member receives the head or boss 75<sup>a</sup> of the member 75 when the latter is enclosed within the socket 300<sup>a</sup> of the ink sac; such portion entering the socket member via the lateral opening 81. Fig. 13 shows the form of the sac and its connection with the pen section in the normal position, and Fig. 14 shows the sac in the telescoped condition, with the plug portion 75<sup>a</sup> of the member 75 entering the smaller intermediate bore portion 15 of the pen section.

In our improved construction, the ink reservoir of the fountain pen includes the space within the ink sac and the space provided by the larger bore portion 15 of the pen section. When the ink sac is properly telescoped, substantially all of the air within these spaces is displaced and hence they may completely fill with ink upon the retractive movement of the telescopic portion of the ink sac. The amount of ink received within this combined space is substantially the same as or more than that received within an ordinary fountain pen ink sac with the advantage that there is practically no air space in our reservoir when the same is initially filled. This condition does not obtain with the ink sacs of ordinary fountain pens whose filling action is effected by a laterally-engaging presser-bar.

It will be understood that the constructional details herein described and shown in the drawings are for illustrative purposes only and not as limitations, since modifications may be made therein without departing from the spirit of our invention; all of which is deemed to be within the scope of the appended claims.

We claim:

1. In a fountain pen and in combination with the pen section thereof, an elastic-walled receptacle normally distended to serve as an ink reservoir having an open end receiving the pen section and a closed end; said closed end being capable of telescopic displacement with respect to the rest of the receptacle to function as a pumping element.

2. A fountain pen having a pen section with a through bore, in combination with an ink-receiving sac attached to said section; said sac being of such shape that a portion thereof may be telescoped upon itself and into the bore of the pen section.

3. In filling mechanism for writing implements of the fountain pen type, a pen section at one end of said structure having a through bore, an ink sac attached to the pen section and in communication with said through bore; a portion of said ink sac being capable of telescopic displacement upon itself toward and into said bore, and means for effecting telescopic movement of the ink sac.

4. A structure as set forth in claim 3 wherein the means for effecting movement of the ink sac is a plunger which serves to telescope the same upon itself by a direct longitudinal movement in one direction, and means for retracting the

plunger and effecting movement of the ink sac in the opposite direction.

5. A structure as set forth in claim 3 wherein the means for effecting movement of the ink sac is a manually operated plunger which serves to telescope the same upon itself by a direct longitudinal movement in one direction, and a spring for retracting the plunger and effecting movement of the ink sac in the opposite direction.

6. A structure as set forth in claim 3 wherein the means for effecting movement of the ink sac in both directions is a plurality of threaded members in operative engagement; one of said members being connected to the ink sac, and a rotatable knob at the end of the pen barrel for operating said screw mechanism.

7. In filling mechanism for writing implements of the fountain pen type, a pen section at one end of said structure having a through bore with a plurality of bore portions of different diameter longitudinally thereof, an ink sac attached to the inner end of the pen section; a portion of said ink sac being capable of telescopic displacement upon itself and into the innermost bore portion of the pen section, and means for effecting telescopic movement of the ink sac with respect to the pen section.

8. A structure as set forth in claim 7 wherein the ink sac is associated with a plug portion internally thereof adapted to enter and substantially fill a smaller bore portion of the pen section when said ink sac is telescopically displaced upon itself and into a bore portion of said pen section.

9. A structure as set forth in claim 7 wherein the ink sac is provided with an integral plug portion internally thereof adapted to enter and substantially fill a smaller bore portion of the pen section when said ink sac is telescopically displaced upon itself and into said pen section.

10. In filling mechanism for writing implements of the fountain pen type and in combination with the pen section of such structure having a through bore with a plurality of bore portions of different diameter longitudinally thereof, an ink-receiving sac having a portion of one diameter and a portion of another diameter with its portion of largest diameter attached to the pen section externally of its largest bore portion; the smaller portion of the sac being capable of telescopic displacement upon itself and into the innermost bore portion of the pen section, and means for effecting telescopic movement of the smaller portion of the sac with respect to said pen section.

11. The combination with the barrel of a fountain pen, of a pen section fitting one end of the same and having a through bore with a plurality of bore portions of different diameters longitudinally thereof; the innermost bore portion being substantially cup-shaped, a pen nib and feed-bar assembly carried by the pen section and in communication with the through bore of the same, an ink-receiving sac in engagement with the pen section and shaped to permit telescopic displacement of one portion with respect to another portion thereof, and means for imparting movement to a portion of the sac in both directions; one of said movements causing said movable portion of the sac to telescope upon itself and into the cup-shaped bore portion of the pen section.

12. The combination with the barrel of a fountain pen, of a pen section fitting one end of the same and having a through bore with a plurality of bore portions of different diameters; the innermost bore portion being substantially cup-shaped,



a pen nib and feed-bar assembly carried by said pen section and in communication with its through bore, an ink-receiving sac in engagement with the pen section and shaped to provide portions of different diameters whereby the smaller and inner portion may be telescopically displaced with respect to the larger portion enclosing the inner end of the pen section, means for imparting movement to the smaller portion of the sac in both directions; one of said movements causing said smaller portion to telescope upon itself and into the cup-shaped bore portion of the pen section, and a plug disposed within said sac and arranged to enter the smallest bore portion of the pen section; such telescopic displacement of the sac serving to displace air therefrom preliminary to its reception of ink.

13. The combination with the barrel of a fountain pen, of a threaded element rotatably mounted in one end of the pen barrel and held against longitudinal movement, an externally disposed knob for turning said element, a pen section disposed at the opposite end of the barrel, a pen nib and feed-bar assembly carried by said pen section, a telescopic ink-receiving sac carried by the pen section and having a portion movable toward and from the same, a complementally threaded member operatively engaging the rotatable threaded element and arranged for reciprocative movement upon turning said rotatable element; said complementally threaded member being operatively connected to the inner end of the sac, and a plug carried by said complementally threaded member and disposed within the sac; said pen section having a through bore with portions of different diameters and said plug portion being adapted to enter the smallest bore portion of the same when the sac is collapsed to displace air therefrom.

14. In a fountain pen, the combination with the pen section thereof, a pen nib and feed-bar assembly carried by said pen section, a barrel, and reciprocative means carried by the barrel, of an ink-receiving sac connected to the pen section and having a closed end with a socket formed therein, a headed member disposed within said socket and having a plug portion disposed internally of the sac; said pen section having a through bore with a plurality of portions of different diameters into one of which said ink sac may be telescoped and an inner bore portion receiving the plug portion of the headed member; one portion of said headed member within said socket serving as the means for oper-

atively connecting the reciprocative means to the sac.

15. In a fountain pen, a telescopic ink sac for use therewith; said sac being closed at one end and having a socket at its closed end, and a non-resilient headed member disposed within the ink sac and having a portion fitting said socket; the end of said headed member enclosed by the socket wall serving as an attachment for engagement with a member designed to impart telescopic movement to said ink sac.

16. The combination of a telescopic ink-receiving sac having an external knob or projection at its free end, reciprocating means for telescoping the sac having a socketed portion receiving the knob or projection of the sac; said socketed portion having a lateral opening for the passage of a reduced portion of the external knob or projection.

17. A pen section for fountain pens having a through bore with bore portions of different diameters, including an outer bore portion, an intermediate bore portion less in diameter than the outer bore portion, and an inner bore portion greater in diameter than the intermediate bore portion; said inner bore portion being enclosed by an ink-receiving sac.

18. A structure as set forth in claim 17, in combination with a telescopic ink-receiving sac inclosing the inner bore portion of the pen section and telescopically displaceable into such bore portion for displacement of air from the space defined by the inner bore portion and sac.

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HARRY C. KOFKE.

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| 1,317,817 | Ogilvy       | Oct. 7, 1919   |
| 1,398,779 | Hayden       | Nov. 29, 1921  |
| 1,469,921 | Dutchak      | Oct. 9, 1923   |
| 1,818,216 | Federbusch   | Aug. 11, 1931  |
| 1,902,809 | Bienenstein  | Mar. 23, 1933  |
| 1,904,358 | Dahlberg     | Apr. 18, 1933  |
| 1,980,508 | Tefft        | Nov. 13, 1934  |
| 1,985,643 | Pfanstiehl   | Dec. 25, 1934  |
| 2,093,701 | Zahel        | Sept. 21, 1937 |
| 2,108,552 | Schoneberger | Feb. 15, 1938  |