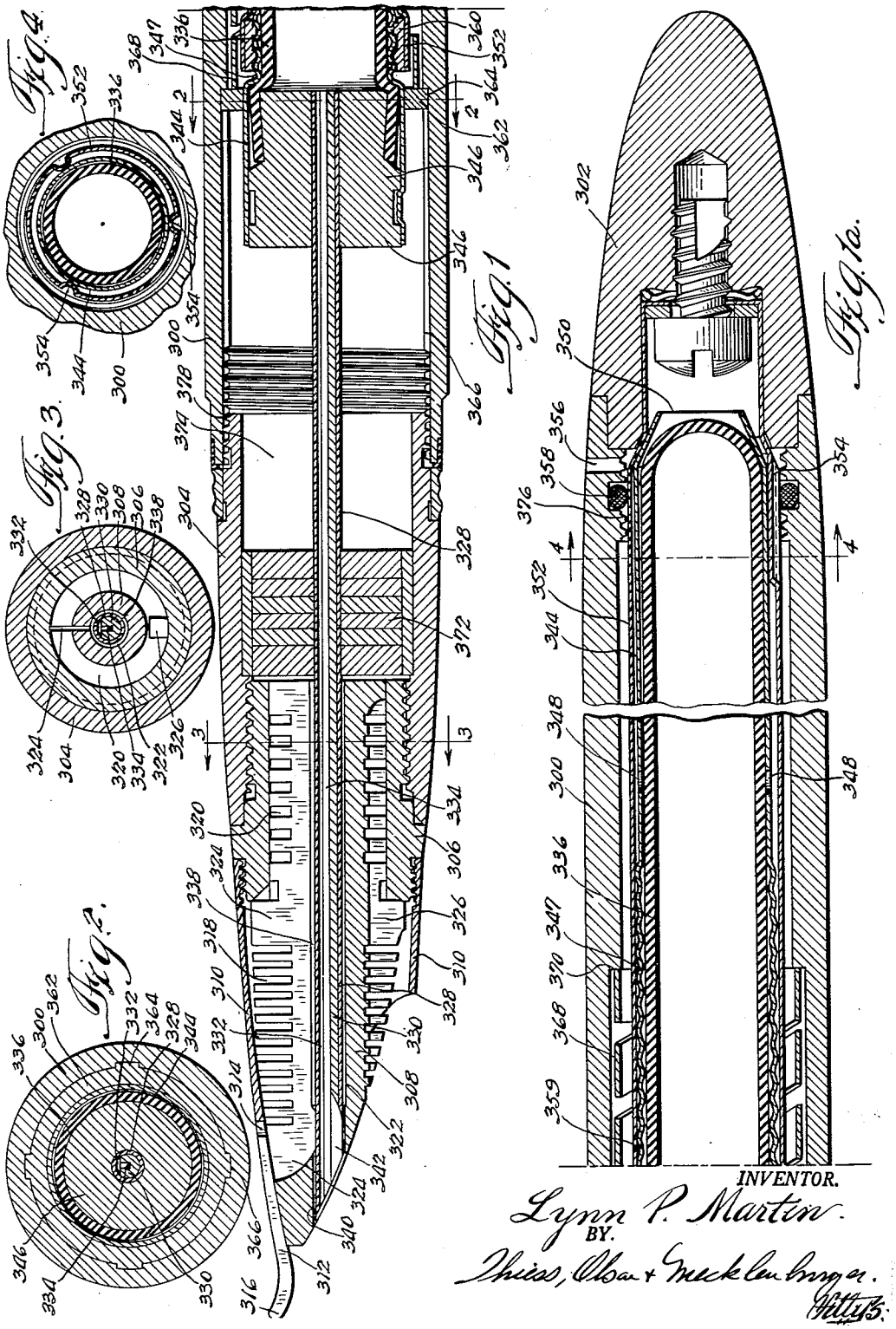
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WRITING IMPLEMENTS

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WRITING IMPLEMENTS

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10 Claims. (Cl. 120—47)

This invention relates to writing implements and has for an object the provision of a filling device for a writing implement of the fountain pen type. This application is a continuation-in-part of my prior application Serial No. 124,328, filed October 29, 1949, now abandoned.

In the filling of ordinary fountain pens with a writing fluid, the construction of the pen has ordinarily been such that it is required that the pen nib be completely immersed in a body of the fluid during the filling operation in order to insure that a full charge of fluid will be drawn into the reservoir. Thus when the filling operation is complete, there is usually a substantial amount of residual writing fluid adhering to the pen nib which generally must be wiped off with a cloth or tissue in order to prevent such residual fluid from blotting the paper or coming into contact with the user's hands during a normal writing operation. Also the excess fluid present in the expansion chambers should be removed by blotting in order to permit the expansion chambers to function properly immediately after filling. These problems have long been recognized in the art and various suggestions have been made for their solution. For example, it has in the past been proposed that the manufacturer supply replaceable ready-filled ink cartridges in order to eliminate the necessity for the user to fill the fluid reservoir when the fluid is exhausted. Also it has been proposed to fill the fluid reservoir by a separate means extending through the rear end of the writing implement, thereby avoiding the direct insertion of the writing nib into the writing fluid during a filling operation. However, these proposals have met with little or no commercial success either because of the expense involved in supplying separate cartridges when the instrument is to be refilled, or because of the complications arising from attempting to fill the fluid reservoir by any means other than through the forward writing end.

Accordingly it is one of the objects of this invention to provide a filling device for a fountain pen which may be operated in such a manner that the adherence of excess writing fluid to the nib portion of the pen is eliminated after the filling operation has been completed.

A further object of this invention is the provision of a filling device which eliminates the necessity of wiping excess writing fluid from adjacent the nib of the pen after filling has been completed.

A still further object of this invention is the provision of a filling device for a fountain pen which may be adapted to substantially all of the commercial forms of fountain pens now being manufactured.

A still further object of this invention is the provision of a new type of filling device which requires few parts and which may be readily operated without undue care on the part of the user.

A still further object of this invention is the provision of a filling device for a fountain pen in which the various parts are so arranged that the filling device automatically becomes operative during the usual manipulative steps

carried out to condition the instrument for the normal filling operation but which device automatically returns to a nonfilling or inoperative position when the pen is reconditioned for use after filling.

An additional object of this invention is the provision of a filling device for a fountain pen which dispenses with the necessity of immersing the pen nib in the writing fluid during filling and in which the pen nib and feeding means remain free of excess writing fluid during and after the filling operation.

A further and additional object of this invention is the provision of a fountain pen in which the expansion chambers of the pen are not filled during the pen filling operation, thus dispensing with the necessity of draining the expansion chambers by a blotter or other means after filling the pen.

A still further object of this invention is the provision of a filling device for a fountain pen which is normally concealed and does not interfere with the use of the pen during writing.

A still further object of this invention is the provision of a filling device for a fountain pen in which the fluid feed channels leading to the writing element are automatically filled with fluid when the pen is conditioned for writing after filling.

A further object is the provision of a reservoir cartridge unit for use in a fountain pen constructed in accordance with a preferred embodiment of this invention.

Further and additional objects will be apparent from the following description, the accompanying drawings and the appended claims.

In accordance with one embodiment of this invention, the filling device is incorporated into a writing instrument including a fluid reservoir and a writing element mounted forwardly thereof. The filling device itself comprises an elongated tubular member providing communication between the reservoir and an open end of the tubular member adjacent the writing element. The tubular member is longitudinally reciprocable with respect to the main body portion of the instrument so that its open forward end may be manually projected for a substantial distance forwardly of the writing element to a filling position and may be manually retracted to a nonfilling position rearwardly of the writing element. When the tubular member is in the projected or extended position it is dipped into a writing fluid and the fluid is drawn through it to the reservoir in the usual manner commonly employed for filling fountain pens. Thus it is unnecessary to insert the nib itself into the writing fluid during the filling operation. When the tubular member is thereafter reciprocated to the retracted position, the forward end thereof is positioned rearwardly of the tip end of the writing element for a sufficient distance that it does not interfere during a normal writing operation.

An important feature of certain embodiments of this invention resides in the provision of a reciprocable tube which serves the purpose of filling the pen reservoir when projected and of supplying fluid to the writing element and simultaneously venting the reservoir as fluid is withdrawn during writing when retracted. To achieve this dual purpose the tube includes a pair of longitudinally extending capillary passageways both of which may serve to conduct fluid to the reservoir during filling. One of the passageways communicates through a capillary opening or fissure in a side wall of the tube adjacent the forward end thereof with the writing element of the pen. This passageway constitutes the fluid feed of the tube. The other passageway, also capillary in nature but somewhat larger in cross section, may or may not be contiguous with the first passageway throughout its length and provides means for permitting air to enter the reser-

voir as fluid is withdrawn through the capillary feed passageway during writing. Preferably an expansion chamber or temporary ink storage means is provided in communication with the capillary opening and the writing element for purposes well understood in the art.

While it is preferred that the writing fluid be fed from the reservoir to the writing point and the reservoir be vented to the atmosphere through the filling tube during writing, it will become apparent as the description proceeds that feeding and venting may occur through other passageways exteriorly of the filling tube. In such a case, means are usually provided to block off or seal such other passageways when the filling tube is projected so that fluid will be drawn through the filling tube into the reservoir during the filling operation.

As will be apparent as the description proceeds, the longitudinally reciprocable tubular member may be reciprocated by any one of a number of means. For example, the reciprocation may be effected by a manual lever extending from the side of the implement or the tubular member may be reciprocated by means of a hook portion formed on the forward end thereof cooperating with the rim of a cap of a bottle of writing fluid whereby the tube may be pulled out to a filling position and thereafter pushed back to a nonfilling position at will. However, in accordance with this invention it is preferred that the filling tube be reciprocated by a relative turning motion of two coaxial portions constituting the casing of the writing implement itself whereby the resulting relative rotary motion is transmitted to the filling tube as a longitudinally reciprocating motion. This translation of motion may be likened to the projection of a writing lead in the usual mechanical type pencil wherein the holder constitutes two coaxial parts, one of which is relatively rotatable with respect to the other whereby the relative rotation of the two parts effects a projection or retraction of the pencil lead.

This invention has application to the type of writing implement disclosed in my copending application Serial No. 80,931, filed March 11, 1949, now Patent No. 2,610,612. In that application there is disclosed a writing implement in which the fluid reservoir comprises a normally distended but collapsible sac which is collapsed by air pressure exerted by a pair of telescoping tubular members. In the operation of the device disclosed in that application, the telescoping tubular members are held in fixed position while the instrument is in use by the threaded engagement of one of the tubular members or barrel with a cap having the other tubular member secured thereto. Thus when it is desired to fill the writing implement disclosed in that application, it is necessary to unscrew the cap for a certain distance prior to the time that the tubular members are pulled apart to an extended condition. In accordance with one embodiment of this invention, the screwing motion of the cap has been associated with a mechanism in such a manner that the filling tube may be projected or retracted from a forward portion of the instrument as the cap is unscrewed or screwed. Thus in accordance with this invention, the filling tube is automatically projected while the instrument is being conditioned for filling and the filling tube is automatically retracted after the filling operation has been completed and the rearward cap is screwed into place.

For a more complete understanding of this invention, reference will now be made to the accompanying drawings in which:

Fig. 1 is a longitudinal sectional view of the forward portion of a device constructed in accordance with this invention;

Fig. 1*a* is a broken longitudinal view of the rearward portion of the device shown in Fig. 1;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 1; and

Fig. 4 is a fragmentary sectional view taken along the line 4—4 of Fig. 1*a*.

A preferred embodiment of this invention is disclosed in the drawings. This embodiment has been adapted to a writing implement having a collapsible sac reservoir of the character disclosed in my Patent No. 2,610,612. In accordance with this embodiment there is provided a barrel **300** having an axially rotatable cap **302** mounted on the rear end thereof and a gripping section **304** threadedly secured to the forward end thereof. An axially bored feed bar **308** is slip-fitted into the axial bore of the collar **306** and a sheath type nib **310** surrounding the forward end of the feed bar is threadedly secured to the collar **306**. The collar **306** and the feed bar **308** in this embodiment provide a nib support for the implement. The nib **310** is provided with a longitudinal capillary fissure **312** extending forwardly from a pierce **314** to a writing tip **316** in the usual manner. The feed bar **308** is provided with a plurality of annular comb cuts or grooves **318** and **320** providing an expansion chamber for the instrument. In addition the feed bar **308** is provided with an axial bore **322** extending throughout its length. Communicating with this axial bore is a longitudinally extending capillary fissure **324** which communicates between the several annular comb cuts or passageways **318** and **320** and the capillary fissure **312** in the nib **310**. Also the feed bar **308** has a scoop cut **326** on the under surface thereof providing means for venting the expansion chamber formed by the comb cuts and passageways **318** and **320**.

A longitudinally extending reciprocable filling tube **328** passes through the bore **322** and includes an elongated insert **330** having a flattened side provided with a groove which, in cooperation with the inner side walls of the tube, forms a vent passageway **332** and a capillary feed passageway **334** extending in parallel and contiguous relationship throughout the length of the filling tube **328**. The vent passageway **332** and the capillary feed passageway **334** provide communication between the forward open end of the tube and the interior of a collapsible sac reservoir **336** disposed within the barrel **300**. As will be apparent from Fig. 1, the filling tube **328** has an outer diameter which is somewhat smaller in cross section than the bore **322**, thereby providing an annular passageway **338** communicating with the fissure **324**. It will be noted that the bore **322** is of reduced diameter at the forward end of the feed bar **308**, thus providing a capillary annular passageway **340** which is somewhat smaller in cross section than the capillary annular passageway **338**. The side wall of the filling tube **328** adjament its forward end and the insert **330** are slit to provide a capillary slot **342** which communicates between the capillary feed passageway **334** and the annular capillary passageway **340** whereby writing fluid is supplied to the writing point **316** by means of the capillary fissure **324** in the feed bar and the fissure **312** in the pen nib **310**.

As previously indicated, the filling tube **328** is mounted for reciprocation within the feed bar **308** whereby the forward end of the tube member may be extended to a position (not shown) forwardly of the writing element **316** and retracted to a position (see Fig. 1) rearwardly thereof. In the embodiment shown in Figs. 1 through 4, the filling tube **328** and the sac reservoir **336** together with a rigid protective sheath **344** and a plug **346** form a cartridge which is axially reciprocable as a unit with respect to the barrel **300**. The plug **346** serves to support the various elements of the cartridge and to hold them in proper alignment. It will be apparent that the filling tube may be permanently or removably secured to the plug.

The sheath **344** is provided with threads **347**, a pair of vents **348** spaced rearwardly thereof, and an open end

portion 350. In order to collapse the sac 336 in the manner outlined in my Patent No. 2,610,612, a plunger tube 352 having an unvented rear end is secured to the cap member 302 and extends in a longitudinally reciprocable manner into the annular space defined by the barrel 300 and the protective sheath 344. The rear end of the tubular member 352 is provided with venting grooves 354 which in cooperation with an aperture 356 in the barrel 300 serve to vent the barrel when the cap 302 is in the position shown in Fig. 1*a*. The usual packing ring 358 is provided to permit the air to compress in order to collapse the sac 336 when the plunger tube 352 is moved forward in the filling operation and a suitable venting aperture 359 is provided on the forward end of the tube 352 to vent the barrel when the plunger tube is extended to its most rearward position for the purposes previously mentioned.

An internally threaded collar member or nut 360 is secured to the forward end of the plunger 352 and is adapted to threadedly engage the threads 347 on the sheath 344 of the cartridge unit. The cartridge unit is restrained against rotation within the barrel 300 by means of a splined collar 362 having a plurality of peripheral projections 364 which are adapted to ride in a plurality of longitudinal grooves 366 formed on the inner surface of the barrel 300. This structure permits the cartridge unit including the filling tube 328, the reservoir 336, the sheath 344 and the plug 346 to reciprocate axially with respect to the writing implement but at the same time the cartridge unit is held against rotation. Thus when the cap 302 is rotated, the threaded nut 360 in cooperation with the threads 347 on the sheath 344 causes axial separation of the cap member from the cartridge unit. This axial separation results in the movement of the cartridge unit to a filling tube extended position by virtue of a coil spring 368 compressed between a stop 370 on the barrel and the rearward surface of the splined member 362.

A packing gland 372 is secured within the gripping section 304 and is held stationary relative thereto. The filling tube 328 reciprocates through the packing gland 372 and the packing gland serves to prevent writing fluid from passing rearwardly of the gland along the outside of the tube into space 374 positioned forwardly of the plug 346. It is pointed out that the cap 302 is not itself threadedly secured to the rear end of the barrel 300 but merely engages it in slidable relationship. The threads 376 on the rearward end of the barrel serve no function in this modification except in so far as they are an aid in the manufacturing and assembling operations.

It will be apparent from the foregoing description that the pen constructed in accordance with this modification of the invention may be readily filled without dipping the pen nib or feed bar into the writing fluid. In order to achieve this purpose the cap 302 is manually rotated with respect to the barrel 300 causing the axial separation of the cap from the reservoir section by virtue of the collar 360 riding up the threads 347, it being borne in mind that the cartridge unit is held against rotation by the splined member 362. As this rotation is continued, the spring 368 urges the reservoir section forwardly into the chamber 374 and this continues until such time as the forward surface of the splined member 362 abuts a rear end 378 of the gripping section 304. At this point the collar member 360 disengages the threads 347 and the forward end of the filling tube 328 is extended for a substantial distance forwardly of the writing point 316. The forward open end of the filling tube is then immersed in a body of writing fluid. Thereafter the cap 302 is pulled rearwardly to condition the implement for filling and, while the filling tube is still immersed in the writing fluid, the cap is then pushed forwardly. This movement causes the sac completely to collapse, as will be understood, followed by distention when the vents 354 come into operation. Thus a full charge is drawn up into the reservoir 336 when the cap 302 is returned to its fully retracted position. Thereafter the cap 302 is rotated in order to withdraw the forward end of the filling tube 328 to the position shown in Fig. 1.

If for any reason the filling tube becomes stuck in the packing gland 372 or within the bore of the feed bar, this may easily be remedied. In that event initial rotation of the cap 302 will cause it to separate from the barrel 300 since the spring 368 cannot force the cartridge forwardly to the filling tube extended position. After the cap has been separated to some extent then manual axial pressure against the cap will assist the action of the spring 368, thus breaking the filling tube loose from its stuck condition.

An important feature of this invention is the provision of a reciprocable filling tube having fluid feed passageways which operate in such a manner as to take care of a drop of ink which may adhere to the end of the tip of the filling tube after the filling operation has been completed. Thus any drop adhering to the end of the filling tube will, when the filling tube is retracted, come into communication with the annular passageway 340. When this occurs the fluid passes by capillary attraction from the passageway 340 to the capillary fissure or passageway 324 in the feed bar and to the capillary fissure 312 in the pen nib. Thus this drop of ink which would otherwise be undesirable serves to prime the writing nib even though the nib was completely dry and was not contacted with the fluid in the filling operation. Thus an unbroken column of writing fluid from the reservoir to the pen nib is insured after the filling operation has been completed.

During normal writing, fluid passes from the reservoir 336 and the capillary passageways 334, 342, 340, 324 and 312 to the writing tip 316, as will be understood. The enlarged passageway 332 in the filling tube serves to vent the reservoir as writing fluid is being withdrawn therefrom. Also both passageways 332 and 334 serve to draw fluid into the reservoir during the filling operation. In the event that a change in pressure tends to cause expulsion of the writing fluid from the reservoir, this fluid is expelled through passageways 334, 342 and 340 to the passageway 324 from whence it overflows into the expansion chamber formed by the comb cuts and grooves 318 and 320. The annular passageway 338 assists in conducting the fluid to the rearward extremity of the feed bar. The expansion chamber is vented by the scoop cut 326, thereby permitting a substantial amount of fluid to flow around and accumulate within the grooves 318 and 320. During writing, fluid is preferentially withdrawn to the writing point from the expansion chamber through the fissure 324 before additional fluid is withdrawn from the reservoir since the vent means for the expansion chamber is less restricted than the vent passageway 332 for the reservoir. This is advantageous since it is desired that the expansion chamber be normally empty in order that it will be ready to accommodate any fluid forced thereinto on account of pressure changes.

Thus this invention provides a structure in which the pen nib need not be immersed in the writing fluid during the filling operation and the pen nib and feeding means including the feed bar therefore remain clean and free of fluid during feeding. Also the expansion chamber is not filled with fluid during the filling operation and it is empty and ready for use without the necessity of wiping it dry with a cloth or blotter after each filling operation. At the same time a last drop of ink adhering to the filling tube serves to prime the feed channels to condition the instrument for writing even though previously dry.

It will be apparent from the foregoing that a filling tube has been provided which may be adapted for use in connection with many types of pens now being marketed commercially. Certain features of the filling tube structure disclosed herein are claimed in my copending appli-

cation Serial No. 368,852 filed July 20, 1953. Furthermore, the device is particularly adaptable in a type of structure where relative rotation of several parts of the instrument is normally incident to conditioning it for a filling operation since by this invention this relative rotation may readily be employed for extending the filling tube if desired.

While one particular embodiment of this invention is shown above, it will be understood, of course, that the invention is not to be limited thereto, since many modifications may be made, and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

I claim:

1. A fountain pen comprising a casing, a feed bar mounted forwardly of said casing having a longitudinal bore extending therethrough, a writing nib mounted on said feed bar, a cartridge unit supported for longitudinal reciprocation within said casing including an externally threaded reservoir section and a filling tube rigidly secured to said section projecting forwardly thereof and extending through said bore, the forward end of said tube being movable to positions forwardly and rearwardly of the forward end of said writing nib upon reciprocation of said unit, said filling tube having a longitudinal passageway with an open forward end providing an unobstructed vent extending therethrough and having a transverse opening in the forward end thereof providing communication between the interior of said reservoir section and said nib when said unit and the forward end of said tube are moved to a rearward position, means for restraining said unit against rotation with respect to said casing, a cap member mounted for rotation on the rearward end of said casing, and an internally threaded member secured to said cap member threadedly engaging said reservoir section whereby said unit is reciprocated upon rotation of said cap member relative to said casing.

2. A fountain pen comprising a casing, a feed bar mounted forwardly of said casing having a longitudinal bore extending therethrough, a writing nib mounted on said feed bar, a rigid cartridge unit supported for longitudinal reciprocation within said casing, said unit including a rigid reservoir section having external threads adjacent the forward end thereof and a filling tube rigidly secured to said section projecting forwardly thereof and extending through said bore, the forward end of said tube being movable upon reciprocation of said unit to positions forwardly and rearwardly of the forward end of said writing nib, said filling tube having a longitudinal passageway with an open forward end extending therethrough and having a transverse opening in a forward end thereof providing communication between the interior of said reservoir section and said nib when said unit and the forward end of said tube are moved to a rearward position, means for restraining said unit against rotation with respect to said casing, a cap member mounted for rotation on the rearward end of said casing, and a tubular member secured to said cap member interposed between said reservoir section and said casing having internal threads adjacent the forward end thereof engaging said external threads whereby said unit is reciprocated upon rotation of said cap member relative to said casing.

3. A fountain pen comprising a casing, a feed bar mounted forwardly of said casing having a longitudinal bore extending therethrough; a writing nib mounted on said feed bar; a rigid cartridge unit supported for longitudinal reciprocation within said casing; said unit including a pneumatically collapsible sac, a vented tubular sheath for said sac having external threads adjacent the forward end thereof, and a filling tube rigidly secured to said sac and said sheath projecting forwardly thereof and extending through said bore; the forward end of said tube being movable upon reciprocation of said unit to positions forwardly and rearwardly of the forward end of said writing nib; said filling tube having a longitudinal passageway with an open forward end providing a vent

extending therethrough and having a transverse opening in the forward end thereof providing communication between the interior of said sac and said nib when said unit and the forward end of said tube are moved to a rearward position; means for restraining said unit against rotation with respect to said casing; a cap member mounted for rotation and longitudinal reciprocation on the rearward end of said casing; and a tubular member secured to said cap telescopically receiving said sheath and sealingly engaging said casing for collapsing said sac when reciprocated from a rearward position to a forward position, said tubular member having internal threads adjacent the forward end thereof for engaging said external threads when said cap is moved to a forward position whereby said unit is reciprocated upon rotation of said cap member relative to said casing.

4. The fountain pen recited in claim 3 wherein said casing includes a forwardly facing stop element and said unit includes a rearwardly facing stop element and wherein a spring member is compressed between said stop elements whereby said unit is urged toward said forward position.

5. The fountain pen recited in claim 3 wherein said casing has a vent to the atmosphere in a side wall thereof effective when said threads are in engagement but substantially ineffective during movement of said cap from said rearward position to said forward position.

6. A fountain pen comprising a casing, a feed bar having an axial passageway, a writing element mounted on said feed bar forwardly of said casing, a cartridge unit supported for longitudinal reciprocation within said casing, said unit including an externally threaded reservoir section and a filling tube having an open forward end fixed thereto projecting forwardly thereof toward said writing element and spaced therefrom, the forward end of said tube being movable through said axial passageway to positions forwardly and rearwardly of said writing element upon reciprocation of said unit, means secured to said unit for restraining said unit against rotation within said casing, a cap member mounted for rotation on the rearward end of said casing, and an internally threaded member secured to said cap member threadedly engageable with said reservoir section whereby said unit is reciprocated upon rotation of said cap member relative to said casing, said filling tube having feed and vent passageways extending longitudinally therethrough communicating with said reservoir and providing the sole passageways for filling said reservoir and for venting said reservoir and for feeding fluid from said reservoir to said writing element, said vent passageway terminating in an unobstructed opening in the forward end of said filling tube, said feed passageway terminating in a side wall in the forward end of said filling tube, said feed bar having a transverse passageway connecting said feed passageway and said writing element when the forward end of said filling tube is moved rearwardly of said writing element.

7. The fountain pen recited in claim 6 including a resilient member within said casing for urging said unit to the forward position.

8. A fountain pen comprising a casing, a feed bar having an axial passageway, a writing element mounted forwardly of said casing, a cartridge unit supported for longitudinal reciprocation within said casing, said unit including a collapsible sac, an externally threaded sheath for said sac, and a filling tube having an open fiorward end fixed to said sac and projecting forwardly toward said writing element and spaced therefrom, the forward end of said tube being movable through said axial passageway to positions forwardly and rearwardly of said writing element upon reciprocation of said unit, means secured to said unit for restraining said unit against rotation within said casing, a cap member mounted for rotation on the rearward end of said casing and including a pneumatic sac collapsing tubular member sealingly engaging said casing and telescopically mounted for reciprocation over said sheath, and an internally threaded member se-

cured to the forward end of said tubular member threadedly engageable with said sheath whereby said unit is reciprocated upon rotation of said cap member relative to said casing, said filling tube having feed and vent passageways extending longitudinally therethrough communicating with said sac and providing the sole passageways for filling said sac and for venting said sac and for feeding fluid from said sac to said writing element, said vent passageway terminating in an unobstructed opening in the forward end of said filling tube, said feed passageway terminating in a side wall in the forward end of said filling tube, said feed bar having a transverse passageway connecting said feed passageway and said writing element when the forward end of said filling tube is moved rearwardly of said writing element.

9. A fountain pen comprising a casing, a feed bar having an axial passageway, a writing element mounted on said feed bar forwardly of said casing, a cartridge unit supported for longitudinal reciprocation within said casing, said unit including a reservoir section and a substantially straight filling tube having an open forward end fixed thereto projecting forwardly thereof toward said writing element and spaced therefrom, the forward end of said tube being movable through said axial passageway to positions forwardly and rearwardly of said writing element upon reciprocation of said unit, and means for reciprocably moving said reservoir and filling tube as a unit within said casing between said forward and rearward positions, said filling tube having feed and vent passageways extending longitudinally therethrough communicating with said reservoir and providing the sole passageways for filling said reservoir and for venting said reservoir and for feeding fluid from said reservoir to said writing element, said vent passageway terminating in an unobstructed opening in the forward end of said filling tube, said feed passageway terminating in a side wall in the forward end of said filling tube, said feed bar having a transverse passageway connecting said feed passageway and said writing element when the forward end of said filling tube is moved rearwardly of said writing element.

10. A fountain pen comprising a casing, a feed bar mounted forwardly of said casing having a longitudinal bore extending therethrough, a writing nib mounted on said feed bar, said feed bar having a transverse capillary path connecting said bore and said nib, a cartridge unit supported for longitudinal reciprocation within said casing including a reservoir section and a substantially straight filling tube rigidly secured to said section projecting forwardly thereof and extending through said bore, the forward end of said tube being movable to positions forwardly and rearwardly of the forward end of said writing nib upon reciprocation of said unit, said filling tube having a longitudinal passageway with an open forward end providing an unobstructed vent extending therethrough and having a transverse opening in the forward end thereof providing communication between the interior of said reservoir section and said transverse capillary path when said unit and the forward end of said tube are moved to a rearward position, and means for reciprocably moving said reservoir and filling tube as a unit within said casing between said forward and rearward positions.

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