

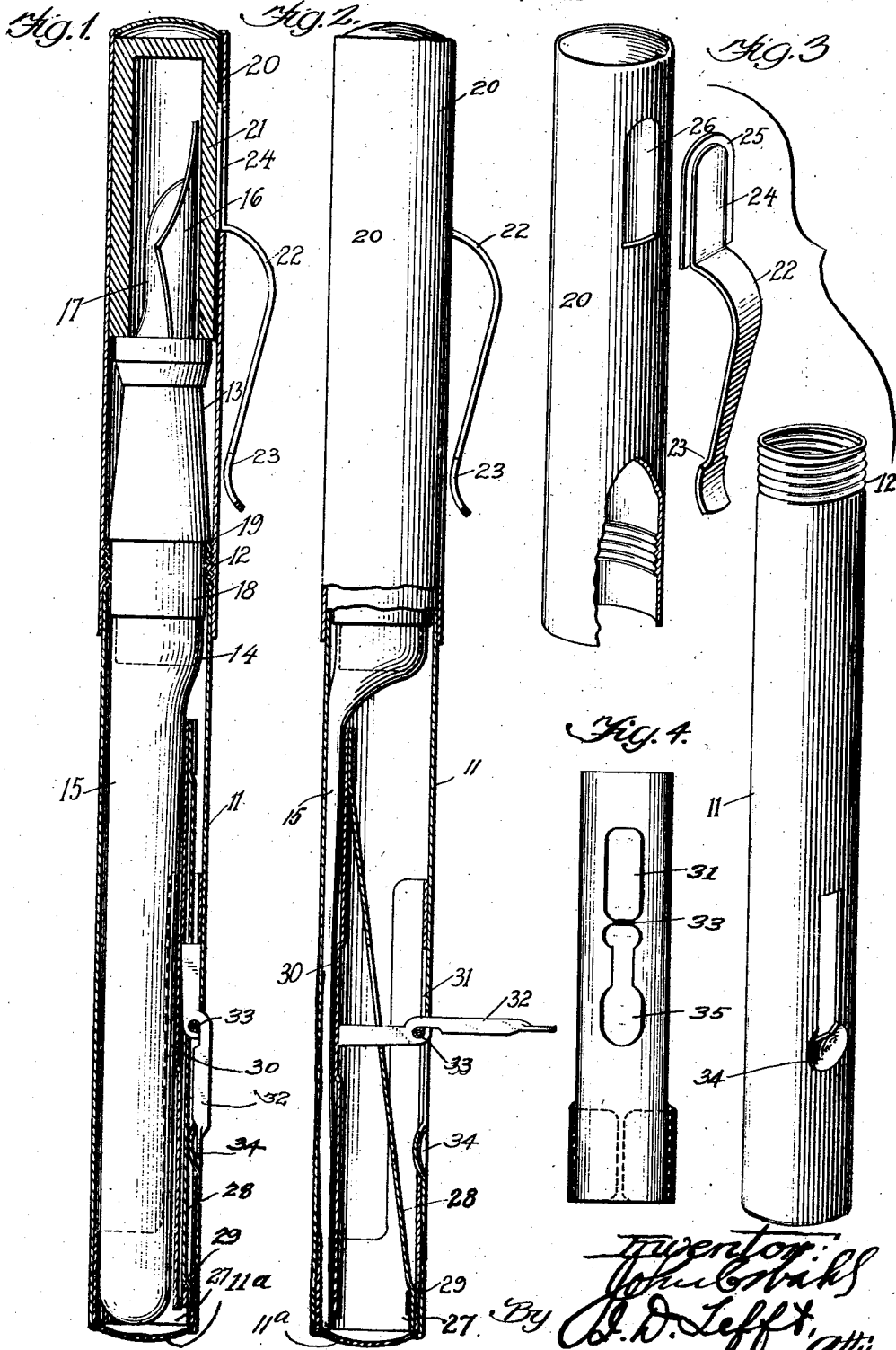
Nov. 17, 1925.

1,562,267

J. C. WAHL

FOUNTAIN PEN

Filed April 2, 1921



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UNITED STATES PATENT OFFICE.

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FOUNTAIN PEN.

Application filed April 2, 1921. Serial No. 457,873.

To all whom it may concern:

Be it known that I, JOHN C. WAHL, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Fountain Pens, of which the following is a specification.

My invention relates to fountain pens and more particularly to fountain pens whereby the ink capacity of the barrel is considerably increased over corresponding fountain pens in use today. The barrels of the fountain pens now in common use are constructed of hard rubber. This substance being of a very brittle nature, necessitates the making of the barrel comparatively thick, thus materially reducing the ink reservoir in the barrel.

It is with this primary object in view that I have constructed a fountain pen, the barrel of which is made of very thin metal, and upon examination it will be seen that the ink reservoir of my improved pen will be increased by twice the difference in the thickness of the hard rubber barrels now being used and the thin metal barrel of my improved pen.

Another object of my invention is to provide an improved filling device and novel method of assembling the same.

A further object is to provide efficient means for and method of securing the plug or pen section in the open end of the metal container or barrel.

Another object of my invention is to provide a fountain pen of the character above described, which is simple of construction, economical to manufacture and easy to operate.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which

Fig. 1 is a longitudinal sectional view of my improved pen showing the filling device in its closed position.

Fig. 2 is an elevational view of the fountain pen cap and clip; the lower portion of the figure being a longitudinal sectional view of the barrel showing the filling device in its open position.

Fig. 3 is a disassembled perspective view of the pen barrel, cap and clip.

Fig. 4 is a plan view of the shell member showing the slot and aperture cut therein.

Referring to the drawings, the numeral 11 indicates a thin metal container tube with a tassie 11^a spun in the rear end thereof said tube being spirally corrugated at the upper or open end thereof as at 12. A plug 13 is provided, at the rear end of which is attached a nipple 14 on which is placed a rubber ink sac 15. Mounted in the open end of the plug is a pen nib 16 which is provided with a feed nib 17, said feed nib containing suitable channels for supplying the ink to the nib 16. Since the particular means of supplying the pen nib 16 with ink do not form a part of my present invention, it is deemed unnecessary to burden this application with a detailed description of same.

That portion of the plug indicated by the numeral 18 fits snugly within the tube 11, the periphery thereof forming a gripping surface for the corrugations 12, thus forming a very strong frictional engagement between the container tube and the plug caused by a slight distortion of the resilient metal of the corrugations when the portion 18 of the plug 13 is forced into position within the corrugated end of the container tube. The shoulder 19 on the plug 13 prevents the insertion of the entire plug into the tube 11, said shoulder coming in contact with the open end of the tube when the plug has been inserted into the tube the proper distance.

The cap 20 is interiorly threaded at its lower or open end, said threads being adapted to engage the corrugations 12 in the tube 11, thus securely locking the cap and tube together when desired.

An inner cap 21, preferably made of hard rubber, is inserted in the upper end of the metallic cap 20, said inner cap being of such a length that when the metallic cap 20 is tightly screwed on the tube 11, it will abut or come in contact with the end of the plug 13, thus causing an air-tight enclosure around the pen nib. It has been found by practical use that the compression of air within the air-tight cap when it is screwed down upon the pen nib is sufficient under normal temperature to prevent the ink from

flowing into the cap should the pen become inverted. The pen nib is always moist when in use, due to the constant flow of ink, and when the pen is no longer desired for the time being, the cap is screwed on, and because of this air-tight enclosure, the pen nib is not allowed to dry. Otherwise, if there was a circulation of air in the enclosure the pen nib would become dry, and before the pen could again be used, it would be necessary to start the ink flowing, which is accomplished by shaking the pen in an upward and downward direction.

Referring to Fig. 3, it will be observed that the clip 22 consists of a prong 23 and a base portion 24. The base portion 24 has a flange 25 wedged thereon and said flange is adapted to come in contact with the inside of the metal cap 20 when the clip is in its proper position. The thick portion of the base 24 is so constructed as to fit into a hole 26 which is punched in the cap 20, and the flange 25 prevents the withdrawing of the clip 22. As will be seen, the length of the hole 26 is greater than the extreme width of the flange 25. The clip 22 is held in a line at right angles to the line of the cap 20, and the base portion 24 is inserted into the hole 26. The clip is then turned downwardly so that it will lie adjacent and parallel to the cap 20. Inasmuch as the hole 26 is adapted to receive the base portion 24, it will be seen that the flange 25 will press against the inside of the cap 20. After the clip, as outlined above, has been properly positioned in the metallic cap 20, the inner cap 21 is inserted into the metal cap. Because of the very snug fit of the inner cap 21 in the cap 20, it will cause a slight bulging of the outer cap at that point where the flange 25 rests against its inner wall. However, the bulging is practically negligible, due to the fact of the extreme thinness of the flange 25 and is undiscernible to the user of the fountain pen.

The method used for filling my improved fountain pen with ink is known as a "shell" filling device. The filling device, with the exception of the lever, is completely assembled and affixed to a shell before it is inserted into the tube 11. The numeral 27 indicates a slotted shell, a portion of said shell extending along and running parallel with the inner side of the casing 11. Detachably affixed to the shell is one end of the spring 28 as is shown at 29, the other end of said spring being fixedly attached to the presser bar 30. That portion of the shell member 27 extending along and running parallel with the upper underside of the tube 11 is slotted as at 31 in order to engage the lever 32; said slot having at a determined point a pivot bar 33, which serves as a support for the lever 32, by means of which the presser bar is operated.

The fountain pen is assembled as follows: The pen and feed nibs are attached to the plug, the other end of the plug having a nipple on which is placed a rubber sac. The shell filling device is assembled, with the exception of the lever, and the device is then inserted in the tube or container, care being taken to see that the slot in the shell is in alignment with the slot in the tube. The circular shaped aperture 35 at the end of the slot in the shell will register with the detent or recess 34 in the tube 11 when the filling device is placed within the tube, said recess 34 serving the two-fold purpose of holding the filling device in its proper place within the tube 11 and acting as a resting place for the flat end of the lever when the filling device is in a closed position. After the filling device has been placed in the tube, the lever is properly adjusted in the slot, the lug thereon being bent around the pivot bar, thus acting as a pivot by which air is expelled from the sac when the lever is in an open position and the refilling of said sac with ink takes place when the lever is being closed. As has been described heretofore, the base of the clip is inserted in a hole in the metal cap, and then a smaller cap is inserted in the metal cap, said smaller cap abutting the end of the plug in which the pen nib is inserted, causing an air tight enclosure about the pen nib; said smaller cap also acting as a means to hold the clip in its proper position.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a fountain pen, a thin metal container tube for housing an ink sack, and formed at one end with spirally arranged corrugations forming external threads and internal ridges and valleys, a pen section having a smooth surfaced extension adapted to be forcibly thrust within said corrugated end of the container tube causing a slight distortion of the resilient metal of said corrugations longitudinally of said tube, so as to produce a gripping action of the corrugations on said smooth surfaced extension to tenaciously hold said pen section in place on said container tube.

2. In a fountain pen, a thin metal container tube for housing an ink sack, and formed at one end with spirally arranged corrugations forming external threads and

internal ridges and valleys, a pen section having a smooth surfaced extension adapted to be forcibly thrust within said corrugated end of the container tube causing a slight distortion of the resilient metal of said corrugations longitudinally of said tube, so as to produce a gripping action of the corrugations on said smooth surfaced extension to tenaciously hold said pen section in place on said container tube, and a cap member provided with threads for coaction with the exterior spiral corrugations of the shell to secure the cap in position on the tube over the pen section.

3. In a fountain pen, a thin metal container tube closed at one end and open at the other, the metal adjacent the open end being formed with corrugations, and a pen section having a smooth surfaced extension thrust within the said open end with such force as to cause a slight distortion of the corrugations longitudinally of the tube and a resultant tenacious gripping of the corrugation on the said extension.

4. The method of uniting a thin metal container tube for fountain pens and a pen section which consists in impressing corrugations in the metal at one end of the tube, forming a smooth extension on the pen section, forcibly inserting the smooth extension within the corrugated end, and causing a slight distortion of the metal of the corrugations longitudinally of the tube so that the tendency of said distorted corrugations to return to their normal shape will cause a tenacious gripping of the corrugations on the extension of the pen section.

5. In a fountain pen a slotted casing, an ink sack in said casing, a shell adapted to snugly fit within one end of said casing, an extension on said shell adapted to lie against the inside of the casing and provided with slots and a pivot adapted to register with the slot in the casing, a presser bar, a slotted spring member secured at one end to the shell and at the other to the opposite end of the presser bar, and a lever fulcrumed on said pivot to extend through the slot in the casing and the slot in the spring member, the lever in its open position striking one end of the spring member slot to limit the

opening movement of the lever, the shell with its extension forming the sole support for one end of the spring member and the lever.

6. In a fountain pen, a slotted casing adapted to contain an ink sack therein, a shell adapted to snugly fit within one end of the casing and having a slotted extension formed with a lever pivot positioned to lie directly below the slot in the casing, a lever extending through the casing slot and formed with ears spaced throughout a portion of their length from the body of the lever to provide a slot to receive the pivot, said ears being bent over the pivot when the lever is in operative position to hold the lever in proper relation to its cooperating parts.

7. In a fountain pen, a slotted casing, a shell fitted snugly in said casing, a pivot bearing carried by said shell and adapted to lie immediately below and extend across the slot in the casing, a lever having open slots to receive the pivot bearing when the lever is in operative position, the material forming one side of said slots being bent over the pivot bearing to pivotally mount the lever on the bearing, the shell being removable to permit repair of the parts when necessary.

8. The method of constructing and assembling the refilling apparatus in fountain pens, which consists in providing a shell adapted to snugly fit within the barrel of the pen, slotting the shell to form an integral pivot bearing, providing a presser bar, connecting a spring at its opposite ends with the presser bar and the shell, forming a lever with an open ended slot to receive the bearing, inserting the assembled shell presser bar, and spring within the barrel, then passing the lever through a slot in the barrel and the slot in the shell and passing the slotted portion of the lever over the pivot bearing, and then bending the material of one side of the slot in the lever over upon the pivot bearing to hold the same in place therein.

In witness whereof I have hereunto subscribed my name.

JOHN C. WAHL.