May 7, 1929. R. H. FOLK 1,712,141

FOUNTAIN PEN

Filed Jan. 31, 1928

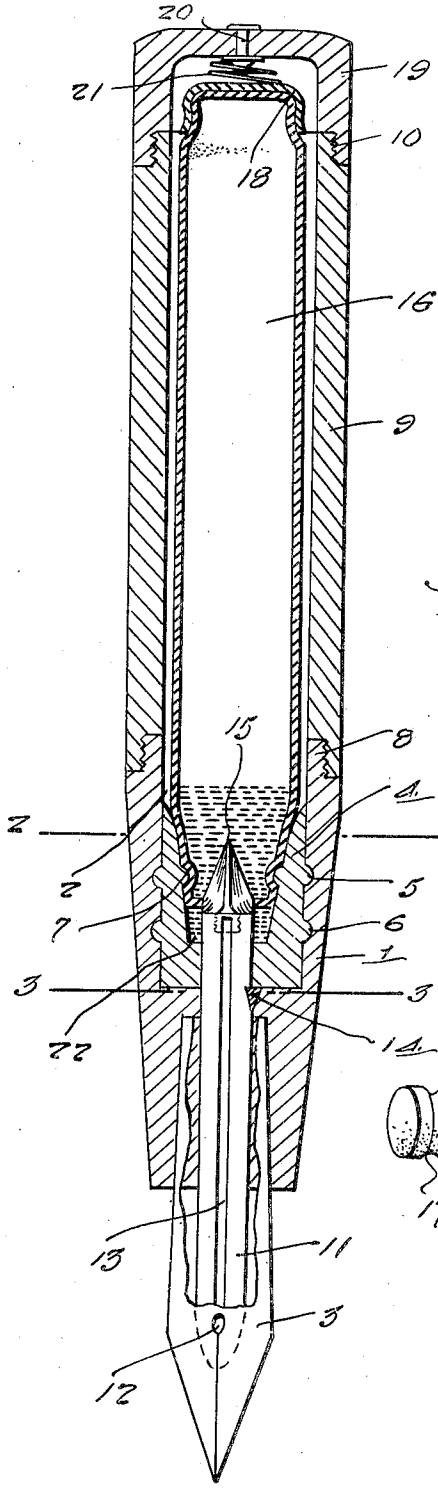


Fig. 1.

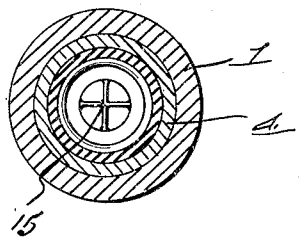


Fig. 2.

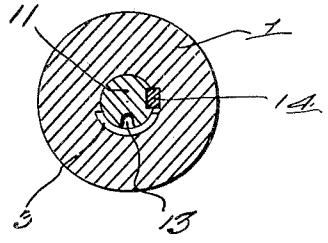


Fig. 3.

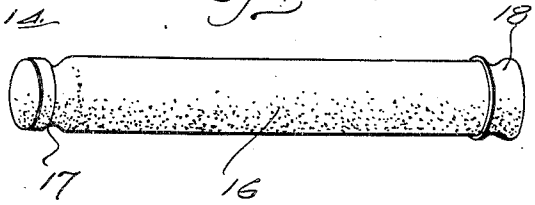


Fig. 4.

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UNITED STATES PATENT OFFICE.

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FOUNTAIN PEN.

Application filed January 31, 1928. Serial No. 250,795.

The present invention relates to improvements in fountain pens and has for its principal object to provide a pen wherein individual ink receiving ampuls, or capsules constructed of puncturable material may be removably arranged within the barrel, the inner end of the feeder unit carrying a pointed head that punctures the lower end of the ampul or capsule to permit the flow of ink from the ink container into a groove formed in the feeder to the usual nib.

One of the important objects of the present invention is to provide a fountain pen of the above mentioned character which will eliminate the use of an ordinary rubber bag or sack, and also the depressing or collapsing means for association therewith in order to refill the fountain pen provided with such an ink receiving unit, thus saving considerable cost and also obviating the necessity of having to place the nib of the pen in a bottle of ink for the purpose of refilling the same.

A still further object is to provide a fountain pen of the above mentioned character which is simple in construction, inexpensive, strong and durable and further well adapted to the purpose for which it is designed.

In the accompanying drawing wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a longitudinal sectional view through the fountain pen embodying my invention, parts being shown in elevation.

Figure 2 is a transverse section taken substantially upon the line 2—2 of Figure 1.

Figure 3 is a similar section taken upon the line 3—3 of Figure 1, and

Figure 4 is a detail perspective view of the puncturable ink receiving ampul or capsule.

In the drawing wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates a nib holder, the same being formed at its upper end with an enlarged socket 2. The nib 3 is set in the holder 1 in any manner well known in the art and this holder is constructed of hard rubber or other similar material.

Arranged within the socket 2 is the cup shaped member 4 that is also formed of rubber and for the purpose of locking this cup shaped member in the socket, the same is formed on its outer peripheral face with the ribs 5 that engage in suitable annular channels or grooves 6 formed in the side wall of the socket in the manner as clearly shown in Figure 1. The sides of the inner side of the cup shaped member 4 gradually converge toward the bottom and an annular rib 7 is formed on the inner face of the cup-shaped member for a purpose hereinafter to be more fully described.

The upper end of the holder 1 is formed with an externally threaded neck portion 8 for cooperation with the lower internally threaded end of the barrel 9 and the upper end of this barrel is formed with a reduced externally threaded neck 10. As clearly shown in Figure 1 the inner diameter of the barrel 9 is substantially the same as the diameter of the socket 2 formed in the upper portion of the holder 1.

Extending centrally through the holder 1 is the elongated feeder 11 which is also formed of rubber, the same extending through the bottom of the cup shaped member 4, while the lower end of the feeder terminates adjacent the ink conveying opening 12 of the nib 3. This feeder is located directly beneath the nib or pen point 3 in the manner well known in the art, and an ink conveying channel 13 is formed in the back or upper side of this feeder 11, said channel extending for substantially the entire length of the feeder.

For the purpose of rigidly securing the feeder 11 in the holder 1, I provide the locking key 14 and the same is associated with the holder 1 and the feeder in the manner as clearly illustrated in Figures 1 and 3 of the drawing.

The upper end of the feeder 11 that extends into the cup shaped member 4 is formed with an internally threaded socket for receiving the threaded shank formed on the bottom of the pointed head member 15 that forms a salient part of the present invention. This head member is constructed of metal, and includes a series of radial blades that converge toward their upper ends.

Also forming an important part of the present invention is the ink containing ampul or capsule 16 that is constructed of any puncturable metal and is in the form of an elongated cartridge that is of greater length than the barrel 9 and the ends of this capsule or ampul are normally sealed after the capsule has been filled with ink. Furthermore, each end of the capsule or ampul is so shaped as to form an annular depression 17 adjacent the respective ends of the cartridge as clearly shown in Figure 4. A rubber or metallic

cap 18 is removably supported on the upper end of the ampul or capsule 16, and a number of these ampuls may be put up in package form, and adapted to contain different colored ink, the capsules or ampuls being of such size as to permit the same to be easily carried around in the pocket and due to the fact that each capsule is entirely sealed, there will be no possibility of the ink leaking out from the capsule while being carried in the pocket.

In use, a capsule or ampul containing the desired color of ink is inserted in the upper open end of the barrel 9 and then the cap 19 is threaded on the threaded neck 10 formed on the upper end of the barrel. This cap is provided in its top with a stud 20 to the bottom of which is connected an expansible coil spring 21 that bears against the removable metallic cap 18 supported on the upper end of the puncturable capsule 16 and the capsule is then forced downwardly in the barrel so that the lower end portion thereof will be forced into the tapered cup shaped member 4 and the pointed head 15 will pierce the bottom end of the capsule or ampul. The internal annular rib 7 will enter the annular depression 17 formed adjacent the lower end of the cartridge for limiting the downward sliding movement of the ampule or cartridge whereby the punctured lower end will be spaced with respect to the bottom of the cup shaped member 4 to form an ink receiving chamber or well 22, which well has communication with the upper end of the channel 13 formed in the feeder 11 as shown very clearly in Figure 1.

By reason of the head construction 15 the ink in the ampul or capsule 16 will flow into the chamber or well 22 and keep the same filled until all the ink has been consumed.

When all of the ink has been expelled from the ampul or capsule and the communicating well or chamber, the empty capsule or ampul can be readily removed and a new ampul inserted.

If it is desired to remove the punctured ampul or capsule from the barrel before all the ink has been entirely consumed the cap 19 is removed and the partially empty ampul is removed from the barrel. The metallic cap 18 is then disengaged from the upper end of the capsule and is snapped over the punctured lower end, thus retaining the ink in the capsule or ampul.

The provision of a fountain pen of the above mentioned character will obviate the necessity of having to refill the fountain pen by placing the pen point in a bottle of ink.

Furthermore the provision of a fountain pen of the above mentioned character will eliminate the use of the ordinary rubber sack or bag and the depressing plunger usually associated therewith.

My fountain pen is of such construction as to enable the parts to be readily and easily assembled or disassembled and due to its simplicity the same will be manufactured at a very low cost and will also be positive and efficient in its operation.

While I have shown the preferred embodiment of my invention it is to be understood that minor changes may be made in the size, shape and arrangement of parts without departure from the spirit of the invention or the scope of the appended claims.

Having thus described the invention, what I claim as new is:—

1. In a fountain pen, a nib holder, said holder being formed with a socket in the upper end thereof, a cup shaped member secured in the socket, a barrel secured on the upper end of the holder, a feeder extending vertically through the holder and into said cup shaped member, said feeder being provided with an ink conveying channel, an ink containing cartridge disposed within the barrel, the ends of the cartridge being normally sealed, the lower end of the cartridge extending into the cup-shaped member and being spaced with respect to the bottom thereof to provide an ink receiving well that communicates with the channel in said feeder, and means carried by the upper end of the feeder for piercing the bottom of the cartridge whereby the well will be supplied with ink from the cartridge.

2. In a fountain pen, a nib holder, said holder being formed with a socket in the end thereof, a cup shaped member secured in the socket, a barrel secured on the upper end of the holder, a feeder extending vertically through the holder and into said cup shaped member, said feeder being provided with an ink conveying channel, an ink containing cartridge disposed within the barrel, the ends of the cartridge being normally sealed, the lower end of the cartridge extending into the cup shaped member and being spaced with respect to the bottom thereof to provide an ink receiving well that communicates with the channel in said feeder, means carried by the upper end of the feeder for piercing the bottom of the cartridge whereby the well will be supplied with ink from the cartridge, said last mentioned means comprising a pointed piercing head secured on the upper end of the feeder, said head being of such construction as to permit the ink to flow from the cartridge into the well.

3. In a fountain pen, a nib holder, said holder being formed with a socket in its upper end, a cup shaped member secured in the socket, an annular rib formed on the inner wall of the socket at the intermediate portion thereof, a barrel removably secured on the upper end of the holder, a feeder extending vertically through the holder and into the bottom of the cup shaped member, said feeder being provided with an ink conveying chan-

nel, an ink containing cartridge disposed within the barrel, the ends of the cartridge being normally sealed, the lower end of the cartridge extending into the cup-shaped member and being formed with an annular depression at a point in spaced relation with respect to the lower end for cooperation with the aforementioned rib to limit the downward movement of the cartridge in the cup-shaped member, whereby the lower end of the cartridge is spaced with respect to the cup-shaped member to provide an ink receiving well that communicates with the channel in said feeder, and a pointed piercing head secured on the upper end of the feeder for piercing the bottom of the cartridge, whereby the well will be supplied with ink.

In testimony whereof I affix my signature.

ROBERT HAMILTON FOLK.