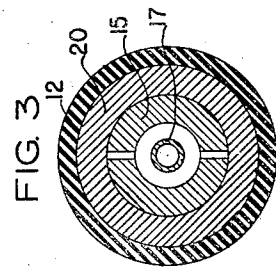
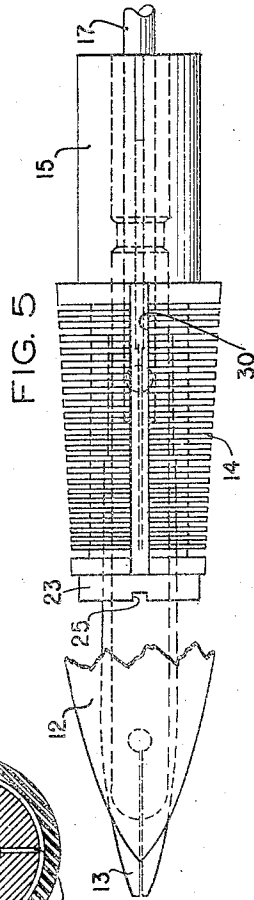
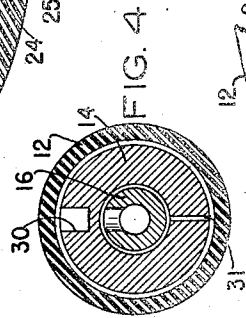
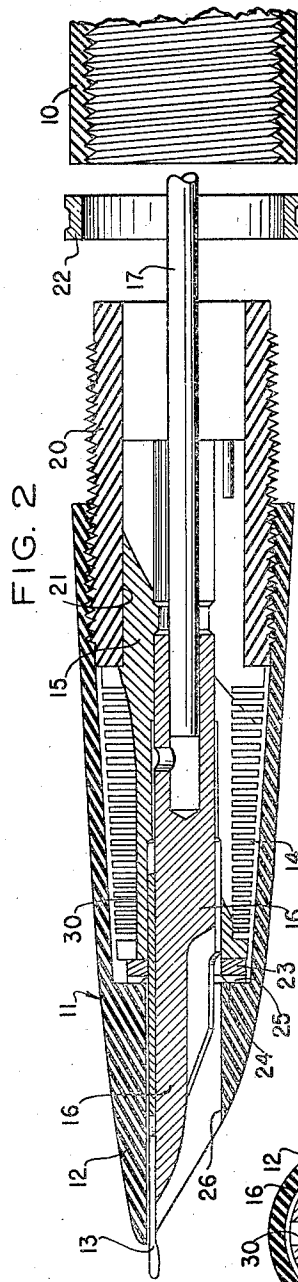
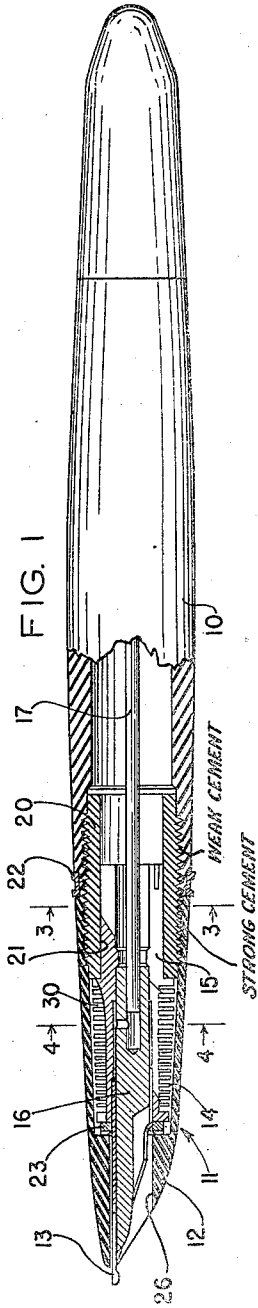


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E. HEALY
FOUNTAIN PEN

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INVENTOR.
EMMETT HEALY

BY
Davis, Ludney, Smith & Shortt
ATTORNEYS

UNITED STATES PATENT OFFICE

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FOUNTAIN PEN

Emmett Healy, Janesville, Wis., assignor to The Parker Pen Company, Janesville, Wis., a corporation of Wisconsin

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1

The invention relates to fountain pens of the type comprising a shell enclosing feeding means and a point projecting from the shell, and its general object is to provide a novel structure facilitating alignment of the parts and maintenance of such alignment.

It is also an object to provide a novel fountain pen structure in which the parts constituting the front or writing end are adapted to be assembled as a unit and such unit detachably secured to the barrel of the pen whereby the parts of the front end may be properly aligned relative to each other and such alignment is not affected by securing the unit to the barrel, or in case repair of some portion of such front end is required, the entire unit may be readily replaced by a new unit, and the old unit may be returned to the factory where it was made and where it may be repaired and reassembled with greatest facility and accuracy.

Another object is to provide a novel fountain pen structure having the parts forming the front or operating end of the pen assembled as a unit, and utilizing so far as possible standard parts heretofore used in a pen in which such parts were successively assembled on the barrel of the pen.

A further object is to provide a novel fountain pen structure having the parts forming the front or operating end of the pen assembled as a self-contained unit, and held in such relation by cement, the unit then being secured to the barrel of the pen by a cement having a different characteristic and capable of being freed by different treatment from that required for freeing the first-mentioned cement, so that the unit may be readily detached from the barrel without loosening the parts constituting the unit from each other.

Still another object is to provide a fountain pen structure having the parts forming the front or operating end assembled as a self-contained unit, with said parts held in proper adjustment relative to each other by spacing means providing suitable passages for the flow of air within the structure.

Other objects and advantages will become apparent in the following description taken in connection with the accompanying drawing, in which:

Figure 1 is a side elevational view, partially in section, of a fountain pen embodying the features of the invention;

Fig. 2 is a view similar to Fig. 1 showing a partial disassembling of the pen;

2

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

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 1; and

Fig. 5 is a fragmentary view of the pen with parts broken away to show the alignment of certain parts.

In a fountain pen having a front end structure comprising a shell enclosing ink feeding means and a point which projects from the shell to provide a writing nib, the parts of such structure are so formed that accurate alignment thereof is necessary to establish proper operating conditions. Heretofore, in pens of this type the front end structure has usually been secured to the barrel by a threaded connection, with the result that the parts were apt to become misaligned rotatively in tightening the structure on the barrel.

Because of this difficulty in adjustment, the pens should be completely assembled at the time of manufacture. A dealer therefore has to carry a relatively large stock, if he is to be able to offer a customer a choice of style of pen as well as a choice of character of the point in each style. Furthermore, in case repair of the front end structure is needed, the difficulty of alignment of the parts of the front end structure frequently involves a return of the pen to the factory for such repair. The factory in making such repair must so handle the work that the identity of the pen with a particular customer is maintained.

These difficulties can be eliminated and material advantages attained if the front end structure is assembled as a unit with the parts maintained in proper alignment in a manner independent of the securing of the front end structure to the barrel. Thus, in assembling the front end unit in the factory, the parts may be properly aligned, and by securing them in such relation the rotative movement involved in screwing the unit on the barrel cannot cause a misalignment. The manufacture of the pen is thus materially simplified.

The unit construction of the front end likewise simplifies the problem of being able to give a customer a wide choice of styles of pens and of character of points in each style, since any front end unit having a point of the desired character may readily be attached to a barrel. A change of points may thus be accomplished by replacement of the front end unit, and the adjustment of each point with the other parts of the unit is not disturbed.

Similarly, repair problems are simplified since a front end unit to be repaired need not be car-

3

ried through the factory on a basis maintaining identity of a particular unit with a particular customer. The customer having a pen in need of such repair may be supplied with a unit previously repaired, and the unit to be returned to the factory may be repaired and placed in stock for some future repair job. Delay because of repair is thus eliminated.

In the drawing, I have shown a pen comprising a barrel 10 and a front end structure, indicated generally at 11, secured thereto. In the type of pen here shown to illustrate the invention, the front end structure is an assembly of parts which are now in standard production and which comprise a shell 12 and a point 13 projecting therefrom. Within the shell is a collector or governor 14 provided with a rearwardly extending shank portion 15. The governor 14 is provided with a central bore to receive a feed bar 16 provided with a rearwardly extending air tube 17 entering the barrel 10. The forward end of the feed bar 16 underlies the point 13, and the latter extends rearwardly and is received in the front end of the governor 14. The feed bar 16, point 13 and governor 14 are so constructed as to provide suitable passages for the flow of ink from the barrel to the point and for the entrance of air into the barrel to compensate for the withdrawal of ink consumed in writing.

Proper alignment of these parts is highly desirable to permit them to function properly. Thus the governor 14 is provided with a longitudinal channel 30 and diametrically opposite a feed slit 31 extending through the shank 15. The point 13 should bear a predetermined relation to the channel and slit and also should be aligned to cooperate with the shape of the shell and the feed bar. Furthermore, the projection of the point beyond the shell preferably conforms to definite limits. The alignment of the parts thus is a matter requiring care in assembly.

Since, as mentioned above, it is desirable that the front end structure be assembled as a unit, the parts constituting the front end structure are secured together in a manner to prevent misadjustment during assembly of the unit on the barrel and to permit removal of the unit from the barrel without disassembling of the parts of the unit. To this end the parts of the unit are held together in a manner which rigidly holds the parts in place and which does not permit their disassembly by the procedure utilized in detaching the unit from the barrel. A unit thus may be placed on a barrel without danger of disaligning the parts of the unit.

In order to attain this feature, a member in the form of a nipple 20 is provided, which serves to hold the parts of the front end structure assembled and provides a convenient means for attaching the front end structure as a unit to the barrel. The nipple in its preferred form comprises an elongated cylindrical member having a central bore 21 dimensioned to receive the shank 15 of the governor 14. The shank 15 has a frictional fit within the bore 21, and the governor is positioned in abutment with the front end of the nipple 20. Externally the nipple 20 is preferably threaded throughout at least the greater part of its length and to secure it in assembled relationship with the front end structure, a portion of these external threads in the nipple engage corresponding threads on the interior of the rear end of the shell 12. The nipple is of sufficient length so that a substantial portion thereof extends beyond the shell 12 and is

4

threaded into the front end of the barrel 10. Between the rear end of the shell and the front end of the barrel and encircling the nipple 20 is a cap-retaining clutch ring 22. Thus, since the parts of the unit are maintained in predetermined relation by the nipple and the latter is fixed in the shell before attaching to the barrel, the rotative movement of the unit in screwing the nipple into the barrel will not disturb the adjustment of the parts of the unit.

Since the nipple 20 is threaded both into the shell and into the barrel, it is desirable to provide means to prevent disassembly of the nipple and shell when the nipple is unscrewed from the barrel to remove the front end unit. To this end a cement is employed to secure the nipple to the shell, which cement preferably is placed on the threads engaging the shell. Such cement not only serves to secure the parts together as a unit, but also provides an air and ink-tight seal so that the other parts of the front end structure may effect proper feeding of the ink.

It is also desirable to utilize a cement in the threads joining the nipple with the barrel for sealing purposes. Since cement thus is utilized both between the nipple and the barrel and the nipple and the shell, it is desirable that the two cements differ in some characteristic so that one may be loosened without freeing the cement at the other point. Thus since it is the intent to maintain the front end structure in assembled relationship, the cement securing the nipple to the barrel is of a type which is more readily freed than the cement holding the nipple to the shell. In the preferred construction, both cements are of thermoplastic character so that under proper treatment they may be readily freed without danger of breaking any of the parts. The cement securing the nipple to the barrel, however, has a lower critical temperature than that of the cement connecting the nipple to the shell. Thus by controlling the heat applied to the pen to loosen the cement, the cement securing the nipple to the barrel may be freed without plasticizing the other cement. In practice, each repair shop may be provided with a heating device capable of supplying just enough heat to a pen to plasticize the first-mentioned or lower temperature cement. Thus the front end unit may be readily detached from the barrel without danger of disassembling the parts of the front end unit. In reassembling the front end unit on the barrel, the repair shop will be supplied only with cement having the proper critical temperature.

As mentioned above, the nipple 20 when assembled into the shell 12 holds the parts of the front end structure in properly assembled and rotatably adjusted relation including the extent the point 13 projects beyond the shell. Since the governor 14 abuts against the front end of the nipple 20 at the rear end of the governor, it is desirable that the governor be held against being moved too far forward in the shell so as to limit the extent of projection of the point beyond the shell by limiting the extent to which the nipple is threaded into the shell. Such limitation of the forward position of the governor within the shell also preserves the correct spacing of the governor from the tapering side wall of the shell. For this purpose spacing means is provided at the front end of the governor comprising a collar 23 embracing the point 13 and feed bar 16 and adapted to abut against an interior shoulder 24 adjacent the front end of the

5

shell to limit the forward position of the governor. The collar thus may abut against the shoulder 24 and the governor abuts against the collar 23 so that the parts are limited in assembled relation when the nipple 20 is threaded into the barrel. However, if the point and shell are not rotatively aligned when such abutment occurs, the nipple may be unscrewed a fraction of a turn to attain the desired rotative alignment. Since in the functioning of the governor 14 access for air to the front end of the governor must be provided, the collar 23 is provided with a plurality of radially extending grooves 25 (four in the present instance) which communicate with an opening 26 in the front end of the shell 12. The collar if in abutment thus provides for proper air flow to the governor.

From the foregoing description, it is evident that I have provided a front end structure which may be assembled as a unit and in which the parts will not become misaligned by subsequent securing of the unit to the barrel. Such front end unit may be readily replaced in the pen so that a minimum of time is required for repairs, i. e., the owner of a pen may have his pen returned to him with a new front unit with a minimum of delay. The front end units then may be shipped to the factory where they may be readily repaired and readjusted on a production basis.

I claim:

1. In a fountain pen including a barrel, a unitary front end structure comprising a point, ink feeding means for controlling the flow of ink to the point, an enclosing shell, and a nipple secured in the shell and holding the point and feeding means in operative relation with the shell, said nipple being constructed for detachable engagement with the barrel whereby the front end structure may be detached from the barrel as a unit.

2. In a fountain pen having a barrel, a unitary front end structure comprising a point, ink feeding means for controlling the flow of ink to the point, an enclosing shell, and a member rigidly securing the point and feeding means in operative relation with the shell and constructed for detachable engagement with the barrel whereby the front end structure may be assembled as a unit, the unit being readily securable to the barrel.

3. In a fountain pen having a barrel, a unitary front end structure comprising a point, ink feeding means for controlling the flow of ink to the point, a nipple carrying said point and said feeding means, and a shell enclosing said feeding means and the major portion of said point, said shell and said nipple being secured together to hold the feeding means and point in operative relation with each other and with the shell, and said nipple being constructed for detachable engagement with the barrel whereby the front end structure may be assembled on and detached from the barrel as a unit.

4. In a fountain pen having a barrel, a unitary front end structure comprising a point, feeding means comprising a governor and a feed bar, said feed bar and said point being carried by said governor, a nipple carrying said governor, and a shell enclosing said feeding means and secured to said nipple to hold the point, governor and feed bar in operative relation with the shell, said nipple being constructed for detachable engagement with the barrel to permit the front end

6

structure as a unit to be assembled on and detached from the barrel.

5. In a fountain pen having a barrel, a unitary front end structure comprising a point, feeding means carrying said point, a nipple carrying said feeding means, and a shell enclosing said feeding means and a major portion of said point and threaded on one end of said nipple to hold the point, feeding means and shell in operative relation, the other end of said nipple being threaded for detachable engagement with the barrel whereby the front end structure may be detached from the barrel as a unit.

6. In a fountain pen having a barrel, a unitary front end structure comprising a point, a feed bar, a governor having a bore frictionally receiving the point and feed bar, said governor having a shank at its rear end, a nipple having a bore frictionally receiving said shank, and a shell threaded on the front end of said nipple and thereby holding the point, feed bar and governor in operative relation to the shell, said nipple having its rear end threaded for detachable engagement in the barrel whereby the front end structure may be detached from the barrel as a unit.

7. In a fountain pen having a barrel, a unitary front end structure comprising a point, feeding means, a shell enclosing said feeding means and a major portion of said point, and a nipple secured to said shell and holding the point, feeding means and shell in operative relation, said nipple being cemented to said shell to provide a tight seal therebetween to insure proper operation of the feeding means and to prevent inadvertent disassembly of the shell and nipple, said nipple being constructed for detachable engagement with the barrel whereby the front structure may be removed from the barrel as a unit.

8. In a fountain pen having a barrel, a unitary front end structure comprising a point, feeding means, an enclosing shell, and a nipple threaded into the rear end of the shell and holding the point, feeding means and shell in operative relation, the threads on the nipple being cemented to said shell to provide a tight seal therebetween insuring proper operation of the feeding means and preventing inadvertent disassembly of the shell and nipple, said nipple being threaded for engagement with the barrel whereby the front structure may be readily removed from the barrel as a unit.

9. In a fountain pen having a barrel, a unitary front end structure comprising a shell having an internal shoulder adjacent its front end, a point extending from the front end of said shell, feed control means within said shell, a nipple secured in the rear end of said shell for holding the parts in assembled relation, and a spacing member interposed between said shoulder and said feed control means to limit the forward position of the latter within the shell, said nipple being constructed for detachable engagement with said barrel.

10. In a fountain pen having a barrel, a unitary front end structure comprising a shell having an internal shoulder adjacent its front end, a point extending from the front end of said shell, a governor within said shell, a nipple threaded in the rear end of said shell and abutting said governor, and a spacing collar interposed between said governor and said shoulder to limit the forward position of the governor relative to the shell, said

7

nipple being constructed for detachable engagement with said barrel.

11. In a fountain pen having a barrel, a unitary front end structure comprising a shell having an opening in its front end and having an internal shoulder adjacent its front end, a point extending through said opening, a governor within said shell and carrying the point, a nipple threaded in the rear end of said shell and carrying said governor, and a spacing collar interposed between said governor and said shoulder to limit the forward position of the governor relative to the shell and thus limit the projection of the point through said opening, said collar being radially grooved to provide an air passage connecting said governor and said opening, said nipple being constructed for detachable engagement with said barrel.

12. In a fountain pen, the combination of a barrel, a unitary front end structure comprising a shell, a point projecting from said shell, feed control means within said shell, a nipple extending into the shell for holding the point and feed control means in operative relation to the shell, and a cement rigidly securing said nipple to the shell, and a second cement for securing said nipple to the barrel, said second cement being of different character from the first-mentioned cement and being adapted to be freed by treatment differing from the treatment for freeing the first-

8

mentioned cement whereby the nipple may be selectively detached from the barrel or the shell.

13. In a fountain pen, the combination of a barrel, a unitary front end structure comprising a plurality of parts and including a nipple for holding said parts in assembled relation and a thermoplastic cement securing said nipple to the front end structure, and a second thermoplastic cement for securing said nipple to the barrel to the assemble the unitary front end structure with the barrel, said second cement being rendered plastic at a lower temperature than said first-mentioned cement whereby the nipple may be readily detached from the barrel without loosening the connection of the nipple with the front end structure.

14. In a fountain pen, the combination of a barrel, a unitary front end structure including a shell, a nipple threaded into the shell to hold the parts of said structure in assembled relation, and a thermoplastic cement in the threads connecting the nipple with the shell, said nipple also being threaded in said barrel, and a second thermoplastic cement in the threads connecting the nipple with the barrel, said second cement being rendered plastic at a lower temperature than said first-mentioned cement whereby the nipple may be readily unscrewed from the barrel without loosening the threaded connection with the shell.

EMMETT HEALY.

Disclaimer

2,404,063.—*Emmett Healy, Janesville, Wis.* FOUNTAIN PEN. Patent dated July 16, 1946. Disclaimer filed Dec. 30, 1947, by the assignee, *The Parker Pen Company.*

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, and 6 of said patent.
[*Official Gazette Feb. 3, 1948.*]