

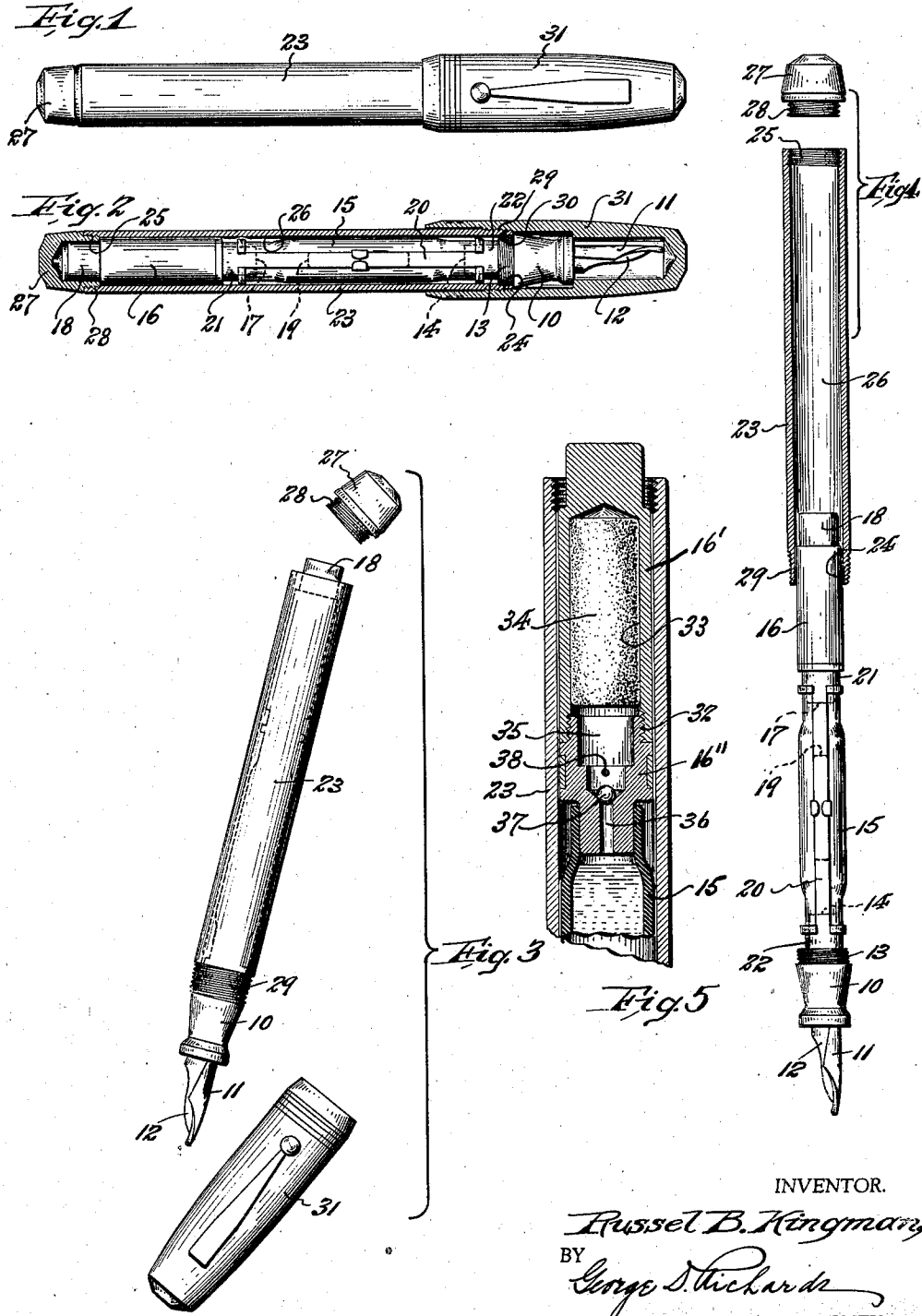
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FOUNTAIN PEN

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FOUNTAIN PEN

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1 Claim. (Cl. 120—46)

This invention relates to improvements in fountain pens, and the invention has for its principal object to provide a novel construction of fountain pen whereby the external case or barrel assembly of the pen is so related and combined with the assembly constituting the mechanical or working parts of the pen as to be quickly and easily separated therefrom without disturbing the operative functions thereof. By reason of this novel arrangement and relation of the external barrel or case assembly in connection with the assembly of mechanical or functional parts of the pen, dealers may be furnished with a variety of barrel or case parts of different colors or designs, which may be selected to enclose a functional assembly unit at the pleasure of the purchaser and in accord with the taste and desire of the latter. The main advantage of the novel pen construction, thus characterized, is that it permits dealers to carry in stock a proportionally large and varied assortment of relatively inexpensive external case or barrel parts for selective use in connection with a comparatively small stock of functional units; said case or barrel parts being selectively interchangeable for assembly with functional units, so that the taste and desires of each purchaser may be easily and quickly satisfied at a minimum expense and with little labor, since the construction is such that no special tools are required for dismounting or mounting case or barrel parts relative to a functional unit, such operation being capable of execution solely by hand.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the same.

An illustrative embodiment of this invention is shown in the accompanying drawing, in which:—

Fig. 1 is an elevation of a complete fountain pen made according to the principles of this invention; Fig. 2 shows the novel pen with the external case or barrel parts operatively assembled with the functional unit constituting the working parts of the pen, the latter arrangement being shown in elevation, and the case or barrel parts in longitudinal section; Fig. 3 is a view similar to that of Fig. 1, but showing the pen cap and the detachable barrel end piece disassembled; and Fig. 4 is a view similar to that of Fig. 2, but showing the manner whereby the external barrel or case parts are assembled or disassembled relative to the functional unit of working parts. Fig. 5 is an enlarged fragmentary vertical sec-

tional view showing the slide-piece of the pen as arranged to also serve as a means for holding soluble ink and mixing the latter with water supplied to the reservoir sac.

Similar characters of reference are employed in the hereinabove described views, to indicate corresponding parts.

Referring to the drawing, the functional unit constituting the working parts of the pen comprises a throat-section 10 in which is mounted the pen nib 11 together with the suitably channeled feed bar 12 which serves the latter. At its inner end, said throat section 10, is provided with an externally screw-threaded neck 13 of reduced diameter. Above said neck 13 is a second extension 14 of further reduced diameter, to which is coupled the lower end of a flexible, collapsible reservoir sac 15. The upper end of said reservoir sac 15 is connected with a slide-piece 16; the connection being made by engagement of the sac over an extension 17 of reduced diameter provided at the lower end of said slide-piece 16. At its upper end said slide-piece is provided with a push-button formation 18 of reduced diameter. Means actuatable by the slide-piece 16 is provided for collapsing the sac 15 to expel air therefrom, so that on subsequent expansion of the latter, ink, into which the throat section 10 is dipped, may be sucked into the reservoir sac 15 through the feed bar 12, when it is desired to refill the pen with ink. This means comprises a longitudinally disposed flat pressure bar 19 which is suitably secured to the intermediate portion of a flat bowable spring 20. Said spring 20 is arranged to extend longitudinally along the side of said sac 15 between the slide-piece 16 and throat section 10; being secured at its upper end to the slide-piece by means of an anchoring clip or band 21 which encircles the slide-piece extension 17 and sac end engaged thereover, and being secured at its lower end to the throat section 10 by means of a similar anchoring clip or band 22 which encircles the throat section extension 14 and sac end engaged thereover. It will be understood, that, in the broader aspects of this invention, the spring means operative to expand and collapse the reservoir sac under manipulation of the slide-piece 16, may be variously modified, the above described species of such spring means being merely illustrative of one satisfactory form and arrangement thereof. It will also be understood, that in types of pens utilizing soluble ink and water as a solvent for the latter, the slide-piece 16 may be made to hold a supply of soluble ink material for mixing

with water, when the latter is introduced into the reservoir sac 15. An arrangement of the slide-piece adapted to serve the last mentioned purpose is shown in Fig. 5. In such arrangement the slide-piece is preferably made in two parts providing an upper part 16' and a lower part 16'' suitably engaged together as by a threaded connection 32. The upper part 16' is hollow, thus providing an interior storage chamber 33 in which is disposed a body of soluble ink material 34. The lower part 16'' provides a mixing chamber 35 in communication with said storage chamber 33, the same having a passage 36 of reduced cross-sectional area extending between said mixing chamber 35 and the interior of the reservoir sac 15, the latter being engaged over the extension 17' with which the lower part 16'' is provided. Arranged within the mixing chamber 35 to cooperate with the communicating end of the passage 36 is a gravitatable valve element 37, the movement of which toward the upper portion of the mixing chamber is limited by a transverse stop-pin 38. When the pen is inverted from writing position, i. e. with the pen nib upward, which is the position in which the pen is carried in the pocket, the gravitatable valve element 37 moves away from the passage 36 so as to open communication between the reservoir sac 15 and mixing chamber 35, thus allowing water from the former to flow into the latter and thence contact with the soluble ink material 34, such contact dissolving some of the latter for mixture with and diffusion through the water to thereby convert the same into a fluid ink. When, however, the pen is down-turned to writing position, the valve element 37 will drop into closing relation to the passage 36, and thus prevent escape from the mixing chamber of partially dissolved ink material with consequent undue waste of such material. It will be understood that the gravitatable valve element 37 may be made in any suitable shape or form, the ball form thereof shown in Fig. 5 being merely illustrative of one form thereof.

The arrangement of external case or barrel parts for detachable and interchangeable assembly with the above described functional unit of the pen, comprises a main barrel or casing 23 of open ended tubular form, the same having a lower internally screw-threaded portion 24, and an upper internally screw-threaded portion 25. This barrel or casing has an interior bore 26 sized to slidably receive the reservoir sac 15 and slide-piece 16 of the functional unit, when the latter is inserted upwardly through the lower open end of the barrel or casing. When this is done, the lower internally screw-threaded portion 24 of the barrel or casing is screwed onto the externally screw-threaded neck 13 of the throat section 10, thus affixing the barrel or casing in operative assembled attachment to the latter. The barrel or

casing is dimensioned in length so that the push-button formation 18 of the slide-piece 16 will normally project outwardly from its upper end. The push-button formation 18 is of substantially less diameter than that of the bore 26 of the barrel or casing 23. A hollow barrel end piece 27 is provided for detachable connection with the upper end of the latter in normally enclosing or covering relation to said projecting push-button formation 18. Said barrel end piece 27 is provided, at its lower or inner end, with an externally screw-threaded extension 28 of reduced diameter, which is adapted to screw into the upper internally screw-threaded portion 25 of the barrel or casing 23, to thus detachably engage the same with the latter. At its lower end, said barrel or casing 23 is provided with an externally screw-threaded portion 29 to detachably receive the internally screw-threaded portion 30 of a cover cap 31, which is thereby adapted to be removably engaged with the lower end of the barrel or casing 23, in enclosing and protecting relation to the throat section 10 and its pen nib 11, when the pen is not in use.

From the above it will be obvious that the external or barrel parts of the pen can readily be entirely dismantled and mounted relative to the functional unit constituting the working parts of the pen, without in any way disturbing the operative assembled relation of the parts making up the latter. As a consequence of this it will be apparent that a stock of external or barrel parts are readily exchangeable for assembly with any given functional unit with all the advantages and economies already hereinabove referred to.

Having described my invention, I claim:

A fountain pen comprising a functional unit, constituting the working parts of the pen, the elements of which are secured and maintained together in operative assembled relation, and an external barrel for detachable connection with said unit without disturbing the operative assembled relation of the elements of said unit; said unit including a throat-section carrying a pen nib and feed bar therefor, a collapsible reservoir sac connected by its lower end to said throat-section in communication with the feed bar, a slide-piece to which the upper end of said reservoir sac is connected, and a flexible spring member extending along said sac and fixedly anchored by its lower end to said throat-section and by its upper end to said slide-piece; said barrel being telescopically mountable over said slide-piece, spring member and sac, and means to detachably couple the lower end of said barrel to said throat-section, said barrel being so sized in length as to permit external projection of the free end portion of the slide-piece from the upper end thereof when said barrel and unit are operatively coupled together.

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