

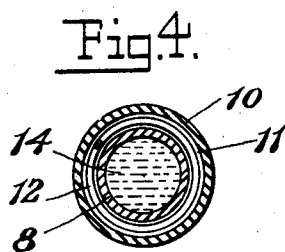
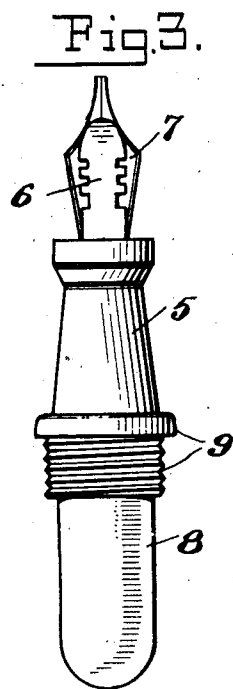
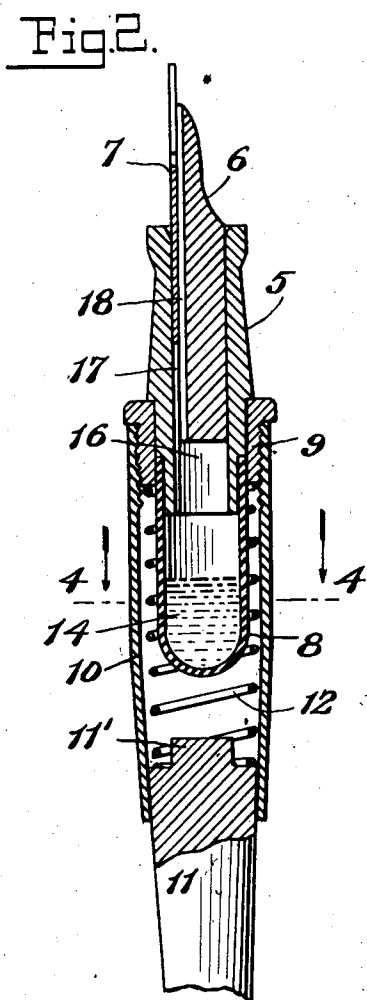
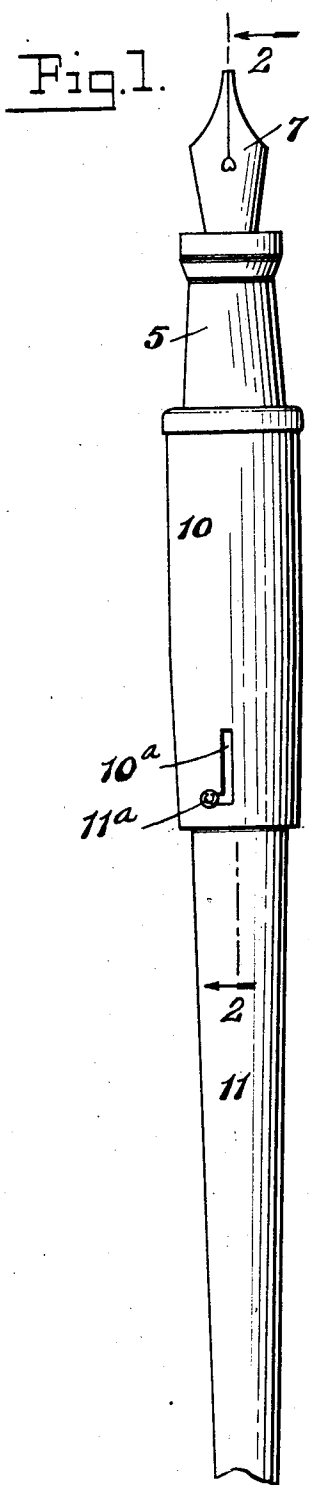
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FOUNTAIN PEN

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UNITED STATES PATENT OFFICE.

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FOUNTAIN PEN.

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This invention relates to fountain pens. One object is to provide a fountain pen which, while having a larger ink reservoir capacity than heretofore if desired, may be constructed of comparatively few and inexpensive parts, as to provide a pen of usual size.

Another object is to provide a so-called self-filling fountain pen which is characterized by an exceedingly facile filling operation.

Another object is to provide a fountain pen the several parts of which are not only of trifling cost themselves,—with the exception of the nib unless, as is preferred, such nib be an ordinary steel one,—but easily and quickly assembled at the factory.

Another object is to provide a fountain pen wherein, to the ends above mentioned, the barrel or holder, by which is meant that part of the pen from at or near the nib-mount to the end of the pen opposite such mount, is made of a plurality of relatively movable parts each of which is a part of the pen useful in guiding the nib in writing; as contradistinguished from previous fountain pens wherein the barrel or holder is composed of a single constant-length main structure necessary as a handle for employing the pen as a writing instrument, and wherein, consequently, if the pen is to be a self-filling one, auxiliary delicate comparatively expensive devices, such as terminal push buttons, side-wall presser-plates or levers, and the like, have to be added.

Another object is to provide a self-filling fountain pen the barrel or holder of which may include a plurality of relatively movable parts as above, and wherein one of these parts may be moved relative to another, thereby temporarily and abnormally to change the length of the barrel or holder incident to a filling operation; as contradistinguished from the heretofore suggested comparatively expensive structures, and structures requiring a more difficult and prolonged manipulation for filling, wherein the barrel or holder is in two portions one of which must be rotated relative to the other in order to fill the pen.

Various other objects and advantages of the invention than those hereinabove mentioned will be specifically pointed out or will be apparent hereinafter in the course of the below detailed description of the form of

the invention shown, in the accompanying drawing, as a preferred one of the various possible embodiments of the invention; it being understood, naturally, that such form is merely illustrative of one of the many possible combinations and arrangements of parts well calculated to attain the objects of the invention, and hence said detailed description of such form is not to be taken as at all defining or limiting the invention itself. That is to say, the scope of protection contemplated is of course to be taken from the appended claims, interpreted as broadly as is consistent with the prior art.

In said drawing:

Fig. 1 shows said embodiment in side elevation;

Fig. 2 is an axial section taken on line 2—2 of Fig. 1;

Fig. 3 is an elevation like Fig. 1, but looking at the opposite side of the nib, and showing the nib, the nib-mount and the ink reservoir, illustrated in section in Fig. 2, only; and

Fig. 4 is a transverse section, taken on line 4—4 of Fig. 2.

Similar reference characters refer to similar parts throughout the several views of the drawing.

The form of the invention thus illustrated includes the following elements merely: A nib-mount including the usual thimble 5 and spoon-feed 6; a nib 7 in said mount, which nib may be a readily replaceable, steel, nickel or other throw-away nib, or a gold or other permanent nib jammed tightly into position by wedge fit between the elements 5 and 6 of the mount; an ink reservoir 8, including a flexible wall, set at its upper periphery in an annular groove at the bottom of the thimble 5; an exteriorly threaded collar 9 jammed tight on the lower-reduced portion of the thimble 5 and thus clamping the reservoir 8 in place between the elements 5 and 9 as shown; a barrel or holder including a sleeve or cylinder part 10 and a plunger or slide-rod part 11; and a coil spring 12 nested between the elements 9 and 11 and encircling the reservoir 8 as shown.

The sleeve or cylinder part of the barrel or holder is internally threaded at its upper end and is thus screwed up on the element 9.

The annular lower edge of the element 9 forms an abutment for one end of the spring 12, and a similar surface on the upper end

of the part 11 of the barrel or holder forms an abutment for the other end of the spring; this last mentioned surface surrounding a reduced portion 11' on the member 11.

5 The reservoir 8 may be made of soft rubber, the spring 12 may be an ordinary metal wire spring, the member 11 may be of wood, the parts 5, 6, 9 and 10 of hard rubber, bakelite, a casein or other suitable composition, and the nib 7 of steel or gold; and thus, even so far as the illustrated form of the invention is concerned, the new fountain pen may be provided, as desired, either as a writing implement of trifling cost, or one salable at standard prices as a de luxe pocket or desk fountain pen, of greater ease in filling and of larger ink capacity than present known competitors. To provide, say, a child's school companion, the illustrated form of the invention could be further cheapened than as above indicated, for instance, by turning the element 5 of wood, or by forming the same of an outer sleeve of wood and an inner thin liner sleeve of hard rubber, and by making the parts 9 and 10 of light gage metal. It will be noted that throughout the illustrated embodiment inexpensiveness of manufacture has always been kept in mind, without, however, losing sight of efficient and reliable action as well as general ruggedness and longevity. For instance, as shown, the barrel or holder made up of the parts 10 and 11, presents a handle body rounded and tapered in the natural and approved manner; and advantage is taken of this to taper as illustrated the lower portion of sleeve 10 in correspondence with the general taper of plunger 11, so that these tapers coact to provide, as clearly shown in Fig. 2, a means for limiting maximum protrusion of part 11 beyond the part 10. As so far described, the illustrated embodiment of the new fountain pen is particularly adapted for desk use, to rest on the desk in any of the accustomed positions, as nib-down in the well known type of fixed or swiveled desk-stand recently developed. As a pocket pen, it would, it is believed, be desirable to incorporate some means to prevent accidental plunger action of the part 11 relative to the sac or reservoir 8. This can be taken care of, for instance, by providing a bayonet joint as indicated in Fig. 1, whereof the L-slot is cut in sleeve 10 as indicated at 10* and the pin is driven into the plunger barrel-portion 11 as indicated at 11*. To further aid in preventing accidental discharge of ink from the pen, while being used or handled, I find it desirable to use a comparatively short reservoir, the end or bottom of which is located at a distance from the inner end of the member 11 when the latter is in its position of greatest distension out of the tubular part 10. (See Fig. 2). Thus there is a slight amount of "lost motion" which occurs before actual compression of the reservoir takes place, when

the part 11 is thrust inwardly in the member 10. This "lost motion" is sufficient to compensate for any slight blows or inward thrusts that the part 11 might receive in handling and thus avoids sudden undesirable discharges of ink which might otherwise take place.

The filling operation should be obvious from what has already been said. When the pen has to be filled, the writing end thereof is inserted downwardly into the open neck of say an ordinary ink bottle to a suitable submergence in the body of ink, and then, with the sleeve 10 grasped in the left end, the plunger member 11, held by the right hand, and previously given a fractional rotation to align the pin 11* with the long limb of the slot 10* if such pin and slot be present, is pushed down one stroke to collapse the single flexible wall here forming the sac 8, and then the part 11 is allowed to make its return stroke under the influence of spring 12; whereupon a charge of ink will be drawn up into the reservoir as indicated at 14. In order to clean out the reservoir and the ink-feed passages 16, 17 and 18, it is merely necessary to dip the pen as above described in a receptacle containing clean water, and then pump the part 11 up and down a few times in the part 10.

Considerable particularities of description, as to materials, part details, dimensions, capacities and utilities have been indulged in, but it will be understood that these statements, made with particular reference to that one of the many possible embodiments of the invention which is illustrated in the drawing, are not in any way to be taken as definitive or limitative of the invention. Inasmuch as many changes could be made in the above constructions, and many apparently widely different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language contained in the following claims is intended to cover all the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim:

1. In a fountain pen, the combination of a holder and a feed, of a flexible ink reservoir connected to the feed, said holder being composed of a tubular part surrounding the ink reservoir and a continuation thereof forming a handle part, said handle part being capable of telescopic movement within the tubular part to compress the flexible ink reservoir, the handle part and tubular part both having co-

operating tapered surfaces to limit the outward movement of one relative to the other.

2. In a fountain pen, a feed therefor, an ink reservoir connected to said feed, said ink reservoir consisting of a relatively short flexible sack, a holder for receiving the feed and reservoir, said holder consisting of a short tubular part enclosing the reservoir and a movable reservoir-compressing handle section fitting into one end of said tubular part, said tubular part having an internally tapered end, and a co-operating externally tapered end on the handle section to limit movement of the tubular part and the handle part relative to one another.

3. In a fountain pen, the combination of a holder having an ink-feed channel, a flexible ink reservoir in said holder, said holder being composed of a tubular part within which said ink reservoir is contained and also a handle part fitting into and closing one end of said tubular part and connected thereto by a bayonet joint, the said handle being movable relatively to the tubular part to compress the ink reservoir.

4. In a fountain pen, a holder having a tubular part forming a part of the pen handle, a collapsible ink reservoir held in said tubu-

lar part, an opening at one end of said tubular part, a plunger part of substantial diameter extending out of the opening in the tubular part and co-operating with said tubular part to form the pen handle, the tubular portion being internally tapered toward the opening through which the plunger protrudes, the plunger being externally tapered to co-operate with the internal taper of the tubular part, and the portion of greatest diameter of the plunger part being larger than the diameter of the opening in the tubular part, whereby separation of said tubular part and plunger is prevented.

5. A fountain pen comprising a barrel, nib mounting means carried by the barrel, a substantially short ink reservoir in the barrel, said reservoir including a flexible wall, said barrel including a plunger part and a cylinder part relatively movable, the inner end of said plunger part terminating at a distance from the bottom of the reservoir when said plunger part is in its position of furthest distension out of the cylinder part, and means operable by relative movement of said barrel parts for flexing said wall.

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