

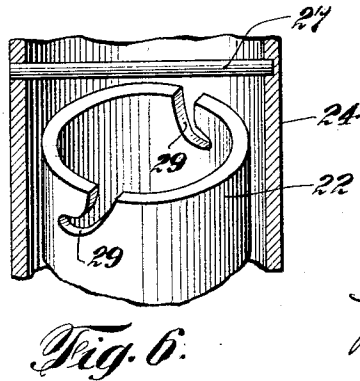
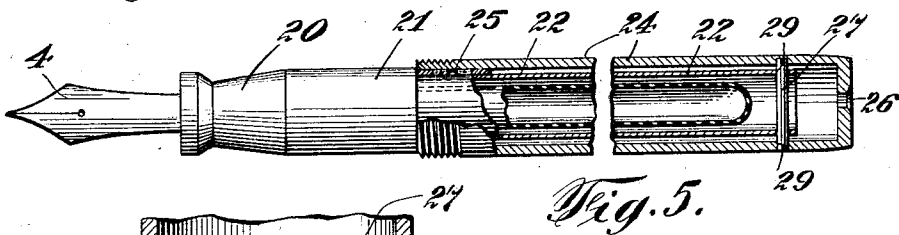
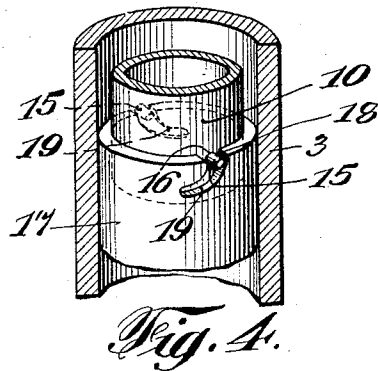
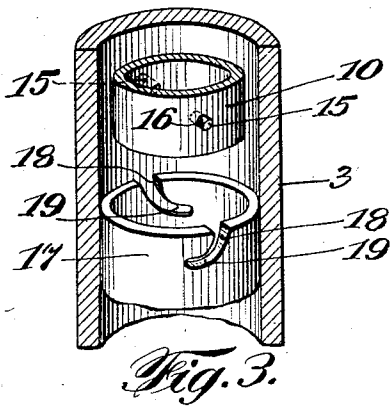
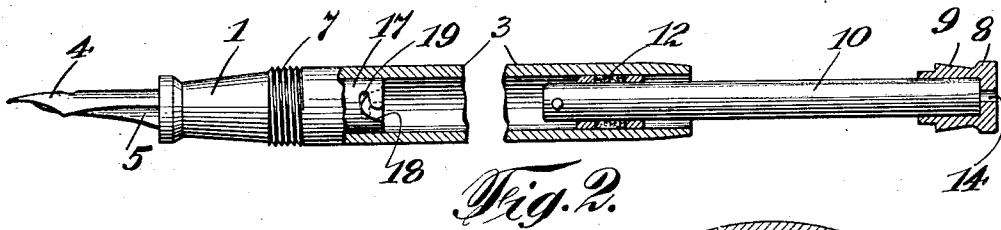
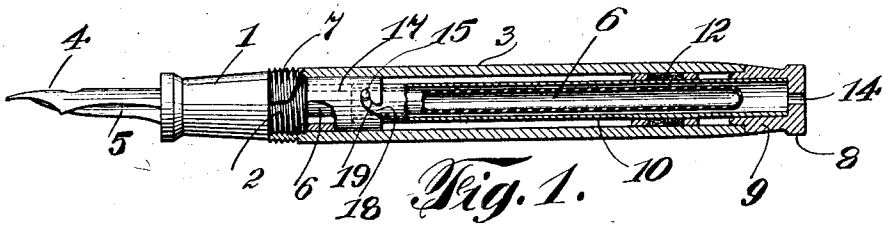
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FOUNTAIN PEN

Filed July 18, 1930



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FOUNTAIN PEN

Application filed July 18, 1930. Serial No. 468,759.

The present invention relates to fountain pens and more particularly to a locking device for preventing accidental displacement of the parts thereof.

5 The present invention is an improvement particularly upon fountain pens wherein air pressure is applied to the ink sac to deflate it, although it may be used advantageously with other constructions. Such a construction is
10 illustrated in Patent No. 1,580,093, dated April 6, 1926, wherein the filling devices are operated by drawing a portion of the barrel outwardly to increase the size of the chamber about the sac, closing the aperture in the
15 end of the barrel, pushing the barrel into its initial position to compress the air within the chamber, thereby deflating the ink sac, and thereafter releasing the air pressure by uncovering the covered aperture to permit
20 the sac to inflate itself and draw in a substantial quantity of ink.

Although the construction described above is very popular, it is not entirely satisfactory. If placed in the hands of persons unfamiliar with the operation thereof, the
25 ink sac may be inadvertently deflated when filled with ink. Such accidental discharges of ink may cause substantial damage to the clothing of the user or to other property. There are many persons who are inclined to
30 toy with some article while talking or thinking. Such persons are likely to expel ink unintentionally and, in some cases, with undesirable consequences.

35 The present invention aims to eliminate these contingencies by providing a simple, inexpensive locking device, quickly operated, for preventing accidental movement of the filling devices. In this manner, the pen construction is improved substantially without
40 sacrificing any of its other advantages and without increasing materially its cost.

45 An object of the present invention is to provide an improved pen construction, the parts of which may be securely locked in position.

Another object of the invention is to provide simple, inexpensive means for locking the filling devices in ineffective position.

50 Another object of the invention is to pro-

vide locking means which will not be released accidentally and which respond readily to the proper releasing operation.

A further object of the invention is to arrange the sliding members of the pen construction so that the pen barrel remains substantially stationary while the filling means are operative, thereby enabling the locking means to be enclosed within the barrel to avoid impairing the appearance of the pen. 60

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice. 65

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein 70

Fig. 1 is a side elevational view, partly in section, of a fountain pen showing a preferred embodiment of the invention; 75

Fig. 2 is a view similar to Fig. 1, illustrating the slidable members drawn outwardly prior to the filling operation, the ink sac being omitted for clearness;

Fig. 3 is an enlarged fragmentary perspective view, partly in section, illustrating the locking members prior to engagement; 80

Fig. 4 is a view similar to Fig. 3, showing the sliding member locked to the stationary members; 85

Fig. 5 is a side elevational view, partly in section, illustrating the present invention applied to a slightly different type of pen; and

Fig. 6 is an enlarged fragmentary perspective view, partly in section, showing the locking members about to be locked. 90

While the preferred embodiment of the invention is described with reference to a particular pen, many of its features may be utilized in other constructions. 95

Referring again to the drawings, and more particularly to Figs. 1, 2, 3 and 4, there is shown a fountain pen construction comprising a pen section 1 suitably threaded at 2 to a hollow barrel member 3. A pen point 4 100

and a feeding device 5, for supplying ink to the pen point, are secured within one end of the pen section 1 and an ink sac 6, preferably a collapsible rubber tube member, is secured to the other end of the pen section and extended into the barrel 3. It is desirable that the section 1 be readily detachable from the barrel 3 so that the pen point 4, the feeding device 5 and the ink sac 6 may be removed to facilitate repairs or replacement of parts thereof if necessary.

A threaded zone 7 is provided at the forward end of the barrel to receive a suitable cover cap to protect the point against breakage and to exclude dust therefrom. Such a cap is usually provided with a clip or a ring having a ribbon tied thereto, whereby the pen may be carried conveniently when not being used.

To complete the construction of the barrel 3 and to provide means for filling the ink sac, a cup-shaped member 9, preferably conforming to the contour of the barrel at its open end, is mounted upon a tubular member 10 which is adapted to slide into the hollow section of the barrel. The member 9 may be of any suitable length and may be provided with a finger grip 8 to facilitate the manipulation of the tube 10.

It will be noted that the tube 10, preferably of metal, substantially encases the ink sac 6. A packing section 12 provides a substantial seal between the hollow section of the barrel 3 and the tube 10, and an aperture 14 at the end portion of the cup member 9 affords means for air to escape from or enter into the inner portion of the tube 10. The packing 12 may be of any suitable material, such as rubberized compounds, but preferably comprises several turns of linen, cotton or silk thread. The threads may be waxed or treated with an odorless oil to minimize the frictional forces exerted thereon and to improve the seal. When the tube 10 is retracted, as shown in Fig. 2, the air chamber surrounding the ink sac is increased substantially in size. By placing a finger over the aperture 14 and returning the tube to its first position, a substantial air pressure is created within the tube whereby the ink sac is deflated. Upon immersing the lower end of the pen in ink and removing the finger from the aperture 14, the air within the tube escapes and the ink sac will inflate itself by reason of its elasticity and fill with ink.

The ease with which the sac may be deflated sometimes occasions accidental discharge of ink from the pen. To guard against such contingencies, means for locking the tube 10 into the barrel are provided. The construction about to be described aims to eliminate such contingencies.

Referring more particularly to Figs. 3 and 4 of the drawings, the open end of the inner barrel or tube 10 in the preferred embodi-

ment, is provided with one or more projecting members 15, illustrated herein as two, although any convenient number may be used. Preferably, the tube 10 is made of a durable metal such as brass or the like, but other material may be employed. The projections 15 may be formed in any desired manner; for example, small pins may be brazed or otherwise secured into suitable apertures 16, or, if desired, the tube 10 may be dented to provide similar projections of sufficient length and strength to effect the desired result.

A convenient way to provide locking grooves or slots for co-operating with the projections 15 on the barrel 10 is to insert a tubular member 17 into the bore of the barrel 3 adjacent the pen section. The tube 17 fits snugly in the barrel 3 and may be held in place either by friction or by a suitable cementing material. Its inner diameter is slightly larger than the external diameter of the tube 10 to receive the end portion thereof. One or more grooves 19, corresponding in number to the projections 15, are provided in one end of the tube 17, as illustrated. For convenience, the grooves 19 extend completely through the wall of the tubular member and are substantially L-shaped, the mouth portions 18 of the grooves being slightly wider than the lower portions thereof to facilitate entrance of the projections 15. The lower ends of the slots form substantially an elbow which extends circumferentially of the tube. The purpose of this portion of the slot is to prevent any tendency of the projections 15 to back out of the groove except when manually rotated. The length of the tube 17 is preferably such that it extends slightly above that portion of the pen section extending into the barrel 3 for engagement with the end of the rubber sac. This affords substantial space for the insertion of the end of the tube 10 and, at the same time, does not materially shorten the tube 10 and impair its operating efficiency. The position of the slots 19 is such that when the cap 9 is in closed position, the projections 15 will be in the lower ends thereof.

While the grooves 19 are described herein applied to a tube 17, it will be understood that any suitable devices may be utilized for providing means to co-operate with the projections 15; for example, the grooves 19 might be formed in the barrel 3 of the pen or the tubular member 17 might be integral with the barrel 3. Various other changes in the form of the construction may be made.

In Fig. 5, the present invention is shown applied to a slightly different pen construction. Preferably, the pen comprises a front section 20 adapted to support a suitable pen point, a feeding device and an ink sac, which are connected to a barrel member 21. The member 21 serves as means for securing a tube 22 thereto, which encases the ink sac.

The fundamental difference between this construction and the one previously described is that the inner barrel or tube 22 remains stationary and an outer barrel 24, telescoped thereover, is adapted to be reciprocated to operate the filling mechanism. A packing portion 25 is positioned within a suitably enlarged section at the front end of the barrel 24 intermediate the tube 22 and the barrel 24, whereby air pressure may be maintained within the tube to deflate and inflate the bag encased therein. A suitable aperture 26 is provided at the end of the barrel which is adapted to be utilized in the same manner as described with respect to the aperture 14.

To achieve the advantages obtained by locking the tube and barrel together when not being operated to fill or empty the ink sac, a pin or bar member 27 is provided, extending radially across the barrel 24 substantially at its end portion. The pin 27 preferably is made of metal and is adapted to be secured to the barrel in any suitable manner, for example, by inserting it through an aperture in the wall of the pen to engage a recess or aperture oppositely disposed. The free end of the tube 22 is provided with slots or grooves 29 adapted to receive the pin 27. These grooves are substantially similar to grooves 19 illustrated in the preceding embodiment. The pin 27 is materially strengthened by extending it across the pen barrel, as illustrated, but a plurality of independent lugs or projections might be utilized if desired.

In operation, if the pen is to be filled, the tube 10 is drawn outwardly by slightly rotating it to release the projections 15 from the slots 19 and then retracting it to the position shown in Fig. 2, the cap or button 9 serving as means for gripping the tube. The pen point 4 is then placed into a supply of ink, the aperture 14 is closed by placing a finger thereover, and the tube 10 is pushed inwardly to its initial position, thereby causing the air in the casing about the ink sac to be compressed. The external pressure on the ink sac deflates it, expelling any air or ink therein. By opening the aperture 14 to release the air pressure within tube 10, the ink sac, by reason of its elasticity, will inflate itself to draw in a substantial quantity of ink. The tube 10 is then pushed further inwardly and rotated so that the projections 15 will enter the slots 19, as shown in Fig. 4, to lock the parts securely in position to prevent accidental expulsion of ink from the sac.

The pen construction shown in Figs. 5 and 6 is similarly operated; however, it will be noted that the tube 22 therein is stationary while the outer barrel 24 slides thereon to compress the ink sac. The locking means are located at the upper end of the barrel and are operated by pushing the barrel 24

inwardly over the tube 22 until the pin 27 approaches the slots 29 and then rotating the barrel to lock the pin within the slots. If the pin 27 is to be released, the barrel is rotated slightly in the opposite direction and is then drawn outwardly.

It will be seen that the present invention provides simple, inexpensive means for locking the filling devices of the type of pens shown herein. The locking means may be positioned so that they remain unseen and thereby do not mar the appearance of the pen. When the locking elements are engaged, the parts are held rigidly in position, thereby avoiding accidental and unintentional operation thereof.

The construction described herein is simple and rugged and fully capable of withstanding the rough use to which it may be subjected.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. In a fountain pen of the class described, the combination of a barrel, a tubular member within said barrel, said barrel and said tubular member being slidable with respect to each other, an annular shoulder within said barrel abutting inwardly having grooves therein and adapted to receive said tubular member, and projections on said tubular member adapted to engage said grooves, whereby said tubular member may be locked against accidental displacement.

2. In a fountain pen, the combination of a barrel having grooves on the inner side thereof, an ink sac within said barrel, a slidable tube intermediate said sac and said barrel adapted to increase the pressure in said barrel and upon said sac, and means at one end of said tube for locking the tube to the grooves of said barrel to prevent accidental displacement thereof.

3. In a fountain pen, the combination of a barrel, an ink sac secured within said barrel, a slidable tube intermediate said sac and said barrel adapted to effect the filling of said sac, and a projection at the inner end of said tube adapted to engage a groove within the inner wall of said barrel whereby said tube may be locked in place.

4. In a fountain pen of the class described, the combination of an ink sac, an outer barrel and an inner barrel adapted to move relatively to each other to vary the air pressure upon said sac, whereby said sac may be inflated or deflated, and a radially extending pin associated with one of said barrels and

the other of said barrels having grooves therein adapted to cooperate with said pin, to lock said barrels in position.

5 5. In a fountain pen, the combination of a barrel, an ink sac within said barrel, a second barrel telescoped over said first barrel, and devices on said barrels for locking them in closed position, said devices comprising a radially extending member on one of said
10 barrels and the other of said barrels having a groove therein adapted to receive said radially extending member.

6. In a fountain pen of the class described, the combination of a pair of slidable barrels,
15 one of said barrels telescoped about the other, and means for locking said barrels together, said means comprising a pin extending across the inner tubular portion of one of said barrels and said other barrel having grooves
20 formed therein adapted to engage said pin.

7. In a fountain pen of the class described, the combination of a pair of slidable barrels, one of said barrels telescoped about the other, and means for locking said barrels in position,
25 said means comprising a plurality of grooves provided at the end of the inner barrel and radially extending means on the outer barrel for engaging the grooves of the inner barrel.

30 8. In a fountain pen, the combination of a non-metallic barrel, a metallic barrel slidably mounted within said non-metallic barrel, a tubular member mounted in said non-metallic barrel, and co-operating means on
35 said metal barrel and said tubular member adapted to interlock with each other to hold said barrels in closed position.

9. In a fountain pen, the combination of a barrel forming the pen holder, a second barrel
40 slidably mounted within said first barrel, an ink sac within said barrels, a tubular member mounted in said first barrel, and co-operating means on one of said barrels and said tubular member adapted to interlock
45 with each other to hold said barrels in closed position.

10. In a fountain pen, the combination of a barrel provided with slotted portions at the inner end thereof, an ink sac within said barrel,
50 a tube enclosing said ink sac slidably mounted in said barrel, a cap portion at the end of said tube, said cap portion having an aperture therein whereby the pressure within said tube acting upon said ink sac may be
55 controlled, and radially extending members adapted to engage the slotted portions of said barrel to lock said tube within said barrel thereby preventing accidental release thereof.

11. In a fountain pen of the class described, the combination of a pair of slidable
60 barrels for filling the fountain pen, and means for locking said barrels to prevent accidental discharge of ink within said pen, said means comprising a plurality of radially
65 extending projections on one of said barrels,

and the inner end of the other barrel having a corresponding number of grooves adapted to receive and retain said projections against displacement.

70 12. In a fountain pen, the combination of a barrel, an ink sac, slidable means encased within said barrel for deflating said sac and a projection on said slidable means adapted to engage a groove associated with the inner
75 side wall of said barrel whereby said slidable means and barrel are releasably locked together.

13. In a fountain pen, the combination of a pair of slidable barrels, one of said barrels telescoped about the other, an auxiliary tube
80 associated with one of said barrels having slots therein, and means on one of said barrels adapted to engage the slots of said tube to lock said barrels in position.

14. In a fountain pen, the combination of a barrel, an ink sac encased within said barrel,
85 a second barrel telescoped over said first barrel, and a projection on said first barrel, said second barrel having a slot on the inner periphery thereof adapted to engage said projection and lock said barrels together.
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