

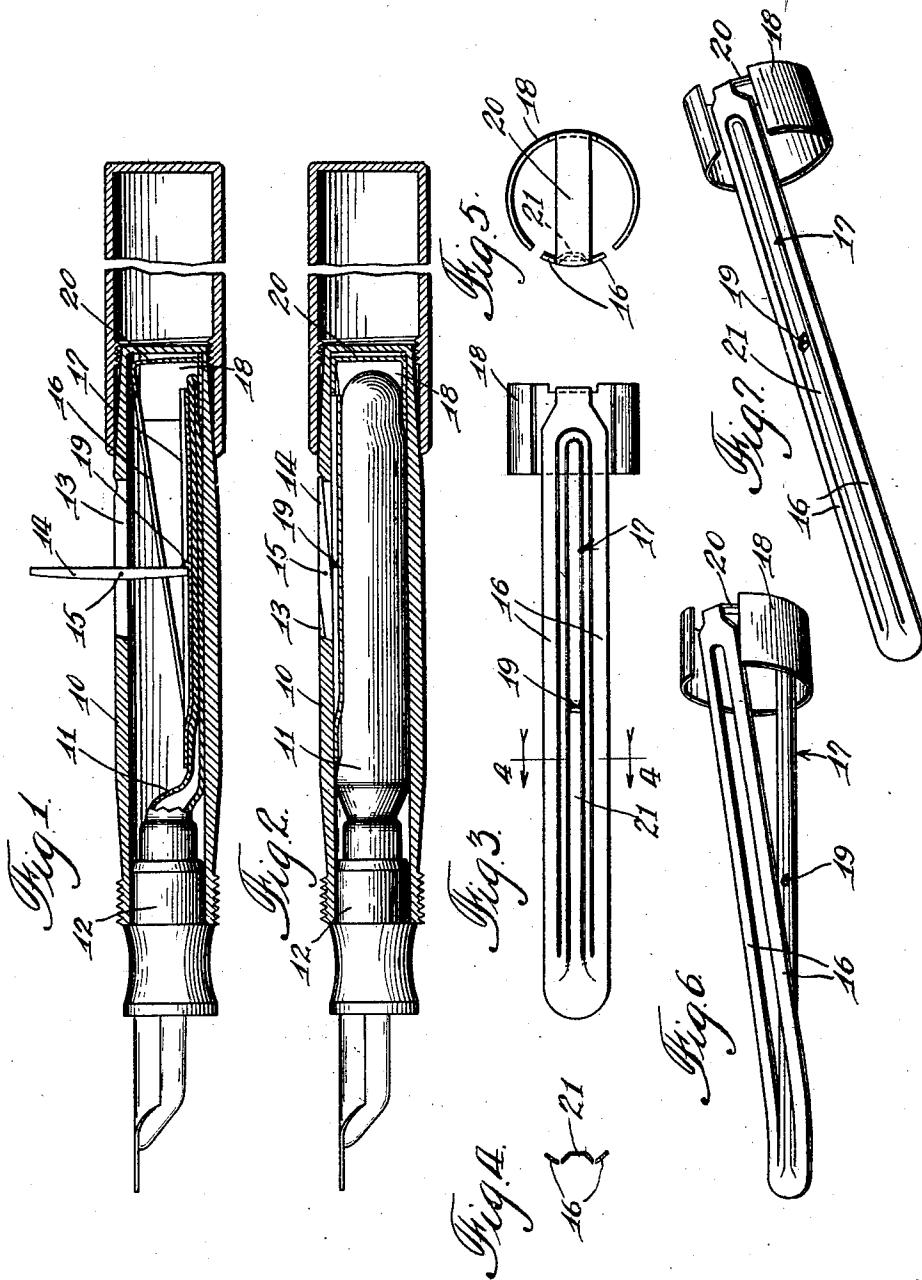
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FOUNTAIN PEN PRESSURE BAR

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# UNITED STATES PATENT OFFICE

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## FOUNTAIN PEN PRESSURE BAR

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This invention relates to a fountain pen and has special reference to an actuating lever for uniformly compressing the elastic ink tube of a fountain pen.

More particularly, this invention relates to an actuating lever for fountain pens employing an elastic tube or reservoir for compressing the tube to create a vacuum therein, suction being established through the pen holder section during the expansion of the tube whereby the same will be refilled with ink during the expansion thereof to its normal position. The particular embodiment of actuating lever shown herein is a one piece construction comprising a double bar formed of a single sheet of material including a resilient outer arm and an inner rigid arm extending from a resilient annular band or splitting ring which is designed to fit within and frictionally engage the outer end of the barrel of the fountain pen.

In the prior art applicant has knowledge of actuating levers for compressing the elastic ink sacks or reservoirs wherein should the double bar type be employed the same is formed of separate pieces as, for example, with reference to the Sheaffer Patent No. 1,118,240 dated November 24, 1914, owned by the assignee of the present invention, the bar is composed of a resilient arm and a rigid arm riveted or otherwise fixed to the free end of the resilient arm. In the present application, out of the same piece of material, rigidity may be had in one element of the compound lever while a resiliency may be retained in the other element thereof. As a result hereof there is no assembly necessary in the manufacture of the device; it is more compact allowing for a greater and nearly normal expansion of the ink sack in the barrel by reason of the two elements lying substantially in the same plane; the construction is comparatively easy to adjust and is light in weight.

One of the objects of this invention is to provide a compound actuating lever for compressing an elastic ink tube or reservoir in a fountain pen which lever may be formed of a single piece of material thereby eliminating

a subsequent assembly of parts in the manufacture thereof.

Another object of this invention is to provide a device for the purpose described above in which the weight of the component parts of the actuating lever is relieved from the elastic ink tube.

A still further object of this invention is to provide a device of the type referred to above which will occupy a minimum of space whereby to permit of a maximum expansion of the ink sack.

Also, it is the object of this invention to provide a device of the type indicated above which is easier to adjust and is of a minimum weight.

Other objects and advantages will hereinafter be more particularly pointed out and for a more complete understanding of the characteristic features of this invention reference may now be had to the following description when read together with the accompanying drawings, in which latter:

Figure 1 is a central longitudinal sectional view of a pen equipped with the device of this invention showing the same in an operative condition with the ink sack compressed;

Fig. 2 is a view similar to Figure 1 with the device of this invention in an inoperative position showing the ink sack in an expanded condition;

Fig. 3 is a plan elevational view of the device of this invention disassociated from the fountain pen;

Fig. 4 is a sectional view taken on the line 4-4 of Fig. 3;

Fig. 5 is an end elevational view of Fig. 3;

Fig. 6 is a perspective view of the actuating lever showing an operative position thereof with the rigid arm moved away from its complementary resilient arm member; and

Fig. 7 is a perspective view similar to Fig. 6 showing the rigid arm returned to an inoperative position in a substantial plane with its resilient complementary arm portion.

Referring now more particularly to the drawings, the embodiment illustrated therein comprises a fountain pen barrel or casing having an elastic ink tube or reservoir

posed therein and secured to a reduced end portion of the ink feeding mechanism 12 inserted in the open end of the barrel 10. These elements just described merely show the usual  
 5 form of fountain pen construction to which no claim of invention is made.

The barrel of the fountain pen is provided with an elongated longitudinally extending slot 13 between the walls of which is pivoted  
 10 an operating lever 14 on a pin 15 fixed in the side walls. The lever when in its normal or closed position preferably extends the full length of the slot 13. A slight depression in the barrel or other suitable provision is made  
 15 at one end of the slot in order that the thumb nail may be inserted beneath one end of the lever so as to raise the same, the other end of the lever being forced downwardly to compress the ink sack as will hereinafter be more  
 20 particularly described.

The actuating lever which also serves as a lever holding device is shown in the form of a double bar which is removably mounted within the casing between the ink reservoir  
 25 11 and the inner wall of the casing adjacent the slot 13. The actuating lever comprises a resilient closed-fork-shaped arm member which we will hereinafter call the outer arm 16 and a rigid bar or arm 17 formed from the  
 30 material between the closed-fork arm. The resilient outer arm 16 is preferably formed integrally with a resilient annular band or split ring 18, which latter is designed to fit within and frictionally engage the outer or  
 35 closed end of the barrel 10 and hold the actuating lever in an operative position within the casing. As shown in the drawings, this outer arm 16, together with the inner rigid arm 17 is formed as a tongue extending from  
 40 said band 18 at a point substantially midway between its ends and is then bent laterally inwardly as at 20 and then forwardly between the curved arms of the band. The outer arm 16 is of a length slightly less than  
 45 the length of the reservoir or ink sack 11 which it is designed to compress.

In order to form the outer resilient arm portions and the rigid inner arm from the single tongue extending from the split band  
 50 18, the arm 17 is serrated from the tongue and deformed inwardly toward the axis of the barrel when viewed in lateral cross section and is provided with an elongated single corrugation 21 extending over substantially  
 55 the entire length thereof for giving the arm its necessary rigidity. By reason of this above described deformation or corrugation, as it may more commonly be described, the arm 17 is rigid although forming a part of  
 60 and extending from the free end of the resilient arm portions 16.

The formation of the inner rigid arm 17 out of the material between the arm 16 provides an opening through which the lower  
 65 end of the lever 14 is designed to extend when

moved through the slot 13. The shorter end of the lever 14 engages the rigid arm 17, which, as we have hereinbefore mentioned, normally rests in a substantial plane with the outer resilient arm portion 16 against the inner wall of the barrel and depresses the same against the ink sack until the lever abuts against a stop 19 preferably formed upwardly from the material of the arm. The bar or arm 17, being rigid, compresses evenly and uniformly the ink sack throughout the entire length thereof. The resiliency of the outer arm 16 is sufficient to cause it to spring outwardly against the inner face of the barrel 10 when the pressure of the lever 14 is withdrawn, the latter action being accomplished by pushing the outwardly extending end of the lever downwardly against the outer wall, and prevents the weight of the lever and bars from resting on the reservoir or ink sack 11. Also the resilience of the arm 16 holds the lever 14 in a closed position in the slot 13. The present construction thus holds the actuating lever in either open or closed position without the aid of the tube or reservoir.

As a result of this invention, it will be seen that the actuating lever may be maintained closely against the side wall of the casing to make the same more compact and also to take the weight of the construction together with the operating lever 14 off of the ink sack. This construction also facilitates the ready removal and application of the ink reservoir 11. Further, resilience of the arms of the actuating lever causes the operating lever 14 to snugly engage the wall of the slot to prevent any loosening therein whereby the lever might catch on the pocket of the user and cause considerable inconvenience and annoyance. Again, the compound device may be stamped quite easily from a single piece of material thereby obviating assembly of parts which heretofore has been necessary, in so far as applicant is aware, in providing a construction wherein a uniform compression is obtained over the full length of the ink sack. Also, by providing a construction wherein a single member may be serrated and a portion thereof deformed to provide an arm having a corrugation for purposes of rigidity and a resilient arm, the device may be of a minimum weight. By reason of the latter, the construction is comparatively inexpensive to manufacture due to saving in both material and labor.

While but a single embodiment of this invention is herein shown and described, it is to be understood that various modifications may be apparent to those skilled in the art without departing from the spirit and scope of this invention and, therefore, the same is only to be limited by the scope of the prior art and the appended claims.

I claim:

1. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including integrally formed resilient and rigid arm members, said lever operating to engage and to depress said rigid arm, said resilient arm causing a return to a normal inoperative position of said compressing means upon the release of said lever. 70
  2. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including a strip of resilient material having a portion thereof serrated and deformed to provide an arm member, said arm member having means for holding the same rigid, said lever operating to engage and to depress said rigid arm, said remaining resilient portion causing a return to a normal inoperative position of said compressing means upon the release of said lever. 80
  3. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including a strip of resilient material having a portion thereof serrated, said serrated portion being provided with an elongated corrugation to provide a rigid arm member, said lever operating to engage and to depress said rigid arm, said remaining resilient portion causing a return to a normal inoperative position of said compressing means upon the release of said lever. 85
  4. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including integrally formed resilient and rigid arm members, said lever operating to engage and to depress said rigid arm, and a stop formed integrally with said rigid arm for engagement by said lever to hold the same in an open position, said resilient arm causing a return to a normal inoperative position of said compressing means upon the release of said lever. 90
  5. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including integrally formed resilient and rigid arm members, said lever operating to engage and to depress said rigid arm, and a stop formed integrally with said rigid arm for engagement by said lever to hold the same in an open position, said resilient arm causing a return to a normal inoperative position of said compressing means upon the release of said lever. 95
  6. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including a strip of resilient material fixed at one end and having an intermediate portion thereof serrated to provide an arm member extending from the free end thereof, said arm member having means for holding the same rigid, said lever operating to engage and to depress said rigid arm through the slot formed by the serration of the material for said arm, said remaining resilient portion causing a return to a normal inoperative position of said compressing means upon the release of said lever. 100
  7. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including integrally formed resilient and rigid arm members, said lever operating to engage and to depress said rigid arm, and a stop formed integrally with said rigid arm for engagement by said lever to hold the same in an open position, said resilient arm causing a return to a normal inoperative position of said compressing means upon the release of said lever. 105
  8. In combination with a fountain pen having a hollow casing and a compressible ink reservoir therein, of means for compressing said reservoir including integrally formed resilient and rigid arm members, said rigid arm being adapted to operate said compressing means out of a normal condition and said resilient arm permitting a return to a normal position of said compressing means after being operated upon by said rigid arm. 110
- In witness whereof, I have hereunto subscribed my name. 115
- HERMAN K. STEMPERL.
- 120
9. In combination with a fountain pen having a hollow casing with an operating lever mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including a strip of resilient material fixed at one end and having an intermediate portion thereof serrated, said 125