

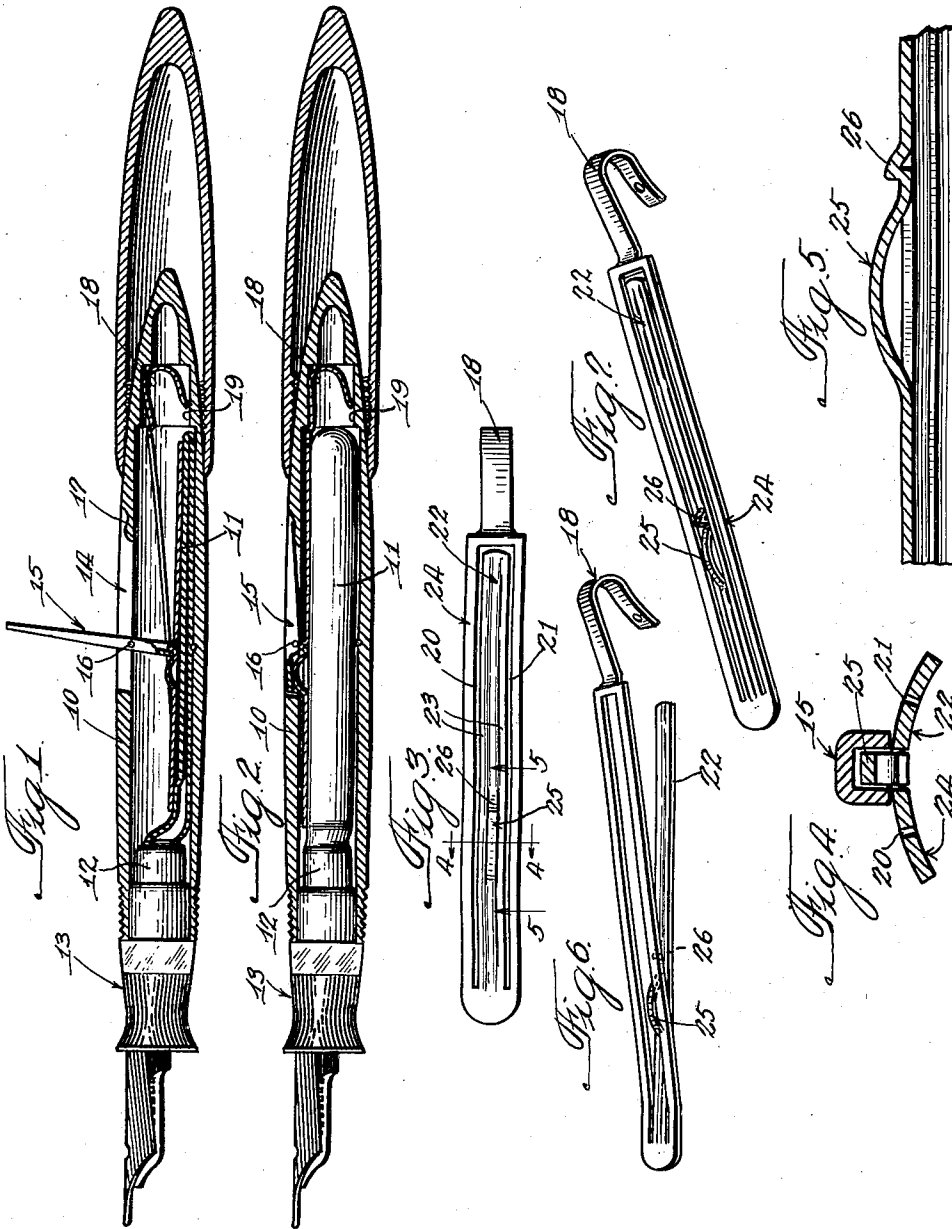
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PRESSURE BAR FOR FOUNTAIN PENS

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PRESSURE BAR FOR FOUNTAIN PENS

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This invention relates to a fountain pen pressure bar and has special reference to a compound actuating lever for uniformly compressing the elastic sac or tube serving as a reservoir for writing fluid in a fountain pen.

More particularly, this invention relates to a pressure bar for fountain pens comprising connected relatively resilient and rigid arm members in which the resilient arm member has a guide thereon for engagement with an operating lever mounted on the fountain pen, the operating lever engaging the guide during movement thereof to depress the rigid arm and the resilient arm causing a return to a normal inoperative position of the compressing means upon the release of the lever.

The pressure bar of this invention is used as a compressing means for fountain pens employing an elastic sac or tube for holding a writing fluid, the compressing means depressing the tube to create a vacuum therein. Suction during the expansion of the tube from the compressed position thereof fills the elastic tube or sac with writing fluid during the expansion thereof to its normal position. The particular embodiment of pressure bar shown herein is of one-piece construction comprising a double bar formed of a single strip of material including a resilient arm and an inner relatively rigid arm slit from the material intermediate the resilient sheet, the end of the resilient strip being bent back upon itself in a spaced relation to form an open loop to fit within and frictionally to engage the inner end of the bore of the barrel of the fountain pen opposite to the writing point end thereof.

In the prior art applicants have knowledge of actuating levers for compressing the elastic sacs or tubes forming reservoirs for fountain pens and the present invention is an improvement of the type of pressure bar illustrated and described in the Stempel Patent No. 1,852,094, issued April 5, 1932, and assigned to the assignee of the present application. In the present application the rigid arm slit from an intermediate portion of the material of the resilient strip is formed with a guide for engaging with the operating lever mounted in a longitudinal slot of the fountain pen barrel. A relatively substantial amount of pressure is required to operate the elements and to compress the flexible sac acting as the reservoir for the writing fluid and because of the material of the barrel being relatively thin and the pivotal means for the operating lever being relatively small, it has been found desirable to provide a guide to materially increase the strength of

the assembly. Heretofore the material bounding the slot of the barrel in which the operating lever seats and extends served as the guide for the lever at an intermediate portion of the length thereof and during the pivotal operation thereof. In the present instance, the lever is guided at one end as well as at an intermediate portion thereof.

One of the objects of this invention is to provide a pressure bar of the type indicated above for compressing an elastic sac serving as a reservoir for a fountain pen in which the rigid bar of the assembly is provided with a guide for directing the movement of the operating lever.

Another object of this invention is to provide a pressure bar of the type described above in which the weight of the component parts of the actuating lever is relieved from the elastic sac and in which the strength of the assembly is relatively increased.

Other objects and advantages of this invention 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 taken together with the accompanying drawing, in which latter:

Figure 1 is a central longitudinal sectional view of a fountain pen equipped with the pressure bar of this invention showing the latter in an operative condition with the elastic sac compressed;

Fig. 2 is a view similar to Fig. 1 with the pressure bar of this invention being shown in an inoperative position showing the flexible sac in an expanded condition;

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

Fig. 4 is an enlarged transverse sectional view of the pressure bar taken on the line 4—4 of Fig. 3;

Fig. 5 is an enlarged longitudinal sectional view of a fragmentary portion of the pressure bar taken on the line 5—5 of Fig. 3;

Fig. 6 is a perspective view of the pressure bar 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 the substantial plane of the complementary resilient arm portion.

Referring now more particularly to the drawing, the embodiment illustrated therein comprises a fountain pen barrel or casing 10 having an elastic sac or tube 11 forming a reservoir for

writing fluid disposed therein, the sac being open ended and secured at the open end thereof to a reduced end portion 12 of the ink-feeding mechanism. A second reduced end portion of the ink-feeding mechanism is disposed frictionally in the open end of the barrel 10, and the assembly of the flexible sac, ink-feeding mechanism, and barrel is merely shown in one usual manner well known in the art.

The barrel 10 of the fountain pen is provided with an elongated longitudinally extending slot 14 between the walls of which is pivoted an operating lever 15 on a ring 16 which latter is held in a groove in the bore of the barrel. The lever when in its normal or closed position preferably extends substantially the full length of the slot 14. A slight depression 17 in the barrel is made at one end of the slot in order that the thumb nail may be inserted beneath one end of the lever 15 so as to raise the lever, the other end of the lever being forced downwardly as shown more particularly in Fig. 1 to compress the ink sac in a manner which will hereinafter be more particularly described.

The pressure bar is shown in the form of a double bar which is removably mounted within the bore of the casing between the flexible sac and the inner wall of the casing adjacent the slot 14. The pressure bar comprises a resilient strip of material one end of which is bent back upon itself in a spaced relation to form an open loop 18. The bore of the barrel at the end thereof opposite the writing point end is reduced as at 19 to house the open loop 18 of the pressure bar. The diameter of the bore of the reduced portion 19 is slightly less than the normal width of the open loop so that the open loop is forced therewith and held therein by a frictional engagement of the loop within the bore.

The main body portion of the pressure bar is slit at spaced points intermediate the width of the bar as at 20 and 21, the slits 20 and 21 extending from adjacent one end of the resilient strip to a point adjacent the loop end thereof, the slit portions being united by a cross slit to provide a free end for an arm 22. The arm 22 is provided with a plurality of longitudinally extending embossments 23 to form the arm 22 into a relatively rigid arm. The portions of the resilient strip forming the pressure bar and bounding the edges of the relatively rigid bar 22 form a relatively resilient arm 24.

The formation of the inner rigid arm 22 out of an intermediate portion of the material of the strip provides an opening through which one end of the lever 15 extends when it is operated to cause the rigid arm 22 to compress the flexible sac 11. The shorter end of the lever 15 engages the rigid arm 22 which, as has been hereinbefore mentioned, normally rests in a substantial plane with the outer resilient arm portions 24 against the inner wall of the bore of the barrel, and depresses the rigid arm against the flexible sac as shown more particularly in Fig. 1. The bar 22 being relatively rigid compresses the flexible sac evenly and uniformly throughout the entire length thereof.

The resiliency of the arm 24 is sufficient to cause it to spring outwardly against the inner face of the bore of the barrel 10 when the pressure of the lever 15 is released, the latter action being accomplished by pushing the outwardly extending end of the lever downwardly against the outer wall of the barrel of the fountain pen. The resiliency of the arm 24 also holds the lever 15

in a closed position in the slot 14. The present construction thus holds the pressure bar in either open or closed position and does not depend upon the flexibility or resiliency of the sac to accomplish this purpose.

In order to receive a maximum strength in the assembly of the various elements, the relatively rigid bar 22 is provided with a guide 25 which is preferably slit and deformed upwardly out of the plane of and from an intermediate portion of the rigid arm 22. The lever 15 is preferably of substantially U-shaped cross section and straddles the upwardly extending guide portion 25 during the full movement of the lever to compress the flexible sac. A stop 26 is deformed upwardly out of the plane of the rigid bar 22 and is disposed adjacent the guide 25 in order to predetermine the limit of movement of the operating lever 15.

While but a single embodiment of this invention is herein shown and described, it is to be understood that various modifications thereof 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.

We 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 connected relatively resilient and rigid arm members, said rigid arm member having a guide thereon, said lever engaging said guide during movement thereof 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.

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 connected relatively resilient and rigid arm members, said rigid arm member having a guide thereon deformed from the material and out of the plane thereof, said lever engaging said guide during movement thereof 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.

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 connected relatively resilient and rigid arm members, said rigid arm member having adjacently disposed guide and stop members thereon, said lever engaging said guide member during movement thereof to depress said rigid arm and being limited in its movement by said stop member, said resilient arm causing a return to a normal inoperative position of said compressing means upon the release of said lever.

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 relatively resilient and rigid arm members, said rigid arm member having a guide thereon, said lever engaging said guide

during movement thereof 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.

5 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 a strip of resilient material bent back upon itself at one end in a spaced relation to form an open loop, a relatively rigid arm member slit from an intermediate portion of said resilient strip and having a guide thereon, said lever engaging said guide during movement thereof to depress said rigid arm, the material bounding said rigid arm causing a return to a normal inoperative position of said compressing means upon the release of said lever.

10 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, a strip of resilient material bent back upon itself at one end in a spaced relation to form an open loop, of means for compressing said reservoir including an intermediate portion of said rigid strip being slit and embossed to form a relatively rigid arm member, said relatively rigid arm member having a guide thereon, said lever engaging said guide during movement thereof to depress said rigid arm, the material bounding said rigid arm causing a return to a normal inoperative position of said compressing means upon the release of said lever.

15 7. In combination with a fountain pen having a hollow casing with an operating lever of substantially U-shaped cross-section mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including in-

tegrally formed relatively resilient and rigid arm members, said rigid arm member having a guide and a stop adjacent thereto deformed from the material and out of the plane thereof, said U-shaped lever straddling said guide during movement thereof to depress said rigid arm and being limited to the movement thereof by said stop, said resilient arm causing a return to a normal inoperative position of said compressing means upon the release of said lever.

20 8. In combination with a fountain pen having a hollow casing with an operating lever of substantially U-shaped cross-section mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including connected relatively resilient and rigid arm members, said rigid arm member having a guide thereon projecting above the plane thereof, said U-shaped lever straddling said guide during movement thereof 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.

25 9. In combination with a fountain pen having a hollow casing with an operating lever of substantially U-shaped cross-section mounted in a longitudinal slot therein and a compressible ink reservoir inserted within said casing, of means for compressing said reservoir including connected relatively resilient and rigid arm members, said rigid arm member having an intermediate portion slit and raised above the surface thereof to form a guide, said lever straddling said guide during movement thereof 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.

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