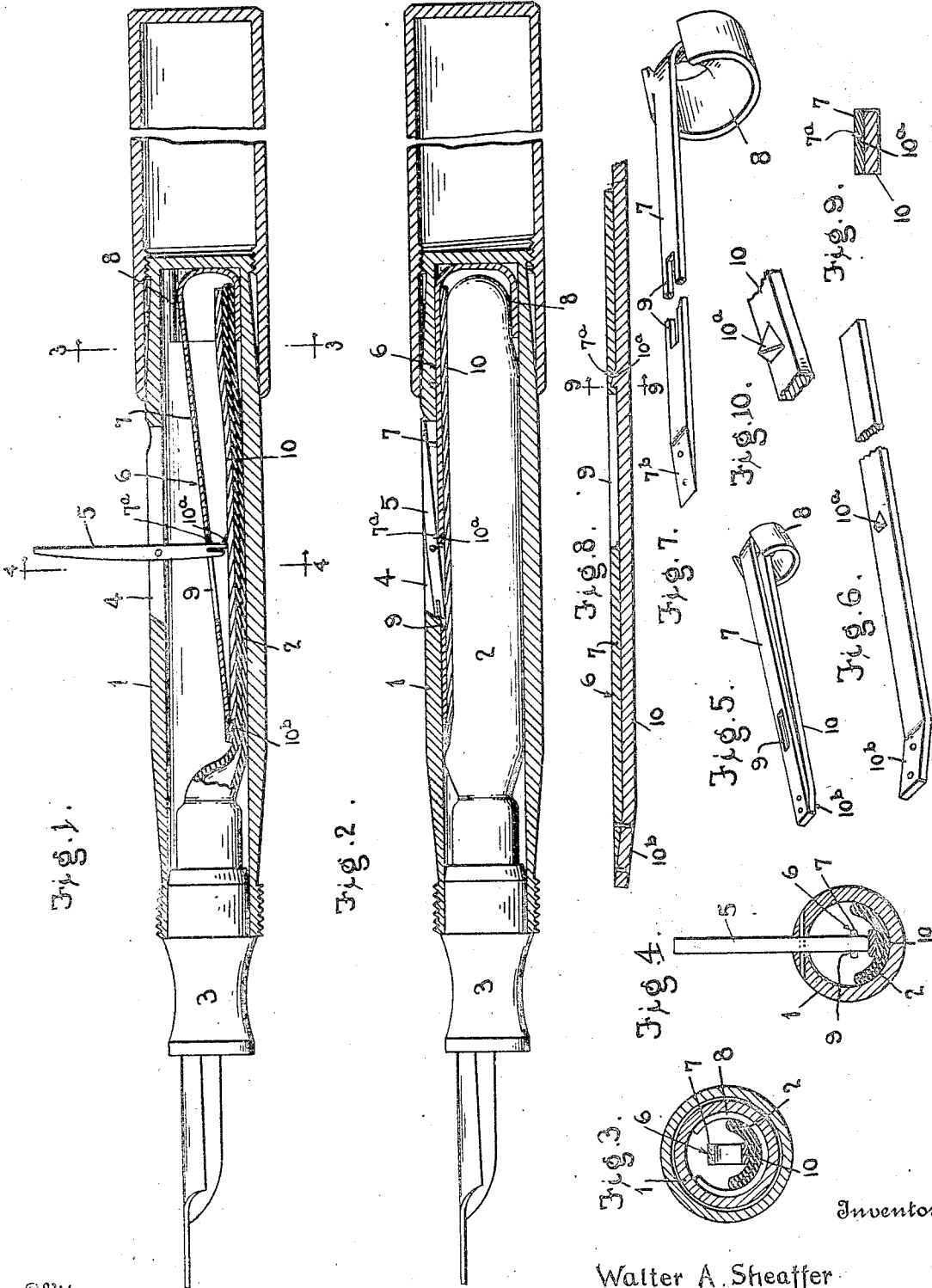


W. A. SHEAFFER.  
ATTACHMENT FOR FOUNTAIN PENS.  
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1,118,240.

Patented Nov. 24, 1914.



Witnesses  
L. B. James  
L. M. McColl

Walter A. Sheaffer

by *H. Wilson*  
Attorneys

# UNITED STATES PATENT OFFICE.

WALTER A. SHEAFFER, OF FORT MADISON, IOWA.

ATTACHMENT FOR FOUNTAIN-PENS.

1,118,240.

Specification of Letters Patent.

Patented Nov. 24, 1914.

Application filed February 19, 1913. Serial No. 749,522.

*To all whom it may concern:*

Be it known that I, WALTER A. SHEAFFER, a citizen of the United States, residing at Fort Madison, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Attachments for Fountain-Pens; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in fountain pens employing an elastic ink tube or reservoir and means 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 of said tube to its normal position.

The object of the invention is to provide simple and efficient means for uniformly compressing the tube and for reliably holding the actuating lever in either open or closed position without the aid of the tube or reservoir.

Still another object is to provide lever actuated reservoir compressing means so constructed as to prevent the weight of said means from resting on or exerting any pressure on said reservoir when the parts are in normal position with the lever closed and the reservoir filled.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings: Figure 1 represents a longitudinal section of a pen equipped with this improvement with the lever in open position; Fig. 2 is a similar view with the lever in closed position; Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1; Fig. 4 is a similar view taken on the line 4—4 of Fig. 1; Fig. 5 is a perspective view of the attachment detached; Fig. 6 is a detail perspective view of the rigid arm; Fig. 7 is a perspective view of the spring arm; Fig. 8 is an enlarged longitudinal section through the two arms; Fig. 9 is a detail cross section taken on the line 9—9 of Fig. 8; and Fig. 10 is an enlarged perspective view of a portion of the rigid arm showing the detent.

In the embodiment illustrated an outer

casing 1, an elastic ink reservoir 2 and the pen holder section 3 of a fountain pen are shown all of which are of any ordinary or approved construction and therefore need no particular description.

In carrying out this invention the casing or barrel 1 is provided near its outer or rear end with a longitudinally extending slot 4 between the walls of which and at a point preferably adjacent the inner end of said slot is pivoted an operating lever 5. This lever when in its normal or closed position extends the full length of the slot. This lever 5 is preferably constructed with an inclined lower face to adapt one point only thereof to engage the depressing bar and be held thereby in closed position, said lever being fully described in my copending application Serial No. 732,087, filed November 18, 1912.

A combined reservoir compressing member and lever holding device is shown in the form of a double bar 6 which is removably mounted within the casing between the reservoir 2 and the inner wall of the casing opposite the slot 4 therein. This bar 6 as shown is composed of a resilient outer bar or arm 7 secured to and preferably formed integral with a resilient annular band or split ring 8 which is designed to fit within and frictionally engage the outer end of the casing 1 and hold the device in operative position within said casing. As shown this arm 7 is formed as a tongue integral with said band 8 and which extends from the outer edge of said band at a point midway its ends and is then bent laterally inward and then forwardly and extends between the curved arms of said band. This outer arm or bar 7 is of a length slightly less than the length of the reservoir or tube 2 which it is designed to compress and has a longitudinal slot 9 therein the inner end of which when the device is in operative position is arranged below the inner end of the lever 5 when said lever is closed. This lever is designed to extend, when opened through this slot 9, and to engage the outer end wall of said slot whereby the opening movement of said lever is limited and the lever held at right angles to the casing. To the free end of the outer arm 7 is fixed another arm or rigid bar 10 which normally is arranged parallel with the arm 7 between said arm 7 and the reservoir 2 and its free end extends into the ring 8 as shown clearly in Figs. 1 and 2.

This inner arm or bar 10 is composed of metal or other material which will not bend thus adapting said bar or arm 10 under all conditions to remain in straight position. This arm 10 normally lies close against the lower or inner face of the arm 7 as shown in Fig. 2 and is adapted to be depressed by engagement therewith of the short end of the lever 5 when the lever is opened and said end projects through the slot in the arm 7 into engagement with the inner arm 10 thereby forcing it inward against the tube 2 whereby said tube is compressed evenly or uniformly throughout the length of the arm. The resiliency of the arm 7 is sufficient to cause it to spring outward against the inner face of the casing when the pressure of the lever 5 is withdrawn by the closing of said lever, and thus prevent the weight of bar 10 from resting on reservoir 2. The tension of arm 7 also draws the arm 10 outward with sufficient force to hold it in close contact with arm 7 and to hold the lever 5 in closed position, said arm 10 bearing on the extremity of the short end of said lever 5 and when said lever is opened, the tension of arm 7 draws arm 10 against the short end of said lever and holds the lever in open position the outer end of slot 9 limiting its opening movement. In order to insure the proper tension in the spring arm or bar 7 so that it will at all times maintain the arm 10 in close contact with it and consequently keep the weight of such arms off of the ink reservoir and further insure tension against the lever 5, the bar 10 has its attached end slightly bent outwardly toward bar 7 as shown at 10<sup>b</sup> in Fig. 6 and the upper face of the corresponding end of the arm 7 is tapered or beveled as shown at 7<sup>b</sup>. The parts 7<sup>b</sup> and 10<sup>b</sup> are then riveted together and this operation due to the thinness and resiliency of the arm 7 and the thickness and rigidity of the arm 10, will cause said end of the arm 7 to assume the position shown in Fig. 2 and more clearly in Fig. 8, thus practically reversing the bevel or taper on such part and causing the desired tension to be placed in the arm 7. It will thus be obvious that this double bar 6 performs the double function of a reservoir compressing device and of means for holding the lever in open and closed position whether the reservoir be employed or not, said bar not being dependent upon the reservoir to hold said lever in its positions.

The arm 10 is preferably provided on its outer face in a plane just beyond the outer end wall of slot 9 with a detent 10<sup>a</sup> against which the terminal of the short end of lever 5 is designed to abut when the lever is opened and which assists in locking the lever in position at right angles to the casing and prevents all danger of the resilient arm 7 being bent or bowed outwardly which would

cause the straight bar or arm 10 to be deflected and bear unevenly on the reservoir 2. A further advantage of having a double lock formed by the detent 10<sup>a</sup> in connection with the end of the slot 9, resides in the fact that when the lever is thrown to its upright or open position it simultaneously engages the two stops and the arm 7 which is highly resilient is thereby prevented from buckling or bowing outwardly and riding up on the lever toward its fulcrum. The bar or arm 7 is provided on its inner face opposite said detent 10<sup>a</sup> with a socket 7<sup>a</sup> to receive said detent when the parts are in normal position to permit the arms 7 and 10 to closely contact throughout their length. The detent 10<sup>a</sup> is preferably of pyramidal form as shown more clearly in Fig. 6 and its tapered shape in entering the socket 7<sup>a</sup> causes the bars or arms 10 and 7 to be guided into parallel relation when the parts assume their natural position shown in Fig. 2 after each operation of the lever 5. This socket is preferably constructed by stamping it in said arm and then filing off its outer end, but it may be made in any other suitable manner.

It will be noted on referring to Fig. 2 that the inner end of the lever 5 is at all times disposed in the slot 9 of the arm 7 so that the latter and the bar or arm 10 cannot rotate or turn laterally in the barrel of the pen. This engagement of the lever 5 at all times with arm 7 aids the friction locking device 8 in holding in operative position the arms or bars 7, 10 after they have been initially adjusted in the barrel in assembling the instrument. Since these parts cannot be thrown out of proper position with respect to each other it will be seen that the pen will not get out of order even though it is carelessly handled in the insertion and removal of the reservoir or sack and in the operation of the lever 5. It will thus be seen that since the pressure arm 10 and its attached spring retracting arm 7 are maintained closely against the side wall of the casing, said parts will present no obstacle to the ready removal and application of the reservoir 2.

While I have described my invention with more or less minuteness as regards details and as being embodied in certain precise forms, I do not desire to be limited thereto unduly any more than is pointed out in the claims. On the contrary, I contemplate all proper changes in form, construction and arrangement, the omission of immaterial elements and substitution of equivalents as circumstances may suggest or render expedient.

I claim as my invention:

1. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof and a lever fulcrumed in said slot, a compressible ink res-

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ervoir inserted within said casing, of means operable independent of said reservoir and arranged within said casing for firmly holding said lever in either open or closed position.

2. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof and a lever fulcrumed in said slot, a compressible tubular ink reservoir removably inserted within said casing, of means operable independent of said reservoir and arranged within said casing between the inner wall thereof and said reservoir for yieldably compressing said reservoir and for holding said lever in either open or closed position.

3. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof and a lever fulcrumed in said slot, a compressible ink reservoir inserted within said casing, and means operable independent of said reservoir and arranged in said casing between the inner wall thereof and said reservoir for compressing said reservoir and for yieldably holding said lever in either open or closed position, said means being provided with means for limiting the opening movement of said lever.

4. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof and a lever fulcrumed in said slot, a compressible tubular ink reservoir removably inserted within said casing, of a combined reservoir compressing member and lever holder comprising two bars secured together at one end, means at the free end of one of said bars for removably fixing said bars in operative position within said casing, the free end of the other bar being arranged adjacent said fixing means, the outer bar having a slot disposed to position one end wall thereof to limit the opening movement of said lever.

5. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof and a lever fulcrumed in said slot, a compressible tubular ink reservoir removably inserted within said casing, of a combined reservoir compressing member and lever holder comprising two bars secured together at one end, one of said bars being resilient, means at the free end of one of said bars for removably fixing said bars in operative position within said casing, the free end of the other bar being arranged adjacent said fixing means, the outer bar having a slot disposed to position one end wall thereof to limit the opening movement of said lever, and means for preventing said resilient bar from buckling.

6. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof and a lever fulcrumed in said slot, a compressible tubular

ink reservoir removably inserted within said casing, of a combined reservoir compressing member and lever holder comprising two bars secured together at one end, one of said bars being resilient and the other rigid, means at the free end of one of said bars for removably fixing said bars in operative position within said casing, the free end of the other bar being arranged adjacent said fixing means, and means on said rigid arm for engagement by said lever to prevent buckling of said resilient bar.

7. In combination with a fountain pen having a hollow casing with a longitudinal slot, a compressible ink reservoir inserted within the casing, of means for compressing the reservoir, including a bar movable laterally in the casing and having a slot, and a lever fulcrumed in the slot of the casing and having its inner end disposed at all times in the slot in said bar whereby the latter will be prevented from rotating or turning in the casing.

8. In combination with a fountain pen having a hollow casing with a longitudinal slot, a collapsible ink reservoir within the casing, of means for compressing the reservoir including two bars attached to each other at one end, the outer one having a slot and a socket adjacent the latter, a lever fulcrumed in the slot of the casing adapted to project through the slot in the outer bar to engage and operate the inner bar and an outwardly tapered detent upon the inner bar to limit the movement of the lever, said detent entering the socket in the outer bar when the bars assume their normal position whereby such bars are guided toward each other and retained in transverse alinement.

9. In combination with a fountain pen having a hollow casing provided with a longitudinal slot, a compressible ink reservoir within the casing, of means for compressing the reservoir including an outer resilient bar having a lever receiving slot and a tapered end, a rigid inner bar having an angularly bent end fastened to the tapered end of the outer bar, and a lever fulcrumed in the slot of the casing and working through the slot in the outer bar to engage and depress the inner bar.

10. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof and a lever fulcrumed in said slot, a compressible tubular ink reservoir removably inserted within said casing, of a combined reservoir compressing member and lever holder comprising two bars secured together at one end, the outer bar having a slot for the passage of the lever there-through into engagement with the inner bar, and cooperating means on said bars for guiding them toward each other and retaining them in transverse alinement.

11. The combination with a slotted four-

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tain pen casing having a compressible ink reservoir and a lever operable in said slot, of a reservoir compressing device comprising a double bar provided with means for removably holding it within the casing, said double bar being composed of a resilient arm having a slot therein to at all times receive the lever and to be thereby held against turning or lateral movement in the casing, and another arm secured to one end of said resilient arm and extending parallel therewith for engagement with the compressible ink reservoir, one end wall of the slot in said resilient arms being positioned to limit the swinging movement of the lever in one direction.

12. The combination with a slotted fountain pen casing having a compressible ink reservoir and a lever operable in said slot, of a combined reservoir compressing member and lever holder comprising two bars secured together at one end, one of said bars being composed of resilient material and the other of rigid material, means at the free end of one of said bars for removably fixing them in operative position within a pen casing, the free end of the other bar being arranged adjacent said fixing means and the resilient bar having an opening therein, and means engaged by the lever for preventing buckling of said resilient bar.

13. The combination with a slotted fountain pen casing having a compressible ink reservoir and a lever operable in said slot,

of a combined reservoir compressing member and lever holder comprising two bars secured together at one end, one of said bars being resilient and the other rigid, means at the free end of said resilient bar for removably fixing the device in operative position within a pen casing, said bars being arranged parallel with each other, the resilient bar having a slot therein, and a stop projection on said rigid bar for engagement by the lever to prevent buckling of the resilient bar.

14. In combination with a fountain pen having a hollow casing with a slot extending longitudinally thereof, a lever fulcrumed in said slot, a compressible ink reservoir in said casing, of a combined reservoir compressing member and lever holder comprising two bars secured together at one end, one of said bars being resilient, means for removably fixing one end of the resilient bar in the casing to hold said bars in operative position, said resilient bar having a slot for the reception of the lever, and means for preventing said resilient bar from buckling under the action of the lever.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER A. SHEAFFER.

Witnesses:

L. O. HILTON,  
M. H. STUARD.