

E. R. SMITH.
 COMPRESSION MEANS FOR FOUNTAIN PENS.
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1,048,221.

Patented Dec. 24, 1912.

Fig. 1.

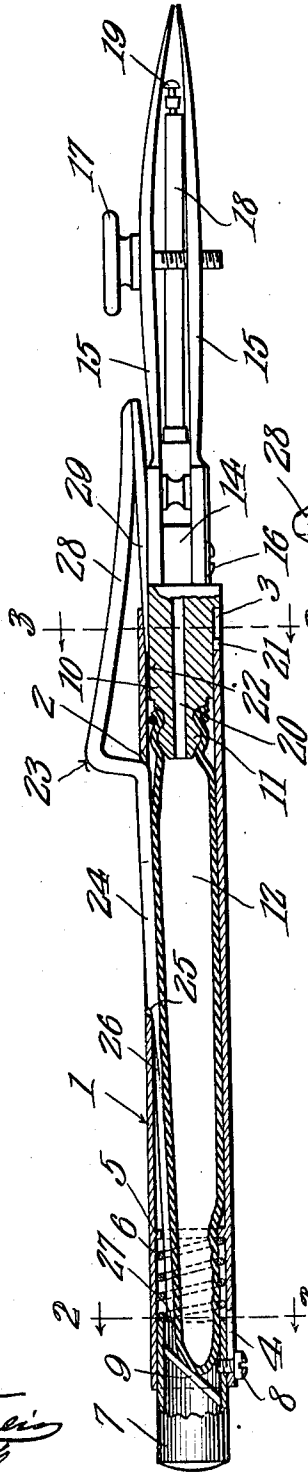


Fig. 3.

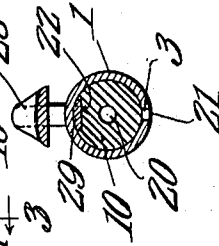


Fig. 2.

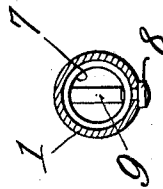
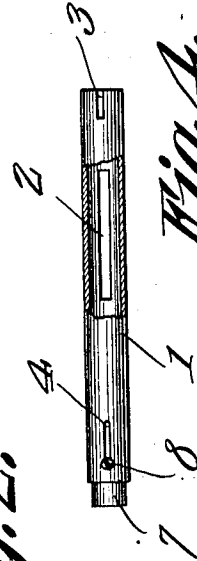


Fig. 4.



Witnesses

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COMPRESSION MEANS FOR FOUNTAIN-PENS.

1,048,221.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN R. SMITH, a citizen of the United States, residing at Paris, in the county of Lamar and State of Texas, have invented a new and useful Compression Means for Fountain-Pens, of which the following is a specification.

It is the object of this invention to provide a fountain pen having novel means for compressing the reservoir of the pen.

Specifically, the invention aims to provide a compression member for a pen, which compression member, in addition to its obvious function, will serve, as well, as a means for maintaining in the barrel of the pen, the head wherewith the compressible reservoir and ink-applying elements are connected.

A further object of the invention is to provide a fountain pen with separate elements, each of which may be operated independently, to compress the reservoir, one of said elements constituting a means for manipulating the other.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings,—Figure 1 shows the invention in longitudinal section, parts remaining in elevation; Fig. 2 is a transverse section upon the line 2—2 of Fig. 1; Fig. 3 is a transverse section upon the line 3—3 of Fig. 1; and Fig. 4 is a plan of the barrel and certain of its accessory parts, portions being sectioned.

In carrying out the invention there is provided as a fundamental element, a barrel 1, open at both ends, and ordinarily of cylindrical contour. Adjacent its forward end, the barrel is provided with a longitudinally extended slot 2, of considerable length. In one end edge of the barrel 1 there is a notch 3. Adjacent the other end of this barrel 1, but located entirely within the contour of the barrel, is a slot 4, which is somewhat shorter than the slot 2.

Located within the barrel 1, slightly in advance of the slot 4, is a shoulder 5, against which bears one end of a helical compression spring 6, the outer end of which bears against a tubular cap 7, adapted to slide in one end of the barrel 1. A screw 8 is inserted into the side wall of the cap 7, the screw 8 being adapted to move in the slot 4, the screw 8 serving to prevent the cap 7 from being thrust entirely out of the barrel 1, by the action of the spring 6. The cap 7 is equipped in its interior with a transverse, inclined wall 9, located at an angle to the axis of the barrel 1.

Into the other end of the barrel 1 is inserted a head 10, provided at its inner end with a bulb 11, adapted to receive and to retain the open end of a compressible reservoir 12, located within the barrel 1 and extended into close relation with respect to the inclined wall 9 which is carried by the cap 7. The outer, exposed end of the head 10 is flattened, as shown at 14, and the blades of the pen, constituting the ink-applying elements, are applied to opposite faces of this flat portion 14 of the head. The blades are connected by a pivot element 16 with the portion 14 of the head, the blades being united, as usual, by the adjusting screw 17.

A feed tube 18 enters the head 10, the tube 18 carrying a cleaner 19. The tube 18 communicates, through the bore 20 of the head 10, with the interior of the compressible reservoir 12. The construction is such that the blades 15 may be swung to one side, upon their pivotal mounting 16, so that the tube 18 may be inserted readily into a source of ink-supply. Inserted radially into the head 10 is a pin 21, the pin 21 being adapted to enter the notch 3 in the end of the barrel, to prevent the head from rotating in the barrel. In one side of the head 10 there is a longitudinally extended groove 22.

The invention further includes a compression member, denoted generally by the numeral 23. This compression member 23 includes a shank 24, adapted to enter the slot 2, and provided with a shoulder 25 which may engage one end wall of the slot 2, to limit the movement of the compression member, longitudinally of the barrel 1. The

shank 24 merges into a thinned end 26, located within the barrel 1, between the barrel 1 and the compressible reservoir 12. The inner end of the portion 26 is beveled, as shown at 27, for engagement with the inclined wall 9 of the cap 7. The forward end of the compression member 23 is spaced apart from the barrel 1 and is angularly disposed with respect thereto, as indicated at 28, the construction being such that the finger of the operator may be placed upon the part 28, to effect a movement of the compression member 23, and consequently to effect a compression of the reservoir 12. Secured to the forward end of the portion 28 of the compression member is a rearwardly extended, wedge-shaped tongue 29. This tongue 29 is adapted to engage in the groove 22 of the head 10, the wedge-shaped tongue 29 constituting a means for holding the head 10 engaged with the barrel 1. The compression member 23, broadly considered, comprises angularly disposed parts 26 and 29, one of which parts is adapted to bear upon the compressible reservoir 12, the other of which parts constitutes a means for holding the head 10 in the barrel 1.

The practical operation of the device is as follows: The finger of the operator may be placed upon the portion 28 of the compression member 23, the compression member being operated in this manner, so that its portion 26 will bear upon the reservoir 12, for the purpose of expelling the ink, and for the purpose of expelling the air from the empty reservoir, so that the ink may be sucked thereinto, it being understood that the reservoir 12 is not only compressible, but resilient, as well. The reservoir 12 may be manipulated, also, by thrusting the cap 7 inwardly, so that the inclined wall 9 of the cap 7 bears against the closed end of the reservoir 12. Moreover, when the cap 7 is thrust inwardly, the inclined wall 9 of the cap will engage with the beveled end 27 of the portion 26 of the compression member 23, thrusting the portion 26 of the compression member against the reservoir 12. It has been found in practice that the reservoir 12 cannot be emptied completely by the operation of the member 23, for the reason that the portion 26 of the member 23 will not flatten the reservoir 12 adjacent its closed end. This closed end may be flattened through the operation of the cap 7, but if the cap 7 is operated alone, the forward portion of the reservoir 12 will remain uncompressed. In the present construction, when the cap 7 is thrust inwardly, the compression member 23 will be moved into engagement with the reservoir 12. Thus, the reservoir 12 will be flattened out, throughout practically its entire length, by the member 23, and, at the same time, the reservoir will

be subjected to endwise compression, due to the engagement between the wall 9 of the cap 7, and the end of the reservoir 12.

Having thus described the invention, what is claimed is:—

1. A pen comprising a barrel; a head in the barrel; a compressible reservoir in the barrel and connected with the head; ink-applying means carried by the head; and a compression member inserted between the head and the barrel, one part of the compression member being accessible from the exterior of the barrel and entering the barrel and engaging the reservoir to effect an expelling of the contents of the reservoir.

2. A pen comprising a barrel; a head in the barrel; a compressible reservoir in the barrel and connected with the head; ink-applying means carried by the head; and a compression member comprising angularly disposed parts, one of which parts is accessible from the outside of the barrel, said part entering the barrel and engaging with the reservoir to expel the contents of the reservoir, the other of which parts is inserted between the head and the barrel to hold the head in the barrel.

3. A pen comprising a barrel; a cap slidable in one end of the barrel; a compressible reservoir in the barrel; ink-applying means in communication with the reservoir; a compression member adapted to engage the reservoir and extended longitudinally of the barrel and accessible from the outside of the barrel, the compression member extending into the barrel into close relation to the cap, whereby the compression member may be actuated by the cap during the sliding movement of the cap.

4. A pen comprising a barrel; a compressible reservoir in the barrel; ink-applying means in communication with the reservoir; a compression member extended longitudinally of the barrel and accessible from the outside of the barrel, the compression member being adapted to engage the reservoir; a cap slidable in one end of the barrel and adapted to engage both the reservoir and the compression member, whereby the reservoir may be manipulated either by the cap or by the compression member, the compression member being individually operable, and being also operable by the cap; the compression member being extended within the barrel and into close relation to the cap whereby the compression member may be actuated by the cap during the sliding movement of the cap.

5. A pen comprising a barrel; a head in the barrel; a compressible reservoir in the barrel and communicating with the head; ink applying means carried by the head; a cap slidable in the barrel and adapted to engage the reservoir; and a compression mem-

ber inserted between the head and the barrel, one part of the compression member being accessible from the exterior of the barrel and being extended into the reservoir into
5 close relation to the cap, whereby the cap in its sliding movement may operate the compression member.

6. A pen comprising a barrel; a head in the barrel; a compressible reservoir in the
10 barrel and communicating with the head; ink-applying means carried by the head; and a compression member comprising angularly disposed parts, one of which parts is accessible from the outside of the barrel,
15 said part entering the barrel to engage the reservoir, the other of which parts is inserted between the head and the barrel to hold the head in the barrel; and a cap slidable in one end of the barrel and adapted
20 to engage both the reservoir and the compression member; that part of the compression member which enters the barrel being extended into close relation to the cap whereby the compression member may be
25 actuated by the cap during the movement of the cap.

7. A pen comprising a barrel; a compressible reservoir in the barrel; ink-applying means in communication with the reservoir;
30 and cooperating parts including a compression member secured adjacent one end to the barrel and extended longitudinally of the barrel and into the barrel to bear against the reservoir, and a cap slidable in the end
35 of the barrel, one of which parts is provided with an inclined surface, adapted to engage the other part, whereby the compression member may be operated by the movement of the cap; the cap being located adjacent that portion of the compression member
40 which extends into the barrel.

8. A pen comprising a barrel provided with a slot in its side wall, and with a shoulder in its interior; a cap, slidable in
45 one end of the barrel; a spring bearing against the shoulder and against the cap; a securing element movable in the slot of the barrel and removably engaged in the cap; the cap having a wall inclined with
50 respect to the axis of the barrel; a compressible reservoir within the barrel; ink-applying means in communication with the reservoir; and a compression member adapted to bear upon the reservoir, one end
55 of the compression member being connected with the barrel, the other end of the compression member being extended into the barrel and being engageable by the inclined wall when the cap is slid.

9. A pen comprising a barrel; a head in the barrel; ink-applying means carried by the head; a compressible reservoir connected with the head, and located within the barrel; a compression member comprising an-

angularly disposed parts, extended in a common direction, one of which parts is
65 wedged between the barrel and the head, the other of which parts extends along the outside of the barrel and enters the barrel, for engagement with the reservoir; a cap
70 slidable in one end of the barrel, and adapted to engage the last mentioned part of the compression member, to operate said part with respect to the reservoir; and
75 spring means for maintaining the cap out of engagement with said part of the compression member.

10. A pen comprising a barrel; a compressible reservoir within the barrel; ink-applying means communicating with the
80 reservoir; and independent elements for compressing the reservoir, either of which elements may be operated alone to compress the reservoir, one of said elements constituting a means for operating the
85 other, whereby both of said elements will compress the reservoir simultaneously.

11. A pen comprising a barrel; a compressible reservoir located within the barrel; ink-applying means communicating
90 with the reservoir; an element movable transversely of the barrel to effect a compression of the reservoir; an element movable longitudinally of the barrel to effect a compression of the reservoir; either of
95 which elements may be operated separately, to effect a compression of the reservoir, one of said elements being engageable by the other, whereby both elements, through the operation of one of said elements, may be
100 made to effect a compression of the reservoir.

12. A pen comprising a barrel; a compressible reservoir within the barrel; ink-applying means communicating with the
105 reservoir; an element adapted to compress the reservoir transversely; an element adapted to compress the reservoir longitudinally; each of said elements being individually operable to compress the reservoir;
110 and interengaging parts upon said elements, whereby one element, as it moves into reservoir-compressing position, will constitute a means for moving the other element into reservoir-compressing position.
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13. A pen having angularly acting, reservoir-compressing mechanisms, capable of individual operation and interengaged for simultaneous operation upon a manipulation of one of said mechanisms.
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14. A pen comprising a barrel; a head in the barrel, and having a longitudinal groove; a compressible reservoir in the barrel, and connected with the head; ink-applying means carried by the head; and a
125 compression member comprising angularly disposed parts, one of which parts is accessible from the outside of the barrel, said

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part entering the barrel and engaging with
the reservoir to expel the contents of the
reservoir, the other of which parts is
wedge-shaped, and is inserted into the
5 groove, to bind against the head and against
the barrel, thereby to hold the head in the
barrel.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

EDWIN R. SMITH.

Witnesses:

S. B. M. LONG,
KATE R. RICE.