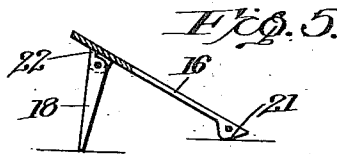
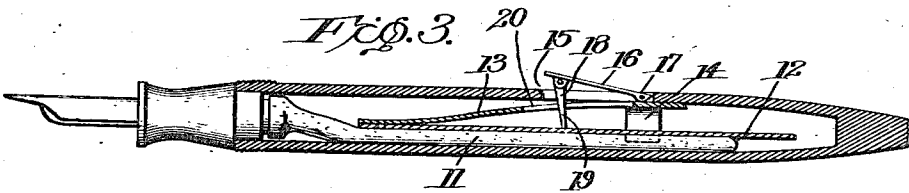
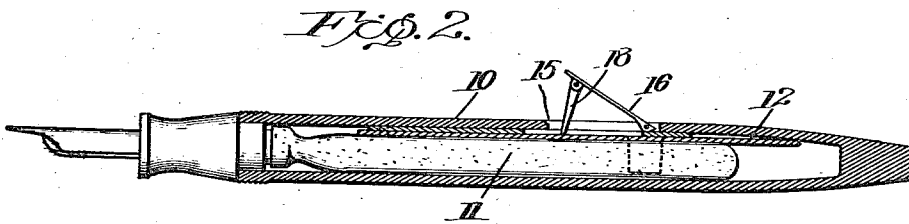
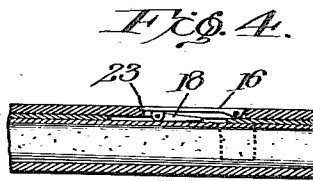
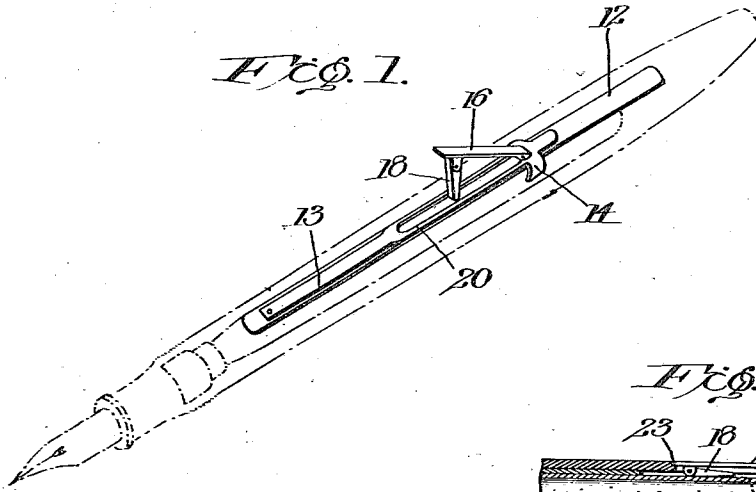


M. BORBECK.
SELF FILLING FOUNTAIN PEN.
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1,268,206.

Patented June 4, 1918.



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SELF-FILLING FOUNTAIN-PEN.

1,268,206.

Specification of Letters Patent.

Patented June 4, 1918.

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To all whom it may concern:

Be it known that I, MARTIN BORBECK, a citizen of the United States, residing at Sioux City, Woodbury county, State of Iowa, have invented certain new and useful Improvements in Self-Filling Fountain-Pens, of which the following is a specification.

This invention relates to self filling pens and particularly to the type having a collapsible ink receptacle, which, after it is collapsed, by its expansion is adapted to draw in a supply of ink.

The principal features of the invention reside in the means for collapsing the receptacle and then allowing it to expand and in the provision of a yielding means to return the compressor bar or other means directly acting on the receptacle to its normal position. Other features will be apparent from the description taken in connection with the drawings, in which,

Figure 1 is a perspective view of a pen, the parts involved in the invention being shown in full lines and the barrel of the pen and other parts being shown in dotted lines;

Fig. 2 is a partial longitudinal section through the pen, with the receptacle in expanded position;

Fig. 3 is a longitudinal sectional view similar to Fig. 2 but showing the receptacle collapsed;

Fig. 4 is a detail sectional view showing the means for collapsing the receptacle nested in the slot provided therefor in the barrel of the pen;

Fig. 5 is a detail elevational view showing the pivoted members which are used to collapse the receptacle and particularly illustrating the means for limiting the angle which these members may make with respect to each other.

The invention is shown as embodied in a fountain pen having a barrel 10 of any desired shape. The usual collapsible receptacle or tube 11 is arranged in the interior of the barrel 10 and is adapted to be collapsed by a means which will now be described. A compressor bar 12 is arranged lengthwise of the receptacle 11 between the receptacle

and the interior surface of the bore of the barrel. This compressor bar is adapted to be actuated transversely of the bore to collapse the receptacle into the position shown in Fig. 3. At one end this compressor bar has attached thereto a leaf spring 13 which in normal position, shown in Fig. 2, is in contact with and parallel with the said bar. At its opposite end this leaf spring 13 is formed with oppositely extending curved arms 14 which are adapted to snugly fit the bore of the barrel and hold this end of the spring bar in contact with the interior surface of the bore and prevent movement of the spring.

Adjacent the end of the leaf spring having the arms 14, the barrel is formed with an elongated slot 15 extending through its wall. A member 16 of a length adapted to fit in the said slot is pivotally mounted at one end as at 17 near the end of the slot. The pivot for this member may consist of a pin which projects on each side of the member and is seated in the wall of the barrel. The member 16 at the end opposite its pivoted end 17 has pivotally attached thereto an element 18, the free end 19 of which is adapted to cooperate with the compressor bar 12 to push the same transversely of the bore of the barrel and compress the receptacle into collapsed position, and for this purpose the spring 13 is formed with an elongated slot 20 through which the member 18 may extend. This slot 20 is slightly displaced longitudinally away from the pivot 17 so that the end of the member 16 contacts with the spring. This end is formed with a cam surface 21 which is so shaped that its cooperation with the spring member 13 tends to keep it in raised position, such as shown in Figs. 2 and 5, or closed position, such as shown in Fig. 4. For this purpose it will be noted that the high portion of the cam 21 is arranged with respect to the pivot 17 so that when the member 16 is in raised position, this high portion is to the left of the pivot as viewed in Fig. 5, and when in closed position is slightly to the right of the pivot as viewed in Fig. 4. Of course, the curvature of the cam is very slight and the amount that the high portion of the same is on one side or the other of

the pivot 17 is very small as the member 16 is itself small and therefore exerts no great force to move it. While the cam 21 may be provided to keep the member 16 in open or closed position, it is obvious that because the member 16 is of such small weight the friction of the pivot itself or other means might be relied upon. The member 18 may be formed with a stop or abutment 22 (Fig. 5) to limit the angle to which it may be moved with respect to the member 16. This stop is arranged so that the maximum angle which the element 18 may make with respect to the member 16 is less than 90°, and is such that when the parts are in the positions shown in Fig. 3 with the receptacle collapsed the element 18 makes such an angle with respect to the surface of the compressor bar 12 that the friction of the end 19 on said bar is overcome and the element allowed to swing toward the member 16 into the nested and collapsed position of Fig. 4. As clearly shown in Fig. 4 the member 16 and element 18 are adapted to nest in the slot 15 so that the outer surface of the member 16 is flush with the exterior surface of the barrel of the pen. At the end opposite the pivot 17 the slot may be formed with a slight bevel 23 to permit the member 16 to be easily manipulated to raised position.

In the operation of the device, the pen is immersed in a supply of ink and the member 16 raised to the position shown in Fig. 2. As the pen barrel is in more or less of a vertical position the element 18 will open up with respect to the member 16 and assume the position of Fig. 2. The operator then presses the free end of member 16 inward toward the barrel, thus through the element 18, moving the compressor bar 12 to compress the collapsible receptacle into the position shown in Fig. 3. With a continued application of force to the member 16 when the parts have reached substantially the position shown in Fig. 3, the component of force between the end 19 of element 18 and the compressor bar 12 in a direction parallel with the bar 12 will be sufficient to cause the element 18 to swing toward the member 16, these two parts then assuming the position shown in Fig. 4. As the pressure is removed from the compressor bar, the receptacle 11 will expand and draw in a supply of ink.

It will thus be apparent that a very simple and efficient device is provided for actuating the collapsible receptacle of a self filling fountain pen and that it is only necessary to move the pivoted member 16 inward toward the barrel in order to accomplish both operations of compressing the receptacle and allowing it to expand. Furthermore, the spring 13 returns the bar 12 to its normal position of Fig. 2 and thus relieves the receptacle 11 of this function. Consequently the receptacle may expand to its full size and

draw in a larger supply of ink than if some of the force of its expansion were used to move the operating parts of the pen to their normal positions. Moreover, the leaf spring coöperates with the end of the member 16, as previously described, to keep said member in either raised or nested position.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. A self filling fountain pen comprising a barrel formed with an aperture in its side walls, a collapsible ink receptacle therein, a compressor bar, an operating member movably mounted on said barrel, and means interposed between said bar and member operative through said aperture and actuated by movement of said member in one direction to cause said compressor bar to successively collapse the receptacle and then allow it to expand.

2. A self filling fountain pen comprising a barrel, a collapsible ink receptacle therein, an operating member and an element interposed between the member and receptacle and pivoted to the member, said member and element mounted for movement in one direction to successively collapse and release the receptacle and means for automatically rendering said element inoperative at the end of the receptacle collapsing movement.

3. A self filling fountain pen comprising a barrel, a collapsible ink receptacle therein and means to collapse the receptacle and then allow it to expand including an operating member and an element interposed between the member and receptacle and pivoted to the member, means to limit the angle to which the element may open with respect to the member to less than 90°, said member and element mounted to move in one direction to successively collapse and release the receptacle.

4. A self filling fountain pen comprising a barrel having a slot through the wall thereof, a collapsible ink receptacle therein, means to collapse the receptacle and then allow it to expand including a member pivotally mounted at one end of the slot, an element pivotally mounted at the opposite end of said member and limited to swing away from the member to an angle of less than 90°, said member and element adapted to nest in said slot, and the free end of said element coöperating with said receptacle.

5. A self filling fountain pen comprising a barrel, a collapsible ink receptacle therein, said barrel formed with a slot, means for collapsing the receptacle comprising a member pivoted in the wall of the barrel and operative through the slot and adapted to nest in said slot when in closed position, said member formed with a cam surface at said pivoted end adapted to yieldingly hold the member in open or closed position.

6. A self-filling fountain pen comprising a barrel formed with a slot through the wall thereof, a collapsible ink receptacle therein, means for collapsing the receptacle including a member pivotally mounted at one end
5 of the slot for swinging movement to and from the barrel, an element pivotally mount-

ed at the free end of and on the inside of said member and stop means to limit the angle between said member and element to less than 90°.

In testimony whereof I affix my signature.

MARTIN BORBECK.