Sept. 3, 1957 J. ROGERS 2,804,846

FOUNTAIN PEN

Filed Jan. 14, 1955

Fig. 1

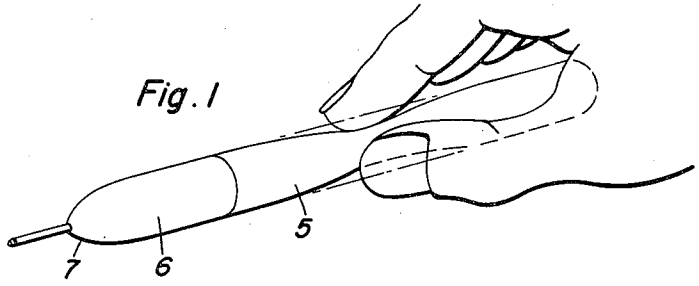


Fig. 2

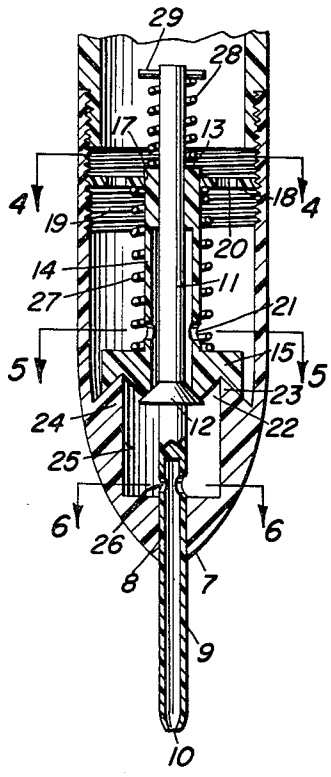


Fig. 3

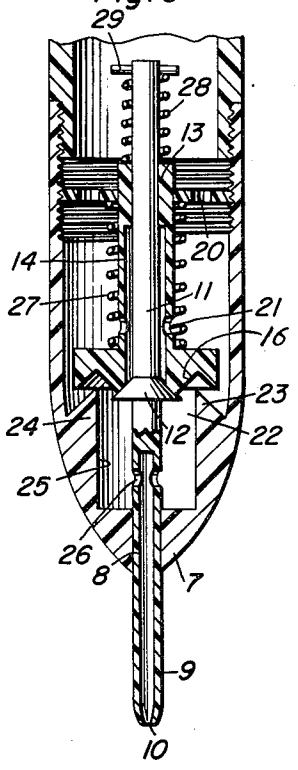
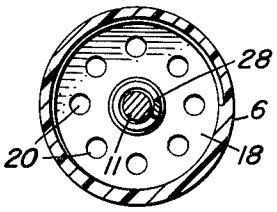


Fig. 4



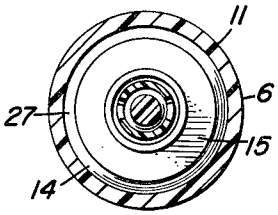
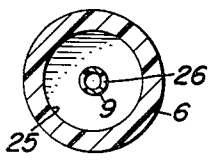


Fig. 5

Fig. 6



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2,804,846

FOUNTAIN PEN

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Application January 14, 1955, Serial No. 481,834

2 Claims. (Cl. 120—46)

The present invention relates to new and useful improvements in fountain pens designed particularly for use in marking leather and for other purposes.

An important object of the invention is to provide an inwardly and outwardly slidable tubular point for the pen and to which flow of ink is controlled by a spring biased valve opened to feed ink from the barrel to the point by pressure of the point against the writing or marking surface.

Another object is to provide an expansible and contractible barrel having a pair of spring biased valves therein, and with one valve controlling feeding of ink from the barrel to the point and actuated by an inward movement of the latter and the other valve controlling emptying and filling the barrel by the expanding and contracting movement of the barrel.

A further object is to construct the pair of valves for coaxial sliding movement, one within the other, and supporting the emptying and filling valve on the slidable point and in a position engaging the ink feeding valve to actuate the latter while maintaining the former closed.

A still further object is to provide a fountain pen of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purpose for which the same is intended.

These, together with other objects and advantages which will become subsequently apparent, reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view;

Figure 2 is an enlarged fragmentary longitudinal sectional view showing both valves closed;

Figure 3 is a similar view showing the feeding valve open and the emptying and filling valve closed; and

Figures 4, 5 and 6 are transverse sectional views taken respectively on the lines 4—4, 5—5 and 6—6 of Figure 2.

Referring now to the drawing in detail, wherein for the purpose of illustration I have disclosed a preferred embodiment of my invention, the numeral 5 designates a barrel of expansible and contractible plastic or other suitable collapsible material and to the front end of which is threadedly connected a rigid head 6 having a tapered tip 7 and formed with a bore 8 in which a tubular point 9 is slidable inwardly and outwardly at the tip of the head. The outer or front end of the point is formed with a restricted ink delivery opening 10.

The inner or rear end of the point is solid and forms a valve stem 11 for a conical valve 12 integrally formed with or suitably secured on the valve stem.

The valve stem 11 is slidable in a bore 13 at the solid rear end of a hollow valve stem 14 having a disk-type valve 15 at its front end and formed with a valve seat 16 at its front surface engaged by the valve 12 to close

the front end of valve stem 14. The rear end of valve stem 14 is slidable in a central opening 17 in a guide disk 18 which is threaded at its periphery for attaching inside head 6 to the internal threads 19 thereof. Openings or passages 20 are formed in the guide disk for the free flow of ink from the barrel 5 into head 6 and vice versa. Openings 21 are also formed in valve stem 14 immediately behind the valve 15.

The front surface of valve 15 is formed with an annular V-shaped groove 22 which forms a valve seat for an annular V-shaped rib 23 formed on an internal shoulder 24 in head 6 and which defines a chamber 25 in head 6 of a diameter substantially greater than that of valve 15 and which is positioned in the chamber. The hollow or tubular portion of point 9 is formed with openings 26 forwardly of valve 15 for the flow of ink from the chamber into the point and vice versa.

A coil spring 27 surrounds valve stem 14 and is held under tension between guide disk 18 and valve 15 to close the latter and a coil spring 28 surrounds the rear end of valve stem 11 and is tensionally held between the rear end of valve stem 14 and a pin 29 positioned transversely at the rear end of valve stem 11.

The pen is filled by dipping the point 9 in an ink supply receptacle, not shown, and then squeezing and releasing the barrel 5 which alternately creates compression and suction in the barrel 5 and head 6, which together form an ink reservoir. Compression in the barrel 5 and head 6 is relieved by the valve 12 opening in response to such compression in the barrel and head for discharge of the compression through the openings 21, stem 14, valve 15, chamber 25, openings 26 and the hollow portion of the point 9. The valve 15 opens in response to suction in the barrel 5 and head 6 and the suction then draws ink through the point 9 into the chamber 24, head 6 and barrel 5 until the suction ceases.

Ink flows from the barrel and head into chamber 25 by pressing the barrel downwardly to force point 9 inwardly to force valve 12 upwardly and open valve 15 and the ink will then flow through the openings 26 to the point.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A fountain pen comprising a barrel having a forwardly extending hollow head communicating therewith to form therewith an ink reservoir, said hollow head being provided with a tip, said barrel being resilient for compression and expansion to create compression and suction in said reservoir, said tip having an ink chamber therein having an opening communicating with said reservoir, a tubular spring loaded writing point extending through said tip and communicating with said chamber for discharging ink therefrom and filling the chamber in response to suction in said reservoir, a spring loaded valve in said head normally closing said chamber at said opening and movable into chamber opening position in response to suction in the reservoir to create suction in the chamber and permit ink in said chamber to pass into said reservoir, said point being slidable inwardly and outwardly of said tip, and means on said point engaging and moving said valve into opening position in response to inward sliding of said point whereby to permit ink in the chamber to pass into said reservoir,

said valve having a hollow ported stem in said head opening through the valve into the chamber for release through said chamber and said point of compression in said reservoir, said means normally closing said stem forwardly of the ports therein and being movable in response to compression in said reservoir to slide said point outwardly and thereby open the stem to said chamber.

2. A fountain pen as in claim 1, said hollow point having a stem guidingly slidably extended through said first named stem.

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