March 10, 1936. G. S. WALTER 2,033,164

WRITING PEN

Filed April 8, 1935

Fig. 1

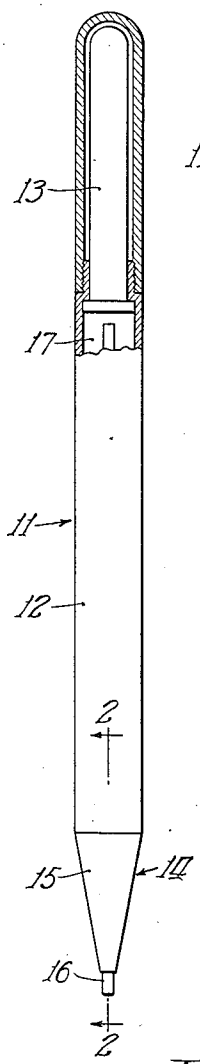


Fig. 2

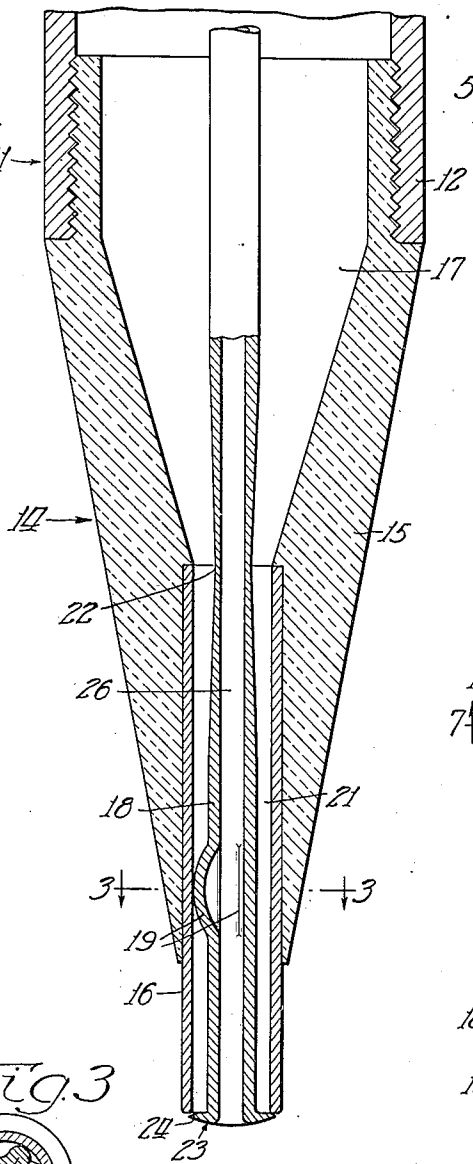


Fig. 4

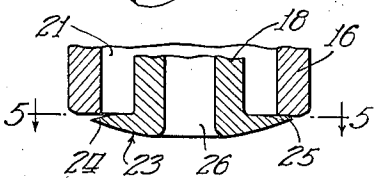


Fig. 5

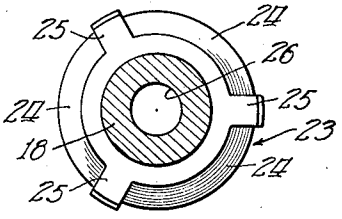


Fig. 6

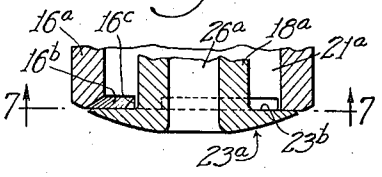


Fig. 7

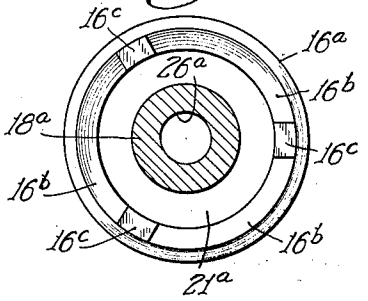
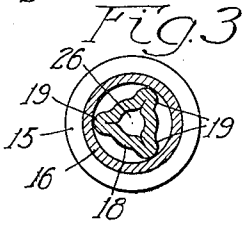


Fig. 3



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Patented Mar. 10, 1936

2,033,164

UNITED STATES PATENT OFFICE

2,033,164

WRITING PEN

George S. Walter, Chicago, Ill.

Application April 8, 1935, Serial No. 15,241

13 Claims. (Cl. 120—44)

This invention relates to pens, and particularly to a type of pens, in the use of which, considerable pressure is frequently exerted on the writing end thereof, as, for example, in the use of stylographic pens which are used and are especially well adapted for making carbon copies of original writings.

One object of the present invention is to provide a construction and arrangement whereby portions of the pen are protected against scooping up dust, dirt, paper fibers and the like, which tend to clog the ink passage and seriously interfere with the efficient operation of the pen.

Another object of the invention is to provide a stiff non-spreading pen point capable of receiving pressures suitable for producing carbon copies.

Another object of the invention is to provide a construction and arrangement wherein the pen point member is rigidly mounted in the nozzle portion of the pen, and wherein the discharge opening for the ink is positively and automatically determined.

A further object of the invention is to provide a structure wherein clogging of the ink within the pen is overcome and an efficient flow of the ink assured.

A still further object of the invention is to improve devices of the character described in sundry details hereinafter referred to and particularly pointed out in the appended claims.

An embodiment of the present invention is shown for illustrative purposes in the accompanying drawing, in which:

Fig. 1 is an elevational view partly in section of a pen embodying features of the present invention;

Fig. 2 is an enlarged fragmentary longitudinal sectional elevational view of the lower end portion of the structure illustrated in Fig. 1 and taken substantially as indicated by the line 2—2 thereof;

Fig. 3 is a transverse sectional plan view taken as indicated by the line 3—3 of Fig. 2;

Fig. 4 is a further enlarged fragmentary sectional elevational view of the structure adjacent the lower end portion of Fig. 2;

Fig. 5 is a plan sectional view taken as indicated by the line 5—5 of Fig. 4;

Fig. 6 is an enlarged fragmentary sectional elevational view similar to Fig. 4, and illustrating a slightly modified form of the structure embodied therein; and

Fig. 7 is a bottom plan sectional view taken as indicated by the line 7—7 of Fig. 6.

As illustrated, particularly in Figs. 1 to 5, inclusive, of the drawing, the present invention comprises a body portion, indicated as a whole by the numeral 11, consisting of a hollow tubular barrel 12 having a bulb 13 formed of rubber or other suitable flexible and resilient material positioned in one end of the barrel 12, and a nozzle, indicated as a whole by the numeral 14, positioned in the opposite end thereof, the said nozzle being shown, in the present instance, as comprising a tapered portion 15 formed, preferably, of a suitable translucent material, such, for example, as glass or the like and having a tubular shell or sleeve 16 positioned therein and extending beyond the outer end thereof, the said barrel 12 and nozzle 14 providing a container or reservoir 17 for maintaining a supply of ink within the device for writing purposes.

Removably mounted in the sleeve 16 and extending therethrough into the interior of the body portion 11 is a tubular member, indicated as a whole by the numeral 18, and provided with a plurality of annularly spaced lugs or enlarged portions 19 adapted to frictionally engage the inner surface of the sleeve 16 in a manner to rigidly secure the tubular member 18 therein and in spaced relation with respect thereto in a manner to form an annular ink channel 21 communicating at its upper end with the lower end of the reservoir 17, the member 18 being also readily removable from the sleeve 16 for the purposes of cleaning.

For preventing a filtering action of the ink and eliminating clogging at the point where the reservoir 17 empties into the channel 21, the cross-sectional area of the channel is increased, the increasing of the area of the channel being obtained, in the present instance, by providing the tubular member 18 with a reduced outer diameter, indicated at 22, adjacent the lower end of the reservoir 17.

Formed on the lower or outer end of the tubular member 18 is a laterally extending annular flange portion, indicated as a whole by the numeral 23, the flange, in the present instance, extending outwardly in a manner to overlie a portion of the outer end of the sleeve 16 to prevent unintentional free flow of the ink, the flange 23 being provided adjacent its edge with a plurality of beveled portions 24 which may be of various lengths and with a plurality of lugs 25 between said beveled portions adapted to engage the adjacent end of the sleeve 16 in a manner to definitely and automatically position the flange 25 with respect to the sleeve 16 and space the beveled portions 24 from the end of the sleeve 16 to provide a discharge outlet of suitable dimensions at and communicating with the ink channel 21 for passing the ink therefrom.

While the present illustrative embodiment of the invention discloses three bevel surfaces 24 and three lugs 25, it will be obvious that more or less such portions and lugs may be employed, if desired, for providing a suitable ink outlet and

for positioning the flange 23 with respect to the end of the sleeve 16.

It will be noted that the tubular member 18 is provided with a longitudinally disposed air vent and filler opening 26 formed therein and extending therethrough to permit of the admission of air into the interior of the body portion 11 and reservoir 17 to replace the ink removed therefrom during the writing operation of the pen, and providing also, an intake passage through which ink may be drawn into the pen during the filling operation by manipulation of the bulb 13, the ink during the filling operation being discharged from the upper or inner end of the opening 26 into the reservoir 17.

In the embodiment illustrated in Figs. 6 and 7, a tubular member 18a is provided with a laterally extending annular flange 23a having a substantially flat upper surface 23b, and adjacent the flange 23a is a sleeve 16a having a plurality of annular beveled portions 16b and a plurality of lugs 16c positioned between the beveled portions and adapted to engage the upper surface 23b of the flange 23a for positively and definitely positioning the flange with respect to the sleeve 16a, and for maintaining the flange in properly spaced relation with respect to the beveled portions 16b for providing an outlet of suitable dimensions at and communicating with the discharge end of an ink channel 21a.

It will be observed from the foregoing description that by reason of the overlying relationship of the flange 23 with respect to the sleeve 16 that the present arrangement protects the tip of the nozzle portion or element against scooping up dust, dirt, paper fibers and the like, which tend to clog the flow of the ink, and that the invention also provides a non-spreading pen point suitable for pressures for producing carbon copies.

It will be observed also that the present invention provides a novel construction and arrangement whereby the outlet for the ink from the channel 21 is positively and automatically determined, and that by reason of the increased cross-sectional diameter of the ink channel 21 at the discharge end of the reservoir 17, clogging of the ink within the pen is overcome and an efficient flow of the ink is assured.

Obviously, the present invention is not limited to the precise construction and arrangement shown and described as the same may be variously modified. Moreover, all of the features of the invention need not be used conjointly as the same may be used to advantage in variously different combinations and sub-combinations.

What I claim as new and desire to secure by Letters Patent is:

1. In a fountain pen having a body portion comprising a hollow barrel and nozzle to provide an ink reservoir in said body portion, the combination of a tubular member rigidly positioned in said body portion and extending through said nozzle in spaced relation thereto to provide an ink channel communicating with said reservoir, and a laterally extending flange portion formed on the outer end of said tubular member adjacent the discharge end of said ink channel and adapted to overlie a portion of the end of said nozzle.

2. In a fountain pen having a body portion comprising a hollow barrel and nozzle to provide an ink reservoir in said body portion, the combination of a tubular member rigidly positioned in said body portion and extending through said nozzle in spaced relation thereto to provide an ink channel communicating with said reservoir, and a laterally extending flange portion formed on the outer end of said tubular member adjacent the discharge end of said ink channel and adapted to overlie a portion of the end of said nozzle in spaced relation thereto to provide a discharge outlet for the ink from said channel.

3. In a fountain pen having a body portion comprising a hollow barrel and nozzle to provide an ink reservoir in said body portion, the combination of a tubular member rigidly positioned in said body portion and extending through said nozzle in spaced relation thereto to provide an ink channel communicating with said reservoir, a laterally extending flange portion formed on the outer end of said tubular member adjacent the discharge end of said ink channel and adapted to overlie a portion of the end of said nozzle, and a spacing lug adjacent the discharge end of said channel for spacing a portion of said flange from the adjacent end of said nozzle to provide a discharge outlet for the ink from said channel.

4. In a fountain pen having a body portion comprising a hollow barrel and nozzle to provide an ink reservoir in said body portion, the combination of a tubular member having a portion of reduced diameter intermediate its ends rigidly positioned in said body portion and extending through said nozzle in spaced relation thereto to provide an ink channel of various cross-sectional area communicating with said reservoir, a laterally extending annular flange portion formed on the outer end of said tubular member adjacent the discharge end of said ink channel and adapted to overlie a portion of the end of said nozzle, and a plurality of spacing lugs adjacent the discharge end of said channel for spacing a portion of said flange from the adjacent end of said nozzle to provide a discharge outlet for the ink from said channel.

5. In a fountain pen having a body portion comprising a hollow barrel and nozzle to provide an ink reservoir in said body portion, the combination of a tubular member having a portion of reduced outer diameter adjacent the lower end of said reservoir, said tubular member being rigidly positioned in said body portion and extending through said nozzle in spaced relation thereto to provide an ink channel communicating with said reservoir, a laterally extending annular flange portion formed on the outer end of said tubular member adjacent the discharge end of said ink channel and adapted to overlie a portion of the end of said nozzle, and a plurality of spacing lugs adjacent the discharge end of said channel for spacing and positively positioning said flange with respect to the adjacent end of said nozzle to provide a discharge outlet for the ink from said channel.

6. In a fountain pen having a body portion comprising a hollow barrel and nozzle to provide an ink reservoir in said body portion, the combination of a tubular member having a portion of reduced outside diameter adjacent the lower end of said reservoir, said tubular member being rigidly and removably mounted in said nozzle and extending into said reservoir through said nozzle in spaced relation thereto to provide an ink channel communicating with said reservoir, a laterally extending annular flange portion formed on the outer end of said tubular member adjacent the discharge end of said ink channel and adapted to overlie a portion of the end of said nozzle, and a plurality of annularly spaced lugs adjacent the discharge end of said chan-

nel for spacing a portion of said flange from the adjacent end of said nozzle to provide a discharge outlet for the ink from said channel.

7. In a fountain pen having a body portion comprising a hollow barrel and nozzle providing an ink reservoir, the said nozzle having a tubular sleeve mounted therein and forming a part thereof, the combination of a tubular member positioned in said sleeve, a plurality of spaced lugs on said member engageable with said sleeve for holding the member rigidly therein and in spaced relation thereto to provide an ink channel of greater cross-sectional area at its upper end and communicating with said reservoir, a laterally extending annular flange portion on the outer end of said tubular member adjacent the discharge end of said channel and adapted to overlie a portion of the outer end of said sleeve, and a plurality of lugs on said flange for spacing a portion of the flange from the adjacent end of said sleeve to provide a discharge outlet for the ink from said barrel.

8. In a fountain pen having a body portion comprising a hollow barrel and nozzle providing an ink reservoir, said nozzle having a tubular sleeve mounted therein and forming a part thereof, the combination of a tubular member positioned in said sleeve and body portion, a plurality of spaced lugs on said member engageable with said sleeve for holding the member rigidly therein and in spaced relation thereto to provide an ink channel of various cross-sectional area communicating with said reservoir, said channel being of greatest cross-sectional area adjacent its juncture with the reservoir, a laterally extending annular flange portion on the outer end of said tubular member adjacent the discharge end of said channel and adapted to overlie a portion of the outer end of said sleeve, and a plurality of annularly spaced lugs on said flange engageable with said sleeve for spacing a portion of the flange from the adjacent end of the sleeve to provide a discharge outlet for the ink from said channel.

9. In a fountain pen having a body portion comprising a hollow barrel and nozzle providing an ink reservoir, said nozzle having a tubular sleeve mounted therein and forming a part thereof, the combination of a tubular member positioned in said sleeve and body portion and having a portion of reduced outer diameter adjacent the lower end of said reservoir, a plurality of spaced lugs on said member engageable with said sleeve for holding the member rigidly therein and in spaced relation thereto to provide an ink channel communicating with said reservoir, a laterally extending annular flange portion on the outer end of said tubular member adjacent the discharge end of said channel and adapted to overlie a portion of the outer end of said sleeve, and a plurality of annularly spaced lugs on said flange adjacent the edge thereof and engageable with said sleeve for spacing a substantial portion of the flange from the adjacent end of the sleeve to provide a discharge outlet for the ink from said channel.

10. In a fountain pen having a body portion comprising a hollow barrel and nozzle providing an ink reservoir, said nozzle having a tubular sleeve mounted therein and forming a part thereof, the combination of a tubular member positioned in said sleeve, a plurality of spaced lugs on said member engageable with said sleeve for holding the member rigidly therein and in spaced relation thereto to provide an ink channel communicating with said reservoir, a laterally extending annular flange portion on the outer end of said tubular member adjacent the discharge end of said channel and adapted to overlie a portion of the outer end of said sleeve, a plurality of annular beveled portions adjacent the edge of said flange, and a plurality of lugs on said flange between said beveled portions for spacing the beveled portions of the flange from the adjacent end of said sleeve to provide a discharge outlet for the ink from said barrel.

11. In a fountain pen having a body portion comprising a hollow barrel and nozzle providing an ink reservoir, said nozzle having a tubular sleeve mounted therein and forming a part thereof, the combination of a tubular member positioned in said sleeve, a plurality of spaced lugs on said member engageable with said sleeve for holding the member rigidly therein and in spaced relation thereto to provide an ink channel communicating with said reservoir, a laterally extending annular flange portion on the outer end of said tubular member adjacent the discharge end of said channel and adapted to overlie a portion of the outer end of said sleeve, and a plurality of lugs on said sleeve engageable with said flange for spacing a substantial portion of the flange from the end of said sleeve to provide a discharge outlet for the ink from said channel.

12. In a fountain pen having a body portion comprising a hollow barrel and nozzle providing an ink reservoir, said nozzle having a tubular sleeve mounted therein and forming a part thereof, the combination of a tubular member positioned in said sleeve, a plurality of spaced lugs on said member engageable with said sleeve for holding the member rigidly therein and in spaced relation thereto to provide an ink channel communicating with said reservoir, a laterally extending annular flange portion on the outer end of said tubular member adjacent the discharge end of said channel and adapted to overlie a portion of the outer end of said sleeve, a plurality of beveled portions adjacent the inner lower edge of said sleeve, and a plurality of lugs on said sleeve between said beveled portions and engageable with said flange for spacing the flange from the beveled portions on the end of said sleeve to provide a discharge outlet for the ink from said channel.

13. In a fountain pen having a body portion comprising a hollow barrel and nozzle providing an ink reservoir, said nozzle having a tubular sleeve mounted therein and forming a part thereof, the combination of a tubular member positioned in said sleeve and body portion, a plurality of spaced lugs on said member engageable with said sleeve for holding the member rigidly within and in spaced relation thereto, said sleeve and tubular member cooperating to form the walls of an annular ink channel communicating with said reservoir, one of said channel walls being inclined longitudinally to provide the ink channel with greater cross-sectional area at its receiving end than at the discharge end thereof, a laterally extending annular flange on the outer end of said tubular member adjacent the discharge end of said channel and adapted to overlie a portion of the outer end of said sleeve, and a plurality of lugs adjacent the discharge end of said channel for spacing said flange from the adjacent end of the sleeve to provide a discharge outlet for the ink from the channel.

GEORGE S. WALTER.