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O. RESE

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MULTICOLOR PEN

Filed June 16, 1931

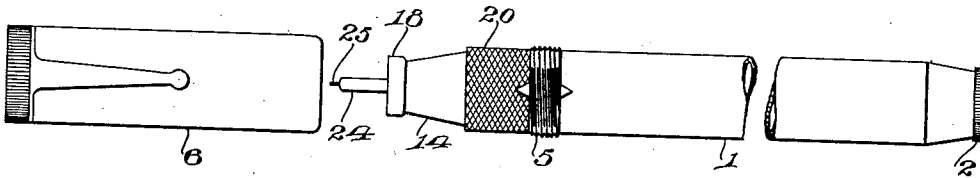


Fig. 1.

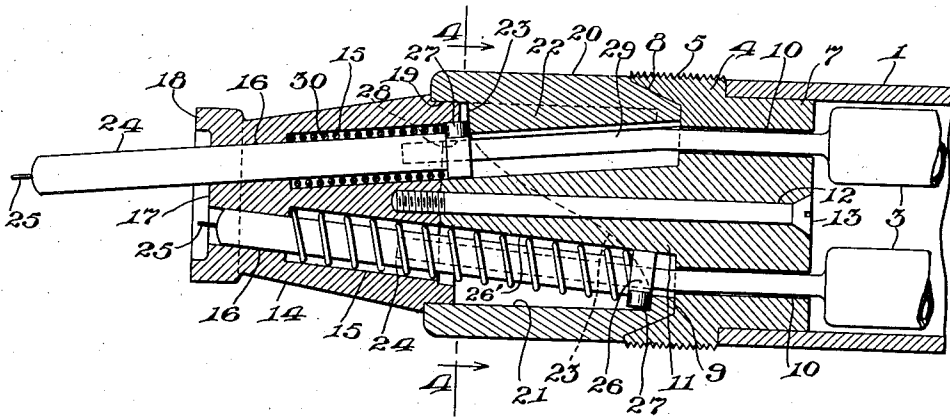


Fig. 3.

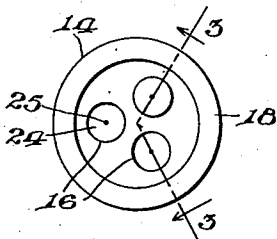


Fig. 2.

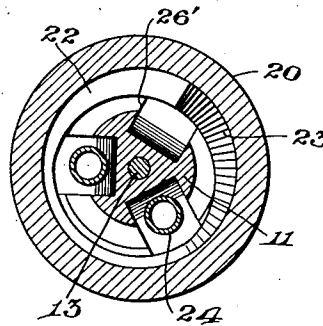


Fig. 4.

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MULTICOLOR PEN

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The object of the invention is to provide improvements in pens broadly, but more especially in that type which is designed to dispense inks of more than a single color.

5 Numerous attempts have been made to perfect a pen of this type, which will render long service without requiring repair or cleaning, which will be positive in its action and not liable to fail in operation, and which is so
10 constructed that no lugs, knobs, or other form of pen-shifting means will protrude exteriorly and therefore be liable to engage or entangle in one's clothing, the only relatively movable part for shifting the pens being
15 a circumferentially continuous sleeve of substantially the same diameter as the exterior of the main portion of the pen barrel.

Another and more specific object is to provide in such a device a sleeve or the like, provided with a cam surface adapted to successively cooperate with each of the pen supports present, means connected with each pen support and engaging the cam surface in rotation for ejection and/or withdrawal of the
25 individual pen supports and pens carried thereby into operative or inoperative position selectively, and resilient means to return an outwardly shifted pen and its support to retracted position, when the cam is not double
30 acting, said pens being in operative relation to their respective reservoirs when in extended or operative position for writing purposes.

35 With these and other objects in mind the present invention comprises further details of construction and operation, which are fully brought out in the following description, when read in conjunction with the accompanying drawings, in which

40 Fig. 1 is an elevational view of one embodiment of the invention comprising a multicolor pen in spaced relation with its protective cap; Fig. 2 is an end elevation of the pen with the cap removed; Fig. 3 is an enlarged fragmentary sectional view of the operating
45 end portion on the line 3—3 of Fig. 2; and Fig. 4 is a transverse section of the pen upon the line 4—4 of Fig. 3.

50 Referring to the drawings, a barrel is provided, the same comprising a tube 1, normally

closed at one end by a plug or cap 2, and containing a plurality of liquid containers or reservoirs 3, which may be filled when empty in any desired manner. The opposite end of said tube is spanned by means of a closure 4,
55 having an outer threaded surface 5 for detachably securing the protective cap 6 to said barrel.

Said last-named closure also comprises a reduced end portion 7 which extends into the tube 1 and in fixed relation therewith, the opposite portion of said closure being provided with an inwardly tapering conical recess 8 surrounding an annular planular portion 9, bores 10 extending through said closure into communication with the interior of the tube 1. Centrally, said last-named closure is also provided with a conical extension 11, through which extends an axial bore 12 normally containing a suitable bolt 13, for
60 securing to said closure a terminal member 14. Said terminal member is preferably, though not necessarily, conical and is provided with a plurality of converging bores 15, in alignment with the bores 10 in the adjacent closure. However, said bores 15 merge into restricted extensions 16 thereof, which latter project through the free end portion of said terminal member, in fact emerge through the end surface 17, which if desired
65 may be surrounded by an annular protective flange 18.

The terminal member 14 is at all times (except for repair or replacement) firmly secured to the closure 4, and between an annular cutout surface 19 in the former and the conical surface 8 of the latter is rotatably positioned a sleeve 20, which forms a virtual continuation of the two connected members, but does not extend materially beyond them
70 radially. Said member is substantially cylindrical internally, as indicated at 21, but is provided with a radially inwardly extending enlargement 22, which provides for a spiral cam surface 23. Pen holders or tubular styli 24 extend through the converging bores 16 in said terminal member and are respectively provided with writing points or pen equivalents 25. The inner surface of each of these
75 styli is partially closed by means of a rec-

tangular cap 26, slidable in correspondingly shaped grooves 26' in the extension 11 of the closure 4, and carrying upon its radially outer surface an anti-friction roller or the like 27, which bears directly against the cam surface 23.

Each of the closures 26 is provided with a bore 28 through which slidably extends a rubber or metal capillary tube 29, or other means for conducting fluid from the reservoirs 3 into the respective styli 24. A compression coil spring 30 surrounding each stylus within its corresponding bore 15 normally forces the roller supporting cap inwardly, so that said roller constantly and uniformly engages said cam.

It is to be understood however that the cam surface 23 extends throughout only a portion of the circumference of the sleeve 20, and in the case where there are three styli, such cam surface would extend throughout only one-third of said circumference, in order that one such stylus will be in extended position, as shown in Fig. 3, while the remaining two styli will be in retracted position as also shown in that figure. This is but representative and would be altered in conformity with any variation of the number of styli embodied in a multi-color pen of this type.

In the operation of this device, it will be noted that the reservoirs are in constant communication with the respective styli through the capillary tubes 29, and if inks of different colors are placed within said reservoirs, the corresponding styli will permit writing with the correspondingly colored inks, only one color however being available at a given time, depending upon which stylus is in extended position by reason of the angular position of the sleeve 20 as manually rotated or oscillated.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:—

1. A fountain pen, comprising a holder, three or more pen supports, a single rotary means to project said supports selectively, when one support is being projected the other supports being stationary in withdrawn position and independent reservoirs in operative communication with the respective pen supports.

2. A fountain pen, comprising a holder, a plurality of pen supports, a rotary member carried by said holder and itself provided with a cam surface operative to move said pen supports selectively in one direction, and independent reservoirs in operative communication with the respective pen supports, said member surrounding portions of said reservoirs.

3. A fountain pen, comprising a holder, a plurality of pen supports, a rotary member carried by said holder and itself provided with a cam surface operative to move said pen

supports selectively in one direction, and to permit said supports to move in the opposite direction without changing the direction of movement of said member, separate means to automatically move a pen support in the opposite direction after having been shifted by said cam, and independent reservoirs in operative communication with the respective pen supports.

4. A fountain pen, comprising a holder, a plurality of pen supports carried by said holder, an oscillatory sleeve also carried by said holder and provided with means to shift said pen supports in one direction selectively, separate means to return said supports to a retracted position after having been shifted therefrom, and independent reservoirs operatively connected to said supports and housed within said holder.

5. A fountain pen, comprising a holder, a plurality of pen supports carried by said holder, an oscillatory sleeve also carried by said holder and provided with means to shift said pen supports in one direction selectively, resilient means to return said supports to a retracted position after having been shifted therefrom, and independent reservoirs operatively connected at all times to said supports and housed within said holder.

6. A fountain pen, comprising a barrel, a plurality of independent pen supports carried by and adapted to reciprocate into or to project from said barrel, independent reservoirs also carried by and within said barrel and in operative communication with said pen supports, and a sleeve carried by said barrel and provided with a cam surface operative to effect a shifting of said supports successively into extended operative position selectively as said sleeve continues to move in one direction.

7. A fountain pen, comprising a barrel, a plurality of independent pen supports carried by and adapted to reciprocate into or to project from said barrel, independent reservoirs also carried by and within said barrel and in operative communication with said pen supports, a sleeve carried by said barrel and provided with a cam surface operative to effect a shifting of said supports into extended operative position selectively as said sleeve continues to move in one direction, and separate means to automatically return a support from extended into retracted position as another such support is moved by said cam into extended position.

8. A fountain pen, comprising a barrel, a plurality of independent pen supports carried by and adapted to reciprocate into or to project from said barrel, independent reservoirs also carried by and within said barrel and in operative communication with said pen supports, a sleeve carried by said barrel and provided with a cam surface operative to effect a shifting of said supports into ex-

tended operative position selectively, and resilient means to automatically return a support from extended into retracted position as another such support is moved by said cam into extended position.

9. A fountain pen, comprising a barrel, a plurality of independent pen supports carried by and adapted to reciprocate into or to project from said barrel, a sleeve also carried by said barrel and provided with a cam surface, anti-friction means adapted to operatively connect each of said pen supports with said cam surface, whereby oscillation or continuous rotation of said sleeve effects the shifting of any desired one of said pen supports into extended position.

10. A fountain pen, comprising a barrel, a plurality of independent pen supports carried by and adapted to reciprocate into or to project from said barrel, a sleeve also carried by said barrel and provided with a cam surface, anti-friction means adapted to operatively connect each of said pen supports with said cam surface, whereby oscillation or continuous rotation of said sleeve effects the shifting of any desired one of said pen supports into extended position, resilient means to automatically return a pen support from extended position to its retracted position, and independent reservoirs in continuous communication with the corresponding pen supports.

In testimony whereof I have affixed my signature.

OTTO RESE.