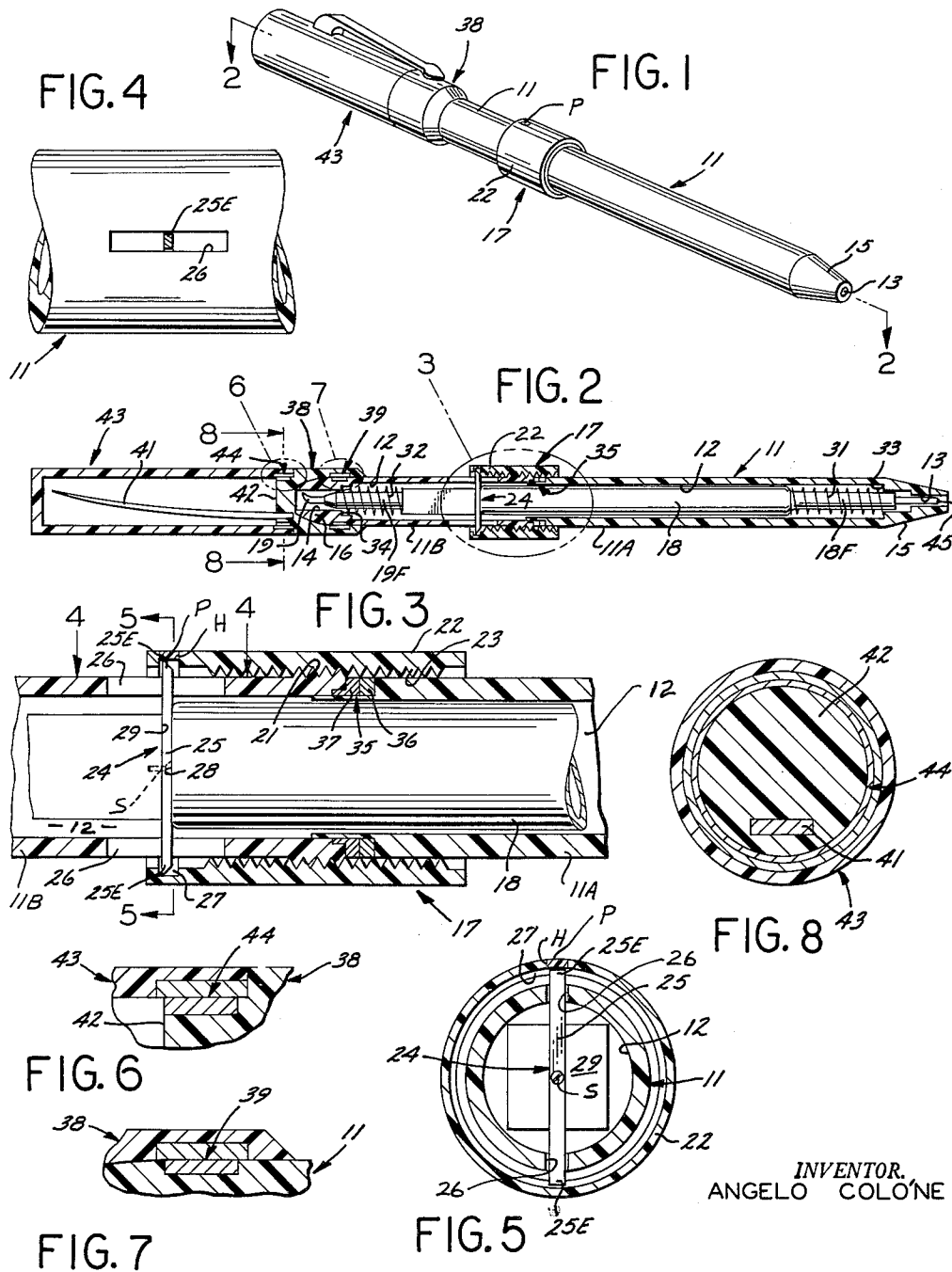


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A. COLO'NE

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BIDIRECTIONALLY MOVABLE MOUNTING MEANS FOR A PAIR OF OPPOSITELY DIRECTED UTILITY ELEMENTS

Angelo Colóne, 508 F. Raymond Ave., Glendale, Calif.

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Generally speaking, the present invention relates to mounting means for mounting a pair of oppositely directed utility elements (which may take any of a variety of different forms) in a selectively bidirectionally movable manner relative to a hollow longitudinal barrel means which normally carries both of said utility elements therein. The arrangement is such that manual movement of actuator means, carried by the barrel means, in one direction will cause one of said utility elements to be extended so as to project from a corresponding open end of said barrel means into an operative use position, while oppositely directed movement of said actuator means will not only retract said first-mentioned utility element, but will extend the oppositely positioned utility element so as to project from the opposite open end of said barrel means into an operative use position. In one preferred form of the invention, one of said utility elements may comprise a writing instrument, such as a ballpoint pen or the like, although not specifically so limited, and the other of said utility elements may comprise a cutting tool, such as a paper cutting knife or the like, although not specifically so limited.

In one exemplary form of the invention, the barrel means may comprise at least two longitudinally separable sections provided with interconnecting magnetic fastening means for removably fastening them together in longitudinal alignment. However, the invention is not specifically so limited.

In one exemplary form of the invention, one end of the barrel means may be provided with a cover means, provided with, and carrying, an additional utility element such as a combination letter opener and nail file means, or the like, projecting longitudinally therefrom. In this preferred form of the invention, hollow cap means may also be removably carried by said cover means in a longitudinally aligned position with respect thereto and in a position covering and enclosing said additional utility element, such as said combination letter opener and nail file means. In one version of this preferred form of the invention, said cover means, and said end of said barrel means adapted to carry same, may be provided with magnetic fastening means for removably fastening them in engaged longitudinally aligned relationship. Also in one version of this preferred form of the invention, said hollow cap means and the outer end of said cover means may be provided with magnetic fastening means for removably fastening said cap means in longitudinal alignment with said cover means and positioned in said covering and enclosing relationship with respect to said additional utility element, such as said combination letter opener and nail file means.

In one preferred form of the present invention, said first utility element (such as a ballpoint pen or the like, although not specifically so limited) is adapted to be slidably mounted in a first end of a hollow chamber with-

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in said longitudinal hollow barrel means in a manner having its rear end effectively coupled by coupling means with respect to said actuator means for forcible extension of said first utility element against the action of a biasing spring means cooperable with said first utility element and said barrel means for normally forcibly retracting said first utility element within said barrel means in an intermediate neutral position.

In one preferred form of the present invention, said second utility element (such as a cutter or cutting tool means or the like, although not specifically so limited) is adapted to be slidably mounted in a second end of the hollow chamber within said longitudinal hollow barrel means in a manner having its rear end effectively coupled by said coupling means with respect to said actuator means for forcible extension of said second utility element against the action of a biasing spring means cooperable with said second utility element and said barrel means for normally forcibly retracting said second utility element within said barrel means in an intermediate neutral position.

With the above points in mind, it is an object of the present invention to provide a novel bidirectionally movable mounting means for a pair of oppositely directed utility elements capable of manual operation in either of two directions from an intermediate neutral position whereby to project either of said utility elements into an extended operative use position and also capable of being retracted into an intermediate non-use position with respect to both of said utility elements—the apparatus embodying any or all of the various generic and/or specific features referred to hereinbefore, either individually or in combination, and being of an extremely simple, inexpensive, foolproof construction such as to facilitate the mass manufacture, distribution, and use of the device.

Further objects are implicit in the detailed description which follows hereinafter (which is to be construed as exemplary only and which is not to be taken in a limiting sense), and said objects will be apparent to persons skilled in the art after a careful study of the detailed description set forth hereinafter.

For the purpose of clarifying the nature of the present invention, one exemplary embodiment is illustrated in the hereinbelow-described figures of the accompanying single drawing sheet and is described in detail hereinafter.

FIG. 1 is a pictorial three-dimensional view showing one exemplary embodiment of the invention as seen from the exterior thereof with both of the utility elements in the intermediate retracted non-use positions thereof.

FIG. 2 is an enlarged longitudinal sectional view taken in the direction of the arrows 2—2 of FIG. 1.

FIG. 3 is an enlarged fragmentary sectional view of the actuator means and closely adjacent portions of the device as indicated by the broken line ellipse designated at 3 in FIG. 2.

FIG. 4 is a top view, which is partly a top plan view of the longitudinal barrel means taken on the plane 4—4 of FIG. 3 underneath the actuator sleeve of FIG. 3, with the transverse bar of the coupling means in section where the plane of the section indicated by the arrows 4—4 intercepts same.

FIG. 5 is a cross-sectional view, taken in the direction of the arrows 5—5 of FIG. 3, and clearly illustrates the

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transverse bar coupling means and its connection to the threaded sleeve type actuator means.

FIG. 6 is an enlarged fragmentary sectional view of a typical one of the magnetic fastening means, such as fasten the hollow cap means onto the end of the cover means, and closely adjacent portions of the device as indicated by the broken line ellipse designated at 6 in FIG. 2.

FIG. 7 is an enlarged fragmentary sectional view of another typical one of the magnetic fastening means, such as fasten the cover means over one end of the hollow longitudinal barrel means, and closely adjacent portions of the device, as indicated by the broken line ellipse designated at 7 in FIG. 2.

FIG. 8 is an enlarged cross-sectional view, taken in the direction of the arrows 8—8 of FIG. 2.

Referring to the figures for exemplary purposes, one illustrative embodiment of the invention takes a typical form wherein it comprises a hollow longitudinal barrel means, as indicated generally at 11, which is shown in the exemplary form as being substantially cylindrical and having a longitudinal substantially cylindrical interior chamber 12 defined therein extending from end of the barrel means 11 to the other end thereof and provided with reduced-size exit aperture-defining means 13 and 14 as opposite ends of the longitudinal interior chamber 12 and carried within opposite ends 15 and 16 of the barrel means 11—each of said exit aperture-defining means 13 and 14, and the cylindrical interior chamber 12 being longitudinally aligned with each other.

In the exemplary form of the invention illustrated, the barrel means 11 is provided with bidirectionally selectively manually longitudinally movable actuator means, generally indicated by the reference numeral 17, operable to effectively cause the extension of either a first utility element, such as the ballpoint pen 18, or a second utility element, such as the cutter or cutting tool 19, from the corresponding end 15, and/or 16, respectively.

Incidentally, in connection with the above, it should be noted that the invention is not specifically limited to the specific first and second utility elements 18 and 19 shown in the drawings. Actually, various other utility elements may be employed in lieu thereof within the broad scope of the present invention.

In the exemplary form of the invention illustrated, the above-mentioned actuator means 17 comprises exterior thread means 21 carried by a central portion of the barrel 11 and a rotatable sleeve 22 provided with interior thread means 23 threadedly cooperating with said exterior threaded means 21 carried by the barrel means 11. The arrangement is such that relative rotation of the sleeve means 22 with respect to the barrel means 11 in one direction will cause relative longitudinal movement thereof, while relative rotation of said sleeve means 22 with respect to said barrel means 11 in the opposite direction will cause relative longitudinal movement thereof in the opposite sense.

The actuator means 17 is provided with coupling means for bidirectional coupling engagement with respect to the two utility elements 18 and 19. In the exemplary form of the invention illustrated, said coupling means is generally designated at 24 and comprises a transverse bar 25 having opposite ends 25E extending through opposed longitudinal slot-defining means 26 for relative-rotative-movement engagement but relative-non-longitudinal-movement engagement with respect to rotative engagement means carried by the inner surface of the sleeve 22. In the exemplary form illustrated, said rotative engagement means carried by the sleeve 22 comprises an inwardly facing, outwardly extending, annular recess 27 defined by a corresponding portion of the inner surface of one end of the sleeve 22 and rotatably receiving the opposite ends 25E of the transverse bar 25 of the coupling means 24.

It will be understood that the transverse bar 25 is

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relatively longitudinally locked with respect to the sleeve 22 and must move longitudinally therewith. It will further be understood, however, that the sleeve 22 is freely rotatable relative to the ends 25E of the transverse coupling bar 25 and that said transverse coupling bar 25 is constrained against rotation by reason of the restraint provided by the longitudinal slots 26 in the barrel means 11. It will be noted that the transverse coupling bar 25 is in abutment with the rear end 28 of the first utility element 18, comprising a ballpoint pen, and is also in effective abutment with respect to the rear end 29 of the second utility element 19, comprising a cutting tool. In the exemplary form illustrated, the transverse coupling bar 25 is actually affixed to the rear end 29 of said second utility element. However, it should be noted that this construction is not to be construed as limiting the invention and may be modified in certain forms of the invention.

The above-described structure obviously provides an arrangement such that relative rotation of the sleeve 22 of the actuator means 17 in one direction with respect to the barrel means 11, will cause said sleeve 22 to move toward one end of the barrel means 11 which will cause the coupling bar 25 to be moved along the opposed slots 26 in a corresponding direction and to forcibly move the corresponding one of the two utility elements 18 or 19 into a correspondingly extending projecting position substantially beyond the corresponding end 15 or 16 of the hollow barrel means 11 so that said projecting utility element 18 or 19 can be said to be in an operative use position.

Conversely, it will be understood that rotation of the sleeve 22 in the opposite sense relative to the barrel means 11 will cause said sleeve 22 to move longitudinally along the barrel means 11 in the opposite direction toward the other end thereof and will correspondingly move the transverse coupling bar 25 in the longitudinal slots 26 in the opposite direction whereby to force the other utility element 18 or 19 out of the other end 15 or 16 of the hollow barrel 11 into an extended operative use position.

Appropriate stop means may be provided for limiting the effective extension movement, provided by operation of the actuator means 17, to an optimum extension. This can be provided by merely making the length of the slots 26 such that abutment of the transverse coupling bar 25 with either end of the opposed slots 26 will stop further operation of the actuator means. Or, if desired, exterior stop means may be positioned on the exterior of the barrel means 11 in the path of longitudinal travel of the sleeve 22 so as to bring about abutment therewith and stop further longitudinal travel of said sleeve 22 at any desired maximum excursion thereof.

It will be noted that the first and second utility elements 18 and 19 are slidably mounted in corresponding first and second ends of the longitudinal hollow interior chamber 12 in the barrel means 11 and each has a reduced size forward portion 18F and 19F, respectively, adapted to be provided with corresponding coil compression biasing spring means 31 and 32, respectively, which cooperate with corresponding inner shoulders 33 and 34 carried by the inside of the barrel means 11 at the corresponding ends 15 and 16 thereof whereby to normally bias each of said utility means 18 and 19 into a retracted intermediate centered position, with the transverse bar 25 of the coupling means 24 in an intermediate neutral position in the opposed longitudinal slots 26 such as is most clearly shown in FIG. 3. This condition prevails until longitudinal displacement force in either direction is applied thereto by the actuator means 17 in the manner previously described.

In order to facilitate quick and easy replacement of the ballpoint pen, comprising the first utility element 18 in the exemplary form of the invention illustrated, when the ink supply of such a pen becomes exhausted, the

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exemplary form of the invention illustrated embodies a separable barrel construction wherein the barrel means 11 comprises two longitudinally separable sections 11A and 11B provided with interconnecting magnetic fastening means, such as indicated generally at 35 and best shown in FIG. 3.

It will be noted that the magnetic fastening means 35 merely comprises first and second rings 36 and 37 carried by the abutable ends of the two barrel sections 11A and 11B and adapted to be magnetically attracted to each other whereby to effectively interconnect and retain said barrel sections 11A and 11B in longitudinal alignment.

Said first and second magnetic ring elements 36 and 37 may both comprise oppositely polarized permanent magnets or either one of them may comprise a permanent magnet, with the other one comprising a ring of ferromagnetic material.

This arrangement makes it possible to merely forcibly disengage the barrel sections 11A and 11B whenever the ballpoint pen 18 is to be replaced. However, it should be clearly noted that other fastening means may be employed in lieu thereof in certain forms of the invention.

Also, in certain forms of the invention, one end of the barrel means 11 may be provided with a removable cover means, such as is generally designated at 38, and which is shown as being magnetically fastened by magnetic fastening means, generally designated at 39 (and substantially identical to that designated at 35 and previously described) over the second utility element comprising the cutting tool 19.

Said removable cover means 38 may be provided with an additional utility element, such as the combination letter opener and nail file 41 and which projects longitudinally therefrom as is best shown in FIG. 2. In the exemplary form illustrated, this is provided by merely fixing the base of said combination letter opener and nail file 41 in the front end 42 of the removable cover means 38 as is most clearly shown in FIG. 8. However, various other mounting means may be employed.

In the exemplary form of the invention illustrated, the cover means 38 is additionally provided with hollow cap means, indicated generally at 43, removably carried over said cover means 38 in a longitudinally aligned position with respect thereto and in a position covering and enclosing the combination letter opener and nail file means 41, as is most clearly shown in FIG. 2.

In the exemplary form illustrated, the removable mounting of said hollow cap means 43 in said relationship is provided by magnetic fastening means, indicated generally at 44, and of the same general type as that shown at 39 and at 35 and previously described in detail with respect to the magnetic fastening means 35. Therefore, no further description of either of the above two magnetic fastening means 39 or 44 is thought necessary. The magnetic fastening means 44 removably holds the hollow cap means 43 in the relationship clearly shown in FIGS. 1 and 2. However, when a user desires to use the combination letter opener and nail file means 41, he merely forcibly removes the hollow cap means 43 by separating the elements of the magnetic fastening means 44.

When a user of the device wishes to use the cutting tool means 19, he merely forcibly removes the cover means 38 by separating the elements of the magnetic fastening means 39 and by then operating the actuator means 17 in an appropriate direction such as to cause extension of the cutting tool means 19 from the exit aperture means 14 of the end 16 of the hollow barrel means 11.

When the user desires to write with the ballpoint pen 18, he merely operates the actuator means 17 in the opposite direction from that described above as causing extension of the cutting tool means 19, until such time as the ballpoint pen 18 has its writing tip 45 extended from the exit aperture 13 of the end 15 of the barrel means 11.

The various elements of the apparatus of the present invention may be manufactured and/or assembled in a

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variety of different ways, all within the broad scope of the present invention. However, for illustrative but non-specifically limiting purposes, one exemplary arrangement for mounting the transverse coupling bar 25 in the opposed longitudinal slots 26 and with the ends 25E of said transverse coupling bar 25 positioned within the inwardly facing and open annular recess 27 carried by the inner surface of one end of the sleeve 22 is shown in the figures of the drawing as comprising a hole H extending from the outer surface of the sleeve 22 therethrough and into said annular recess 27 so that after the sleeve 22 is mounted in a position such as is shown in FIGS. 1, 2, 3, and 5, said transverse coupling bar 25 can be transversely slidably inserted through the hole H into the interior chamber 12 in a position such as is best shown in FIG. 3, with opposite ends 25E thereof lying in opposite portions of the annular recess 27. This is normally done when the removable barrel portion 11A is removed from the other barrel portion 11B and before the first utility element, comprising the ballpoint pen 18, is mounted in the position shown in FIG. 3. Thus, the right portion of the hollow interior chamber 12 is open and a screwdriver can be inserted through the open right end thereof and can be of a type adapted to carry a small screw such as shown at S in FIGS. 3 and 5 which can be advanced into threaded engagement relative to the center portion of the transverse coupling bar 25 and the rear end 29 of the cutting tool means 19, whereby to firmly fasten them together in the fastened relationship previously described and clearly shown in FIGS. 3 and 5. Then the hole H can be either left open or can be filled with a small plug such as is shown at P in FIGS. 1, 3, and 5. This is merely exemplary of one arrangement for assembling the elements referred to above and various other means may be employed within the broad scope and teachings of the present invention. For example, the fastening screw S may be eliminated entirely in certain forms of the invention, if desired, and other modifications are also intended to be included and comprehended herein.

In one preferred form of the invention the various elements may be largely made of molded plastic material, with the elements of the magnetic fastening means 35, 39, and 43 comprising ferromagnetic material molded into position with respect to the corresponding plastic portions of the device. However, the device may be made of various other suitable materials.

It should be understood that the figures and the specific description thereof set forth in this application are for the purpose of illustrating the present invention and are not to be construed as limiting the present invention to the precise and detailed specific structure shown in the figures and specifically described hereinbefore. Rather, the real invention is intended to include substantially equivalent constructions embodying the basic teachings and inventive concept of the present invention.

I claim:

1. Bidirectionally movable mounting means for a pair of oppositely directed utility elements, comprising: a hollow longitudinal barrel means having a longitudinal interior chamber therein extending from one end thereof to the other end thereof and provided with exit aperture-defining means at said ends thereof aligned with each other and with said interior chamber; and bidirectional manually controllably longitudinally movable actuator means carried by said barrel means, said actuator means comprising exterior thread means carried by said barrel means and a rotatable sleeve provided with interior thread means threadedly cooperating with said exterior thread means, said actuator means being provided with coupling means extending into said interior chamber for bidirectional coupling engagement with respect to two oppositely directed utility elements adapted to be contained within opposite end portions of said interior chamber for controllable forced extension of either of said

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utility elements longitudinally out of the exit aperture-defining means at the corresponding end of said barrel means, in correspondence with the direction of controllable manual rotation of said sleeve of said actuator means with respect to said barrel means; said barrel means being provided with longitudinal slot-defining means of limited longitudinal extent and receiving said coupling means therethrough from the exterior of said barrel means into the interior chamber therein.

2. Apparatus as defined in claim 1, wherein said coupling means comprises a transverse bar and rotative engagement means carried by the inner surface of said sleeve and engaging at least one end of said transverse bar for relative rotation with respect thereto but for effective longitudinal non-moving engagement relative thereto whereby threaded longitudinal movement of said sleeve along said barrel means in either direction will cause corresponding longitudinal non-rotating movement of said transverse bar in said slot-defining means of said barrel means.

3. Apparatus as defined in claim 1, wherein said barrel means is provided within said interior chamber with biasing spring means cooperable with the interior of said barrel means and positioned for cooperation with respect to said utility elements for normally causing the intermediate effectively retracted positioning of each of said two utility elements in the absence of longitudinal displacement force effectively applied thereto by way of said coupling means operated by said actuator means.

4. Apparatus as defined in claim 1, wherein said barrel means comprises at least two longitudinally separable portions provided with interconnecting magnetic fastening means for removably fastening them together in longitudinal alignment.

5. Apparatus as defined in claim 1, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a third utility element projecting therefrom.

6. Apparatus as defined in claim 1, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a third utility element projecting therefrom, and including hollow cap means removably carried by said cover means in a longitudinally aligned position with respect thereto and in a position normally covering and enclosing said third utility element.

7. Apparatus as defined in claim 1, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a third utility element projecting therefrom, said cover means and said end of said barrel means adapted to carry same being provided with magnetic fastening means for removably fastening them in engaged longitudinally aligned relationship.

8. Apparatus as defined in claim 1, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a third utility element projecting therefrom, and including hollow cap means removably carried by said cover means in a longitudinally aligned position with respect thereto and in a position normally covering and enclosing said third utility element, said hollow cap means and the end of said cover means being provided with magnetic fastening means for removably fastening said cap means in said longitudinal alignment with said cover means and in said position covering and enclosing said third utility element.

9. Bidirectionally movable mounting means for a pair of oppositely directed utility elements, comprising: a hollow longitudinal substantially cylindrical barrel means having a longitudinal substantially cylindrical interior chamber therein extending from one end thereof to the other end thereof and provided with reduced-size exit aperture-defining means at said ends thereof aligned with each other and with said centrally positioned interior chamber; and bidirectional manually controllably longitudinally movable actuator means carried by the exterior of said barrel means adjacent to the center thereof, said

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actuator means comprising exterior thread means carried by said barrel means and a rotatable sleeve provided with interior thread means threadedly cooperating with said exterior thread means; a first utility element comprising a writing instrument slidably mounted in a first end of said interior chamber of said barrel means and having its rear end positioned adjacent to the center thereof; and a second utility element comprising cutting tool means slidably mounted in a second end of said interior chamber of said barrel means in an oppositely directed aligned relationship with respect to said first utility element and having its rear end positioned adjacent to the center of said interior chamber longitudinally adjacent to the rear end of said first utility element; said actuator means being provided with coupling means extending into said interior chamber and in bidirectional coupling engagement with respect to said rear ends of said first and second utility elements contained within said interior chamber for controllable forced extension of either of said utility elements longitudinally out of the exit aperture-defining means at the corresponding end of said hollow barrel means, in correspondence with the direction of controllable manual rotation of said sleeve of said actuator means with respect to said barrel means; said barrel means being provided with opposed longitudinal slot-defining means of limited longitudinal extent carried by opposite sides of said barrel means and receiving said coupling means transversely therethrough, said coupling means comprising a transverse bar and rotative engagement means carried by the inner surface of said sleeve and engaging opposite ends of said transverse bar for relative rotation with respect thereto but for effective longitudinal non-moving engagement relative thereto whereby threaded longitudinal movement of said sleeve along said barrel means in either direction will cause corresponding longitudinal non-rotating movement of said transverse bar in said opposed slot-defining means of said barrel means, each of said utility elements being provided with coil compression biasing spring means cooperable with corresponding inner parts of said barrel means for forcibly retracting each of said utility elements and for causing the positioning of said transverse bar of said coupling means in an intermediate neutral position in the absence of longitudinal displacement force applied thereto by said actuator means.

10. Apparatus as defined in claim 9, wherein said barrel means comprises at least two longitudinally separable portions provided with interconnecting magnetic fastening means for removably fastening them together in longitudinal alignment.

11. Apparatus as defined in claim 9, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a combination letter opener and nail file means projecting longitudinally therefrom.

12. Apparatus as defined in claim 9, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a combination letter opener and nail file means projecting longitudinally therefrom, and including hollow cap means removably carried by said cover means in a longitudinally aligned position with respect thereto and in a position normally covering and enclosing said combination letter opener and nail file means.

13. Apparatus as defined in claim 9, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a combination letter opener and nail file means projecting longitudinally therefrom, said cover means and said end of said barrel means adapted to carry same being provided with magnetic fastening means for removably fastening them in engaged longitudinally aligned relationship.

14. Apparatus as defined in claim 9, wherein one end of said barrel means is provided with a removable cover means provided with and carrying a combination letter

opener and nail file means projecting longitudinally therefrom, and including hollow cap means removably carried by said cover means in a longitudinally aligned position with respect thereto and in a position normally covering and enclosing said combination letter opener and nail file means, said hollow cap means and the end of said cover means being provided with magnetic fastening means for removably fastening said cap means in said longitudinal alignment with said cover means and in said position covering and enclosing said combination letter opener and nail file means.

References Cited by the Examiner

UNITED STATES PATENTS

1,738,496	12/1929	Laux.
2,627,097	2/1953	Ellis.
2,953,970	9/1960	Maynard.

FOREIGN PATENTS

125,747	5/1928	Switzerland.
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WILLIAM FELDMAN, *Primary Examiner*.