

Sept. 3, 1940.

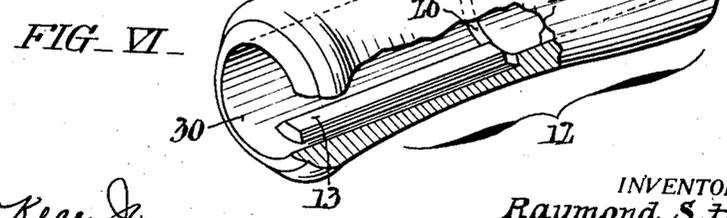
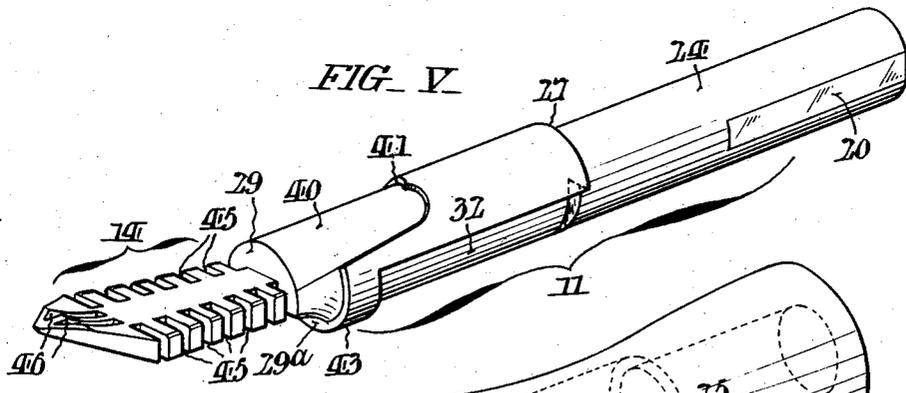
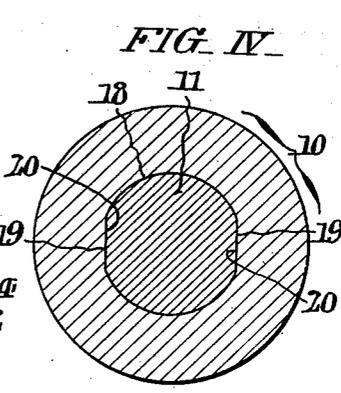
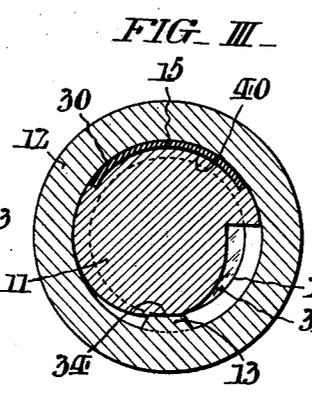
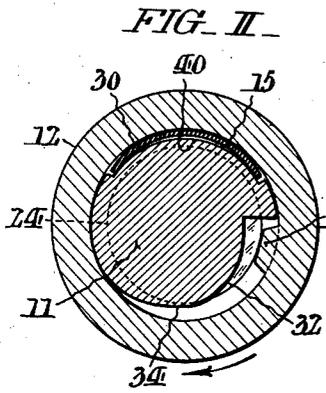
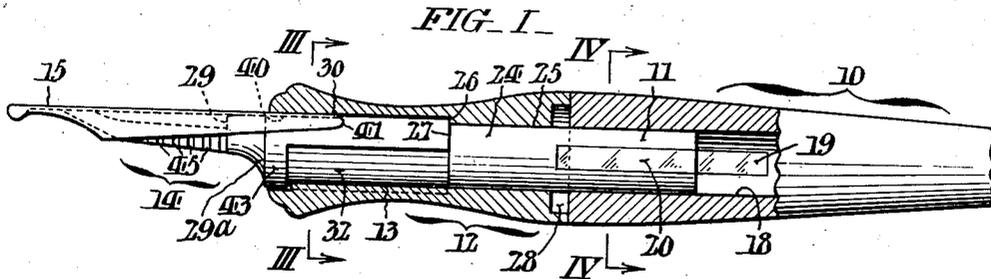
R. S. HUSS

2,213,931

PENHOLDER

Filed April 11, 1940

3 Sheets-Sheet 1



WITNESSES:
Thomas W. Kerr, Jr.
Herbert Fuchs

INVENTOR:
Raymond S. Huss,
BY *Paul Paul*
ATTORNEYS.

Sept. 3, 1940.

R. S. HUSS

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FIG. VII

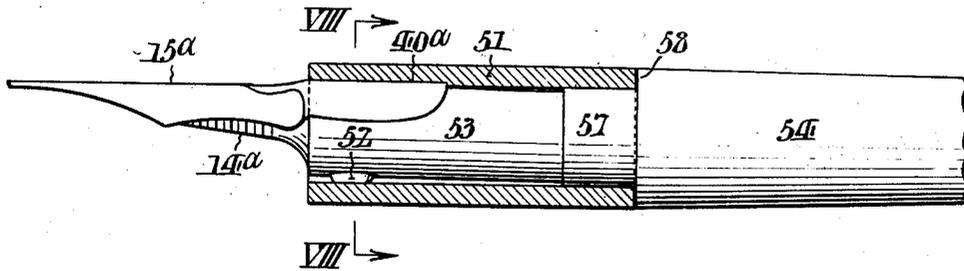


FIG. VIII

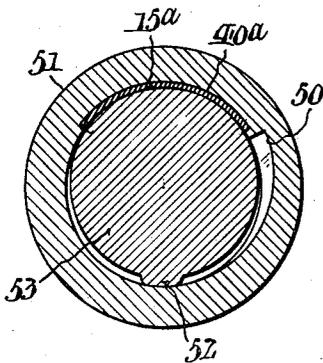


FIG. IX

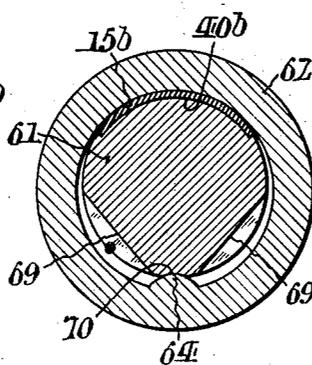


FIG. XI

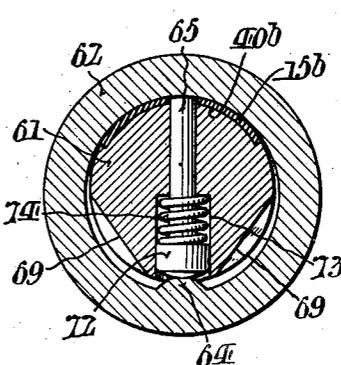
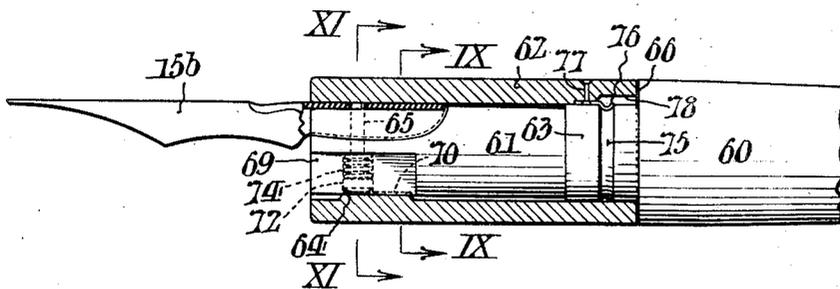


FIG. X



WITNESSES:

Thomas W. Kerr, Jr.
Herbert Fisher

INVENTOR:

Raymond S. Huss,

BY

Paul Paul

ATTORNEYS.

Sept. 3, 1940.

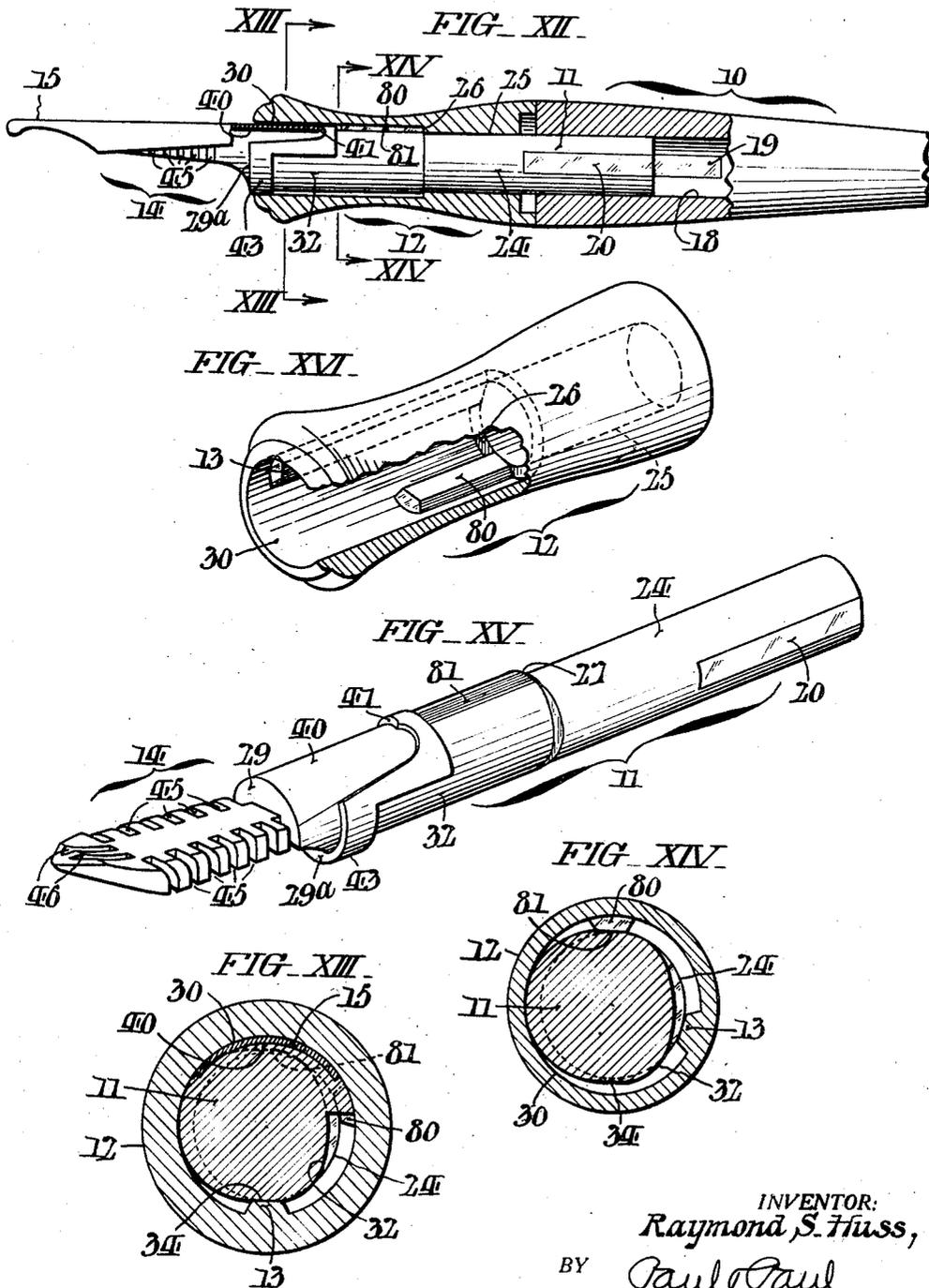
R. S. HUSS

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3 Sheets-Sheet 3



INVENTOR:
Raymond S. Huss,
BY Paul Paul
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,213,931

PENHOLDER

Raymond S. Huss, Bala-Cynwyd, Pa., assignor to
The Turner & Harrison Steel Pen Manufacturing
Company, Inc., Philadelphia, Pa., a corpora-
tion of Pennsylvania

Application April 11, 1940, Serial No. 329,095

21 Claims. (Cl. 120—101)

This invention relates to penholders and more particularly to pen gripping and releasing means for various types of penholders, including fountain pens.

5 The problem of providing a simple and easily operated gripping and releasing means for a penholder has occupied the attention of the art for many years. Some of the prior art mechanisms are difficult to operate and therefore do not appeal
10 to the impatient public. Others are expensive in construction and lack the basic mechanical simplicity which makes for ruggedness and reduces the chance of defective operation.

The invention herein disclosed provides an efficient and simple pen gripping and releasing means. The construction of penholders embodying this invention is simple and inexpensive; the working parts may be molded from any of the suitable synthetic materials now available. An-
20 other advantage of this invention is the positive character of its operation. A partial turn of the operating sleeve releases the grip on the pen point; a partial turn of the sleeve in the reverse direction firmly grips the pen point for use. An-
25 other advantage is the absence of parts which might become jammed from the accumulation of dried ink. Still further objects and advantages of this invention will become apparent from the following detailed description of the illustrative
30 embodiments of the invention shown in the accompanying drawings.

Fig. I is a partial side view of a penholder embodying this invention, shown partially in section to reveal the component parts thereof.

35 Fig. II is a transverse section of the device shown in Fig. I, taken similarly to that of Fig. III, but showing the relation between outer and inner gripping elements in the released position before the pen has been gripped thereby.

40 Fig. III is a transverse section taken as indicated by lines III—III in Fig. I.

Fig. IV is a transverse section taken as indicated by lines IV—IV in Fig. I, showing the fit of the handle and shaft-like gripping element.

45 Fig. V is a perspective showing of the shaft-like inner gripping element.

Fig. VI is a perspective showing of the sleeve-like outer gripping element, partially broken away to show the interior thereof.

50 Fig. VII is a partial side view of a penholder embodying a modification of this invention, being partially in section to show the working parts thereof.

Fig. VIII is a transverse section taken about the lines VIII—VIII of Fig. VII.

Fig. IX is a transverse section of a modified form of this invention taken as indicated by the lines IX—IX of Fig. X.

Fig. X is a partial side view of the modification of this invention illustrated in Fig. IX, being partially in section to show the working parts thereof.

Fig. XI is a transverse section taken about the lines XI—XI of Fig. X.

Fig. XII is a partial side view of a penholder embodying the form of the invention shown in
10 Figs. I to VI in which an additional wedge is provided to positively release a pen point from the holder.

Fig. XIII shows a transverse section taken about the lines XIII—XIII of Fig. XII and shows the
15 clamping wedge in operation clamping a pen point in position and also the releasing wedge which is not in operation.

Fig. XIV shows a transverse section taken about the lines XIV—XIV of Fig. XII but shows the re-
20 leasing wedge in operation and the clamping wedge not in operation.

Fig. XV is a perspective view of the inner gripping element as adapted to include a cam surface to cooperate with the releasing wedge.

Fig. XVI is a perspective view, partially broken away, of the outer or sleeve-like gripping element as adapted to include the releasing wedge.

Before taking up the detailed description of the invention, it may be helpful to point out that the subject matter of Figs. I to VI is the same as that in Figs. XII to XVI except that the latter includes a duplication of the wedge and co-
30 operating cam to spread the two gripping elements in releasing a clamped pen point. The description of this invention in its different forms proceeds more easily when uncomplicated with the two wedges and cam surface in each form. The description of Figs. I to VI may therefore be read as an introduction to the more complicated
40 and perhaps more practical showing of Figs. XII to XVI which are similarly numbered. The other figures are directed to modified forms of the invention.

In describing the preferred embodiment of 45 this invention and the modifications thereof illustrated in the drawings, a specific terminology will be resorted to for the sake of clarity. However, it is to be understood that there is no intention of being limited to the specific terms so se-
50 lected, but on the contrary each specific term is intended to include all technical equivalents which operate in a similar manner to accomplish a similar purpose.

In Fig. I there is shown the gripping end of a 55

penholder, partially in section to show the relation of the component parts thereof. This penholder may be made from any suitable material known to the art and particularly good results have been obtained by molding the parts from synthetic materials which are receiving such wide use today. A small amount of flexibility is desirable both for the gripping operation and to avoid general breakage. Of course, the parts could be machined rather than molded, but from a manufacturing point of view it is far cheaper to produce the few simple parts necessary for this invention by the use of molds.

This improved penholder comprises generally a handle 10, an inner gripping element 11 mounted in the end thereof, an outer gripping element or sleeve 12, revolvably mounted on said inner gripping element 11, a wedging projection 13 formed on the inner surface of the outer gripping element or sleeve 12, a feed bar 14 mounted on the end of the inner gripping element 11 and a conventional pen point 15 gripped in place between the gripping elements 11 and 12.

The handle 10 is formed with an opening 18 in the end thereof, the shape of the opening 18 being generally cylindrical with flat side areas 19. The cross sectional shape of the inner gripping element 11 conforms to the shape of the flat sided cylindrical form of the opening 18 in the handle 10. The inner gripping element 11 fits snugly into the handle 10; and because of the flat areas 19 which correspond to similar flat areas 20 on the inner gripping element 11, all relative rotary movement between these parts is avoided.

The sleeve 12 is revolvably mounted on the inner gripping element 11 which is journaled at 24 to move easily in a bearing surface formed on the inside of the sleeve 12 at 25. The bearing surface 25 terminates in a shoulder 26 at the central portion of the sleeve 12 where the diameter of the sleeve 12 increases over its diameter at the bearing surface 25. A shoulder 27 is formed on the inner gripping element 11 to correspond and cooperate with the shoulder 26 on the sleeve 12. The cooperation of the shoulders 26 and 27 confine the sleeve 12 in place with the inner end of the sleeve 12 in sliding contact with a corresponding surface formed on the inner end of the handle 10 and around the projecting inner gripping element 11. A short counter bore 28 in the inner end of the sleeve 12 provides a circular space to catch any ink which might inadvertently work up through the gripping parts. This space formed by the counter bore 28 may be filled with a graphited or paraffined packing or any suitable packing material to resist the flow of ink therepast. The flat surfaces 29 and 29a (see Fig. V) provided where the feed bar 14 merges with the inner gripping element 11 are intended to further reduce the possibility of ink working up through the moving parts of the gripping means.

The bearing surface 25 merges at the shoulder 26 into what may be conveniently termed a gripping surface 30, although only a portion of this surface 30 actually grips the pen 15. The wedging projection 13 is formed on this gripping surface 30 and is in the shape of a narrow longitudinally extending ridge for convenience in manufacture. Clearance between the wedging projection 13 and the cam surface 32 is allowed so that all gripping pressure between these parts is applied opposite the pen seat 40. The inner gripping element 11 is cut away to accommodate the wedging projection 13 and this cut-away portion of the inner gripping element 11 is developed

into a cam surface 32, eccentrically formed with a low area which provides sufficient space between the sleeve 12 and the inner gripping element 11 to accommodate the wedging projection 13 therebetween without wedging action. The high area of the eccentrically developed cam surface 32 is designed for wedging cooperation with the wedging projection 13 and a slightly flat seating surface 34 is provided on the cam surface 32 at a predetermined point. This seating surface 34 receives the wedging projection 13 in its extreme wedging position with the pen 15 gripped in place for writing. As wear occurs, this seat 34 will advance on the high area of the cam surface in the direction of the tightening rotation. By rotation of the sleeve 12 in the direction of the arrow in Fig. II, the wedging projection 13 is brought into operative contact with the cam surface 32.

Diametrically opposite the seating surface 34, a recessed pen seat 40 is formed with a delineating abutment 41 shaped to fit the type of pen to be accommodated. It is obvious that the particular form of this detail is within the compass of the skilled artisan as are other modifications which might be made in the above described parts without departing from the spirit of the invention. The recessed seat could be formed in the sleeve 12 instead of in the inner gripping element 11 as is shown in Fig. VIII. The cam surface 32 is positioned completely within the sleeve 12, being formed a short distance back from the end of the inner gripping element 11. The exposed end of the inner gripping element 11 opposite the pen seat 40 is thus cylindrical in form, the cam action being hidden from view by a wall 43 which limits the extension of the wedging projection 13 to a point short of the end of the sleeve 12.

The feed bar 14 is formed on the outer end of the inner gripping element 11 and has transverse reservoir slots 45 and longitudinal reservoir slots 46 formed therein. These slots 45 and 46 function by retaining an ink supply which is gradually fed to the pen 15 in the usual manner. Obviously the feed bar 14 is open to modification and may even be omitted in some forms of this invention. The feed bar 14 is upwardly inclined in order to provide a convergence between the upper surface of the feed bar 14 and the lower surface of the pen point 15. This tends to prevent capillary advance of ink up from the pen point end and into the working parts of the gripping means. The narrowing of the space between the pen point 15 and the feed bar 14 toward the pen point end encourages a downward capillary action.

While the operation of the above described device is perhaps clear from what has been said, a short description of a normal cycle of operation is appropriate. It is convenient to start with the penholder in the condition shown in Fig. I with the pen 15 gripped for writing. To release the pen 15, the handle 10 is held while the sleeve 12 is rotated to the position shown in Fig. II. The pen 15 is now so loosely seated that it will fall out of the penholder under its own weight. If there should be a heavy incrustation of dried ink, a slight pressure will immediately dislodge the pen 15. There being no metal parts, the penholder may now be cleaned with water. A new pen 15 may then be substituted in the recessed seat 40 and the sleeve 12 rotated in the direction of the arrow in Fig. II to the gripping positions with the wedging projection 13 seated on the slightly flat seating surface 34. The penholder

may be completely disassembled to facilitate cleaning by removing the inner gripping element from the handle which is held together only by closely fitting joint.

5 The above described invention is susceptible of a number of modifications and some of these are described hereinafter. One such modification is shown in Figs. VII and VIII. Fig. VII shows an eccentrically developed cam surface 10 50 formed in a sleeve 51 and a wedging element 52 formed on an inner gripping element 53, thus reversing the positioning of these elements from that in the preferred embodiment described above. The wedging element 52 is also shortened 15 longitudinally. In this modification the inner gripping element 53 is formed integrally with a pen handle 54. A journal 57 of slightly larger diameter than the rest of the inner gripping element 53 is formed on the inner gripping element 20 53 adjacent the handle 54. A shoulder 58 is formed on the handle where it merges with the journal 57. This journal 57 receives the sleeve 51 with a fit which keeps the sleeve 51 in place but allows rotation and removal. A feed bar 14a 25 is formed integrally with the inner gripping element 53 and has already been described above. A pen 15a is shown seated in a recessed seat 40a formed in sleeve 51 and gripped in place as in the preferred embodiment. The operation of 30 this modification is substantially the same as the preferred embodiment and will be understood from the above description of an operative cycle of the preferred embodiment. This form of invention is disassembled by simply pulling the 35 sleeve 51 from its position on the journal 57. Of course, when the pen 15 is gripped in place this wedging action also holds the sleeve 51 against any looseness which it may develop in its fitting on the journal 57 as the penholder is used.

40 Another modification of this invention is illustrated in Figs. IX, X and XI. This modification includes a locking device for keeping a pen point in place in the penholder until properly 45 released by rotation of the operating sleeve. This will help prevent the theft of pen points from penholders used in public places. This form of the invention comprises a handle 60 having formed integral therewith an inner gripping element 61, an operating sleeve 62 revolvably 50 mounted on a journal 63 formed on said inner gripping element 61, a wedging projection 64 formed in said sleeve 62 and a locking pin 65 extending through said inner gripping element 61 and through a hole provided in pen point 15b 55 seated in recessed seat 40b formed in said inner gripping element 61.

The handle 60 is provided with a shoulder 66 where it merges with the inner gripping element 61, the shoulder 66 is adjacent to the journal 63 60 and provides an abutting edge for the inner end of the sleeve 62 which fits in place over the journal 63. The outer portion of the inner gripping element 61 is of slightly less diameter than the journal 63. Because the sleeve 62 is formed with 65 a uniform internal diameter of a size to fit the journal 63, a slight space is provided between the sleeve 62 and the outer portion of the inner gripping element 61 which permits a limited amount of flexible movement of the inner gripping 70 element 61 within the sleeve 62.

The wedging projection 64 formed on the inner surface of the sleeve 62 is given a convex shape. This wedging projection 64 contacts operatively with a cam surface comprising flat surfaces 69 75 separated by and merging with a slightly con-

cave surface 70. While this cam surface is not eccentrically developed, the operation of the wedging projection 64 and the cam surface will be clear from what has been said above and need not be repeated here. The flat surfaces 69 provide the low portions; and the surface 70 5 provides the high portion of the cam surface. In this form of the invention a turning movement of the operating sleeve 62 in either direction will release the pen 15b.

The locking pin 65 extends diametrically 10 through the opening formed in the inner gripping element 61 with one end of the opening at the central portion of the recessed pen seat 40b and the other end of the opening at the concave surface 70. The locking pin 65 has a cylindrical 15 head 72 with a convex top to operatively contact wedging projection 64. The head 72 is of greater diameter than the remainder of the locking pin 65 and the opening through the inner gripping 20 element 61 to accommodate the pin 65 is provided with a countersunk portion 73 to receive the head 72. This countersunk portion 73 of the locking pin opening terminates in a shoulder and a coil spring 74 is positioned on this shoulder 25 underneath the head 72. The pin 65 is long enough to extend through a hole formed in pen point 15b when the head 72 is seated on the wedging projection 64. In this position, however, the pin 65 must be short enough to be in easy 30 sliding contact or have no contact at all with the sleeve 62.

This modification is also provided with a spring retaining clip 76 which is riveted to the sleeve 62 35 by rivet 77. The movable end of this clip 76 is rounded and rides in groove 75 formed in the journal 63. A short longitudinally extending recess 78 is formed in sleeve 62 to allow for the movement of the clip 76 as the sleeve 62 is removed from the journal 63. 40

The operation of this form of the invention is substantially the same as the above described 45 embodiments except for the locking feature. As the sleeve 62 is rotated in order to release the pin 65, the head 72 of the locking pin 65 slides over and away from the wedging projection 64, 50 and under the motivation of the spring 74, is urged into contact with the inner surface of the sleeve 62 adjacent to the wedging projection 64. This causes the pin 65 to withdraw from the hole 55 in the pen 15b allowing the pen 15b to be removed as in the above described embodiments of this invention. Of course, the wedging projection 64 must be sufficiently high to cause the pin 65 to fully withdraw from the hole in the 60 pen 15b when the pin 65 is in the unlocked position. When a new pen 15b is inserted in the penholder and the sleeve 62 is rotated toward the locked position, the head 72 rides up 65 on the wedging projection 64 and the pin 65 is advanced through the hole formed in the pen 15b to receive the pin 65.

In Figs. XII to XVI, the invention embodied in 70 Figs. I to VI is shown with an additional wedging element 80 and cooperating cam surface 81 to provide a positive releasing action. This releasing wedge 80 and cam 81 are so positioned with relation to the gripping wedge 13 and cam 75 surface 32 that the releasing wedge 80 begins to operate as the gripping wedge 13 approaches its inoperative position and vice versa. This is shown clearly in Figs. XIII and XIV. In Figs. XIII, the pen point 15 is gripped in position in the penholder with the releasing wedge inoperative. In Fig. XIV, the gripping wedge 13 has 75

been turned to its inoperative position and the releasing wedge 80 is fully operative in positively spreading the two gripping elements 11 and 12 to allow the pen point 15 to fall out of the penholder. The description relating to Figs. I to VI fully applies to Figs. XII to XVI and need not be repeated. The operation of the releasing wedge 80 and its cam surface 81 will be readily understood from the above description of the operation of the gripping wedge 13 and its associated cam surface 32. The same numerals are used to identify similar parts and of course the added releasing wedge 80 and cam surface 81 are given new numbers.

It will be seen that the above invention provides a penholder which affirmatively grips and easily releases the pen point by the simple turning of an operating sleeve. The parts of this penholder are adapted to manufacture by molding from synthetic materials and the form of parts of the penholder is sufficiently simple that the chance of breakages and defects of operation is greatly reduced.

The simplicity of mechanical operation provides a ruggedness in the component parts which is not present in more complex mechanisms such as those including pivotally operating levers and the like which the prior art now discloses.

While the preferred embodiments and suggested modifications thereof have been described in some detail it will be apparent to one skilled in the art that various changes and variations may be made therein without departing from the spirit of the invention as hereinafter claimed.

Having thus described the invention, the novelty therein is hereby claimed as follows:

1. A pen gripping device comprising a gripping element having a wedging projection formed thereon, and a gripping element having a cam surface formed thereon to coact with said wedging projection, said gripping elements being disposed one within the other and having capacity for relative rotary movement.

2. A holder comprising a handle, a gripping element having a wedging projection formed thereon, and a gripping element having a surface formed thereon to coact with said wedging projection, said surface having relatively high and low areas formed thereon, said gripping elements being disposed one within the other and having capacity for relative rotary movement.

3. A holder comprising a handle, a gripping element having a wedging projection formed thereon, and a gripping element having an eccentrically formed cam surface to coact with said wedging projection, said gripping elements being disposed one within the other and having capacity for relative rotary movement.

4. The invention of claim 3 wherein said cam surface is flattened at the high portion thereof to provide a seat for said wedging projection.

5. A holder comprising a handle, a gripping element having a raised wedging surface formed thereon, a second gripping element having a cam surface formed thereon to cooperate with said raised wedging surface, said cam surface having a low area formed thereon, said gripping elements being disposed one within the other and having capacity for relative rotary movement.

6. A penholder comprising a handle and a pair of gripping elements attached thereto with capacity for relative rotary movement, said gripping elements being disposed one within the other and having their adjacent surfaces formed with a high and low area respectively, whereby

the low area provides space to receive the high area on relative rotation of these elements.

7. A penholder comprising a handle, a shaft-like gripping element mounted on said handle and having an eccentrically developed cam surface formed thereon, and a sleeve-like gripping element revolvably mounted on said first mentioned gripping element and having a wedging projection coacting with said cam surface.

8. The invention of claim 7 wherein there is provided a means for positioning a pen in one of said gripping elements with delineating guides formed at the sides and rear thereof.

9. A penholder comprising a handle, a shaft-like gripping element mounted on said handle, a sleeve-like gripping element revolvably mounted on said first mentioned gripping element, a wedging projection formed on one of said gripping elements to coact with a cam-like surface formed on the other of said gripping elements, and a feed bar mounted on the shaft-like gripping element.

10. The invention of claim 9 wherein said feed bar is provided with reservoir slots.

11. A penholder comprising a handle, a shaft-like gripping element mounted on said handle and having an eccentrically developed cam surface formed thereon, a journal formed on said gripping element, a sleeve-like gripping element having a bearing surface formed therein and fitting over said journal of said first mentioned gripping element, and a wedging projection formed on said inner surface of said sleeve-like gripping element to coact with said cam surface.

12. The invention of claim 1 wherein the cam surface consists of two inclined flat surfaces separated by a higher area having a concave configuration into which said wedging projection may seat.

13. The invention of claim 1 wherein the cam surface consists of an inclined flat surface which leads to a higher concave surface.

14. A penholder comprising a handle, a shaft-like inner gripping element seated in the penholder without capacity for rotary movement, a journal formed on said inner gripping element the end of the handle and a shoulder formed on said gripping element, a cam surface formed on said gripping element beyond said shoulder, a sleeve-like outer gripping element mounted on said inner gripping element and having a bearing fitting around said journal, said sleeve-like outer gripping element being held in place longitudinally by a shoulder formed thereon coacting with said first mentioned shoulder and by the end of said handle, and a wedging projection formed on the inner surface of said sleeve and coacting with said cam surface.

15. A penholder having a handle, a spindle-like inner gripping element extending from said handle, and having a wedging projection thereon, a sleeve-like outer gripping element fitting upon a journal on said inner gripping element and having a cam surface formed to coact with said wedging projection and a pen seat formed in said outer gripping element.

16. A penholder having a handle, a shaft-like inner gripping element having a wedging projection formed thereon, a sleeve-like outer gripping element journalled on said inner gripping element and having an eccentrically developed cam surface formed thereon to coact with said wedging projection, a locking pin freely positioned in and extending through said inner gripping element, the length of said locking pin be-

ing such that when one end is seated on the wedging projection the other end of the pin will project beyond said inner gripping element.

- 5 17. The combination of a penholder having a handle, a pen gripped between inner and outer gripping elements attached to said handle, a locking pin extending through said inner gripping element and said pen, a wedging projection formed on one of said gripping elements, a cam surface formed on the other of said gripping surfaces to coact with said wedging projection, one end of said pin seating on said wedging projection, and a spring urging said pin to withdraw from said pen.
- 10 18. The invention of claim 1 characterized further by a locking pin having a spring urging the pin to the unlocked position.

19. The invention of claim 11 characterized further by a spring retaining clip attached to one of said gripping elements and riding in a groove formed in the other of said gripping elements.

20. The invention of claim 14 wherein a circular packing filled area is formed around said inner gripping element whereby ink seeping through said moving parts may be stopped and retained by said circular area.

21. The invention of claim 1 which is characterized further by a releasing wedge and a cooperating cam surface for spreading said gripping elements.

RAYMOND S. HUSS.

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