



Topic 15:

Drafting a patent application

Exercise 5

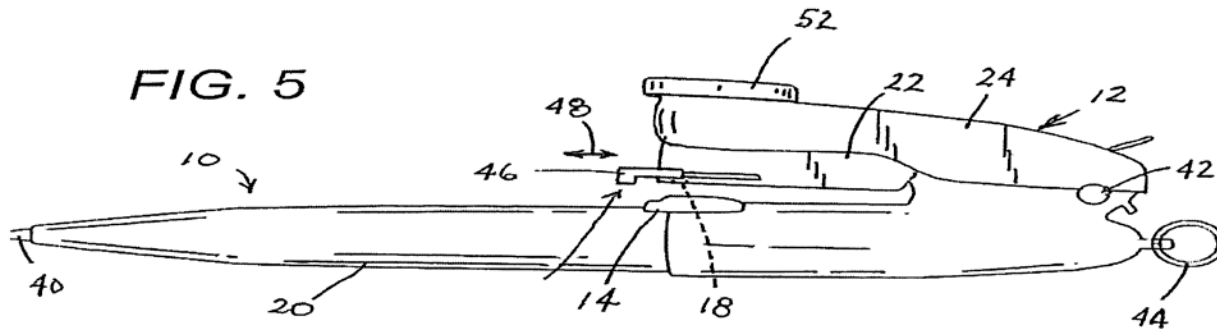
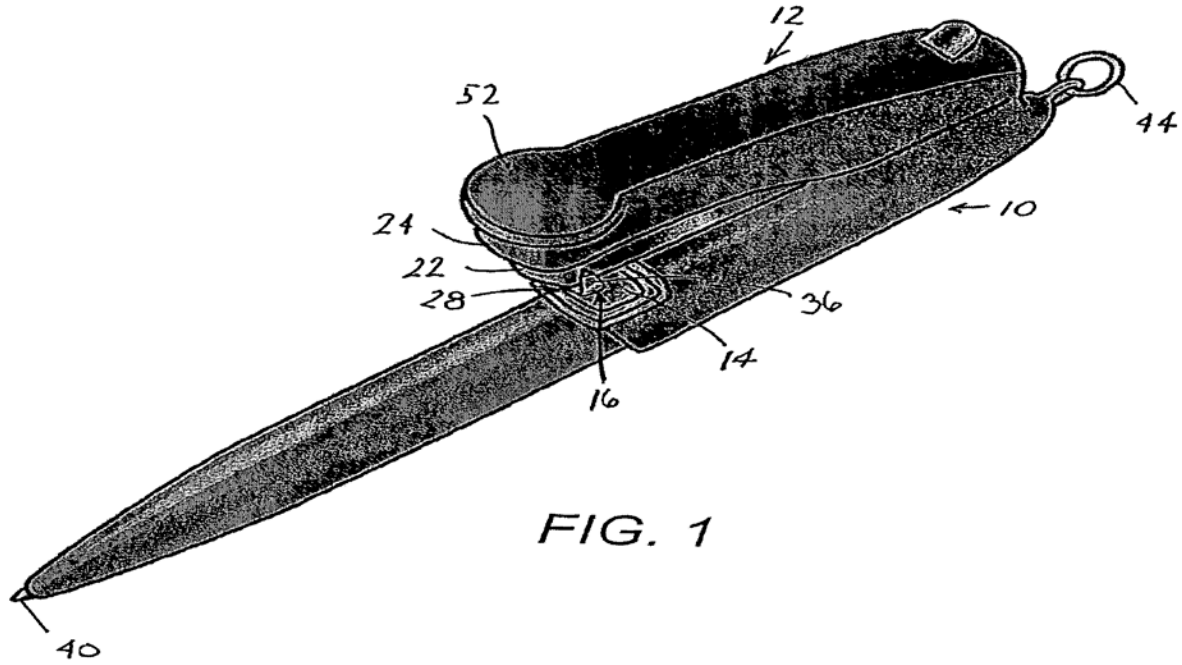
Emmanuel E. Jelsch
Swiss and European Patent attorney



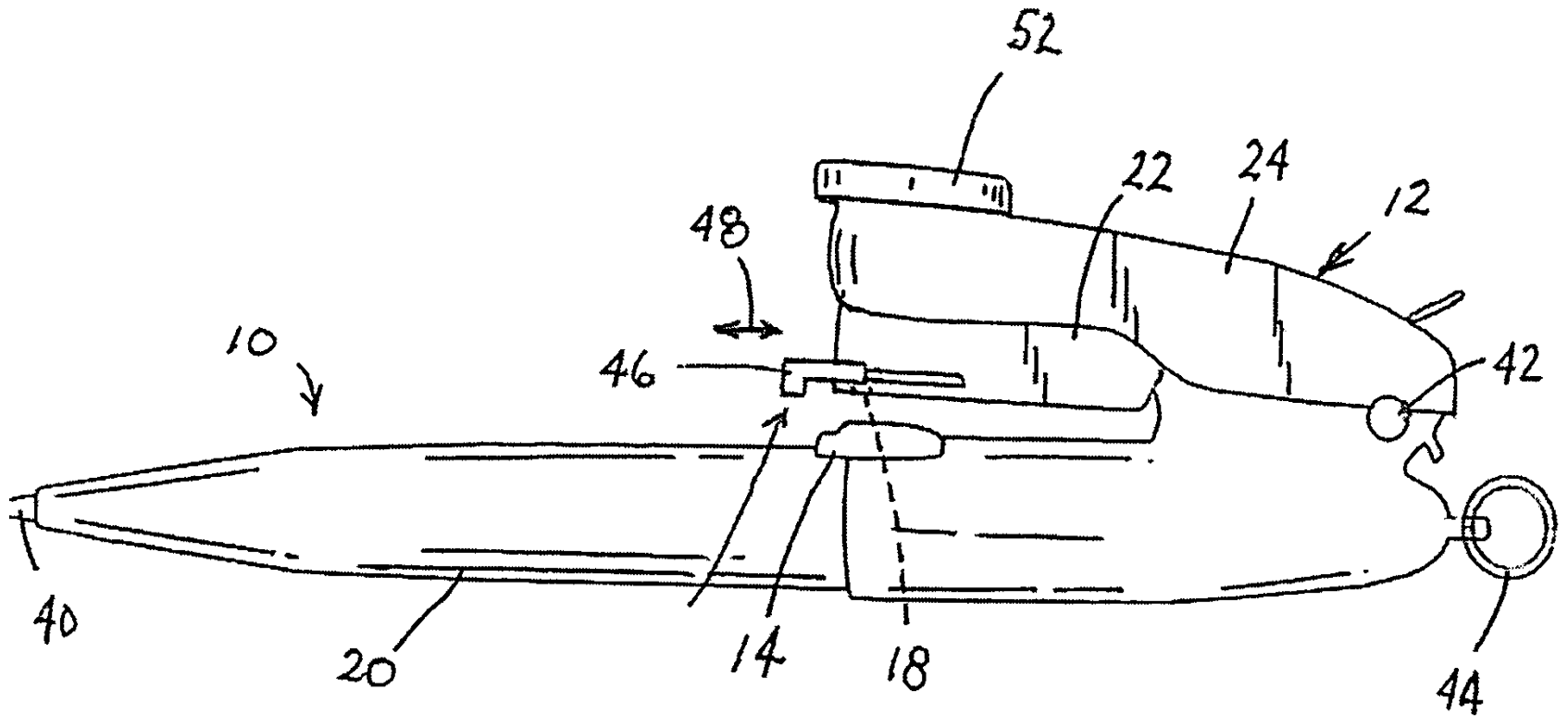
**Exercise to
draft a set of claims
and the complete description of a patent
application**

**A WRITING OR MARKING
INSTRUMENT**

The invention



The invention



The invention

- What prior art does exist concerning the invention?



Stapler



Pen

D1: US 2,295,603

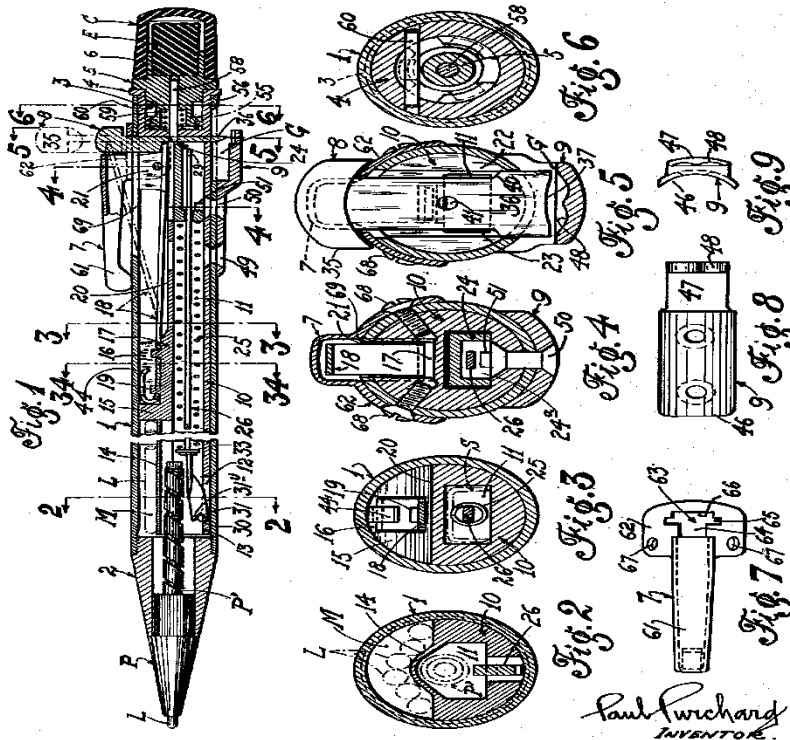
Sept. 15, 1942.

P. PURCHARD
STAPLING DEVICE

2,295,603

Filed Sept. 23, 1938

3 Sheets—Sheet 1



D2: US 5,114,257

U.S. Patent

May 19, 1992

Sheet 2 of 4

5,114,257

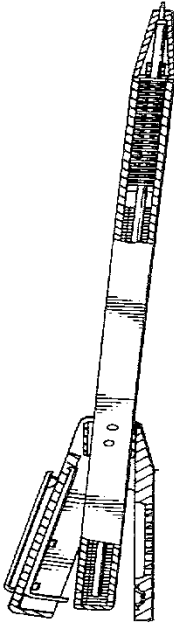


Fig. 2

Questions in view of the identification of the invention

- What single piece of prior art is the closest to the invention?

Questions in view of the identification of the invention

- What is the aim of the invention?
- What **technical problem** was solved by the invention?
- What is the difference between the closest prior art and the invention? (**Novelty?**)
- What arguments do we have in favor of **inventive step?**

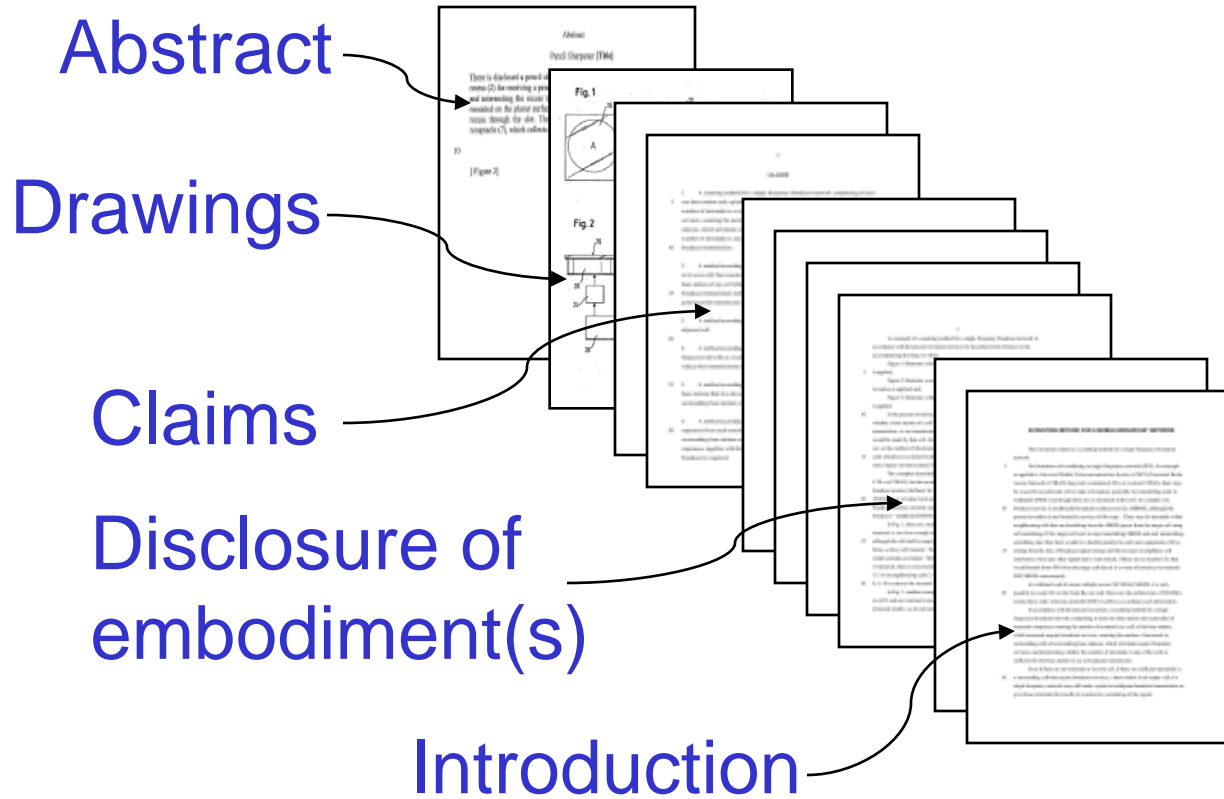
Questions in view of the identification of the invention

- Could you explain the invention? (description)
- How does it function? (description)
- How is it used? (description)
- How was the problem solved in the past?
(Background art)

The description: what does it comprise?

- **Field of the invention**
- **Background art:**
 - **Summary of prior art (i.e. the technology known to exist)**
 - **The problem that the invention is supposed to solve**
- **Brief description (summary of the main claims)**
- **Brief description of the figures**
- **Detailed description: (see previous slide)**
 - **An explanation and at least one way of carrying out the invention**
 - **Possibly a preferred embodiment or examples (chemistry)**
- **Claims (define the extent of patent protection)**
- **Abstract : Around 150 words as a search aid for other patent applications**
- **Figures (if applicable)**

Parts of a Patent Specification

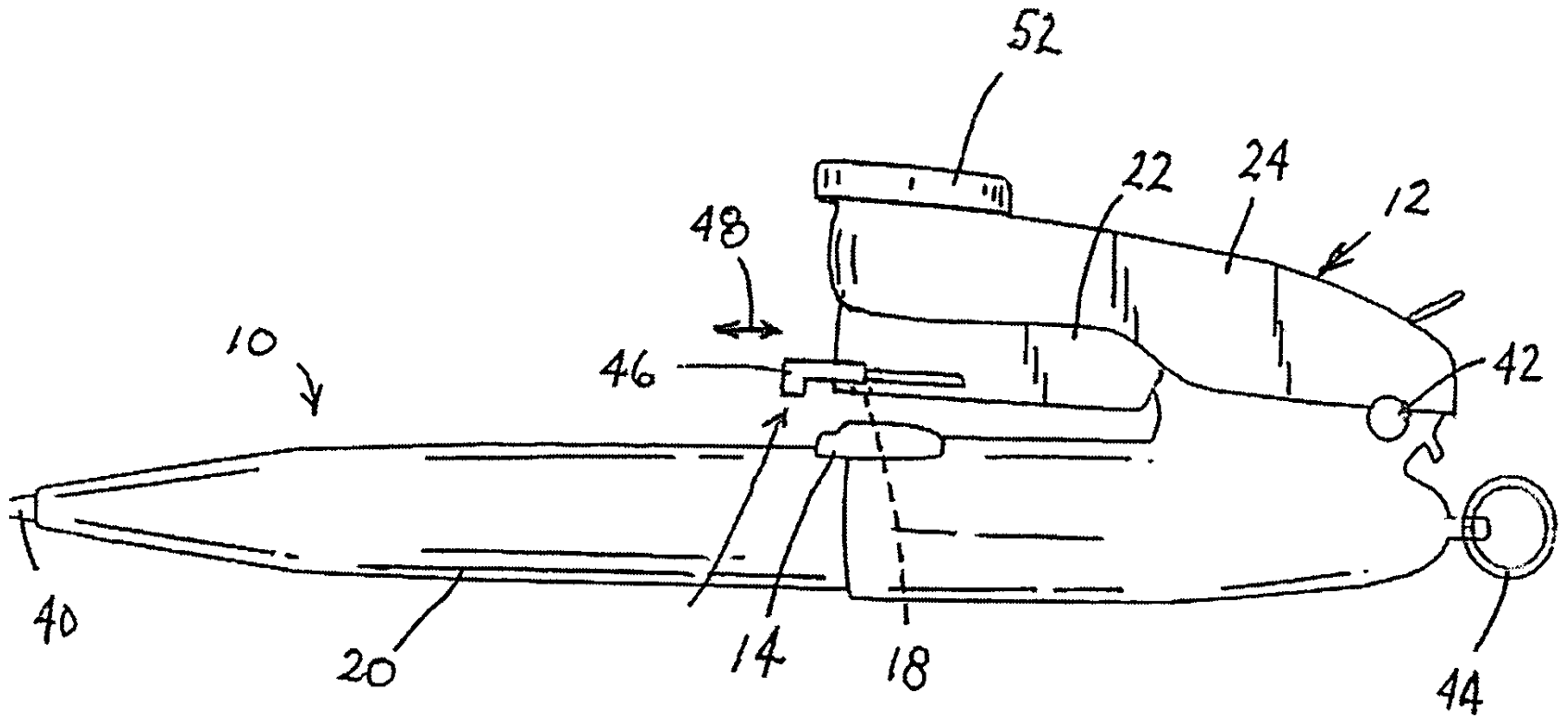


Please prepare:

- A complete description of the invention using the information prepared by your client Penstab Ltd.
- Two independent claims defining the invention as disclosed by the client.
- Several dependent claims defining fall back positions

(in case the invention according to the independent claim should not be valid because further prior art exists)

Suggested Answer:



Suggested Answer:

1. A writing or marking implement comprising:
a pen;
a stapler body mounted to said pen, one of said pen and said stapler body being provided with a staple exit aperture;
a staple-bending anvil element attached to the other of said pen and said stapler body in alignment with said staple exit aperture; and
a cover movably mounted to said one of said pen and said stapler body for temporarily blocking said staple exit aperture, said cover serving to prevent a stapling of a web or sheet.

Suggested Answer:

9. A method comprising:
providing a writing implement in the form of a pen having a stapler body mounted thereto;
using said pen to write;
using said stapler body and said pen to staple;
thereafter moving a cover over a staple exit aperture to temporarily block said staple exit aperture; and
sliding a web or sheet between said stapler body and said pen, said cover serving to prevent a stapling of said web or sheet.

Suggested Answer:

US patent N° 7,189,021 B1

“Writing or marking instrument with attached stapler”

Publication Number	US7189021 B1
Type of publication	Patent
Application number	US 11/237,240
Date of publication	13 March 2007
Filing date	28 sept. 2005
Priority date	28 sept. 2005

Topic 15: Drafting a Patent Application:

A WRITING OR MARKING INSTRUMENT

You are working as a patent attorney candidate for a famous IP law firm in Harare. Recently the company Penstap Ltd contacted your firm in order to protect their new invention.

Penstap's solution pertains to writing or marking tools.

In particular it concerns an instrument with combined writing and stapling functionality. Two prior art documents D1&D2 are attached. According to the client's analysis, it is believed that these documents are not an obstacle against patentability of the present invention.

You are now requested to draft the description of this invention taking into account the documents and figures provided by your client.

In addition please draft at least **two independent claims** defining the invention at best as well as **3 dependent claims for each independent claim**. Dependent claims are intended to provide fall back positions to the main claims (total 8 claims).

The invention is defined by the following figures and description.

Brief description of the drawings:

FIG. 1 is a schematic perspective view of a marking implement with an attached stapler in accordance with the present invention.

FIG. 2 is a schematic side elevational view of the marking pen and stapler of FIG. 1.

FIG. 3 is a schematic rear elevational view of the marking pen and stapler of FIGS. 1 and 2.

FIG. 4 is a schematic front elevational view of the marking pen and stapler of FIGS. 1-3, showing a stapler magazine part in an open position to reveal a staple-bending anvil on a pen casing. Note that the enlarged part above the waved lines is not located at the opposite end of the ink applicator 40 and the skilled in the art will understand that it is simply for representation purpose.

FIG. 5 is a schematic side elevational view showing a modification of the marking pen and stapler of FIGS. 1-4.

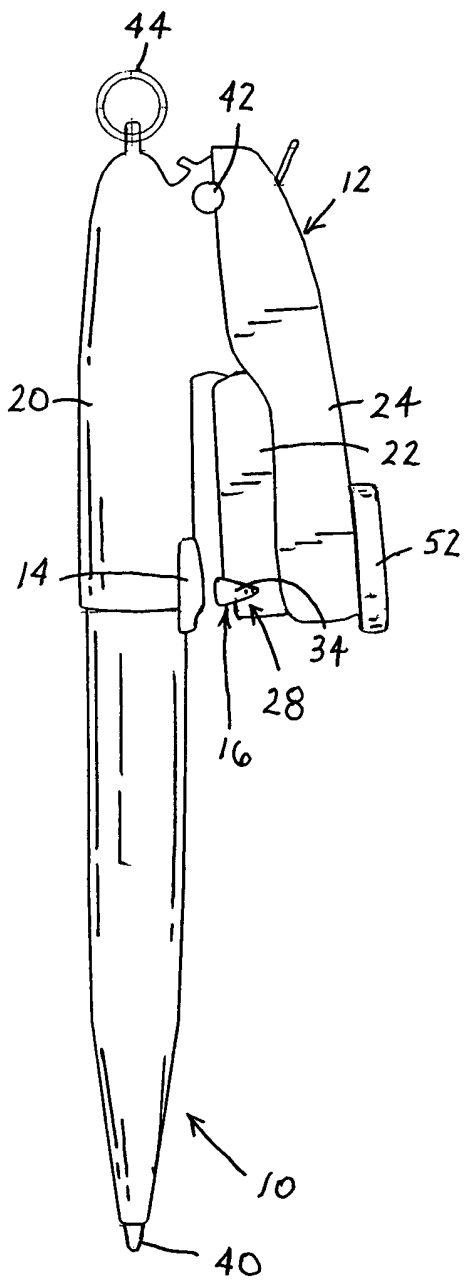


FIG. 2

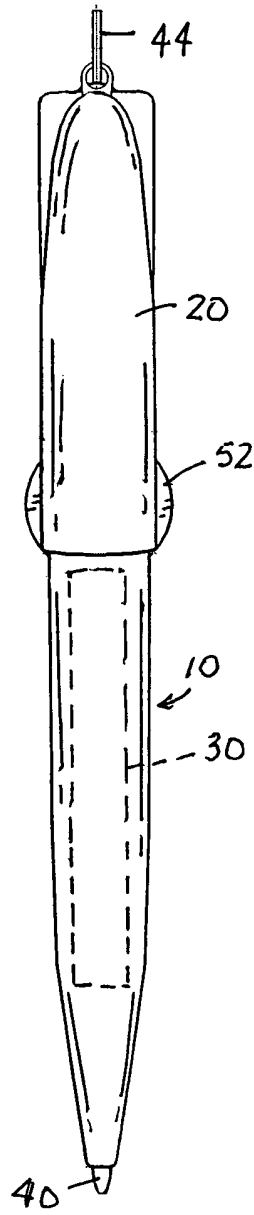


FIG. 3

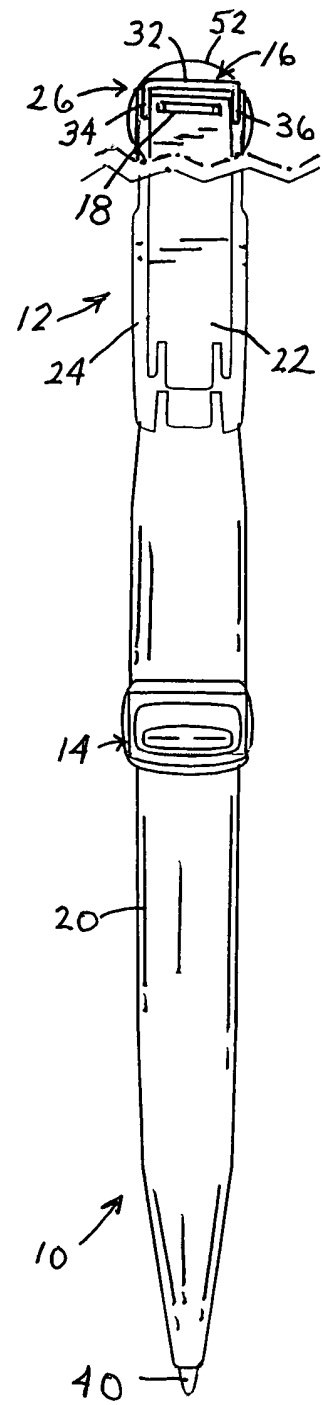


FIG. 4

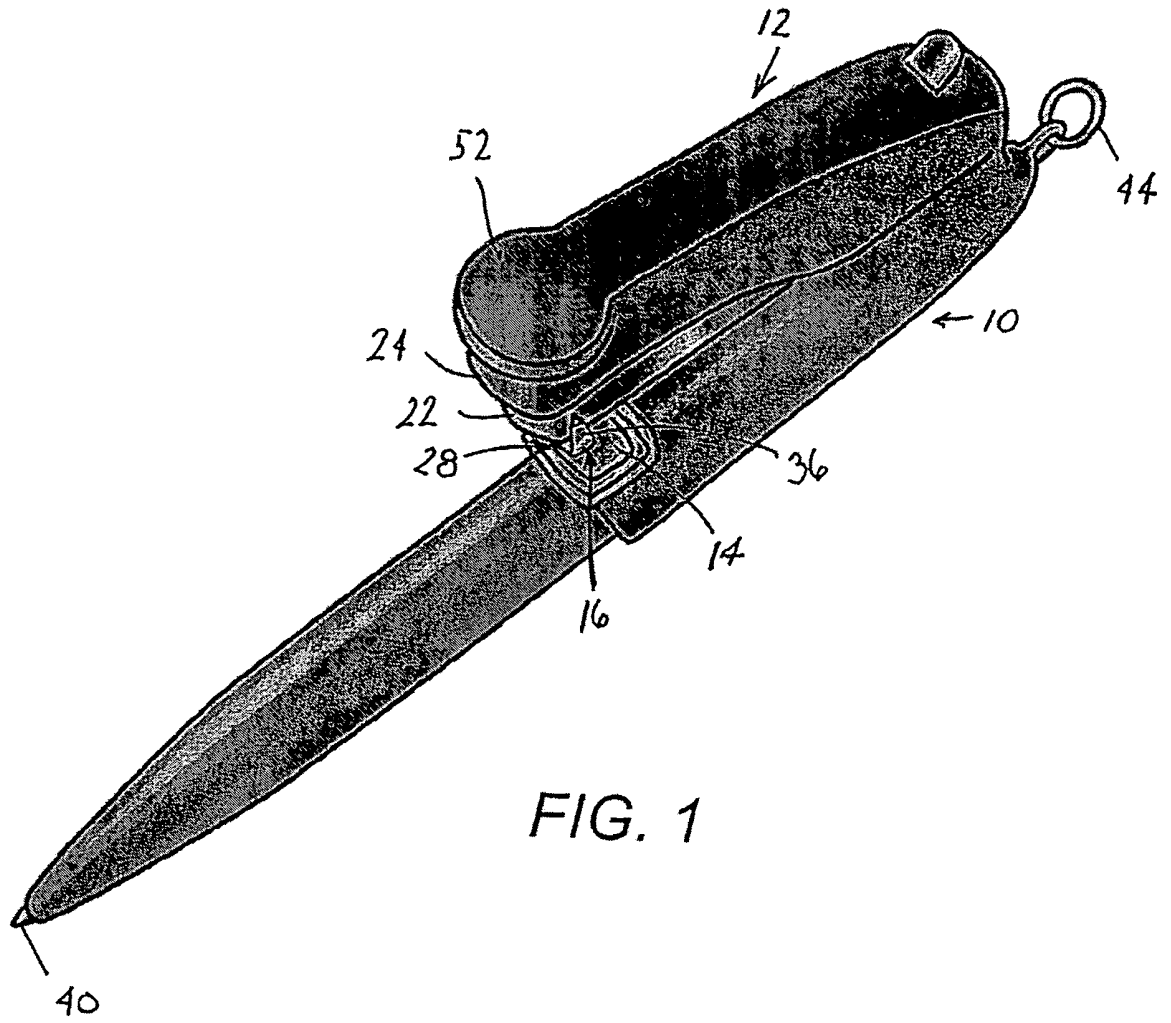


FIG. 1

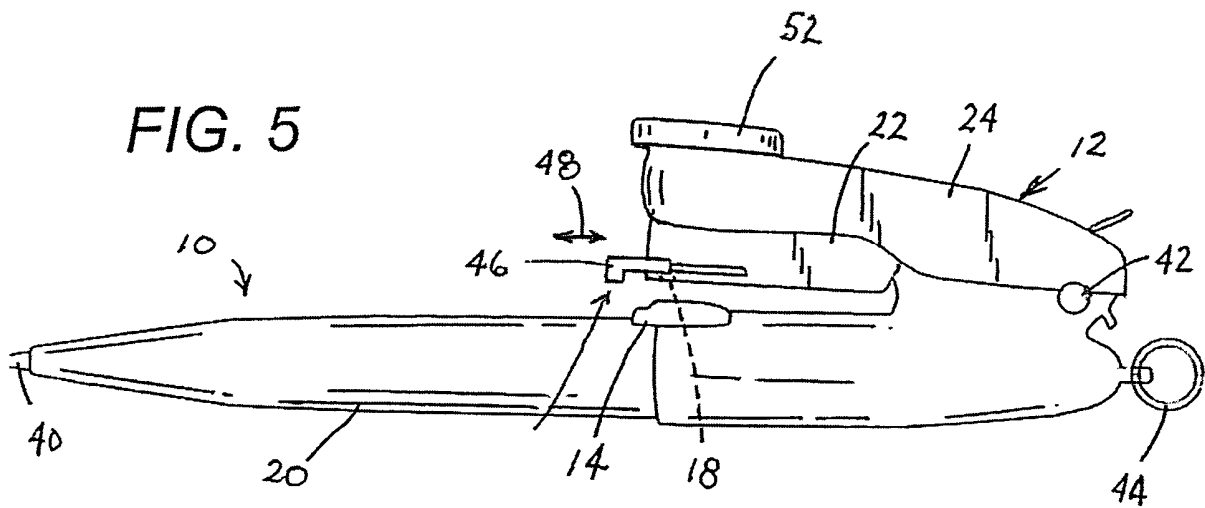


FIG. 5

The following definitions are provided by your client:

Definitions:

The word "pen" is used herein to denote any marking instrument including, but not limited to, a ball point pen, a felt tip pen, a fountain pen, a pencil, a marker, a crayon, and a laser pointer. The "pen casing" is an outer shell that contains the marking components (ink reservoir, graphite stick, laser source) of the pen. The casing may be a unitary component or may comprise two or more parts, such as a pen body and a cap. In the latter case, the stapler may be mounted to the pen body or to the cap.

The term "stapler body" is used generally herein to denote either of two stapler parts connected to one another at a pivot axis. The other part is a pen casing. In a typical embodiment of the present invention, the stapler body includes a staple magazine compartment, a staple exit aperture, and a staple ejector member that is manually operable to force a staple from an end of the magazine through the exit aperture and against an anvil on the other stapler part (the pen casing). However, it is also possible, within the scope of the present invention, for the stapler body to be the anvil-bearing member of the stapler. In that event, the pen casing contains the staple magazine and is provided with a staple exit aperture and the ejector mechanism.

Summary:

A writing or marking implement in accordance with the present invention comprises a pen, a stapler body mounted to the pen, a staple-bending anvil element, and a cover. Either the pen or the stapler body is provided with a staple exit aperture, while the staple-bending anvil element is attached to the other of the pen and the stapler body in alignment with the staple exit aperture. The cover is movably mounted to whichever of the pen and the stapler body that is provided with the staple exit aperture. The cover serves to temporarily block the staple exit aperture and prevent an inadvertent stapling operation.

In a preferred embodiment of the invention, the cover is pivotably mounted to the part that has the staple exit aperture. The part with the staple exit aperture holds a staple magazine and is provided with an ejection mechanism, e.g., a hammer element, for forcing a staple from the magazine through the staple exit opening against the anvil element. The cover alternately swings between a neutral storage position removed from the staple exit aperture and an active staple blocking position aligned with the staple exit aperture.

Preferably, it is the stapler body, and not the pen, that contains the staple magazine and carries the hammer or staple ejector. The pen has a casing that carries the anvil element on an external surface and houses marking components such as an ink reservoir.

Where the staple exit aperture is an elongate slot, the cover may include an elongate plate element extending generally parallel to the staple exit aperture. The cover may further include a pair of ears at opposite ends of the plate element, the cover being coupled to the stapler body (or, alternatively, the pen casing) via the ears for rotation about an axis parallel to the staple exit aperture.

The pen typically has an ink application end, the stapler body being pivotably mounted to the pen at an end opposite the ink application end. That same end of the instrument may be provided with a ring for receiving a lanyard. .

In an alternative embodiment of the present invention, the cover is slidably mounted to the part that carries the staple magazine and the ejector (as well as the staple exit aperture). This sliding cover alternately translates between a neutral storage position spaced from the staple exit aperture and an active staple blocking position aligned with and blocking the staple exit aperture.

A method in accordance with the present invention utilizes a writing implement in the form of a pen having a stapler body mounted thereto. The method comprises using the pen to write, using the stapler body and the pen to staple, and thereafter moving a cover over a staple exit aperture to temporarily block the staple exit aperture. A web or sheet is then slid between the stapler body and the pen, with the cover serving to prevent a stapling of the web or sheet.

It is contemplated that the web or sheet is a piece of fabric of an article of clothing, particularly a pocket element. In that case, the sliding of the web or sheet between the stapler body and the pen comprises inserting the pen into a pocket and clipping the pen to the pocket by the stapler body.

Pursuant to a feature of the present invention, the moving of the cover over the staple exit aperture includes pivoting the cover about an axis to swing the cover from a neutral storage position to an active staple blocking position. Alternatively, the moving of the cover over the staple exit aperture includes sliding the cover from a neutral storage position to an active staple blocking position.

Pursuant to another feature of the present invention, the pen and the stapler body are suspended via a lanyard inserted through a ring on one of the pen and the stapler body.

A writing or marking implement in accordance with the present invention is of great interest to trade shows and conventions, as a give away. The thumb portion of the stapler may be imprinted with a name or logo, such as the trade show organizer's name or the name of a trade show participant.

Various objects of the invention are as follows:

A more particular object of the present invention is to provide an improved writing or marking implement that includes a stapling component.

Another object of the present invention is to provide such an implement or tool that is convenient to use at trade shows.

In the world of trade shows, buyers typically walk around a convention floor with a pen in one hand and a pad in another and then are always fumbling around with a miniature stapler. The stapler is used to affix suppliers' business cards to the buyer's notes. Either the stapler or the pen is frequently left behind. This creates a significant inconvenience for buyers.

An associated object of the present invention is to provide a new and novel method of conducting business at trade shows, where marking and stapling are included steps or actions.

D1: US 2,295,603 (P. PURCHARD et al.) relates to stapling devices for clinching together papers or other sheet materials, and more in particular to small portable devices adapted to be carried in coat-pockets, either alone or when used in combination with writing implements, such as fountain pens or preferably, mechanical pencils, now in universal use. The stapling device having the shape of a mechanical pencil or the like and including a casing, a plunger, a follower to feed staples thereto, a resilient anvil having one end rigidly secured to said casing and the other end being free and flexible toward said plunger, and means positioned on said anvil to limit the movement of the follower toward said plunger.

D2 US 5,114,257 (Hsu et al) discloses a writing apparatus comprising a penholder with a ball refill retained therein for writing, and a staple driving mechanism incorporated therein for driving staples through paper as for binding pamphlets. The penholder of the writing apparatus comprises an elongated cartridge received inside an outer cylinder for holding ball refill and staples. The outer cylinder is comprised of two parts pivoted together, wherein the lower part has a matrix matching with the striking plate on the upper part for performing staple driving process. Two plate springs are provided to support the upper and lower parts of the outer cylinder in an opened position. A lock cap is pivoted to the lower part for releasably locking the upper and lower parts together when the staple driving mechanism is not in use.

Preferred embodiments:

As depicted in FIGS. 1-4, a writing or marking implement comprises a pen 10, a stapler body 12 mounted to the pen, a staple-bending anvil element 14, and a cover element 16. Stapler body 12 is provided with a staple exit aperture 18 (FIG. 4), while staple-bending anvil element 14 is attached to a casing 20 of pen 10 in alignment with staple exit aperture 18 when stapler body is disposed in a stapling configuration relative to pen casing 20 (FIGS. 1-3). Cover 16 is movably mounted to stapler body 12 in a region about staple exit aperture 18. Cover 16 serves to temporarily block staple exit aperture 18 and prevent an inadvertent stapling operation.

Cover 16 is pivotably mounted to stapler body 12. Stapler body 12 holds a staple magazine in a cartridge-containing part 22 and includes an ejection part 24 that is movably mounted to the cartridge part. Ejection part 24 acts as a hammer mechanism under a manually applied external force to eject a staple (not shown) from the magazine in part 22 through staple exit aperture 18 against anvil element 14. Cover 16 alternately swings between a neutral storage position 26 (FIG. 4) removed from staple exit aperture 18 and an active staple blocking position 28 (FIGS. 1 and 2) aligned with the staple exit aperture. In the staple blocking position 28, cover 16 prevents an inadvertent or accidental ejection of a staple. This feature is particularly beneficial where stapler body 12 is used as a clip to hold pen 10 (and stapler body 12) in a pocket. The pocket flap to which the pen is clipped is protected from being stapled.

Pen casing 20 carries anvil element 14 on an external surface and houses marking components such as an ink reservoir 30 (FIG. 3).

As illustrated in FIG.4, staple exit aperture 18 is an elongate slot, and cover 16 concomitantly includes an elongate plate element 32 extending generally parallel to the staple exit aperture. Cover 16 further includes a pair of ears 34 and 36 at opposite ends of plate element 32 for coupling the cover to stapler body 12 and more particularly to cartridge-containing part 22 for rotation about an axis parallel to staple exit aperture 18.

Pen 10 includes an ink applicator 40 such as a ball or felt tip at one end. At an opposite end, pen casing 20 is swingably connected to stapler body 12 via a pivot pin 42. That same end of pen casing 20 is provided with a ring 44 for receiving a lanyard (not shown). The lanyard enables the marking and stapling implement to be carried about the neck of the user. Alternatively, the lanyard may be used to couple the implement to an article of clothing via a button hole or a belt.

FIG. 5 illustrates an alternative embodiment with a cover 46 slidably mounted to cartridge-containing part 22 of stapler body 12. Cover 46 is alternately translatable, as indicated by a double-headed arrow 48, between a neutral storage position 50 spaced from staple exit aperture 18 and an active staple blocking position aligned with and blocking the staple exit aperture.

A person using pen 10 to write or mark items such as leaves of paper (not shown) and uses stapler body 12 together with pen casing 20 to staple the leaves of paper to one another. During this stapling operation, cover 16 or 46 is disposed in neutral storage position 26 or 50 spaced from staple exit opening 18. Thereafter cover 16 or 46 is shifted over staple exit aperture 18 to temporarily block the aperture. In the event that a web or sheet such as a piece of pocket fabric is then slid between stapler body 12 and pen casing 20, cover 16 or 46 serves to prevent a stapling of the web or sheet.

As indicated above, the moving of cover 16 over staple exit aperture 18 includes pivoting the cover about an axis (not shown) to swing the cover from neutral storage position 26 to active staple blocking position 28. In contrast, the moving of cover 46 over staple exit aperture 18 includes sliding that cover from neutral storage position 50 to an active staple blocking position located in alignment with staple exit aperture 18 and anvil 14.

Stapler body 12, and more particularly hammer or ejector element 24, includes a thumb-engaging enlargement 52. That enlargement may be imprinted on an upper surface with a name or logo or other identification indicia.

[End of document]

UNITED STATES PATENT OFFICE

2,295,603

STAPLING DEVICE

Paul Purchard, Pittsburgh, Pa.

Application September 23, 1938, Serial No. 231,322

10 Claims. (Cl. 1—49)

This invention relates to stapling devices for clinching together papers or other sheet materials, and more in particular to small portable devices adapted to be carried in coat-pockets, either alone or when used in combination with writing implements, such as fountain pens or, preferably, mechanical pencils, now in universal use.

One of the primary objects of this invention is to provide a stapling device using staples, preferably connected together by cementing, glueing, etc., to form strips comprising any desired number of staples.

Another object is to provide a stapling device in which staples are guided on all external sides for longitudinal travel within a staple-channel and automatically fed therein by a follower acting directly against the crown and both legs of the staples, thus preventing accidental toppling of the staples within the staple-channel, as is liable to occur when said follower acts, for instance, only on one part of the staples, such as the crown.

A further object of this invention is to provide a stapling device in which the vertical travel of the staples into clinching position is reduced to a minimum, thus also reducing the length and travel of the staple drive-plunger.

Yet another object is to provide a stapling device which may be loaded with staples at either end of the device and in which staples which have accidentally jammed or clogged the staple-channel may be quickly and easily removed.

A still further object is to provide a stapling device in which the staple drive plunger may be positively locked into retracted, inoperative, position either manually or automatically, and in which said plunger is also positively stopped in its upward travel.

Yet another object is to provide such a device having a staple clinching anvil which is flexible in the direction of the plunger travel, to thus reduce to a minimum the unguided vertical travel of the staples into clinching condition.

Additional features and advantages of this invention will be dealt with in the following description supported by the accompanying drawings, in which—

Fig. 1 is a longitudinal section through a stapling device constructed in combination with a mechanical pencil.

Fig. 2 is an enlarged cross-section taken substantially on line 2—2, Fig. 1.

Figs. 3 to 6 are similar views taken respectively on lines 3—3 to 6—6 in Fig. 1.

Fig. 7 is a top plan view of a special pocket-clip for the combination pencil and stapling device, especially intended for use when the barrel of the device is made of relatively soft material, such as hard-rubber or of synthetic resin.

Fig. 8 is a top plan view of the rigid anvil used in Fig. 1.

Fig. 9 is an end view of the anvil.

Fig. 10 is a top plan view of the core-member of the device shown in Fig. 1.

Figs. 11 and 12 are respectively end elevations of the so-called "pencil" and the "stapling" ends of the core, and

Fig. 13 is a side elevation of the latter.

Figs. 14 and 15 are respectively front and side elevation of the plunger used in Fig. 1.

Fig. 16 is a side elevation of the plunger-spring, and

Fig. 17 is a fragmentary top-view thereof.

Figs. 18 to 20 represent respectively a side view, an end elevation and a bottom plan view of the follower used in Fig. 1.

Fig. 21 is a top plan view of the spring and spring-rod for the follower, and

Fig. 22 is an end view of the "pencil"-end of Fig. 21.

Figs. 23 and 24 show respectively a side and an end elevation of a removable pencil separating shield which may be used to provide a storage magazine for pencil-leads, instead of using a separator integral with the core, as shown in Figs. 1, 2, 10, 11 and 13.

Fig. 25 is a fragmentary enlarged view, some parts being omitted, showing a modified construction of the device whereby the staple-plunger may be automatically locked into retracted position and released by direct downward pressure on the plunger.

Fig. 26 is an end elevation of the plunger used in Fig. 25.

Fig. 27 is a cross-section taken substantially on line 27—27 in Fig. 26.

Fig. 28 is a side elevation of the automatic lock-piston used in Fig. 25.

Fig. 29 is a longitudinal section showing a flexible staple-clinching-anvil, and

Fig. 30 is a top view thereof.

Fig. 31 is a fragmentary longitudinal section showing a stapling device incorporating the automatic plunger locking mechanism and the anvil shown in Figs. 25 to 30 inclusive.

Fig. 32 is another fragmentary longitudinal section showing another method of operating the plunger by means of a rack and spring actuated rack-gear, and

Fig. 33 is an enlarged sectional view taken substantially on line 33—33 in Fig. 32.

Fig. 34 is a cross-sectional view, on an enlarged scale, taken substantially on line 34—34 in Fig. 1 and illustrating a modified staple-channel.

Reference being had to the embodiment shown generally in Fig. 1, the combination pencil and stapling device comprises the following external parts: the casing or barrel 1 internally threaded at the "pencil-end" to receive the frusto-conical bushing 2 into which is secured in any desired manner a mechanical pencil-unit P of any suitable and desired commercial type. The other end of the barrel is also internally threaded, as at 3, to receive the end-plug 4 suitably machined to accommodate the lock-plug 5 which is preferably shaped to form a socket 6 for the eraser E and the eraser-cap C, if the last two elements be desired. On top of the barrel is the pocket-clip 7 and the staple-driving-plunger (hereafter called the "plunger") 8. Opposite the latter there is on the underside of the barrel the staple-clinching-anvil 9 (hereafter called the "anvil"), which in the present embodiment is assumed to be of the rigid type.

These and the other parts of the device will be more fully described hereinbelow.

The staples S, preferably grouped in the form of strips, are loaded and guided for longitudinal travel within the core-member 10, preferably made of die-cast light metal, such as aluminum, or of suitably machined extruded metal. As more fully detailed in Figs. 10 to 13, this core-member is of basically cylindrical form and fits snugly within the barrel 1 of the device. As close as practical near the bottom of the core there is provided throughout the core a rectangular staple-channel 11 in which the substantially U-shaped staples may slide, however with the least possible loose play.

This core extends closely to the inner end of the bushing 2 and is provided at the bottom with a slot 12 starting a short distance from the end and closed thereat by a transverse-stop 13, for purposes to be explained hereinafter.

At the top of the "pencil-end" of the core there is formed a thin, arcuate, separator 14 which accommodates the shank P' of the pencil-unit and forms a magazine M between the core and inner wall of the barrel, wherein pencil-leads L may be stored.

At the rear of the magazine the core is made cylindrical to form a partition 15 which also serves as a guide for the core within the barrel 1. On the other side of this partition the core is partly slotted longitudinally and axially, as at 16, to produce the flat boss 17 on which the inner end of the plunger leaf spring 18 may be secured in any desired manner, such as by screws or, preferably by dowel-pins 19 formed integrally with the core and engaging suitable holes provided therefor in said spring. Beyond the slot 16 the core is flat at the top, as at 20, and assumes to within a short distance of its "stapling-end" a substantially semi-cylindrical shape (Fig. 3) for the purpose of reducing the weight of the device and facilitate the insertion of the core in the barrel.

The "stapling-end" of the core-member again assumes a cylindrical shape and is provided with a longitudinal slot 21, reaching into the staple channel and forming the continuation of the slot 16. In the former slot the free portion of the plunger-spring is guided for free vertical flexing.

The face 22 of this end of the core is vertically slotted, as at 23, Figs. 10, 12 and 13, to act as a guide for the transversely reciprocable plunger, and the depth of this slot is equal, or slightly greater, than the width of a staple-unit or the blade of the plunger. The latter is guided at the rear by the flat face of the end-plug 4 which abuts directly against the end 22 of the core and which also acts as a stop and guide for the staple next to be used.

The strip of staples in the channel 11 is automatically fed toward the plunger by means of the follower 24, slidable within the staple-channel and acted upon by the feed-spring 25 placed around the spring-rod 26. This rod passes freely through a suitably shaped aperture 27 provided in the end-wall 28 of the follower and is preferably made of non-circular cross-section in order to prevent the follower from turning about the spring-rod.

As shown in Figs. 1, 31 and 32, the end of the spring-rod 26 extends a relatively considerable distance within the follower (when the latter is in its most outward position, very close to the blade of the plunger 8) and it is provided with lateral stop-lugs 29 for a purpose to be described hereinbelow.

The "pencil-end" of the flat spring-rod 26, shown especially in Figs. 1, 21 and 22, is twisted at right angles to its main portion; it is provided with a V-shaped notch 30 and is preferably bent slightly downward to clear the shank P' and so that the lower prong 31 of the notch may engage the transverse stop 13. As shown in particular in Fig. 10, the outer end of the slot 12 is preferably recessed into a substantially V-shape, as at 32, to properly center the spring-rod at that end.

Upon the spring-rod there is suitably located a washer 33, backed by a pin 34; between said washer and the end wall of the follower the spring 25 is inserted, under a suitable initial compression.

The just described construction of the staple feed mechanism offers the following advantages:

First, pencil-leads may be taken out of the magazine M without the whole staple feed mechanism being forced out of the barrel due to the compression in the feed-spring, the force of which being greatest when a full strip of staples is present in the staple-channel.

Second, when the last staple has been used and it becomes necessary to reload the device, the notched end of the spring-rod may be easily disengaged from the transverse-stop 13, thereby allowing the spring 25 to force out the spring-rod an amount equal to the distance between the stop-lugs 29 on the rod and the end-wall 28 of the follower. This brings the notched end of the rod out of the barrel where it may be readily grasped to extract the complete feed mechanism for inserting a new strip of staples into the channel 11.

The upper prong 31^a at the notched end of the spring-rod is preferably so proportioned that it may be inserted in the bore for the pencil-lead at the small end of the tip of the pencil-unit P, and the latter used to disengage the spring-rod.

The staple-strip is, of course, inserted in the channel with the crown on top and the staple legs directed downwardly; by ascertaining that the prong 31 of the spring-rod be disposed toward the transverse-stop 13, the follower will also be inserted properly in the channel, because of its non-rotatable assembly on the spring-rod.

Thirdly, if a stationary stop, such as the trans-

verse-stop 13 for the spring-rod were not used and the latter were allowed to press directly against the removable bushing 2, every time the same were removed to extract a pencil-lead, said rod would, as already stated, spring out of the barrel; moreover the screwing-in of said bushing would be more difficult because of the resistance of the spring 25, and the friction created by the latter against the bushing would eventually cause a deformation of the spring-rod which would be detrimental to the free sliding movements of the follower thereon.

It will also be noted that the staple-strip may be quite easily inserted when the open end of the barrel is held topmost, thus preventing the spilling of the pencil-leads which may be stored in the magazine M.

The plunger 8 used in Fig. 1 is more fully detailed in Figs. 14 and 15. It comprises a plunger-head 35 upon which the user of the device presses with his thumb; to said head is secured, either by riveting or by integral formation, the plunger-blade 36 of a thickness substantially equal to the longitudinal width of a staple unit. The lower, active, end of said blade performs the severing and clinching of the staples and may be made either straight or suitably curved inwardly, as at 37, to concentrate the pressure on the staple-legs and also favor the inward folding thereof, as will be understood by persons versed in this art.

The plunger is preferably slightly bevelled on the side facing the staples, as at 38, in order to prevent more than one staple being severed at one time from the staple-strip. The plunger-blade is preferably reinforced by a central rib 39 extending from the head downwardly to a point slightly above the top of the staple channel. This rib forms also an abutment for the free end of the plunger-spring 13 which normally tends to raise the plunger. The upper portion of the plunger-blade is somewhat reduced to produce the shoulders 40 which limit the upward travel of the plunger, and, at a point corresponding with the axis of the barrel, there is provided a round hole 41 to lock the plunger into retracted, inoperative position, as will be described herebelow.

The plunger-spring 13, as shown in Figs. 16 and 17 in particular, comprises a base 42 fitting snugly in the slot 16 of the core and having suitably spaced holes 43 for the dowel-pins 19. The end of this base is preferably folded upwardly and reduced in parts to produce a secondary spring 44 adapted to yieldingly bear against the inner periphery of the barrel, thus holding the plunger-spring on the boss 17 and resisting the reaction due to the downward flexing of the free-end 45 of said plunger-spring. Preferably, this end is made narrower than the base of the spring and closely engages a recess 39^a provided in the reinforcing-rib 39, to obviate transverse wobbling of the plunger.

The anvil 9, shown in Figs. 1, 8 and 9 in particular, is of the rigid type; it comprises the main body 46, inwardly shaped to conform with the contour of the barrel, and the tongue 47, the end of which has a suitably shaped compound curve 48 to promote the folding of the staple-legs, when pressure is exerted on the plunger. This curve may be so shaped as to cause the outward folding of the staple-legs or else, as assumed in this embodiment, the inward folding thereof.

The anvil is fastened to the barrel and the lower side of the core in any desired manner, such as by screws or the countersunk rivets 49

and 50. The latter has an extension 51 (Fig. 1) protruding into the channel 11 and acting as a stop for the follower 24, to prevent same from getting in the path of the plunger-blade and thus insure unobstructed operation thereof.

To accommodate this extension, a groove 24^a closed at one end is provided in the lower side of the follower.

The flexible anvil 52 (Figs. 29 and 30) differs from the rigid one only in that the tongue portion 53 is made longer and flexible in the direction of travel of the plunger, so that when pressure is exerted on the anvil by the fore-finger (while the plunger is being depressed by the thumb) it will flex upwardly and practically close-up the paper-feed-slot, or gap G into which sheets to be stapled together are inserted, and thus eliminate any unguided travel of the staples.

The holes 54 provided on top of the flat portion of the core permit the insertion of the rivets 49 and 50 into the suitably drilled and countersunk bottom of the staple-channel.

As shown in the drawing, the barrel is preferably partly ground off, as shown by dot and dash lines at 55, directly above the anvil-tongue to reduce the travel of the plunger and staples. The extreme end of the barrel is left intact, as at 56, preferably, to increase its strength and more securely hold the threaded-on end-plug 4.

When using a flexible anvil, an additional pin or rivet may be used to accurately stop the travel of the follower toward the plunger. This rivet may be driven directly in the barrel and core, if desired, but in the drawings the rivet 57 is shown located in the anvil-tongue, to serve also as a limit stop for the sheets of paper inserted in the gap G; in this case, the barrel and core are suitably drilled to freely accommodate the protruding end 57^a of the rivet. Moreover, the shoulder produced on the rivet, at the base of said end, serves as a stop to limit the flexure of the anvil in the direction of the plunger, as shown in broken lines in Fig. 31.

Because of the support given by the fore-finger to the anvil, the latter is not heavily stressed during the act of stapling and may therefore be stamped and pressed out of relatively thin and flexible metal, preferably hard brass or stainless steel.

When not in use, the plunger 8 is locked in its depressed position by means of a lock-pin 58, engaging the hole 41 in the plunger and driven centrally in the lock-plug 5 and passing also through a central guide-hole provided in the end-plug 4.

The threaded connection between the end-plug and the lock-plug shown in Figs. 1 and 6 is of the well known and quick acting "breech-lock" type which requires only a fractional turn of the lock-plug to either quickly engage the lock-pin with the plunger or release same. A spring 59 within the lock-plug is used to force the lock-pin out of engagement with the plunger. If desired, other equivalent quick acting means, such as a pin and slot connection of the bayonet type (not shown) could be used to effect a quick operation of the lock-pin.

In the construction used in Fig. 32, the end-plug and the lock-plug are provided with continuous internal threads of relatively great pitch, to reduce the rotation of the lock-plug to one turn or less.

In order to prevent the loss of the coarsely threaded lock-plug, stop means such as the tangential pin 60 may be used, said pin permitting

only the axial movement of the lock-plug actually required thereby for proper functioning.

The pocket-clip 7 shown in the drawings is preferably made of thin but hard metal, such as bronze or stainless steel and is especially designed for use with barrels made of relatively soft material, such as hard rubber or some synthetic resin, unable to resist the abrasive action of the hardened steel plunger.

As shown in Fig. 7, the pocket-clip comprises the clip-finger 61 and the saddle-base 62 shaped to fit the barrel and in which a substantially cruciform slot 63 is provided, said slot comprising the narrow and deep part 64 which slidably guides the rib 39 of the plunger, the wide part 65 provided to allow the insertion of the wide and lower part of the plunger-blade 35, and the outer part 66 which guides the narrow upper part of the plunger-blade.

After the plunger has been introduced in the barrel and core, the clip is moved over so that the narrow part of the plunger-blade will nest into the slot 66 for proper guidance. The upward travel of the plunger is then limited by the shoulders 40 thereon striking against the lateral sides of said slot. Holes 67 are provided in the saddle base for rivets or screws 68 whereby the clip may be fastened to the barrel and core.

It will be noted that this clip practically hides from sight the protruding free end of the raised plunger-spring and the oblong slot 69 cut in the barrel therefor. Of course, apertures are provided in the barrel to register with the slot 63 in the saddle-base and for the lower end of the plunger-blade which, necessarily must protrude below the underside of the barrel.

As plainly shown in Fig. 1, for instance, the plunger-head fits closely to the pocket-clip and is preferably made somewhat higher than the latter in order to improve the appearance of the device and concentrate the pressure exerted by the user on the plunger when clinching papers together.

When the barrel is made of abrasion resisting material, such as metal, the above mentioned slot 63 and the saddle-base 62 of the clip may be omitted, and a clip of any suitable conventional design may be used.

In order to simplify the die-casting of the core-member, it may be found advisable to eliminate the integral separator 14, to slot the corresponding end of the core in order to accommodate the shank P' and to introduce the arcuate pencil-shield 70, shown in Figs. 23, 24, made of sheet material thinner than could be die-cast economically. This thinner shield, will of course increase the storage capacity of the magazine M.

The plunger locking mechanism, shown in Figs. 25 to 28 and 31, may be called automatic, in so far as it does not require special manipulation of the above described lock-plug 5, which plug is in fact eliminated, but whereby the locking of the plunger is controlled exclusively by the latter. The operation of this mechanism is based on the fact that, when in use, the plunger can only be depressed as far as the thickness of the sheets of paper and the combined thickness of the crown and legs of the staple inserted in the feed-gap G will permit.

The plunger 71 (Figs. 25, 26 and 27) has at the end of the stiffening-rib 39 an extension rib 72, in which a wide groove 73 and a narrow groove 74 are cut co-axially with the plunger. A suitably bent latch-spring 75 is riveted at 76

to the plunger and fits within the large groove 73. This latch has a longitudinal slot 77, open and rounded off at its lower end, and provided with two connecting holes 78 and 79; the lower hole 78 being co-axially disposed with the barrel, when the plunger is depressed into locking position.

The lock-piston 80 used in this embodiment is placed co-axially in the end-plug 81 and comprises a rear-shank 82, the large collar 83, an intermediate stem 84 thin enough to freely engage the open slot 77, a stop-head 85 larger than the hole 78 but smaller than the hole 79 and a lock-pin 86 wider than the latch-slot 77 but smaller than the hole 78 and the plunger-groove 74. A spring 87 is used to force the piston into locking position, and a disc 88, centrally apertured at 89 to guide the stop-head is inserted in the face of the end-plug, the latter being suitably threaded for the barrel 1 and provided with a socket 6 for the eraser E and its cap C.

The operation of this locking mechanism is as follows: Starting from the position shown in Fig. 25, it will be seen that the lock-pin 86 is just outside of the latch 75 and that, when papers are inserted in the gap G for stapling, the plunger 71 will not go deep enough for the stop-head 85 to engage the larger hole 79. Hence, this plunger may be operated freely and without locking.

When it is desired to lock the plunger into inoperative position (there being, of course, neither papers nor staple in the gap G), it may be depressed further so that the lock-pin 86 may engage the lower hole 78 and thus lock the staple-plunger, the lower end of which will reach only partly into said gap.

To release the plunger, further pressure is exerted thereon to fully depress it way-down to the anvil, thereby causing the stop-head 85 to freely enter the larger hole 79, and said head, due to the force of the coil-spring 87, will come behind the latch 75 and rest on the edge of the plunger-groove 74, thus bringing the thin stem 84 in line with the slot 77 in the latch. Thumb-pressure on the plunger is now eliminated and the powerful plunger-spring 18, overcoming the slight resistance offered by the spring-latch 75, will force the plunger up into raised position and bring the lock-pin 86 again in the position shown in Fig. 25.

It will be noted that in this construction the lock-plug 5 used in the first embodiment has been eliminated. It will also be observed that the rib-extension 72 (which is made narrower than the length of the staple-crown) will force the staple-strip back into its channel, an amount equal to the height of said extension over the plunger-blade, each time a staple is severed by the latter; for this reason the lower end of the extension facing the strip of staples is gradually tapered off, as at 90.

The modified design shown in Figs. 32 and 33 differs from the first one in that the leaf-spring 18 for the plunger is replaced by a gear and rack mechanism comprising the gear 91, freely mounted on the arbor 92 and actuated in a counterclockwise sense by the double torsion-spring 93. This gear meshes with a rack 94 countersunk longitudinally in the stiffening-rib of the plunger 95 so as not to come directly in contact with the staples. Downward pressure on the plunger will tighten said spring which, when the plunger is released, will force the latter up

into staple-feeding position, as will be readily understood.

If desired, the rack-gear may be provided with an untoothed portion 96 which will limit the counterclockwise rotation of the gear, and hence, the upward travel of the plunger.

In this construction, the stiffening-rib of the plunger will also push the staple-strip back into its channel every time the plunger is depressed, and to facilitate the proper operation of the latter, its lower end opposite the staple-strip is also gradually beveled off, as plainly seen in Fig. 32, at 98.

If desired and as shown in Fig. 34, the diameter of the core member, and hence the inside diameter of the barrel, may be slightly reduced by making the staple-channel 97 in the core 10^a open at the bottom and using the inside of the barrel as the lower guide for the legs of the staples S. The "pencil-end" of this core (when a pencil-shield 70 is used) will then consist of only two spaced vertical sides which are preferably joined together, for greater strength and to facilitate the insertion of the core into the barrel, by means of an integral transverse-stop 13^a, against which the spring-rod 26 abuts.

The end-plugs 4 and 81 are removably screwed in the barrel so that staples which may accidentally clog the staple-channel may easily be shaken out, or forced out by the feed-spring 25, when the plunger is in its raised position.

If desired, the staple-strip may be inserted into the device from the "stapling-end," by forcing said strip against the pressure exerted by the feed-spring 25. However, the method of loading from the "pencil-end" of the device will generally be found more convenient and will not subject the staple-strip to undue stresses liable to fracture it.

In the various embodiments shown the longitudinal axis of the staple-channel is set as far as possible below the axis of the barrel and core-member, in order to reduce the travel of the plunger and staples, and also to provide better guidance for the plunger when in raised position and ample space above the staple-channel for the spring mechanism of the plunger, thus reducing the length of the slot 69 (Fig. 1) in the barrel which accommodates the protruding end of the plunger-spring 13.

From the foregoing description, it is thought that persons versed in the art will understand the operation of the various embodiments of this invention disclosed very easily and that, therefore, an explanation thereof may be dispensed with.

It is evident that various novel features described hereinabove may be applied to stapling devices other than such used in combination with writing implements, by simply changing the size or proportions of the structural elements.

Many changes in the precise construction, arrangement and combination of the various parts may be made without departing from the field and scope of the claims of this invention, and it is intended to include all such changes in this application.

I claim:

1. In a stapling device having the shape of a mechanical pencil or the like and including a casing, a plunger, a follower to feed staples thereto, a resilient anvil having one end rigidly secured to said casing and the other end being free and flexible toward said plunger, and means

positioned on said anvil to limit the movement of the follower toward said plunger.

2. In a stapling device having the shape of a mechanical pencil or the like and including a casing, a plunger, a follower to feed staples thereto, a resilient anvil having one end rigidly secured to said casing and the other end being free and flexible toward the plunger, and unitary means to limit the movement of the follower toward said plunger and also limit the insertion within the device of the material to be stapled.

3. In a stapling device having the shape of a mechanical pencil or the like and including a casing, a plunger, a follower to feed staples thereto, a resilient anvil having one end rigidly secured to said casing and the other end being free and flexible toward said plunger, and unitary means positioned on said anvil to limit the movement of the follower toward said plunger and also limit the insertion within the device of the material to be stapled.

4. In a stapling device having the shape of a mechanical pencil and the like, a core-member having a rectangular longitudinal channel to receive staples and guide same exteriorly, a casing for said core-member; a plunger reciprocable normally to said core-member; an anvil cooperating with the plunger to clinch the staples; a follower slidable within said channel; a guide-rod of substantially rectangular cross-section freely engaging the follower; a stationary abutment positioned on the core-member for said guide-rod; a washer fixedly mounted on the guide-rod intermediate said washer and follower to force same toward the plunger; stop-means formed integrally with the guide-rod and at one end thereof to prevent disengagement of the follower therefrom, and means at the other end of the guide-rod adapted to releasably engage said stationary abutment.

5. In a stapling device having the shape of a mechanical pencil or the like and including a casing, a plunger, a follower to feed staples thereto, a resilient anvil having one end rigidly secured to said casing and the other end being free and flexible toward said plunger, and unitary means positioned on said anvil to limit the flexure thereof toward said plunger and also limit the insertion within the device of the material to be stapled.

6. In a stapling device having the shape of a mechanical pencil or the like and including a casing, a plunger, a follower to feed staples thereto, a resilient anvil having one end rigidly secured to said casing and the other end being free and flexible toward said plunger, and unitary means positioned on said anvil to limit the movement of said follower and the flexure of the anvil toward said plunger and also limit the insertion within the device of the material to be stapled.

7. In a stapling device, a core-member having a substantially rectangular longitudinal channel to receive staples and normally guide same for sliding movement of the legs thereof along the bottom of said channel; a casing for said core-member; a plunger reciprocable normally to the core-member; an anvil cooperating with the plunger to clinch staples; a follower slidable within said channel; a non-cylindrical guide-rod positioned within said channel and freely engaging the follower; a stationary abutment for the guide-rod; a spring-abutment on the guide-rod, and a spring positioned thereon intermediate the

spring-abutment and the follower to force same toward the plunger.

8. In a stapling device, a core-member having a substantially rectangular longitudinal channel to receive staples and normally guide same for sliding movement of the legs thereof along the bottom of the channel; a casing for said core-member; a plunger reciprocable normally to the core-member; an anvil cooperating with the plunger to clinch the staples; a follower wholly slidable within said channel; a guide-rod of substantially flat rectangular cross-section positioned within said channel and freely engaging the follower; a stationary abutment positioned on the core-member for the guide-rod; a spring-abutment on the guide-rod; a spring positioned thereon intermediate said spring-abutment and the follower to force same toward the plunger; stop-means at one end of the guide-rod to prevent disengagement of the follower therefrom, and means integral with said rod adapted to releasably engage said stationary abutment.

9. In a stapling device, a core-member having a substantially rectangular longitudinal channel to receive staples and normally guide same for sliding movement of the legs thereof along the bottom of the channel; a casing for said core-member; a plunger reciprocable normally to the core-member; an anvil cooperating with the plunger to clinch the staples; a follower wholly slidable within said channel; a guide-rod of substantially flat rectangular cross-section positioned within the channel and freely engaging the follower; a stationary abutment positioned on the core-member for the guide-rod; a spring-abutment on said rod; a spring positioned on

the guide-rod intermediate the spring-abutment and the follower to force same toward the plunger; stop-means formed integrally with the guide-rod at one end thereof to prevent disengagement of the follower therefrom, the other end of the guide-rod being twisted substantially at right angles to the main body thereof and adapted to releasably engage said stationary abutment.

10. In a stapling device, a core-member having a substantially rectangular longitudinal channel to receive staples and normally guide same for sliding movement of the legs thereof along the bottom of the channel; a casing for said core-member; a plunger reciprocable normally to the core-member; an anvil cooperating with the plunger to clinch the staples; a follower wholly slidable within said channel; a guide-rod of substantially flat rectangular cross-section positioned within said channel and freely engaging the follower; a stationary abutment positioned on the core-member for the guide-rod; a spring-abutment on said rod; a spring positioned on the guide-rod intermediate the spring-abutment and the follower to force same toward the plunger; stop-means formed integrally with the guide-rod at one end thereof to prevent disengagement of the follower therefrom; the other end of the guide-rod being twisted substantially at right angles to the main portion thereof and adapted to releasably engage said stationary abutment, and a projection positioned on said twisted end providing a hold for releasing the guide-rod from said stationary abutment.

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Sept. 15, 1942.

P. PURCHARD
STAPLING DEVICE

2,295,603

Filed Sept. 23, 1938

3 Sheets-Sheet 1

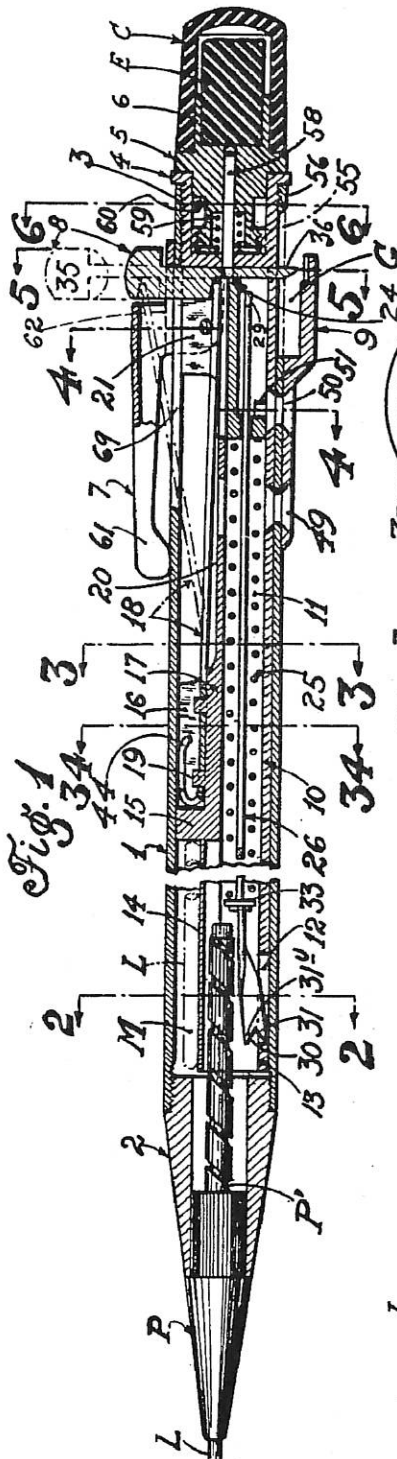


Fig. 1

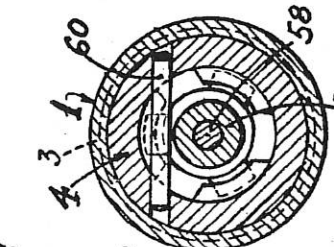


Fig. 2

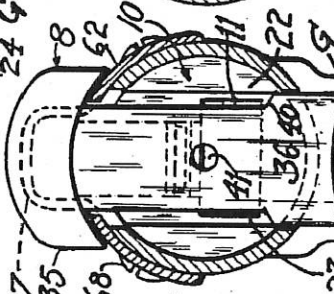


Fig. 3

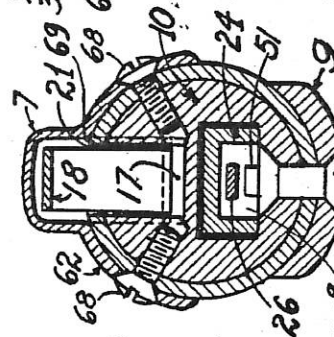


Fig. 4

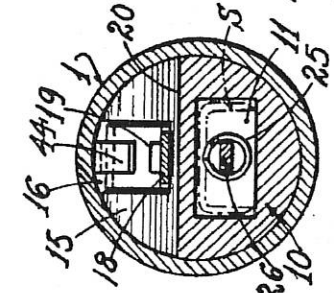


Fig. 5

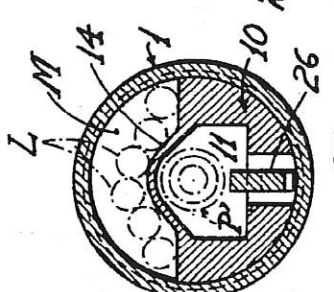


Fig. 6



Fig. 7

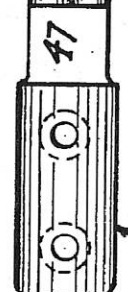


Fig. 8



Fig. 9

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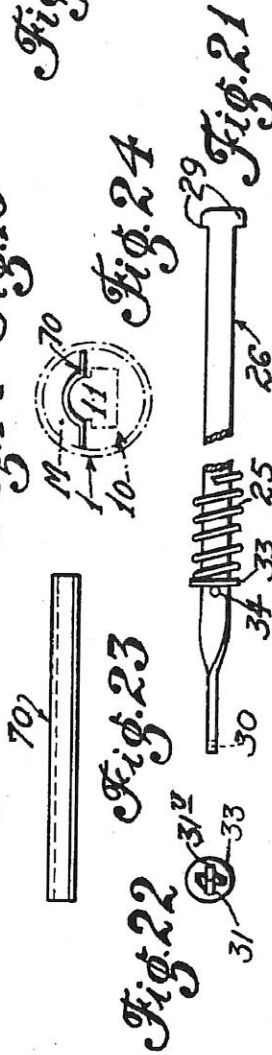
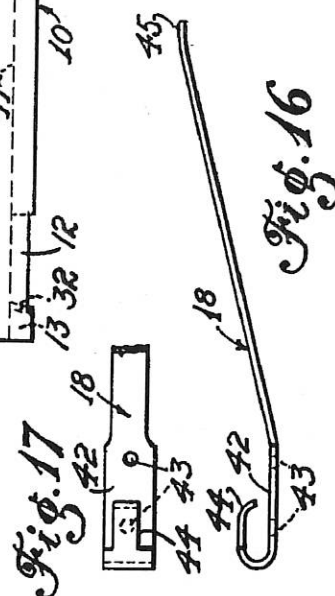
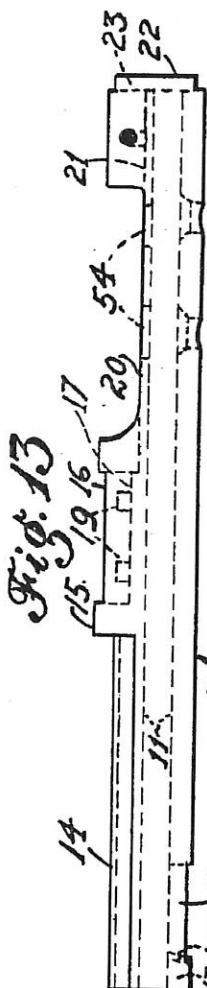
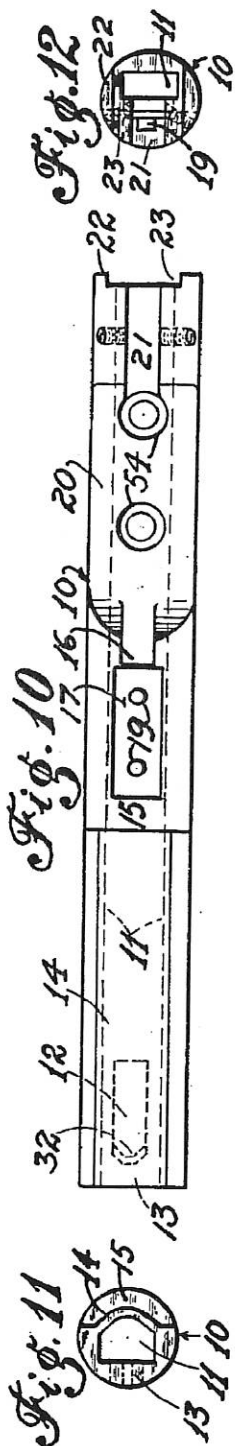
Sept. 15, 1942.

P. PURCHARD
STAPLING DEVICE

2,295,603

Filed Sept. 23, 1938

3 Sheets-Sheet 2



Paul Purchard
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Sept. 15, 1942.

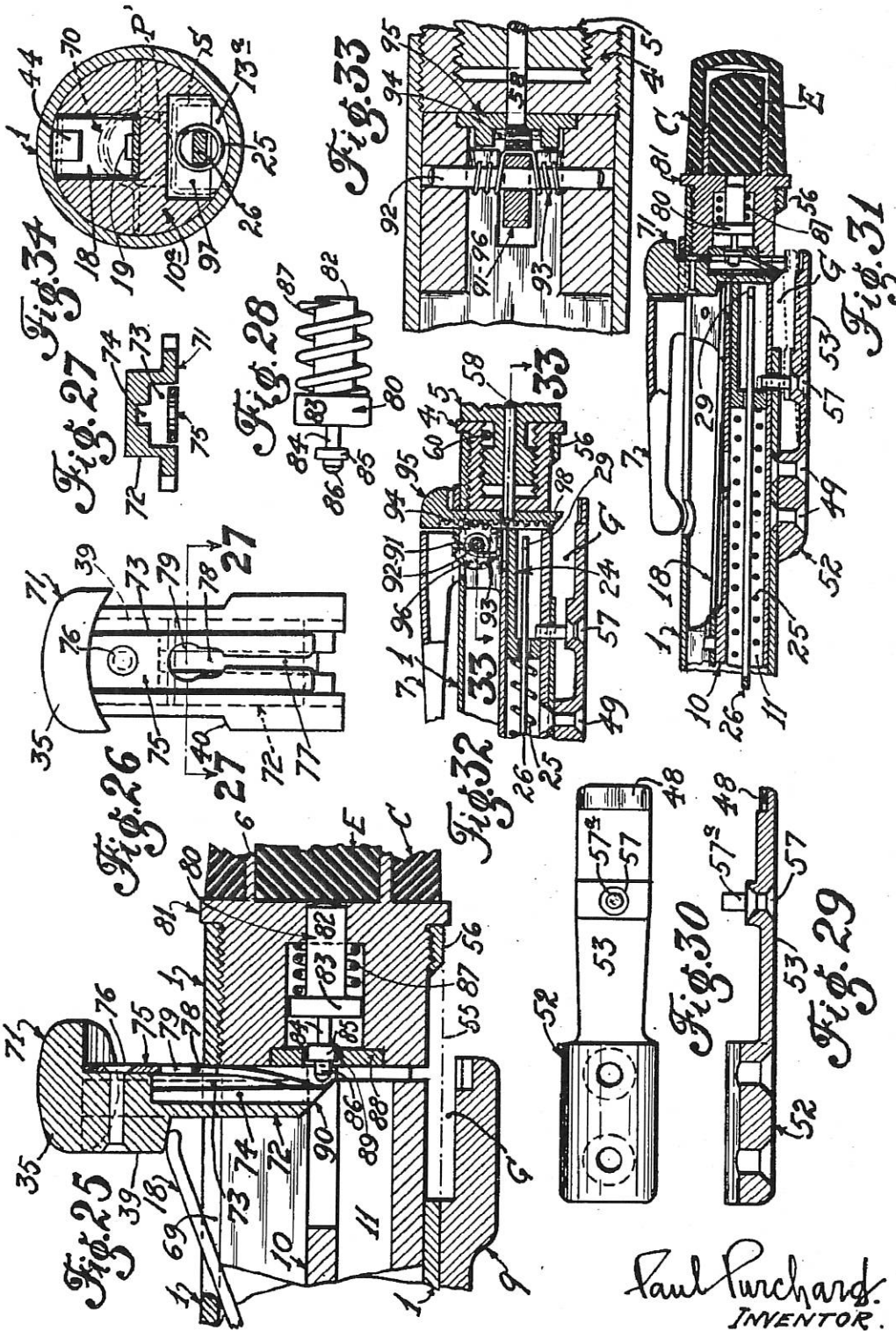
P. PURCHARD

2,295,603

STAPLING DEVICE

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3 Sheets-Sheet 3



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US005114257A

United States Patent [19]

[11] Patent Number: **5,114,257**

Hsu

[45] Date of Patent: **May 19, 1992**

[54] **WRITING APPARATUS WITH STAPLER INCORPORATED THEREIN**

FOREIGN PATENT DOCUMENTS

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899727 6/1962 United Kingdom 401/195

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Attorney, Agent, or Firm—Varndell Legal Group

[21] Appl. No.: 669,703

[57] ABSTRACT

[22] Filed: Mar. 15, 1991

A writing apparatus comprising a penholder with a ball refill retained therein for writing, and a staple driving mechanism incorporated therein for driving staples through paper as for binding pamphlets. The penholder of the writing apparatus comprises an elongated cartridge received inside an outer cylinder for holding ball refill and staples. The outer cylinder is comprised of two parts pivoted together, wherein the lower part has a matrix matching with the striking plate on the upper part for performing staple driving process. Two plate springs are provided to support the upper and lower parts of the outer cylinder in an opened position. A lock cap is pivoted to the lower part for releasably locking the upper and lower parts together when the staple driving mechanism is not in use.

[51] Int. Cl.⁵ B26B 11/00; B43K 29/00; B43K 25/00; B25C 7/00

[52] U.S. Cl. 401/195; 401/52; 7/160; 7/170; 227/156

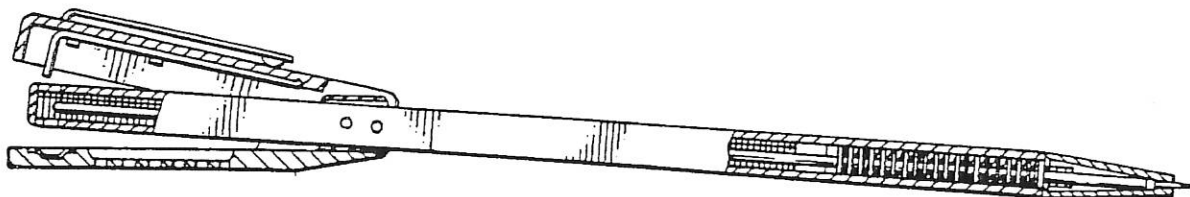
[58] Field of Search 227/156; 7/160, 170; 401/195, 52, 6

[56] References Cited

U.S. PATENT DOCUMENTS

1,404,138 1/1922 Perrotti 401/52
2,295,603 9/1942 Purchard 401/52 X
2,695,407 11/1954 Goodstein 227/156

2 Claims, 4 Drawing Sheets



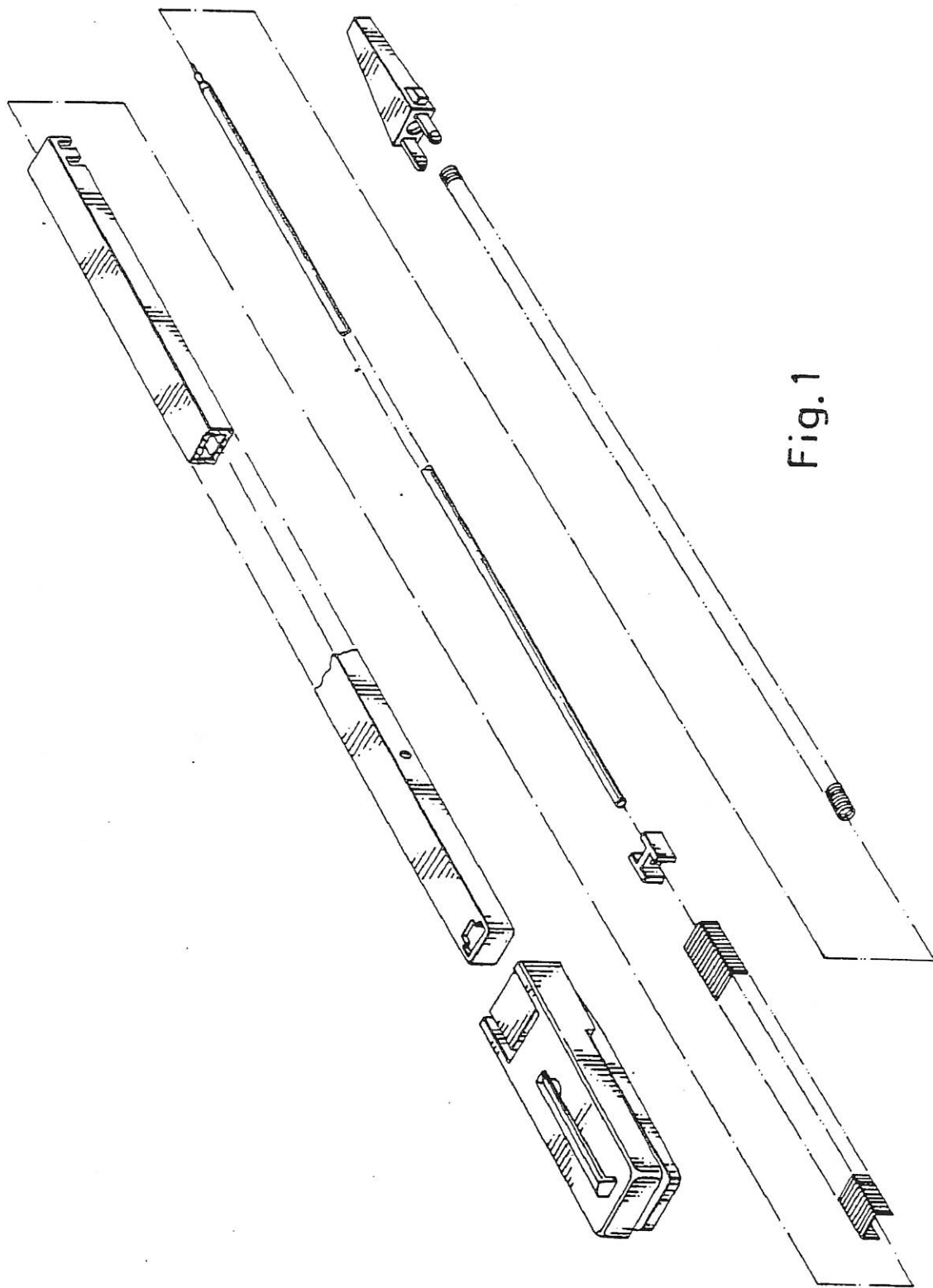


Fig. 1

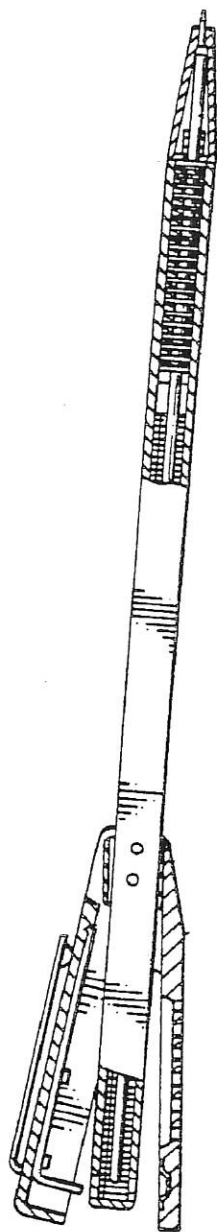


Fig. 2

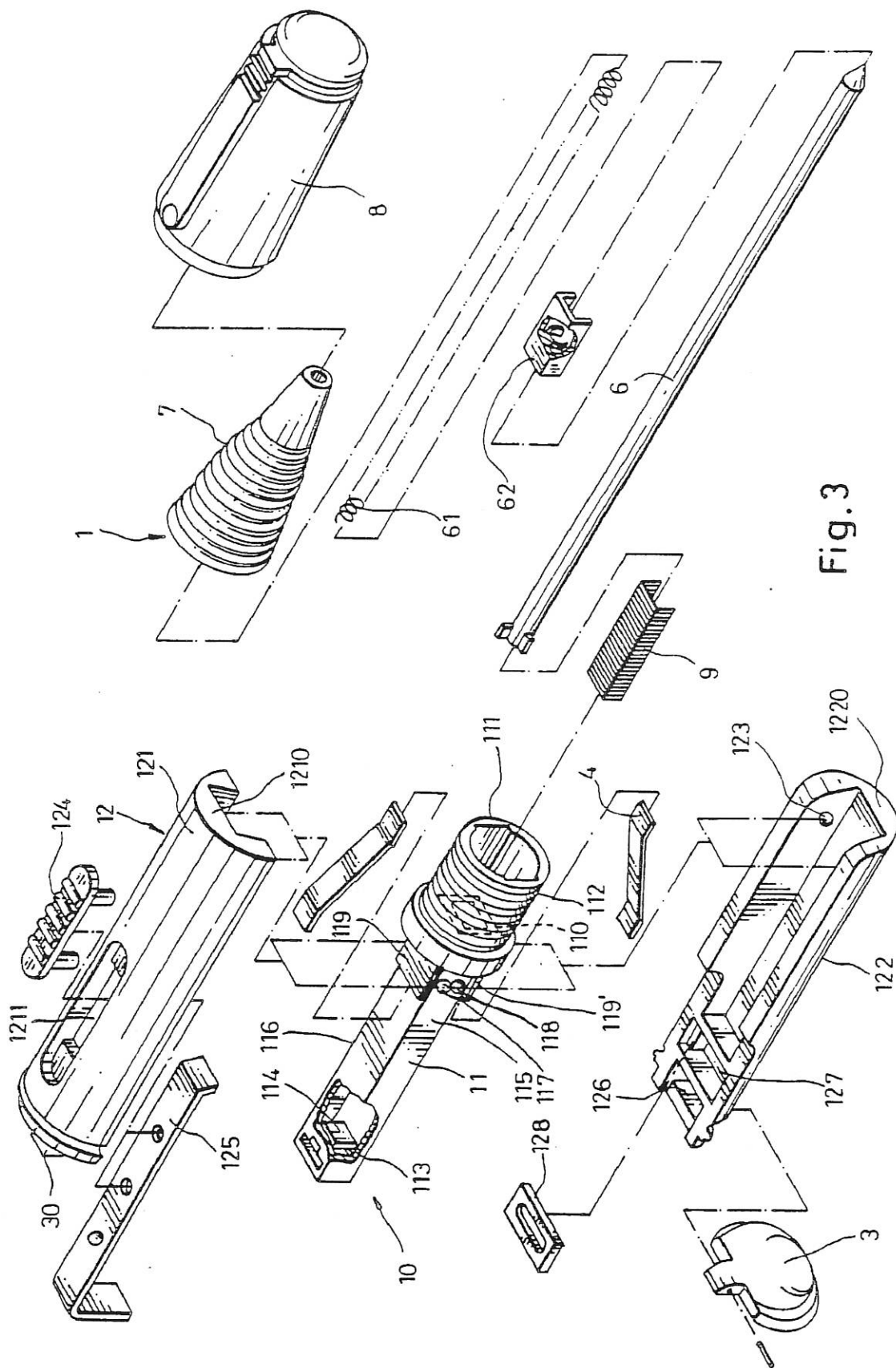


Fig. 3

WRITING APPARATUS WITH STAPLER INCORPORATED THEREIN

BACKGROUND OF THE INVENTION

The present invention relates to writing apparatus, and more particularly relates to a writing apparatus with stapler incorporated therein which comprises an outer penholder which is comprised of two parts pivoted together with one incorporated with a striking plate and the other incorporated with a matrix for driving staples out of an inner penholder for binding pamphlets.

Many writing apparatus manufacturers have been trying every method to fully utilize the space of the penholder of a writing apparatus. For examples, pen watch is to incorporate a watch into a pen, pen lighter is to incorporate a lighter to a pen. In German Patent No. G8815691.5, there is disclosed a pen and stapler combination set, as shown in FIGS. 1 and 2, in which a mini-stapler is attached to the top end of a ball-point pen for binding pamphlets. However, this structure is not satisfactory in use because it is just merely attach a regular mini-stapler to a pen. One disadvantage of this structure is that it occupies much space and is not convenient for carrying because the staple driving mechanism is disposed externally at one end of the pen. Another disadvantage of this structure is that it is not inconvenient in writing due to heavy load of the staple driving mechanism at the top end of the pen opposite to the ball-point nib of the ball refill therein. Still another disadvantage of this structure is that the two pivoted plates of the staple driving mechanism may be detached from each other easily when they are relatively bent to open during operation. Still another disadvantage of this structure is that the ball refill may be erroneously triggered when the writing apparatus is fastened in one's pocket, causing the ball-point nib thereof to project out of the penholder to further contaminate the clothes.

The present invention has been accomplished under the circumstances in view. It is therefore an object of the present invention to provide a writing apparatus with stapler incorporated therein which is practical in use and convenient for carrying. It is still another object of the present invention to provide a writing apparatus with stapler incorporated therein wherein the stapler is protected from outside when it is not in use.

SUMMARY OF THE INVENTION

According to the present invention, there is provided a writing apparatus comprising an outer cylinder having two parts pivoted together for holding a ball refill holder which is simultaneously serving as a staple cartridge. Two plate springs are provided to support the two pivoted parts of the outer cylinder in a relatively opened position. A stop plate is made inside the ball refill holder to firmly retain the ball refill in position. A striking plate and a matrix are respectively attached to the two pivoted parts of the outer cylinder for performing staple binding process. A lock cap is provided to lock the two pivoted parts together when the staple driving mechanism is not in use.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective dismantled view of a writing apparatus with stapler according to the prior art;

FIG. 2 is a perspective assembly and partly sectional view of the writing apparatus with stapler shown in FIG. 1;

FIG. 3 is a perspective dismantled view of the preferred embodiment of the present invention; and

FIG. 4 is a perspective assembly and partly sectional view of the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 3, there is shown the preferred embodiment of the writing apparatus 1 of the present invention in which the penholder which is designated at 10 is generally comprised of a ball refill holder 11 and an outer cylinder 12. The ball refill holder 11 is an elongated cartridge defining therein a channel at the top for mounting staples 9, having an outer thread 112 on a hollow cylinder 111 at the staple feeding end 110 thereof for mounting a front socket 7 through screw joint which front socket 7 is further covered with a cap 8. A ball refill 6 is longitudinally set in the channel of the elongated cartridge of the ball refill holder 11 with a spring 61 and a feed slide 62 mounted thereon to automatically push the staples 9 into a striking position. A staple outlet hole 113 is made on the ball refill holder 11 at the end opposite to the staple feeding 110 through which staple can be driven out for binding paper. A stop plate 114 which allows staples 9 to slide thereover during striking process is made inside the ball refill holder 11 near the staple outlet hole 113 to stop the ball refill 6 in position. The outer cylinder 12 is comprised of two symmetrical parts 121 and 122 having each two opposite pivot holes 123 for mounting the ball refill holder 11 which has two raised portions 117 and 118 on each of the two opposite side walls 115 and 116 thereof. By fastening the raised portions 117 and 118 in the pivot holes 123, the two symmetrical parts 121 and 122 are respectively secured to the ball refill holder 11. Two clamping plates 119 and 119' are respectively mounted in the hollow cylinder 111 at two opposite locations for holding two plate springs 4 which support the two symmetrical parts 121 and 122 in a relatively opened position, permitting the ends 1210 and 1220 of the two symmetrical parts 121 and 122 near the raised portions 117 and 118 or the pivot holes 123 thereof to respectively pivot to the hollow cylinder 111 of the ball refill holder 11. Further, there is a sliding slot 1211 made on the upper part 121 of the outer cylinder 12 for mounting a slide button 124 to movably secure a striking plate 125 thereto, a receiving trough 126 and a bearing trough 127 respectively made on the lower part 122 of the outer cylinder 12. The receiving trough 126 is provided for keeping staples and the bearing trough 127 is provided for mounting a matrix 128 to match the striking plate 125 for performing staple binding process. There is also a lock cap 3 pivotably connected to the lower part 122 of the outer cylinder 12 at the end 1220. When the upper and lower parts 121 and 122 are connected together, the lock cap 3 is locked by a hook 30 on the end 1210 of the upper part 121 to firmly retain the outer cylinder 12 into shape permitting the ball refill holder 11 to be completely concealed out of view. When not in use, the cap is attached to the front socket 7 with the outer wall surface thereof fitting flush with the outer wall surface of the outer cylinder 12.

I claim:

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1. A writing apparatus comprising a penholder with a ball refill retained therein for writing, and a staple driving mechanism incorporated therein for driving staples through paper as for binding pamphlets, characterized in that:

said penholder is comprised of a ball refill holder set inside an outer cylinder, said ball refill holder being an elongated cartridge having one end closed and an opposite end opened for feeding of staples, a channel defined therein for keeping said ball refill and said staples, an outer thread on said opened end for mounting a front socket through screw joint through which the ball-point nib of said ball refill projects for writing, a staple outlet hole in communicating with said channel through which said staples can be driven out, two clamping plates respectively mounted on the top and the bottom thereof for holding two plate springs, said outer cylinder being comprised of an upper part and a

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lower part having each an end pivoted to said opened end of said ball refill holder and an opposite end respectively supported by said plate spring to space from each other, said upper part having a striking plate movably secured therein by a sliding button and controlled by said upper part to strike said staples out of said staple outlet hole for binding paper, said lower part having a receiving trough for keeping space staples, a matrix mounting seat for mounting a matrix to match with said striking plate for performing staple driving operation, and a lock cap pivoted thereto for releasably securing said upper part to said lower part.

2. The writing apparatus of claim 1, wherein said ball refill holder has a stop plate made therein near said staple outlet hole to stop said ball refill in position which allows staples to slide thereover during striking process.

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