PATENT SPECIFICATION

345,712

Application Date: Jan. 11, 1930. No. 1116/30.

Complete Left: June 14, 1930.

Complete Accepted: April 2, 1931.

PROVISIONAL SPECIFICATION.

Improvements in Propelling Pencils.

(A communication from MABIE TODD & Co. (INC)., of 243, West 17th Street, New York, United States of America, a Company incorporated according to the laws of the State of New York, United States of America.)

I, WILLIAM HAROLD CAREY, Secretary of Mabie Todd & Co., Limited, of Swan House, 133—135, Oxford Street, London, W. 1, British Subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to propelling pencils of the kind wherein the lead is adapted to be held within a sheath mounted within an outer casing and to be functionally projected from the said casing by means of an axially disposed pin, the inner end of which is bent at right angles whereby it may conveniently engage a helical groove or slot, the relative rotation of which moves the pin in a longitudinal direction to give the lead its functional movement.

The object of the present invention is to provide an improved arrangement of the above general type wherein the sheath enclosing the pin is adapted to be moved therewith during the major part of the lead propelling or repelling movement, the axially located pin having a further movement relative to the sheath for the purpose of expelling the unused portion of the lead from the sheath.

The invention consists in a propelling pencil of the kind referred to, having provided means whereby the sheath for the reception of the lead and the axially located pin are adapted to move in unison during the major part of their functional movement, the longitudinal movement of the sheath being subsequently arrested, and the movement of the central pin continued, to eject the end of the lead from the sheath.

More particularly the invention consists in a propelling pencil according to the preceding paragraph, wherein the sheath for the reception of the lead is provided at its inner end with a transverse extension or pin adapted to engage the helical slot or its equivalent, and wherein the inner end of the axially located pin projects beyond the inner end of the sheath and is bent at right angles to engage the helical slot, whereby the rotation of the helical member causes the pin and surrounding sheath to move in unison and in spaced relation to each other during the greater part of their longitudinal movement, the longitudinal movement of the sheath being subsequently arrested and the movement of the central pin continued to eject the end of the lead from the sheath.

Other features of the invention will be apparent from the following description:

Referring to the drawings filed herewith,

Fig. 1 is a longitudinal section of a propelling pencil constructed according to my invention,

Fig. 2 is a view of the helix and its co-operating parts showing the relative position of the sheath and pin during the major part of the propelling or repelling movement,

Fig. 3 is a view similar to Fig. 2 showing the relative positions of the pin and sheath during the lead expelling movement.

Referring now to the drawings:—

I form my improved propelling pencil with a sheath 1 to receive the lead 2, the inner end of the said sheath having provided a pin or lateral extension 3 to engage a helical groove 4 in the member 5.

The member 5 may be formed of metal ribbon or turned from tubular material, or alternatively, may be formed of wire wound in a helical direction.

A centrally located pin 6 has its inner end 7 bent at right angles whereby it may also engage the helical groove 4, the opposite end being adapted to bear transversely upon the lead. The sheath 1 and pin 6 are mounted within a concentric sleeve 8 located within the helical member 4, the sleeve 8 having provided a slot 9 whereby the relative movement of the helical member 4 and the inner sleeve 8 will cause the sheath 1 and pin 6 to move in a longitudinal direction.

Members 10 and collars 11 are mounted upon the upper part of the sleeve 8 and serve to prevent undue friction between the parts. The inner end of the sleeve 8

is expanded as shown or otherwise deformed to retain the parts in position.

The lower part of the sleeve 8 serves to support a collar 12 which is capable of longitudinal movement against the pressure of a helical spring 13, the opposite end of which is supported against a collar 14 rigidly mounted upon the sleeve 8, the lower end of the said collar 14 being slightly tapered as shown.

The lower end of the sleeve 8 is screwed externally and serves as a retaining means for the tubular end 15 of the device.

The helical member 5 is secured to an intermediate casing 16, the upper part of which is provided with a partition or diaphragm 17 for the lead refills.

The parts are enclosed in an outer casing 19 the lower end of which is secured to the collar 14, the upper end being provided with the cap 20 which is frictionally retained upon the upper part of the intermediate casing 16.

By holding the outer casing 19 or the part 15 between the thumb and finger and rotating the cap 20, the sheath 1 and pin 6 are caused to travel in unison in a longitudinal direction and in spaced relation to each other (see Fig. 2) until the pin 3 abuts against the spring controlled collar 12 upon which it rotates during the continued longitudinal movement of the pin 6, until the lateral extension or projection 7 is in superimposed relation to the projection 3 (see Fig. 3), this movement serving to project the pin 6 through the sheath 1 and thereby eject the lead 2 therefrom.

Upon reversal of the rotary movement the feather edge of the helix first engages the lateral extension 7 of the pin 6 which is thus withdrawn in a longitudinal direction a distance equal to the pitch of the helix 4 when the end of the helix engages the projection 3, whereupon the two parts move in a rearward direction and in unison and spaced relation to each other.

Dated this 11th day of January, 1930.

MEWBURN, ELLIS & Co.,
70—72, Chancery Lane, London, W.C. 2,
Chartered Patent Agents.

COMPLETE SPECIFICATION.

Improvements in Propelling Pencils.

(A communication from MABIE TODD & Co. (INC)., of 243, West 17th Street, New York, United States of America, a Company incorporated under the Laws of the State of New York.)

I, WILLIAM HAROLD CAREY, Secretary of Mabie Todd & Co., Limited, of Swan House, 133—135, Oxford Street, London, W. 1, British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to propelling pencils of the kind wherein the lead is adapted to be held within a sheath having provided a transverse pin at the inner end thereof whereby it may conveniently engage a helical member, and wherein the lead is adapted to be ejected from the said sheath by an axially disposed pin the inner end of which is bent at right angles whereby it also may engage the helical slot in spaced relation to the sheath pin, the two members being adapted by reason of the relative movement of the casing and the helical member, to move in unison and in spaced relation during the major part of their functional movement, the longitudinal movement of the sheath being subsequently arrested and the movement of the central pin continued to eject the end of the lead from the sheath.

The object of the present invention is to provide an improved device of the above kind, and further, one wherein any risk of injury to the parts by reason of the continued movement of the rotatable parts after the sheath and pin have reached their extreme outward position, is entirely avoided.

The present invention accordingly consists in a propelling pencil of the kind above referred to, wherein the transverse sheath pin is first, and the inner bent end of the axially disposed pin is subsequently adapted, on reaching their extreme outer position to leave the helical groove against the action of a spring-pressed collar whereby the rotatable parts are capable of free and unrestrained movement.

Other features of the invention will be apparent from the following description:—

Referring to the drawings filed with the Provisional Specification,

Fig. 1 is a longitudinal section of a propelling pencil constructed according to my invention,

Fig. 2 is a view of the helix and its co-operating parts showing the relative position of the sheath and pin during the major part of the propelling or repelling movement,

Fig. 3 is a view similar to Fig. 2 showing the relative positions of the pin and

sheath during the lead expelling movement.

Referring now to the drawings:

I form my improved propelling pencil with a sheath 1 to receive the lead 2, the inner end of the said sheath having provided a pin or lateral extension 3 to engage a helical groove 4 in the member 5. The member 5 may be formed of metal ribbon or turned from tubular material, or alternatively, may be formed of wire wound in a helical direction.

A centrally located pin 6 has its inner end 7 bent at right angles whereby it may also engage the helical groove 4, the opposite end being adapted to bear transversely upon the lead. The sheath 1 and pin 6 are mounted within a concentric sleeve 8 located within the helical member 4, the sleeve 8 having provided a slot 9 whereby the relative rotation of the helical member 4 and the inner sleeve 8 will cause the sheath 1 and pin 6 to move in a longitudinal direction.

Washers 10 and collars 11 are mounted upon the upper part of the sleeve 8 and serve to prevent undue friction between the parts. The inner end of the sleeve 8 is expanded as shown or otherwise deformed to retain the parts in position.

The lower part of the sleeve 8 serves to support a collar 12 which is capable of longitudinal movement against the pressure of a helical spring 13, the opposite end of which is supported against a collar 14 rigidly mounted upon the sleeve 8, the lower end of the said collar 14 being slightly tapered as shown.

The lower end of the sleeve 8 is screwed externally and serves as a retaining means for the tubular end 15 of the device.

The helical member 5 is secured to an intermediate casing 16, the upper part of which is provided with a partition or diaphragm 17 for the lead re-fills 18.

The parts are enclosed in an outer casing 19 the lower end of which is secured to or engages the collar 14 whereby the rotation of the outer casing 19 rotates the collar 14, the upper end being provided with the cap 20 which is frictionally retained upon the upper part of the intermediate casing 16.

By holding the outer casing 19 or the part 15 between the thumb and finger and rotating the cap 20, the sheath 1 and pin 6 are caused to travel in unison in a longitudinal direction and in spaced relation to each other (see Fig. 2) until the pin 3 abuts against the spring controlled collar 12 upon which it rotates during the continued longitudinal movement of the pin 6, until the lateral extension or projection 7 is in superimposed relation to the projection 3 (see Fig. 3), this movement serving to project the pin 6 through the sheath 1 and thereby eject the lead 2 therefrom.

When the transversely disposed pins are in their extreme forward position and in superimposed relation to each other, the continued movement of the rotatable parts results in the two superimposed pins pressing the collar 12 downward against the action of the spring 13, while the helical member 5 is free to rotate over the top of the upper pin 7, thus avoiding all risk of injury to the parts due to overturning.

Upon reversal of the rotary movement the feather edge of the helical member first engages the extension 7 of the pin 6 which is thus withdrawn in a longitudinal direction a distance equal to the pitch of the helix 4 when the end of the helical member engages the projection 3, whereupon the two parts move in a rearward direction and in unison and spaced relation to each other.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A propelling pencil of the kind referred to, wherein the transverse sheath pin is first, and the inner bent end of the axially disposed pin is subsequently, adapted on reaching their extreme outer position to leave the helical groove against the action of a spring-pressed collar whereby the rotatable parts are capable of free and unrestrained movement, substantially as described and for the purpose set forth.

2. A propelling pencil according to claim 1, wherein the member forming the helical slot is fixed within a casing, the said casing having that portion thereof remote from the lead provided with a transversely disposed diaphragm to form a magazine for lead re-fills, substantially as described.

3. A propelling pencil constructed and operating substantially as described with reference to the drawings accompanying the Provisional Specification.

Dated this 5th day of June, 1930.

MEWBURN, ELLIS & Co.,
70—72, Chancery Lane, London, W.C. 2,
Chartered Patent Agents.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1931.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig 1

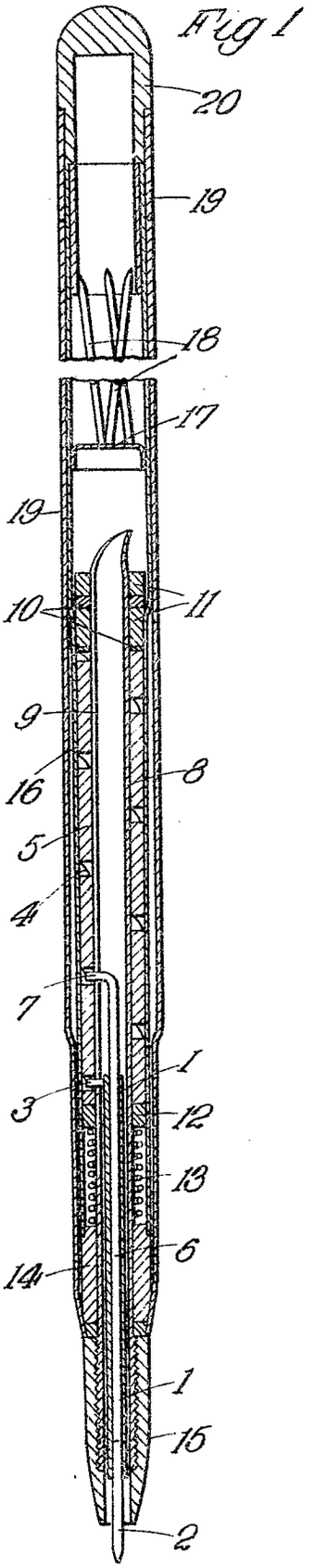


Fig. 2.

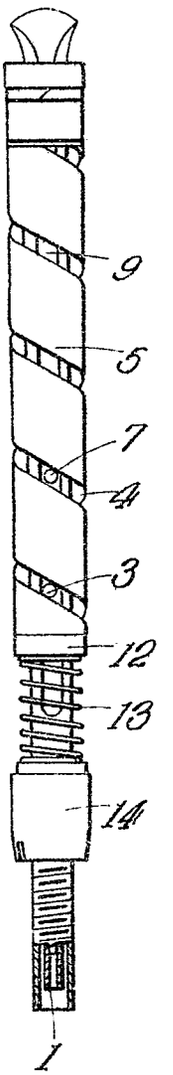
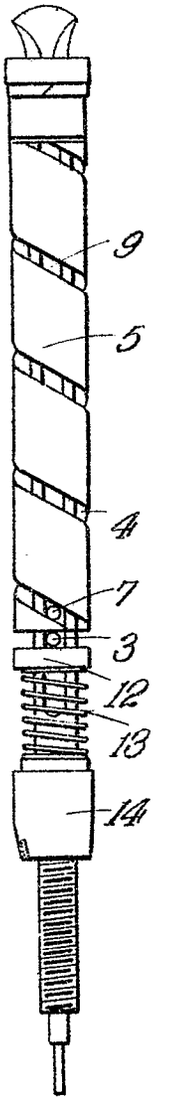


Fig. 3.



Charles & Read Ltd. Photo Litho