PATENT SPECIFICATION

Application Date: Aug. 28, 1936. No. 25663/36. 480,717

Complete Specification Left: March 9, 1937.

Complete Specification Accepted: Feb. 28, 1938.

PROVISIONAL SPECIFICATION

Improvements in or relating to Propelling Pencils

We, MABIE TODD & COMPANY LIMITED, [illegible]

ERRATUM

SPECIFICATION No. 480,717.

In the heading on page 1, *for* "No. 25663/36." *read* "No. 23663/36."

THE PATENT OFFICE,
April 1st, 1938.

collet or other lead gripping member in propelling pencils of the type referred to derives its reciprocating, and substantially rectilinear movement from a manually applied unidirectional rotary movement imparted to a knob, cap or like operating member.

Preferably, cam operated means are employed in association with the spring, the collet or like member being moved in one direction under the action of the cam, and returned under the influence of the spring.

Sufficient rotary movement of the knob results in a step-by-step forward movement of the lead.

In a preferred construction of a pencil of the magazine type, the base of the magazine disposed in the back end of the pencil casing is provided with an axially disposed tubular extension of reduced diameter through the bore of which the leads are adapted to pass from the magazine to a spring-jawed collet, the back end of which is disposed in alignment therewith just beneath the end of the magazine extension. A cam member in the form of a concentric sleeve is rigidly secured to the magazine extension, the lower end of

[illegible] of the pencil lining or in the wall itself.

It will be evident therefore, that as the cam member is adapted to rotate freely within the collar carrying the cam follower a rotary movement imparted to the cam will give the collar a longitudinal movement.

A spring is disposed between a substantially circular stop rigidly secured to the proximate back end of the collet and just beneath the lower annular base of the collar. A second spring support in the form of a disc is provided in spaced relation to the first and disposed within the pencil casing. A helical spring is disposed between the upper spring stop fixed to the collet and the lower spring stop disposed within the casing and adjacent the rear end of the usual extension provided for the nose.

Rearward movement of the magazine is restrained by means of a lip formed in the wall of the casing lining by means of spinning and cooperating with the flange on the lower part of the magazine base above which it is positioned.

In operation, a rotary movement imparted to the knob or cap of the pencil is transmitted through the magazine to the cam member disposed on the magazine

[*Price* 1/-]

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Improvements in or relating to Propelling Pencils

We, MABIE TODD & COMPANY LIMITED, of Swan House, 133 & 135, Oxford Street, London, W.1, a Company organised under the laws of Great Britain and Northern Ireland, LESLIE WILLIAM JOHNSON, of "St. Helier," Marsworth Avenue, Pinner, Middlesex, and EDWARD STEPHEN SEARS, of 23, Oaklands Avenue, Oxhey, Hertfordshire, both British Subjects, do hereby declare the nature of this invention to be as follows:—

The invention relates to propelling pencils of the type wherein a collet or other lead gripping means is adapted to operate in association with a helical spring to effect a step-by-step forward movement of the lead.

In pencils of this type it has hitherto been the practice to reciprocate the collet or other lead gripping means by the reciprocation of a knob, cap or the like member at the back end of the pencil.

According to the present invention the collet or other lead gripping member in propelling pencils of the type referred to derives its reciprocating, and substantially rectilinear movement from a manually applied unidirectional rotary movement imparted to a knob, cap or like operating member.

Preferably, cam operated means are employed in association with the spring, the collet or like member being moved in one direction under the action of the cam, and returned under the influence of the spring.

Sufficient rotary movement of the knob results in a step-by-step forward movement of the lead.

In a preferred construction of a pencil of the magazine type, the base of the magazine disposed in the back end of the pencil casing is provided with an axially disposed tubular extension of reduced diameter through the bore of which the leads are adapted to pass from the magazine to a spring-jawed collet, the back end of which is disposed in alignment therewith just beneath the end of the magazine extension. A cam member in the form of a concentric sleeve is rigidly secured to the magazine extension, the lower end of which is adapted to project from the lower face of the cam member. The cam member is rotatably disposed in the upper and larger of two axial bores formed in a collar slidable within the pencil casing, the smaller of the two bores taking the lower projecting end of the magazine extension and the confronting back end of the collet. The lower face of the cam member thus normally rests upon the shoulder formed by the two bores in the collar.

The cam surface is substantially helical, the ends of the helical surface being interconnected by a longitudinally disposed surface. The development of the cam surface thus defines an outline similar to that of a single ratchet tooth.

A cam follower or pin is adapted to pass through this collar to engage the cam surface, the outer end of the pin being slidable in a longitudinal slot or its equivalent formed in the cylindrical wall of the pencil lining or in the wall itself.

It will be evident therefore, that as the cam member is adapted to rotate freely within the collar carrying the cam follower a rotary movement imparted to the cam will give the collar a longitudinal movement.

A spring is disposed between a substantially circular stop rigidly secured to the proximate back end of the collet and just beneath the lower annular base of the collar. A second spring support in the form of a disc is provided in spaced relation to the first and disposed within the pencil casing. A helical spring is disposed between the upper spring stop fixed to the collet and the lower spring stop disposed within the casing and adjacent the rear end of the usual extension provided for the nose.

Rearward movement of the magazine is restrained by means of a lip formed in the wall of the casing lining by means of spinning and cooperating with the flange on the lower part of the magazine base above which it is positioned.

In operation, a rotary movement imparted to the knob or cap of the pencil is transmitted through the magazine to the cam member disposed on the magazine

[*Price* 1/-]

extension, this rotary movement giving a longitudinal movement to the collar. This latter is adapted to bear against the upper spring stop secured to the collet with a result that the collet moves toward the point of the pencil against the action of the helical spring giving the lead a forward movement, the amount of movement for each complete turn of the knob or cap approximating to the pitch of the helix forming the cam.

On the cam reaching its highest point the collet releases the lead and on a continued rotary movement of the operating knob the pin returns sharply to its lowest position under the action of the helical spring, thus permitting the cam sleeve and the collet to resume their normal positions with the spring jaws of the collet gripping the lead. This operation may be repeated as may be necessary to give the necessary forward movement to the lead.

It will be seen that with the cam formed in the manner above described, the spring-jawed collet is given a relatively slow forward and quick return movement, although it is to be understood that other cam surfaces may be employed.

We wish it to be understood that other forms of collet or lead gripping means may be used in substitution of the spring-jawed collet above described. Furthermore, the device is not necessarily limited to a magazine pencil, being applicable also to a pencil holder carrying a single lead of suitable length, while various modifications may be made in the details of construction hereinbefore described within the scope of our invention.

Dated this 28th day of August, 1936.
MEWBURN, ELLIS & CO.,
70 & 72, Chancery Lane, London, W.C.2,
Chartered Patent Agents.

COMPLETE SPECIFICATION

Improvements in or relating to Propelling Pencils

We, MABIE TODD & COMPANY LIMITED, of Swan House, 133 & 135, Oxford Street, London, W.1, a Company organised under the laws of Great Britain and Northern Ireland, LESLIE WILLIAM JOHNSON, of "St. Helier," Marsworth Avenue, Pinner, Middlesex, and EDWARD STEPHEN SEARS, of 23, Oaklands Avenue, Oxhey, Hertfordshire, both British Subjects, 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:—

The invention relates to propelling pencils of the type wherein a collet or other positive lead gripping means is adapted to operate in association with a helical spring to effect a step-by-step forward movement of the lead.

In pencils of this type it has hitherto been the practice to reciprocate the collet or other lead gripping means by the reciprocating of a knob, cap or the like member at the back end of the pencil.

According to the present invention the collet or other lead gripping member in propelling pencils of the type referred to, derives its reciprocating, and substantially rectilinear movement from a manually applied unidirectional rotary movement imparted to a knob, cap or like operating member.

Preferably, cam operated means are employed in association with the spring, the collet or like member being moved in one direction under the action of the cam, and returned under the influence of the spring.

Sufficient rotary movement of the knob results in a step-by-step forward movement of the lead.

Other features of the invention will be apparent as the description proceeds.

In the accompanying drawings:

Fig. 1 is a view, partly sectional, showing a propelling pencil made according to the invention, and

Fig. 2 is a fragmentary perspective view, partly in section, showing a development of the cam surface referred to.

In the preferred construction about to be described, the back end of the pencil casing 1 is fitted with a magazine 2 which magazine is provided with an axially disposed tubular extension 3 of reduced diameter through the bore 5 of which the leads are adapted to pass from the magazine to a spring jawed collet 6, the back end of which is disposed in alignment with the tubular extension of the magazine and just beneath the end of the same. The magazine 2 with its extension 3 is adapted to be rotated by the rotation of a cap 4 disposed at the rear end of the casing.

A cam member 8 in the form of a concentric sleeve is rigidly secured to the magazine extension 3, the lower end of which is adapted to project from the lower face of the cam member. The cam member 8 is rotatably disposed in the upper and larger of the two axial bores 10 and 12 formed in a collar 14 slidable within the pencil casing 1, the smaller of the two

bores 12 taking the lower projecting end of the magazine extension and the confronting end of the collet 6. The lower face of the cam member 8 thus normally rests upon the shoulder 17 formed at the junction by the two internal bores of the collar 14.

The cam surface 20 is substantially helical, the ends of the helical surface being interconnected by a longitudinally disposed surface 21 as will be seen clearly in Fig. 2. The development of the cam surface thus defines an outline similar to a single ratchet.

A cam follower or pin 24 is adapted to pass through the collar 14 to engage the cam surface 20, the outer end of the said pin being slidable in a longitudinal slot 26 or its equivalent formed in the cylindrical wall of the pencil lining 1*a* or in the wall itself, this slot acting as a guide for the pin 24. It will be evident, therefore, that as the cam member 8 is adapted to rotate freely within the collar 14 carrying the cam and collar 24, a rotary movement imparted to the cam 8 will give the collar 14 a longitudinal movement. The cam surface may be duplicated as will be understood, whereby one revolution of the knob 4 and magazine 2 will give two reciprocating movements to the collar 14.

A spring 28 is disposed between a stop 30 preferably in the form of a disc which is rigidly secured to the proximate back end of the collet 6 just beneath the annular face of the collar 14, and a second stop 31 also preferably in the form of a disc and through which the collet 6 is adapted to pass freely, the stop 31 being disposed in spaced relation to the first and resting on an extension or base 35 fixed in the lining 1*a*. Other means for supporting the disc 31 may, however, be employed.

The magazine is restrained from rearward movement by means of a lip 32 formed in the wall of the casing lining, for example by spinning, this lip cooperating with a flange 34 on the lower part of the magazine piece.

In operation a rotary movement imparted to the knob or cap 4 of the pencil is transmitted through the magazine 2 to the cam member 8 disposed on the magazine extension, this rotary movement giving a longitudinal movement to the collar 14 by means of the pin 24 in association with the cam surface 20. The collar 14 is thus adapted to bear against the upper spring stop 30 secured to the collet 6 with a result that the collet moves towards the point 33 of the pencil against the action of the helical spring 28 giving the lead (not shown) a forward movement, the amount of movement for each complete turn of the knob or cap 4 approximating to the pitch of the helix forming the cam, as will be understood.

On the cam 8 reaching its highest point the collet releases the lead and on the continued rotary movement of the operating knob the pin 20 returns sharply to its lowest position under the action of the helical spring 28, thus permitting the cam sleeve 8 and collet to resume their normal position with the spring jaws of the collet gripping the lead. This operation may be repeated as may be necessary to give the required amount of forward movement to the lead.

It will be seen that with the cam formed in the manner above described, the spring-jawed collet is given a relatively slow forward and quick return movement, although it is to be understood that other cam surfaces may be employed.

We wish it to be understood that other forms of collet or lead gripping means may be used in substitution of the spring-jawed collet above described. Furthermore, the device is not necessarily limited to a magazine pencil, being applicable also to a pencil holder carrying a single lead of suitable length, while various modifications may be made in the details of construction hereinbefore described within the scope of our invention.

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

1. In a propelling pencil of the kind referred to, cam operating means for imparting the functional longitudinal movement to a spring-jawed collet or other lead gripping means by the rotation of a knob, cap or like member.

2. The device according to claim 1, wherein the collet is adapted to be moved toward the nose of the pencil against the action of a spring.

3. A device according to claim 1 or 2, wherein the reciprocating parts are adapted to be returned to their normal position under the action of a spring.

4. A device according to the preceding claims, wherein the rotary movement of the knob or cap is transmitted to the cam by way of the pencil magazine.

5. A device according to the preceding claims, wherein one complete turn of the knob or cap is adapted to impart one or more functional reciprocating movements to the collet.

6. A device according to the preceding claims, wherein the cam sleeve is substantially enclosed within an outer collar carrying the cam follower or pin.

7. In a propelling pencil of the kind referred to, the device constructed,

arranged and adapted to operate substantially as described with reference to the accompanying drawing.

Dated the 9th day of March, 1937.
MEWBURN, ELLIS & CO.,
70 & 72, Chancery Lane, London, W.C.2,
Chartered Patent Agents.

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Fig.1.

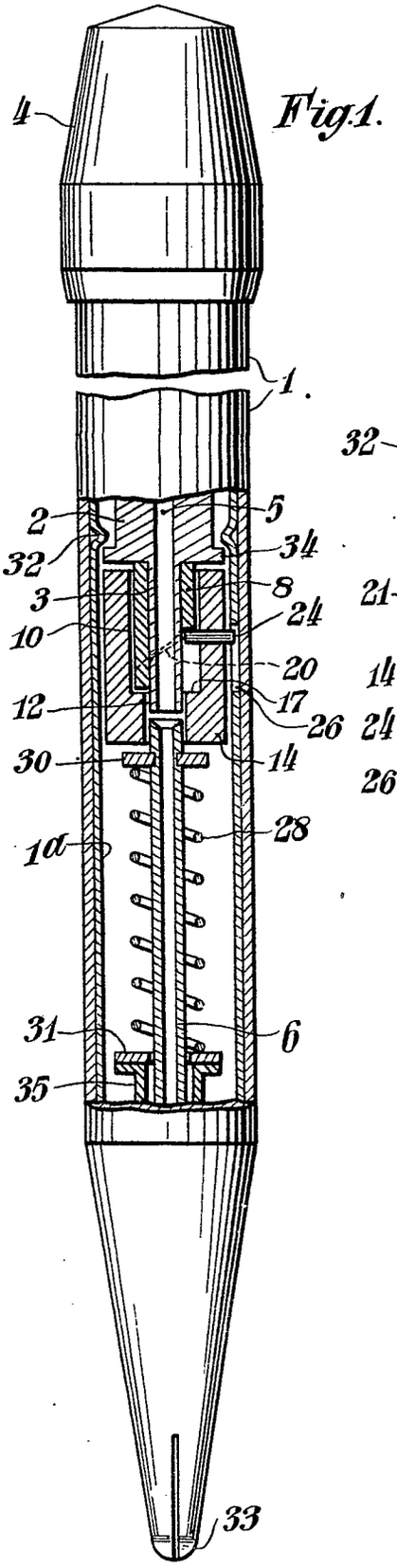
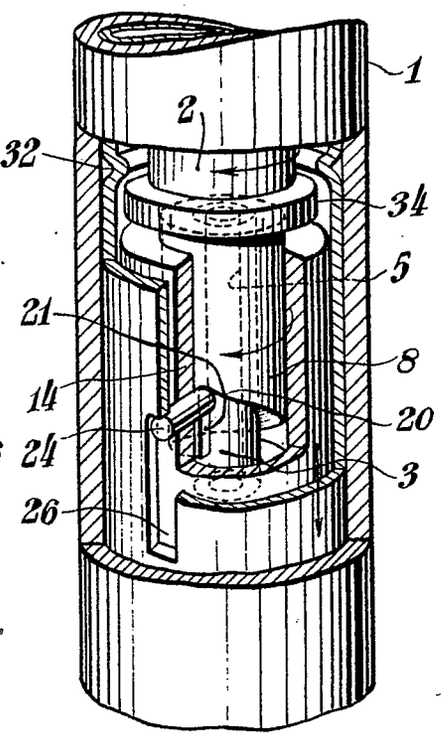


Fig.2.



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