100,592

PATENT SPECIFICATION

Convention Date (Germany), June 3, 1915.

Application Date (in the United Kingdom), May 27, 1916. No. 7559/16.

Complete Accepted, May 29, 1917.

COMPLETE SPECIFICATION.

Improvements in Refill Lead Pencils.

We, the Firm EDMUND MOSTER & Co., Actiengesellschaft, of Berlin-Neukölln, Germany, and Agram-Croatia, Austria, Manufacturers, 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 rotary refill pencils having a lead holder and a lead ejector arranged within a rotary slotted tube, the holder and ejector being adapted to be moved by engagement with a screw-threaded member, such movement being normally equal, the arrangement being such that on causing relatively longitudinal movement between the ejector and holder the lead is ejected from the latter.

According to the invention the holder and ejector are provided with separate screw-threaded members which engage with either an internal screw-thread on the pencil casing or an external thread on the slotted tube, the screw-thread on the casing or tube being discontinued in front of the head of the pencil casing for a length equal to the depth of the screwed member co-operating with the lead holder.

By such an arrangement, on turning the head of the pencil the threaded member of the holder becomes disengaged on reaching the plain portion of the casing or slotted tube and ceases to slide, while the threaded member of the ejector remains engaged and consequently slides longitudinally relatively to the holder, whereby the lead is ejected.

The accompanying drawing shows several constructions of pencil according to the invention :—

Fig. 1 a longitudinal section through one modification of the invention.

Fig. 2 a longitudinal section showing the parts in the position when the lead is being ejected.

Figs. 3 till 5 show partly in section various couplings for the lead holder and ejector.

Figs. 6 and 7 show in a longitudinal and cross section a second and Fig. 8 in a longitudinal section a third modification of the invention.

Figs. 9 and 10 show special modifications of the lead holder and ejector.

Referring to the first modification, the casing *a* carries at its front end the rotatable head *b* and at its rear end the knob *c*. The bore *d* of the casing is, except for the part *f* adjacent to the head *b*, provided with an inner thread *e*. A tube *g* having a longitudinal slot *h* is rigidly connected to the head *b*, so that the tube *g* must follow every turning movement of the head *b*. The rear end of the tube *g* is closed by a screw *i* the head of which is countersunk in an

[*Price* 6*d*.]

annular portion k of the pencil casing thereby preventing a longitudinal moving of the tube g but allowing the latter to turn with the head b.

Within the tube g the ejector m is contrically arranged with regard to the holder l (see Figs. 3—5). Pins n and o of the holder and ejector pass into openings of the discs p and q which are placed over the tube g and by means of an outer thread engage with the inner thread e.

In case of a turning of the head b and thereby of the tube g, the movement through the pins n and o projecting through the longitudinal slot h of the tube g is transmitted to the discs p and q and since the latter engage with the thread e, a simultaneous longitudinal movement of the holder l and ejector m takes place irrespective of the direction in which the head b is turned. The discs p and q during their longitudinal movement maintain the same distance from each other so that only the holder l acts with a forwardly pushing action, whilst the ejector m does not yet come into action.

When the lead filling has nearly been used up, the discs p and q have been advanced accordingly to the front end of the casing until finally the disc p reaches the smooth portion of the latter. Then no further forward moving of the holder l can take place. Upon a further turning of the head b, only the disc q of the ejector m is still further advanced until finally the remainder of the lead is ejected (see Fig. 2).

Upon a turning of the head b in the opposite direction, the disc q, which never becomes disengaged from the thread e, moves up within the casing until the abutment r of the ejector m strikes against the turned down part of the pin n or against a projection in the interior of the holder. From this instant the holder is forced to follow the movement of the ejector. The holder engages again with the thread e and then moves up the casing at an equal distance from the ejector q.

The coupling of the holder l and ejector m may according to the modification shown in Figs. 4 and 5 be also effected by means of a hoop t which passes over the pins n and o. This member t permits, in a similar manner as the holder l and the ejector m according to Fig. 3, a moving of the ejector m towards the holder l in the direction towards the head b, but allows a moving of the ejector m away from the holder l by a certain distance only as then a coupling of both parts takes place.

The arrangement according to Figs. 4 and 5 can be modified in such a manner that the member t will slide within the longitudinal slot h of the tube g.

In case of the second modification according to Figs. 6 and 7 the tube g having a longitudinal groove h is rigidly connected to the rear end b_1 of the casing a and guided in the head b in such a manner that it can turn with the rear end b_1 but is prevented from moving in a longitudinal direction. The tube g is fitted with an external thread e_1 with which the discs p_1 and q_1 of the lead holder l and ejector m engage with inner threads. The discs p_1 and q_1 are of an oval shape and fit into correspondingly shaped bores d_1 of the casing. The external thread e_1 of the tube g is discontinued near the head b at f_1. With this modification the pins n and o of the holder and ejector do not engage with holes of the discs p_1 and q_1, but with annular grooves n_1 and o_1.

Upon turning the rear end b_1, the holder and ejector will act in the same manner as with the first modification.

The modification according to Figs. 8 till 10 corresponds to the one shown in Figs. 1 and 2 except for the construction of the holder and ejector and for the parts coupled with them and made to engage with the inner thread of the bore of the casing.

In this case the lead holder l_2 is fitted on its lower end with a spiral p_2, issuing from the longitudinal groove h of the tube g. The spiral corresponds to the disc p according to the modification of Figs. 1 and 2 and with its coils will engage with the inner thread e of the bore of the casing in a like manner as this is effected by the discs with their outer thread.

In a like manner the rear end of the lead ejector n is formed into a spiral q_2, which extends from the longitudinal groove h of the tube g and with its coils engages with the inner thread e of the bore of the casing.

The spiral p_2 may be partly passed through the bore of the lead holder and will serve then as an abutment for the shouldered part r of the ejector (see Figs. 9 and 10).

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. A rotary refill pencil of the type described, characterised in this that the holder and ejector are provided with separate screw-threaded members which engage with either an internal screw-thread on the pencil casing or an external thread on the slotted tube, the screw-thread on the casing or tube being discontinued in front of the head of the pencil casing for a length equal to the depth of the screwed member co-operating with the lead holder, whereby in turning the head of the pencil such screwed member becomes disengaged on reaching the plain part of the casing or slotted tube and ceases to slide, while the threaded member of the ejector remains engaged and consequently slides longitudinally relatively to the holder to eject the lead therefrom.

2. A refill lead pencil as claimed in Claim 1, wherein the threaded member for the holder is fitted with an abutment for the head of the ejector which extends into the path of the latter.

3. A refill lead pencil as claimed in Claim 1, comprising pins passing through the longitudinal slot of the slotted tube, engaging with holes or annular grooves of the threaded members of the holder and ejector respectively and coupled by means of a hoop arranged in recesses of the threaded members or in a longitudinal slot of the slotted tube so that upon a return movement of the ejector the holder will be forced to follow the movement of the ejector.

4. A refill lead pencil as claimed in Claim 1, wherein the threaded members of the holder and ejector are in the form of coiled wires which extend through the slotted tube and with their coils engage the inner thread of the bore of the casing.

5. The improved refill lead pencil, constructed and operating substantially as hereinbefore described and also as illustrated in the accompanying drawings.

Dated this 25th day of May, 1916.

MARKS & CLERK.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1917.

100,592. EDMUND MOSTER & CO'S COMPLETE SPECIFICATION. (2 SHEETS)

SHEET 1.

Fig. 1.

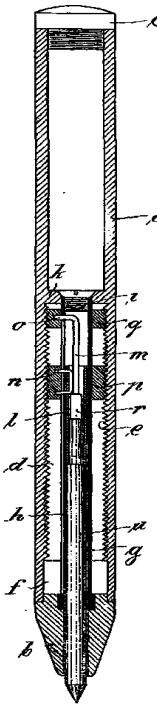


Fig. 2.

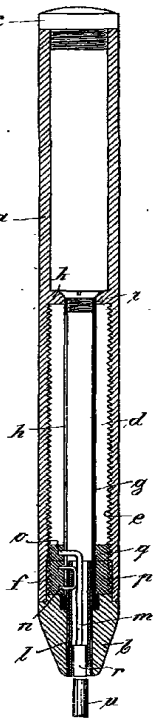


Fig. 3.

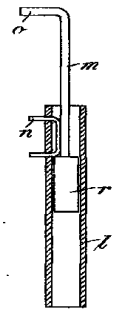


Fig. 4.

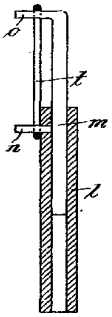
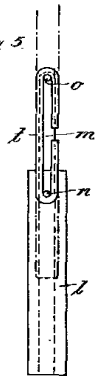


Fig. 5.



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

SHEET 2

Fig. 6.

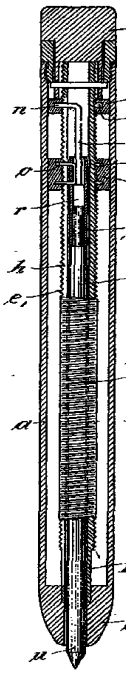


Fig. 8.

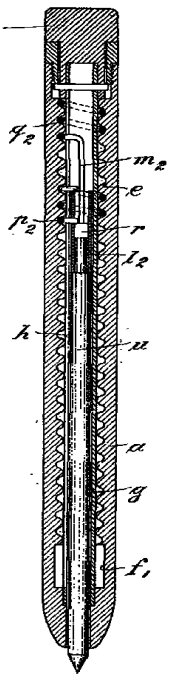


Fig. 9.

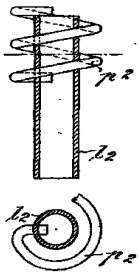


Fig. 10.

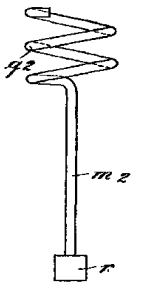


Fig. 7.

Fig. 1.

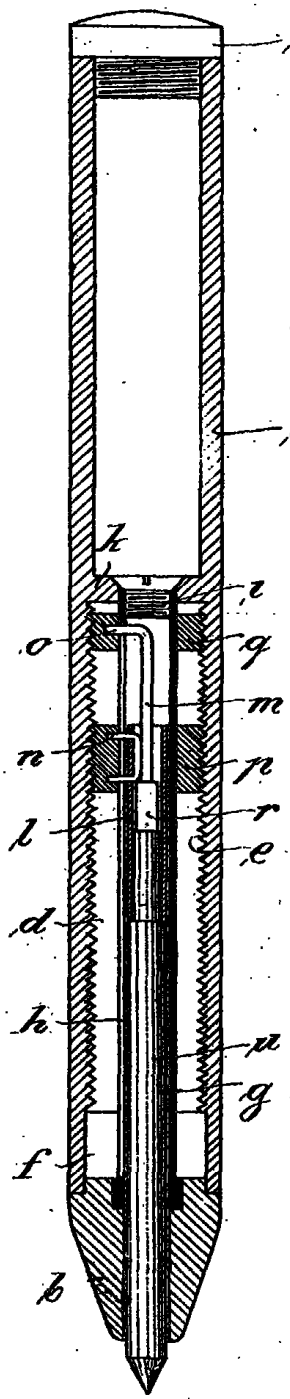


Fig. 2.

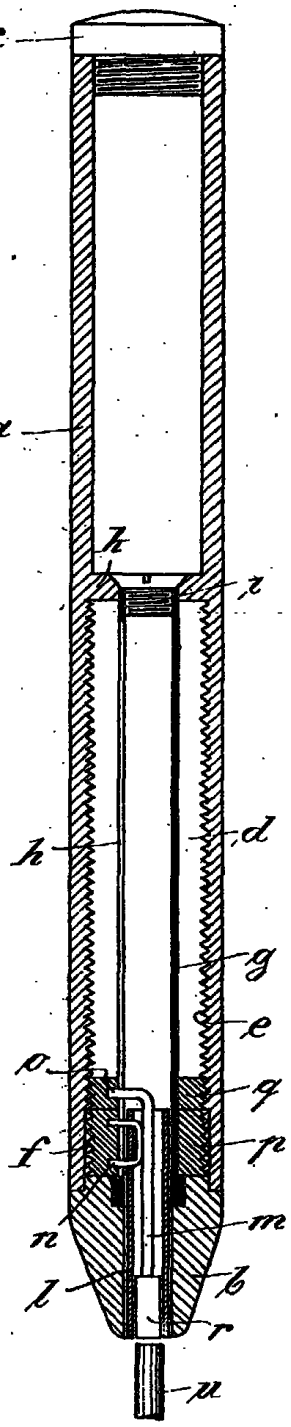


Fig. 3.

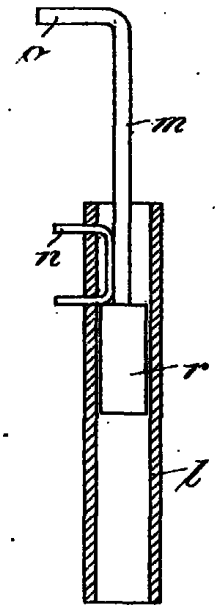


Fig. 4.

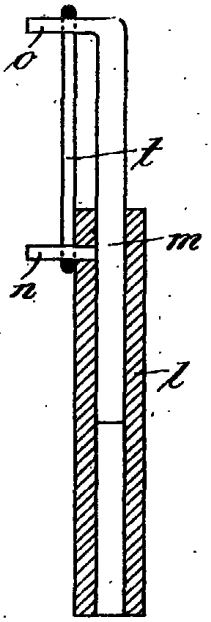


Fig. 5.

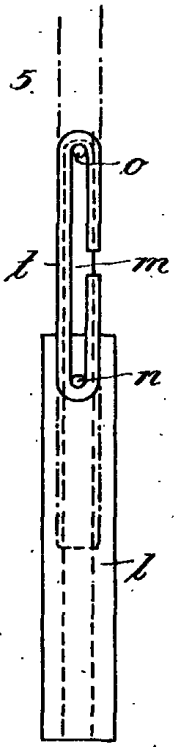


Fig. 6.

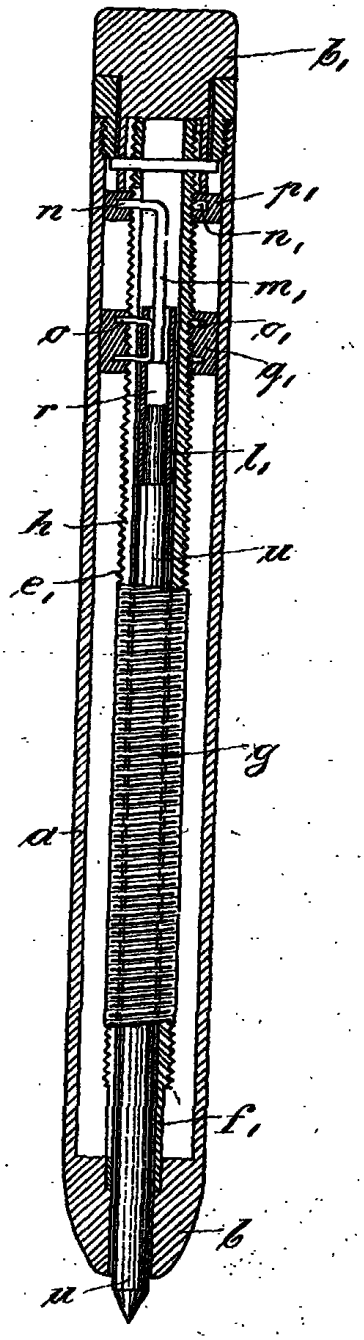


Fig. 8

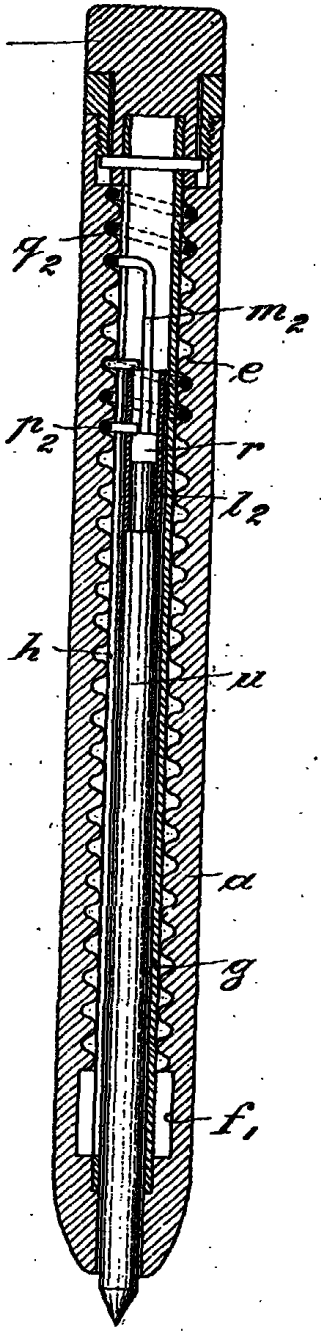
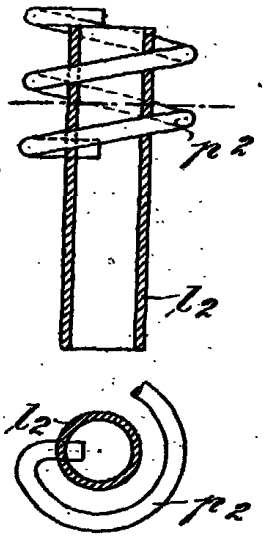


Fig. 9



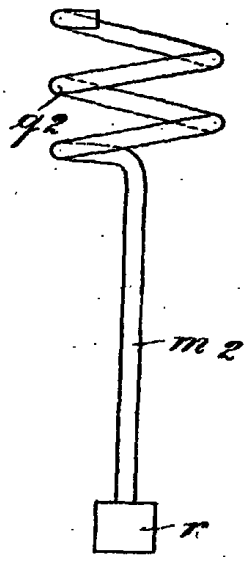


Fig. 10.

Fig. 7

Malby&Sons, Photo-Litho.