

## PATENT SPECIFICATION



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### COMPLETE SPECIFICATION

#### Improvements in and relating to Magazine Lead Pencils with Selectively Interchangeable Lead Holders

I, KURT FEND, of 24 Maximilianstrasse, Pforzheim, German, of German nationality, 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 a magazine lead pencil with selectively interchangeable lead holders which are individually shiftable by means of sliding members through guide slots provided in the pencil casing from a non-use position into a recess for the working position and, after being released, slide under the action of a spring back into the non-use position. The invention consists in this that the locking means which holds one of the lead holders in the operative position is released by the forward movement of each of the other lead holders. This construction greatly facilitates the handling of the changeable pencil. For changing the pushed-out lead holder it is no longer necessary first to release it by a separate manipulation and to let it snap back again and only then to push forward the new lead holder, but it suffices to push forward the desired lead holder when the lead holder which was previously pushed forward is automatically released and returned by the action of the spring into its non-use position. The arrangement may be such that besides the pencil casing another casing is provided, which is capable of being turned with respect to the pencil casing but not of sliding and which is provided for each of the sliding members moving in the guiding slots of the pencil casing with a longitudinal slot and that each slot of one casing is provided at the front with a lateral shouldered widening having a sloping counter edge and at the back on the side of the shouldered widening a sloping edge extending in the opposite direction to the forward sloping edge, whilst in the other casing the slots are straight. The result is that, at the commencement of the forward movement of a lead holder the rotary casing is turned out of the locking position and, at the termination of the

forward movement, back again into the locking position. The manner in which the rotary casing is mounted in the outer casing is optional. It has been found to be particularly simple so to arrange the rotary casing that by loosely screwing its threaded rear end on to or into a casing provided in the rear end of the pencil casing and preferably acting as a magazine, it will be capable of turning but of being substantially unslidable. The rotary casing will then, when being turned, also perform slight sliding motions which are, however, of no importance.

In the accompanying drawing constructional examples of the invention are shown,

Fig. 1 being a view of the whole pencil partly in section.

Figs. 2—4 illustrate the rotary casing in different positions and with the slidable lead holder in different positions.

Fig. 5 is a cross-section on line 5—5 of Fig. 1.

The changeable lead pencil has a substantially cylindrical outer casing 1 of a known kind with a conical front part 2. The casing contains lead holders, preferably four, of which the two lead holders 3 and 4 are shown. On each lead holder is a push knob or button 8 which is mounted on a spring 5 and the web 6 of which is guided in a straight longitudinal slot 7 of the outer casing 1. The knobs 8 extend over the edges of the lateral slots 7. The slots 7 extend right to the rear end of the casing, so that the webs 6 can be inserted into the slots from the rear end. The lead holders are acted on by the compression spring 9 which is located in the forward part of the casing 1, bears with its front end against a ring plate 11 and has its rear end encased in a casing 10 have a perforated end. The spring presses all the lead holders into their rearward position, the non-operative position, the rear end of the casing 10 bearing against the webs 6 of the sliding members. On a lead holder being pushed forward, the spring 9 is compressed.

In the rear end of the outer casing 1 is a slidable casing 13, the upper part of

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which has a bottom plate 12 so that it can act as a lead magazine. The casing 13 is held in the outer casing 1 by means of elevations 14 which engage in transverse slots 15 of the longitudinal slots 7.

5 Over the sliding casing 13 is placed a cover casing 31 which also engages over the rear end of the outer casing 1 and is held on by means of a cap 32 which is

10 screwed on to the reduced threaded rear end of the casing 13. A clip 33 may also be screwed on. At the forward end of the casing 13 is a short threaded part 16,

15 on to which a rotary casing 17 is loosely screwed in such a manner that it can be turned easily either way. The rotary casing has longitudinal slots 18, one for each lead holder. The shape of the slots will be seen from Fig. 2-4. Each slot

20 has a rearward broader part 19. This part has a sloping edge 24 which merges into a narrow straight middle part 21. The forward part 20 of the slot is widened again, the widening being on one side and

25 of such a shape that a shoulder 23 is formed. The edge of the slot 22, which is opposite this widened part, slopes towards the widened side, that is in the opposite direction to the edge 24. The

30 rearward broad part 19 of the slot is so large that the sliding knob 8 at the outer end of the web part 6 can be pushed through it. When the lead pencil is being put together, the sliding knobs 8

35 are pushed from the inside of the rotary casing 17 through the openings 19. Thereupon the rotary casing 17 is screwed on to the threaded part 16 of the casing 13 and the united casings are pushed from the

40 rear ends of the guiding slots 7. When ing web parts 6 being inserted into the rear end of the guiding slots 7. When the casing 13 has been brought into its correct position, the plate 12 which forms

45 the bottom of the magazine acts as an abutment for the rear ends of the springs 5 of the lead holders, when the latter move rearwards under the action of the spring 9.

50 When in the position of rest, each lead holder occupies the position in the slot shown in Fig. 2, in which its web 6 which always slides in the slot 7 of the outer casing 1 is located in the middle of the

55 upper widened part 19 of the slot 18 of the rotary casing 17. On the lead holder being pushed forward by means of the sliding knob 8 in opposition to the spring 9, the web part 6 will bear, when being

60 pushed forward, against the edge 24 of the slot and will turn the rotary casing 17 so far to the right that the web part 6 will enter the straight part 21 of the slot. On the lead holder being pushed still

65 further forward, the web part 6 will slide

along the sloping edge 22, causing the casing 17 to be turned back again to the left into the position shown in Fig. 4, the web part going into the position shown at 6<sup>1</sup>. On the sliding knob 8 being released,

70 the spring 9 will force it back into the position shown at 6 in Fig. 4, in which the rear edge of the web 6 strikes against the locking shoulder 23. In this position

75 the lead holder is located in the position of use, as shown for the lead holder 3 in Fig. 1.

The sliding back of the lead holder into this position also causes the point to project only slightly out of the outer casing,

80 when in the position of use. Owing to this arrangement the point of the lead, although the lead holder slopes slightly, will nevertheless be approximately in the

85 axis and hold very firmly. For turning the lead further out of a lead holder forming a rotary pencil the lead holder may be pushed slightly forward (into the position 6<sup>1</sup> of the web part) and can then be easily grasped at the front.

90

When one lead holder is in the working position and another lead holder is pushed forward, the rotary casing 17 will perform the same rotary motions. During the first rotary motion to the right the web

95 part 6 of the advanced lead holder, which owing to its being guided into the slot 7 of the casing 1 cannot move to the side, is released by the shoulder 23 and will slide backwards under the pressure of the

100 spring 9. This spring 9 imparts to it a sufficiently great speed so that it moves rapidly into the rest position even when the spring 9 cannot be completely un-

105 stressed but has its sleeve 10 arrested by the lead holder which is to be advanced. The lead holder which is to be advanced can at the same time be pushed right forward without obstruction until it snaps

110 behind the shoulder 23 of its slot 18. Each time a lead holder is pushed forward the rotary casing 17 thus performs a short rotary motion first to one side and then to the other side.

When it is desired to retract the lead

115 holder which is in the position of use, into the inoperative position, without a fresh lead holder being pushed forward, all that is necessary is to push another lead holder slightly forward until its web part 6 has

120 come against the slot edge 24 and has turned the rotary casing 17. By this means the web part of the lead holder which is in the position of use is released from the locking shoulder 23. Through

125 the forward motion then being interrupted the spring 9 will force all the lead holders back into the inoperative position.

The lead holders are held in the inoperative position, even when one lead

130

holder is pushed forward, through the spring 5 which carries the knob 8 bearing firmly against the inner surface of the casing 17.

5 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:—

10 1. A magazine lead pencil with selectively interchangeable lead holders which are individually shiftable by means of sliding members through guide slots provided in the pencil casing from a non-use  
15 position into a recess for the working position and, after being released, slide under the action of a spring back into the non-use position, characterised by the feature that a locking means which holds  
20 one of the lead holders in the operative position is released by the forward movement of each of the other lead holders.

2. A magazine lead pencil as claimed in Claim 1, characterised by the feature  
25 that besides the pencil casing another casing is provided, which is capable of being turned with respect to the pencil casing but not of sliding and which is provided for each of the sliding members  
30 moving in the guiding slots of the pencil casing with a longitudinal slot and that each slot of one casing is provided at the

front with a lateral shouldered widening having a sloping counter edge and at the  
35 back on the side of the shouldered widening a sloping edge extending in the opposite direction to the forward sloping edge, whilst in the other casing the slots are straight.

3. A magazine lead pencil as claimed  
40 in Claims 1 and 2, characterised by the feature that the rotary casing is held so as to be capable of rotating through its rear threaded end being screwed loosely  
45 on to or into a casing fixed in the rear end of the pencil casing.

4. A magazine lead pencil as claimed in Claim 2 or 3, characterised by the feature that the forward lateral shouldered widening is longer than the web  
50 part of the sliding member, which engages through the guiding slots, so that the lead holder, after the termination of the forward motion, slides back a small  
55 amount under the influence of the returning spring, before it bears against the locking shoulder.

5. The improved magazine lead pencil with selectively interchangeable lead  
60 holders, substantially as hereinbefore described with reference to the accompanying drawing.

Dated this Eleventh day of June, 1936.

MARKS & CLERK.

Fig.1

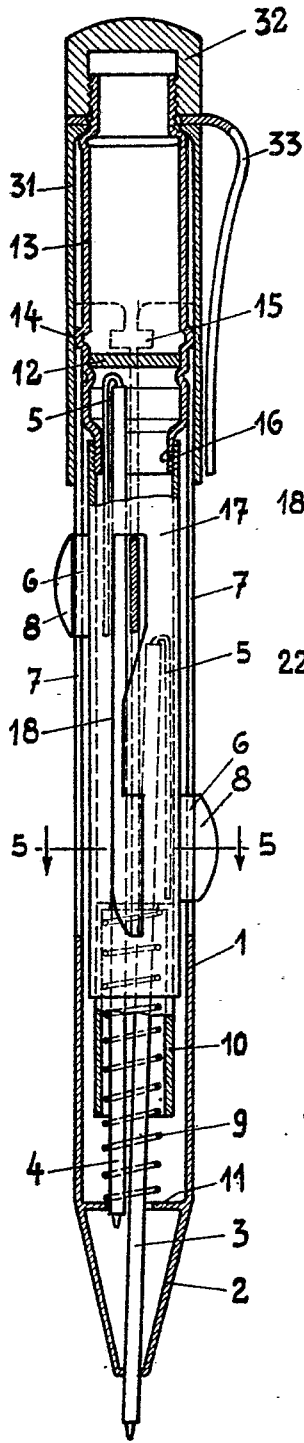


Fig.2

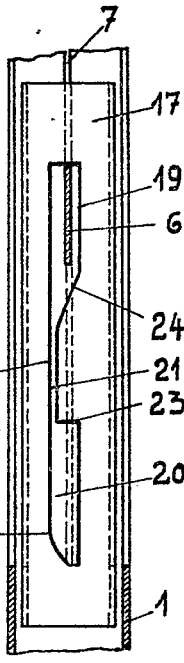


Fig.3

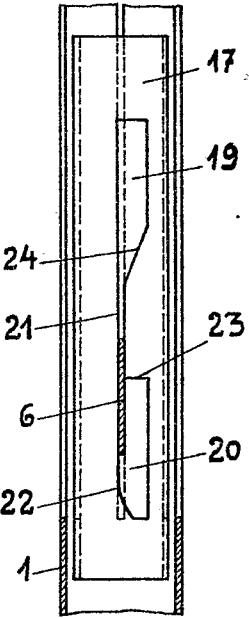


Fig.4

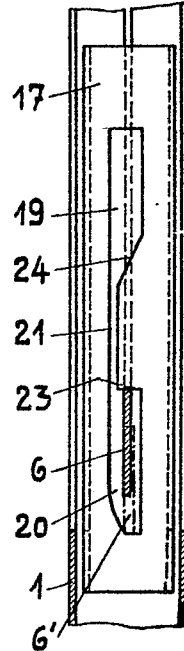
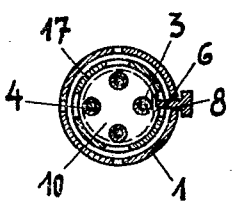


Fig.5



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