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PATENT SPECIFICATION



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(Patent of Addition to No. 399,592: Dated May 10, 1932.)

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Complete Specification Accepted: Feb. 15, 1938.

PROVISIONAL SPECIFICATION

Improvements in or relating to Pencil Holders

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:—

This invention relates to pencil or lead holders and is an improvement in or modification of the invention claimed in the specification of British Patent No. 399,592 of which the above named Company are the Registered Proprietors.

In the parent specification a substantially conical sleeve or collar was suspended on the collet and slidable in a ferrule or projecting part thereof, the side being cut away to allow for the assembly of the parts. With such an arrangement it was difficult to ensure a perfect axial alignment of the parts, with the result that there was a tendency for the leads to break during the operation of the mechanism.

The object of the present invention is to provide a more efficient mechanism whereby the above disadvantage will be avoided and also one which will facilitate the assembly of the parts.

According to the present invention the aforesaid conical sleeve or collar is omitted and a substantially cylindrical split sleeve is substituted therefor, which sleeve is adapted to act as a guide for the lower end of the collet, being slidably mounted in a collar rigidly secured to the lower end of the pencil casing.

In a preferred construction the collar is stepped down and is affixed at its upper end to the lower end of a tubular lining positioned within an outer casing, the lower end of which is of reduced diameter internally to define a shoulder on which the upper external shoulder of the stepped down collar and the end of the lining is adapted to rest. The two lower extensions of the stepped collar project from the end

of the pencil casing, the upper being screwed to take a hollow substantially conical nose piece into which the lowest and smallest of the extensions of the collar is adapted to project. The stepped down collar is of two bores the lower serving to act as a guide for the split sleeve and the upper and larger to take a flange formed on the upper end of the split sleeve. That part of the collet disposed within the split sleeve is of smaller diameter than the major portion thereof thus defining a shoulder immediately above the split sleeve. The lower end of the collet and the cylindrical sleeve are positioned within the bore of this collar as will be hereafter explained.

The movement also includes a spring disc supported on the upper annular face of the stepped down collar and cooperating with a second disc or stop rigidly secured to the proximate upper end of the collet and between which and the first disc a helical spring is disposed adapted to surround the major part of the collet. The proximate upper end of the collet projects into a counter bore of the base member of a lead chamber which base member is axially bored and countersunk at its upper end to form a passage for the leads from the magazine to the bore of the collet. This base member is formed with a lower flange which is an easy sliding fit within the casing.

The tubular lead chamber is adapted for longitudinal movement and extends axially upward, the upper end being rigidly connected to a hollow socket formed with a flange on its outer surface midway between its two ends to form an abutment for the upper edge of the lead chamber against an inwardly projecting ledge formed by spinning the metal lining of the casing, and also acts as a stop to limit the outward movement of the lead chamber against the action of the spring before referred to. The upper part of the socket is counter-bored to receive a cylindrical piece of indiarubber and is fitted with a removable external cap having a tubular metal lining the lower end

of which is adapted to frictionally engage the external surface of that part of the socket above its flange upon which it abuts to effect the reciprocation of the upper socket and the base member of the lead chamber and consequently of the collet.

The outer diameter of the cap extension is such that it is slidable past the inwardly projecting ledge formed in the metal lining of the casing to allow for this reciprocatory movement.

The end of the tubular lining remote from the nose is spun outward to form a stop for a clip or to form a cover for the back end of the outer casing.

The split cylindrical sleeve associated with the collet is formed with an external flange at both ends and is provided at its back end with longitudinal slits, preferably four in number, for approximately half its length to permit of easy insertion from the front end of the stepped down collar fitted to the end of the lining, the sections formed by the slits springing outward when the sleeve is pushed through and forming a stop to subsequently limit the outward movement of the lead. The collar at the opposite end of the split sleeve limits the backward movement of the sleeve, being adapted to abut against the extreme end of the lining extension beneath the screw threaded part, this

lower portion being again of reduced diameter and acting as a clamping means when the collet contains the lead. The extreme end of the collet carrying the jaws is adapted to move freely along its axis within the nose piece which is of substantially conical shape and uniform thickness, the end being bored for the passage of the leads and provided with slits in the known manner to counteract any variation in the diameter of the leads.

The bore through the remaining portion of the movement should be a sliding fit for the leads or a fit such as to stop their backward movement.

The collet is bored through from the back end for the major part of its length to allow free passage for the leads, a short portion however at the front end being of lesser diameter of bore as a means of gripping the leads. This portion of lesser diameter may be rifled or roughened to assist in gripping the leads.

It will be understood that various slight modifications may be made in the details of construction hereinbefore described within the scope of the invention.

Dated this 17th day of August, 1936.
MEWBURN, ELLIS & CO.,
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London, W.C.2,
Chartered Patent Agents.

COMPLETE SPECIFICATION

Improvements in or relating to Pencil Holders

We, MABIE, TODD & COMPANY LIMITED, of Sunderland House, Curzon Street, Mayfair, W.1, (late 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:—

This invention relates to pencil or lead holders and is an improvement in or modification of the invention claimed in the specification to British Patent No. 399,592 of which the above named Company are the Registered Proprietors.

In the parent specification a substantially conical sleeve or collar was suspended on the collet and slidable in a

ferrule or projecting part thereof, the side being cut away to allow for the assembly of the part. With such an arrangement it was difficult to ensure a perfect axial alignment of the parts, with the result that there was a tendency for the leads to break during the operation of the mechanism.

The object of the present invention is to provide a more efficient mechanism whereby the above disadvantage will be avoided and also one which will facilitate the assembly of the parts.

According to the present invention the aforesaid conical sleeve or collar is omitted and the present invention consists in the improvement in or modification of the invention claimed or described in the specification of British Letters Patent No. 399,592 whereby a sleeve is adapted to act as a guide for the lower proximate end of the collet and to derive its functional movement in both directions therefrom, the said sleeve being slidably mounted and symmetrically supported in

a member rigidly secured to the lower end of the pencil casing or lining, and having stops or the like coacting with the said member to limit the functional longitudinal movement of the sleeve.

Other features of the invention will be apparent from the following description, wherein two preferred forms thereof will now be described with reference to the accompanying drawings wherein:—

Fig. 1 is a longitudinal section showing one form of pencil holder according to the invention;

Fig. 2 is also a longitudinal section of a modification of the arrangement shown in Fig. 1;

Fig. 3 is a section on the line III—III of Fig. 2;

Fig. 4 is a longitudinal section of the sleeve; and

Fig. 5 is a plan view of the detail shown in Fig. 4.

Like reference numerals indicate like parts in all the figures.

The terms "upper" and "lower" occurring throughout the specification indicate the relative position of the parts as shown in the drawings.

Referring now to the drawing and more particularly to Fig. 1, the cylindrical split sleeve 1 forming the subject of the present invention and adapted to act as a guide for the lower end of the collet 2 is slidably mounted in a stepped collar 3 rigidly secured to the lower end of the pencil casing 4. The collar 3 is affixed at its upper end in the tubular lining 5 of the outer casing 4. The lower end 6 of the casing 4 is of reduced diameter internally to define a shoulder 8 upon which the external shoulder of the stepped-down collar is adapted to rest. The two lower extensions 10 and 11 of the collar project from the end of the casing 4, the part 11 being screwed to take a hollow substantially conical nose-piece 13. The lower end of the nose piece 13 is bored as shown for the passage of the leads and provided with slots 14 in known manner to counteract any variation in the diameter of the leads and also to stop their backward movement.

As will be seen from the drawings, the stepped collar 3 is of two bores 15 and 16, the upper and larger of which surrounds the flange formed on the upper end of the split sleeve 1. That part of the collet 2 disposed within the split sleeve 1 is of smaller diameter than the major portion thereof, thus defining a shoulder 17 immediately above the sleeve 16. The lower proximate end of the collet and also of the cylindrical sleeve are positioned within the bore of the collar, as will be herein after more fully described.

The device also includes a disc 19 adapted to rest upon the upper annular face of the stepped down collar 3 and to co-operate with a second disc or stop 20 rigidly secured to the proximate upper end of the collet, and between which and the first a helical spring 22 is disposed. The upper end 24 of the collet projects into a counterbore 25 of the base member 27 of the lead magazine 28, which base member is axially bored at 30 and counter-sunk at its upper end 31 to form a passage for the leads from the magazine 28 to the bore of the collet 2. This base member is formed with a lower flange 32 which is an easy sliding fit within the casing.

The tubular lead magazine 28 is adapted for longitudinal movement and extends axially upward, the upper end having rigidly connected thereto a hollow socket 33 formed with a flange 34 on its outer surface which is adapted to abut against an inwardly projecting ledge 36 formed by spinning the metal lining 5 of the casing and thereby limit the upward movement of the lead chamber due to the action of the spring 22.

The upper part of the socket is counter-bored at 38 to receive an india-rubber eraser 38a and is fitted with a removable external cap 39 having a tubular metal lining 40, the lower enlarged end of which is adapted to engage and be frictionally retained on the external surface of that part of the socket 33 above its flange 34 to effect by manual means the reciprocation of the socket 33 and consequently of the collet 2. The outer diameter of the lower part of the cap 39 is such that it is slidable past the inwardly projecting ledge 36. The upper end of the tubular lining is spun outward to form a stop for a clip (not shown) or to form a cover for the back end of the outer casing.

The split cylindrical sleeve 1 (see also Figs. 4 and 5) associated with the lower end of the collet is formed with an upper and lower external stop or flange 42 and 43 respectively and is provided with longitudinal slits 44 as shown extending approximately half its length to permit of its easy insertion from the front end of the stepped-down collar 3 by closing the sections formed by the slits, these sections subsequently springing outward to their normal position and forming an upper stop which limits the downward movement of the sleeve. The collar 43 at the opposite end of the split sleeve limits the upward movement of the said sleeve being adapted to abut against the extreme end of the collar extension 10. The extreme end 45 of the collet carrying the jaws is adapted to move freely along its axis within the nose-piece 13 which is a

- substantially conical shape and uniform thickness.
- The collet 2 is bored for the major part of its length to allow free passage for the leads, the short lower portion 45, however, being of lesser diameter of bore for the purpose of gripping the leads. This bore of lesser diameter may be rifled or roughened as shown to assist in gripping leads.
- The arrangement shown in Figs. 2 and 3 follows generally the construction shown in Fig. 1, more particularly the lower part thereof. This construction, however, has been devised to allow the collet 2a to take single leads of relatively great length which are inserted therein through the aperture 57 provided in the reciprocating knob 46.
- The lead magazine (see also Fig. 3) is defined by the spaces formed between an inner lining 47 of substantially star shaped section (see Fig. 3) and an outer lining 48 disposed within the outer casing 50 which is of substantially cylindrical form, the leads being shown within the magazine at 51. This cylindrical casing 48 is also fitted with a cap or cover 52 whereby the leads 51 may be inserted or removed as necessary. The inner casing is spun inward at 53 or otherwise provided with a ledge to limit the upward movement of the disc or corresponding part 20, or provided with protuberances as shown at 56 in Fig. 3.
- The lower part of the pencil is substantially identical with that shown with reference to Figs. 1, 4 and 5 and the various parts are similarly numbered.
- In both constructions a downward pressure on the knob 40, 46 against the spring 22 imparts a downward movement to the collet 2 and lead, the sleeve 1 moving with the collet until the flange 42 abuts against the top of the stepped down collar 3, further descent of the collet allows the jaws 45 to open and the feed ceases; the lead being retained by the split tip 13. On the return of the knob under the action of the spring 22 the collar 1 rises together with the collet until the flange 43 abuts against the lower portion 10 of the stepped down collar 3, further upward movement of the collet then causes the lead gripping jaws 45 to close.
- The motion is repeated until the lead has been fed downward to the desired extent.
- 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. The improvements in or modifications of the invention claimed or described in the specification of British Letters Patent No. 399,592 and which consists in the provision of a sleeve adapted to act as a guide for the lower proximate end of the collet and to derive its functional movement in both directions therefrom, the said sleeve being slidably mounted and symmetrically supported in a member rigidly secured to the lower end of the pencil casing or lining, and having stops or the like coacting with the said member to limit the functional longitudinal movement of the sleeve, for the purpose specified.
 2. A pencil holder according to claim 1 wherein the stops take the form of an upper and a lower flange on the sleeve.
 3. A pencil holder according to claim 1 or 2 wherein the sleeve is split for a portion of its length, for the purpose specified.
 4. A pencil holder according to claim 1 wherein the member in which the sleeve is slidably supported serves as the means of attachment for the lower portion or nose-piece of the pencil.
 5. A pencil holder substantially as described with reference to Figs. 1, 4 and 5 or Figs. 2, 3, 4 and 5 of the accompanying drawings.
- Dated this 3rd day of May, 1937.
- MEWBURN, ELLIS & CO.,
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London, W.C.2,
Chartered Patent Agents.

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

