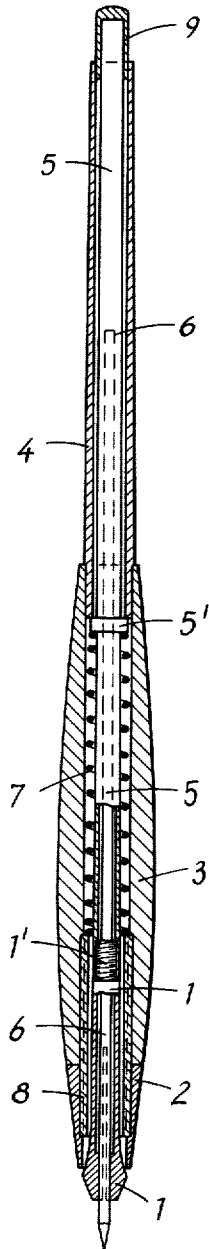


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J. M. SCHWARZÄUGL
LEAD HOLDER OR THE LIKE

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LEAD HOLDER OR THE LIKE

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1 Claim. (Cl. 120-22)

The present invention relates to improvements in a writing or drawing implement of the type as disclosed in the copending application of Günther Fuchs, Serial No. 812,150, filed on May 11, 1959, and consisting of a holder with a collet thereon for gripping exchangeable pencil leads or the like.

The usual collet-type lead holders and the like were made of metal or plastic and had a substantially uniform diameter throughout their length. Consequently, they had a relatively great weight and thickness, and their center of gravity was located near the center of the entire implement rather than at a point as closely as possible toward its writing end. A lead holder or similar implement of this type was therefore rather difficult to control when in use, particularly in free-hand drawing and writing, and most people therefore preferred conventional pencils and similar writing or drawing implements.

These disadvantages are overcome by the lead holder as disclosed in the above-mentioned application in which the center of gravity is placed as closely as possible toward the writing end by making the holder of two principal parts of substantially equal length, namely, a front part which is specially designed to be easily gripped and manipulated and consists of a shaft which tapers from a point near or below its center toward both ends, and a rear part of a smaller diameter and relatively light weight. The tapered shaft consists of a tubular casing of a light material, for example, wood or plastic, which contains a collet mechanism of a construction known as such. The tip portion of the tapered shaft is preferably made of a more resistant material, for example, metal as it is more liable to be damaged than the other part of the shaft if the lead holder might be dropped on the floor, and also as it has to take up the tension under which the collet is drawn inwardly under the action of a spring and against the inner edge of the tip portion for gripping the pencil lead which is inserted into the collet. The thinner and lighter rear part of the holder projecting from the tapered shaft gives the holder the proper length and balance and serves as a plunger which, when depressed against the action of the spring, pushes the collet forwardly to open the same and to release the worn-off pencil lead or to receive a new lead.

It has been found in actual practice that a lead holder of this construction and design overcomes all of the above-mentioned disadvantages of similar lead holders previously known. However, it has been found that the rearwardly projecting plunger part adapted to rest in the crotch between the thumb and the index finger may sometimes be accidentally pushed forwardly by a contraction of the finger muscles with the result that the collet will then be opened and the pencil lead be dropped out. Furthermore, since the plunger is made of a light material, for example, wood or plastic, this exposed part thereof having a length approximately equal to one-half of the length of the entire holder may be easily damaged or broken if too much of a lateral strain is exerted thereon or if the holder is accidentally dropped on the floor and even stepped upon.

It is therefore the principal object of the present invention to improve the lead holder or similar implement as above described by encasing the part of the plunger which

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projects toward the rear of the tapering shaft so as to protect the plunger from being accidentally depressed or damaged. This has the further advantage that at least this rear part of the plunger may be made of a very light material and, if desired, of a tubular shape so as to permit pencil leads to be inserted into the holder which may have a length as great as the length of the entire holder. The rear end of the tubular plunger is preferably closed to form a small knob which only needs to project from the tubular casing for a distance sufficient to allow the plunger to be depressed far enough so that the collet will be opened. This tubular construction also has the advantage that the rear part of the holder is of a much lighter weight so that the center of gravity of the entire holder will be placed still more forwardly toward the writing end.

In order to improve the grip on the tapered front part of the lead holder, the same may be made either of a round or angular cross section and, if desired, its outer surface may be provided with longitudinal or transverse grooves, indentations or small projections.

These and other objects, features, and advantages of the present invention will become further apparent from the following detailed description thereof, particularly when read with reference to the accompanying drawing which shows a central longitudinal section of one preferred embodiment of the invention.

As illustrated in the drawing, the shaftlike lead holder consists of a thicker front part 3, which tapers from a point near or below the center toward both ends, and a slender rear part which primarily consists of a substantially cylindrical tubular extension or casing 4, the front end of which may be secured to the rear end of part 3 by being pressed or screwed into it. The tapered front part 3 terminates into a conical metal tip 2 which is secured to the main body of part 3 by being screwed upon a threaded sleeve 8 which, in turn, is screwed into part 3. A collet 1 of a construction known as such is connected by screw threads 1' to a tube 5 which extends through the thicker front part 3 and also through the tubular casing 4 from which it projects in the form of a closed knoblike end 9 of a sufficient length so that, when this knob 9 is depressed, collet 1 will be pushed forwardly far enough to open by its own resilience. Knob 9 may also be a separate member which is fitted on or into tube 5. Intermediate its ends and within the front part 3, tube 5 which is adapted to receive and guide a long piece of lead 6 is provided with a collar 5' which serves as an abutment to support the rear end of a coil spring 7 and also to limit the rearward movement of tube 5 within the thicker shaft part 3 by abutting against the front end of casing 4. The front end of coil spring 7 engages against the rear end of the threaded sleeve 8.

The operation of the lead holder according to the invention is obvious from the drawing and similar to the operation of the lead holders according to prior designs. Coil spring 7 acts against collar 5' on tube 5 and draws the collet 1 into the bore in the metal tip 2. If knob 9 is depressed, collet 1 will be pushed forwardly and away from the front end of tip 2 so that its individual jaws can bend radially outwardly due to their own resilience, permitting a piece of lead 6 either to be inserted or one already inserted to slide downwardly by its own gravity and out of the front end of the collet. As soon as knob 9 is again released when the tip of lead 6 projects sufficiently from collet 1, the jaws of the latter will again be retracted by spring 7 and be radially compressed by engaging with the metal tip 2 so as to clamp lead 6.

The two parts of the shaft of the lead holder, that is, the thicker tapered front part 3 and the cylindrical rear casing 4 may be made of plastic, or the front part may

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be made of plastic or wood and the tubular rear casing 4
may be made of a light metal, for example, aluminum.

Although my invention has been illustrated and described with reference to the preferred embodiment thereof, I wish to have it understood that it is in no way limited 5
to the details of such embodiment, but is capable of numerous modifications within the scope of the appended claim.

Having thus fully disclosed my invention, what I claim is:

In a mechanical lead holder or the like having a lead clamping mechanism, the combination which comprises: a tubular front section and a tubular rear section together forming a casing, a plunger guided in the longitudinal opening of said casing and having a relatively short 10
portion projecting out of the rear section of the casing so that the major portion of said plunger is within the confines of and thereby protected by the rear section of said casing, a collet guided within the front section of 15
said casing, a collet guided within the front section of said casing and connected to said plunger for gripping and releasing a lead piece or the like, spring means within said front section, said spring means surrounding said plunger with one end thereof abutting against said casing 20
and the other end thereof abutting against said plunger, 25

the front end of said front section being conical and a front portion of said collet being pressed against the forward edge of said front end by said spring means, the front section of said casing having a double-conical outer surface converging from a point near the longitudinal center thereof toward both ends so that the largest diameter of the front section of said casing is at its longitudinal center, said rear section of said casing having a length substantially equal to the length of said front section of said casing and having a smaller diameter than the narrowest portion of the front section of said casing, said rear section of said casing being slightly tapered rearwardly, and said lead holder having its center of gravity within said tubular front section of said casing.

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