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LONGMORE, JOSIAH.—“ Certain improvements in pens, pen-
“ holders, and pencil cases.” The first improvement in metallic
pens relates to a method of giving additional elasticity by in-
creasing the “virtual length of metal” in the part which lies
between the point of the nibs and the shoulders. This is effected
in various ways; by cutting the part between the points and
shoulders into a “curvilinear ribband, forming a series of loops,”
or by cutting it out of the blank much longer than usual, and
afterwards crimping or creasing it up, or by bending up the extra
length “into one or more loops on the back of the pen,” or by
cutting out the nibs with an aperture between them, and thus
bending them back under and up through this aperture, forming
thereby “a circular or elliptical spring.” The second improve-
ment, “which adds greatly to the durability of the pen,” consists
in bending back a portion of the extremity of the nibs “to an
“angle of from forty-five to ninety degrees,” or in bending it
quite flat down upon the back of the pen, or in “cutting the
“pens out of steel of greater thickness at the point than else-
“where,” or when the blank is “cut out, pierced, and marked

“ for the slit,” in pressing the flat under side of the nibs together and making “ what was the outer edge of the nibs the bearing surface.” The third improvement (to prevent the nibs from “ bending under and spirting or sputtering the ink ”) is effected by introducing on the under side of them a tongue, which may be cut out from between them or from the back of the pen, and then bent down under them. In penholders the improvement is in “ the method of holding pens by means of a spherical or hemi-
“ spherical surface pressing the pen against the interior of the “ holding tube,” such pressure being given either by a spring or by means of an inclined plane. “ A small sphere or ball of “ metal, mounted upon a strong spring wire stem,” is fastened to the inside of the stock. A pen, pushed up between the ball and the external holder tube, “ is securely held in its place by the “ pressure of the spring ” upon the ball. Or the ball is mounted on a stem or lever which passes through and is fastened to a larger ball attached to the under side of the stock by a loose joint. The other end of the lever, “ flattened and formed into an “ inclined plane, rises partly through a slot in the upper part of “ the stock,” but “ cannot pass quite out in consequence of a step ” at its extremity. A ring, drawn back over the slot, slides upon and forces down the end of the lever, thus causing the smaller ball to press tightly against the pen. Or “ the spring and holder “ part ” is one piece of metal of various shape, but the middle broader than the ends. The broad part is bent half round to fit the curve of a pen, and one of the ends “ being struck up into a “ hollow hemisphere ” is turned back into the curve, and made to press so firmly against it that a pen may be held between them ; the other end, “ the spring part,” is bent round until it is nearly parallel with the back of the curved part. The spring part is pinned or otherwise attached to a metal plug placed in the socket. On the under side of the socket is a slot, through which a pin, fastened to the plug, projects. By sliding the pin backward or forward the elasticity of the spring is diminished or increased at pleasure. The first improvement in ever-pointed pencil cases consists in a new arrangement of the part designated the motion. “ The lower part of the tail ” is soldered into the socket, a semi-diameter of the upper part being cut away ; this part is supplied by a rack (carrying the propelling wire) which is made half round. The socket tail and rack together make a cylinder, exactly filling the external tube, which is “ tapped inter-

nally with a screw corresponding with the thread upon the “ edge of the rack.” The shoulder of the socket tail is “ turned of a conical, concave, or convex form, and the lower end of the “ tapped tube is turned to fit.” On the upper end of the socket tail, and secured thereon by a pin or otherwise, is a spiral spring, which “ presses the tapped tube down upon the shoulder with “ sufficient force to keep it in firm and pleasant contact, at the “ same time allowing it to revolve freely.” The second improvement “ consists in a contrivance for projecting the pencil “ motion out of the case, and at the same time elongating the “ case itself.” A semi-cylindrical rack is soldered or otherwise fastened to the “ pencil motion;” a similar rack is attached to the “ reserve tube;” and a pinion turns freely on a pin which passes through and is secured to the external case (which is made in two parts). The upper part is connected with the reserve tube and its rack by a pin, which passes under a projecting rim and forms a swivel joint whereon the upper part revolves freely. To prevent the pencil from being protruded too far, the last tooth in each of the racks is left much broader than the others, so that they cannot pass the pinion. The third improvement is a pencil case adapted for “ Hall’s patent metallic memorandum books.” The usual alloy of lead is formed into a wire so as to project from a pencil case by means of a screw motion. An outer case of brass or other metal is tapped on the inside “ with a screw thread “ part of the way up from its lower end;” inside the case is a loosely fitting tube, “ terminating in a point or socket,” and having a slot extending nearly from top to bottom. Within this tube is a “ carrier” (to which the metallic wire is affixed) with one edge (on which is cut a screw thread corresponding with that in the outer case) projecting through the slot. On the top of the carrier is soldered a metal head with a deep groove cut round it, in which a pin passing through the outer case works. By holding the point fast and turning the outer case, the carrier and its wire are moved up or down.