(No Model.)

C. W. BOMAN.

LEAD OR CRAYON HOLDER.

No. 394,054. Patented Dec. 4, 1888.

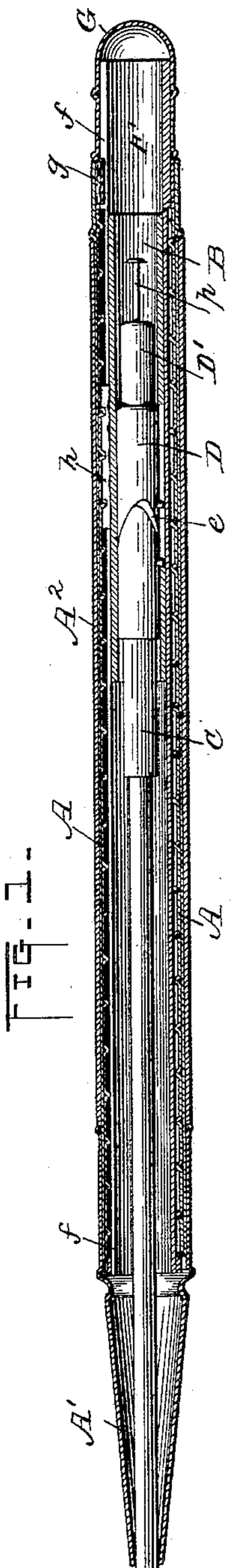

FIG. 1.

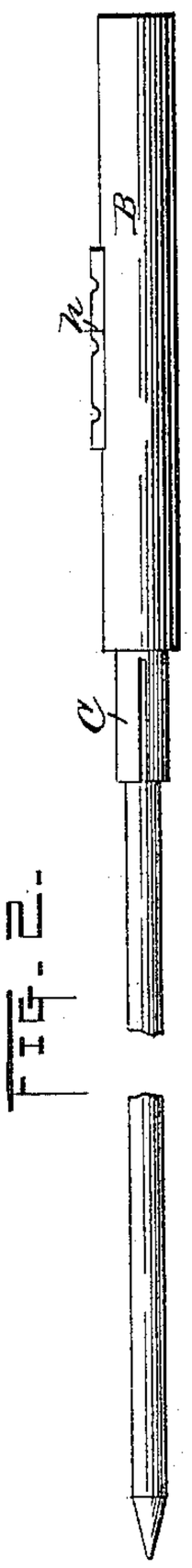

FIG. 2.

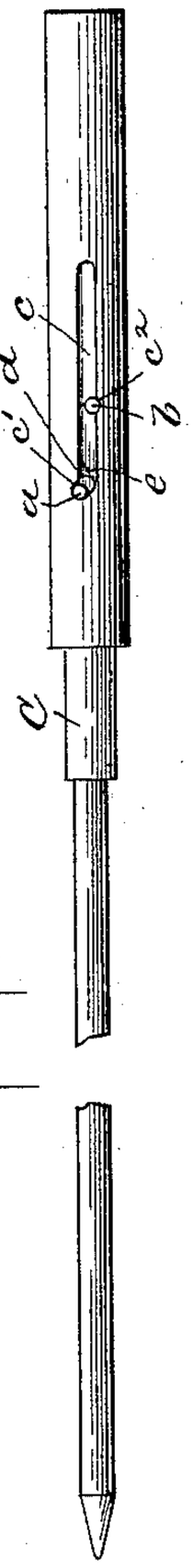

FIG. 3.

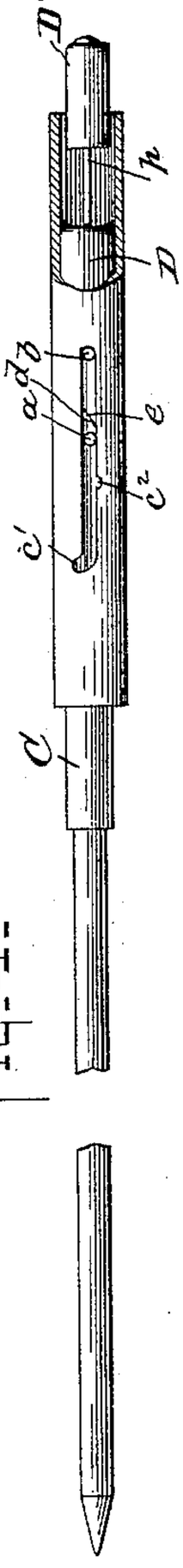

FIG. 4.

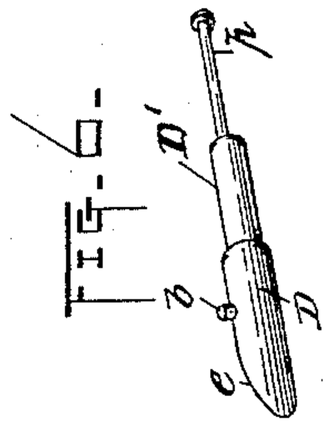

FIG. 6.

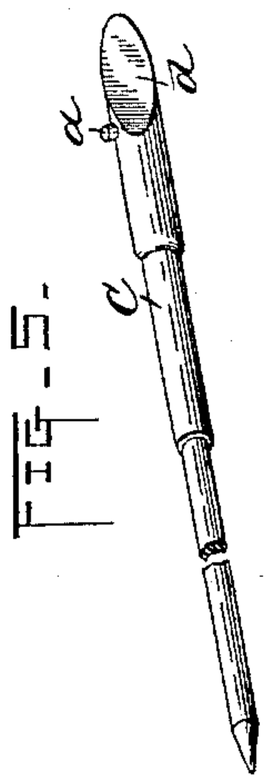

FIG. 5.

Witnesses.
E. D. Smith
E. W. Baldwick.

Inventor—
Claes W. Boman,
by Marcellus Bailey,
his attorney.

UNITED STATES PATENT OFFICE.

CLAES WM. BOMAN, OF NEW YORK, N. Y., ASSIGNOR TO THE EAGLE PENCIL COMPANY, OF SAME PLACE.

LEAD OR CRAYON HOLDER.

SPECIFICATION forming part of Letters Patent No. 394,054, dated December 4, 1888.

Application filed July 27, 1888. Serial No. 281,160. (No model.)

To all whom it may concern:

Be it known that I, CLAES WM. BOMAN, of the city, county, and State of New York, have invented a certain new and useful Improvement in Lead and Crayon Holders, of which the following is a specification.

My invention has relation to that kind of holder in which the lead or lead-carrier is loose within the sheath and free to move by gravity within limits which will permit the lead to be protruded from or withdrawn within the sheath. When the sheath or handle is held point downward, the lead will thereby be automatically projected the required distance for writing purposes, and will be held in that position so long as the point of the pencil is lower than the other end, and when, on the other hand, the sheath is held point upward the lead thereby will be automatically released and allowed to drop back within the handle. This result is due to the combination, with the carrier, of a self locking and releasing or, as it may be termed, a "gravity" locking and releasing mechanism. A holder possessing these general characteristics is not new with me, broadly considered, and I do not claim it as of my invention. My improvement is directed to so arranging the said mechanism and the earrier that they as a whole may be adjustable and movable lengthwise of the sheath or handle, so that they may be advanced as the lead wears away, thus compensating for the wear of the lead without necessitating the cutting away of the handle at the point.

In other applications for Letters Patent, Serial No. 275,418, filed May 29, 1888, and Serial No. 275,330, filed May 28, 1888, I have described some forms of mechanism adapted to accomplish this result, consisting of a sleeve mounted and longitudinally movable on the sheath and connected to the lead holding and releasing mechanism, so that it may by its movement effect the bodily adjustment of the latter. I now propose to illustrate and describe still another form of such adjusting device.

The particular adjusting device which I shall here describe is what is technically known as a "propelling and repelling" movement or mechanism. It can best be explained and understood by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal axial section of the pencil with the lead projected. Fig. 2 is a side elevation of the case and the self locking and releasing mechanism contained in the same. Fig. 3 is a plan of the parts (from the side opposite the teeth *h* in Fig. 2) in the position they occupy when the lead is projected. Fig. 4 is a like view of the same parts in the position they occupy when the lead is retracted. Fig. 5 is a perspective view of the carrier. Fig. 6 is a like view of the main and auxiliary followers.

The tubular sheath or handle consists of a screw-threaded sheet-metal tube, which may have a cover of celluloid, vulcanite, or other ornamental material, A^2, and is provided with the usual tip, A′. Within the tube A is a tube, F, longitudinally slotted at *f* and secured in the outer tube, A, so that it may be free to rotate therein without longitudinal movement. Upon the rear end of the tube F is mounted the cap G, which forms a finish for that end of the pencil. It is used to rotate the tube F, being for that purpose secured to it by suitable means, preferably such as will permit it to be detached and removed, so as to open the rear end of tube B for the withdrawal of the pencil-movement, to facilitate, for instance, the replacing of one pencil-lead by another. For this purpose it in the present instance is united to the tube F by a longitudinal rib, *g*, which fits in the rear end of slot *f*. When the cap is fitted in place, its inner end is received in and covered by a sleeve, G′, attached to the rear of the sheath.

Within the tube F is the case B, which contains the lead-carrier and its automatic controlling mechanism. Upon the exterior of this case is a longitudinal projecting rib containing a number of teeth, *h*. There may be one or more of these teeth. They project through the slot *f* in the rotatable tube F and engage the screw-threads on the interior of the tube A. Thus by rotating the tube F the case B will be caused to advance or recede in the sheath, according to the direction of

rotation. In this way the lead-carrier and its self locking and releasing mechanism can be adjusted bodily lengthwise of the sheath most accurately and conveniently, so as to compensate for the wearing away of the lead.

Various forms of self locking and releasing mechanisms may be employed in connection with the devices just described, and I am not limited in this respect to any specific form. The particular form shown in the drawings is substantially that which I have made the subject of another application for Letters Patent, Serial No. 275,418, filed May 29, 1888, and may be described as follows:

Within the case B are the lead-carrier C and the follower or detent D, by which the carrier in its forward position is held in engagement with the stem B so long as the pencil is point downward. The carrier and follower can slide freely and independently of each other in the case B, and each is guided in its movement by a pin or stud (lettered, respectively, *a* and *b*,) which projects into a longitudinal slot, *e*, formed in the case, of such length as to permit the free lengthwise movement of the follower and carrier within the limits requisite to secure automatic protrusion and the withdrawal of the lead. At the front of slot *c* is a lateral recess or notch, *c'*, leading off from one edge of the slot. On the opposite edge of the slot, at the point where the follower-pin brings up when the follower drops forward, is a slight notch, c^2. The contiguous ends of the follower and carrier have inclined or slanting surfaces, (lettered, respectively, *d* and *e*,) so shaped that each device—follower and carrier—when they meet will tend to impart a slight movement of rotation to the other. The pin or stud *a* on the carrier and the recess or notch *c'* are so located that when the carrier has moved forward as far as permitted by the slot *c* the stud *a* will be opposite to the notch *c'*.

Under these conditions the mode of operation is as follows: When the pencil is held point downward, both carrier and follower drop until the carrier brings up against the front end of slot *c*, at which time its stud *a* will be opposite the recess or notch *c'*. The impact of the follower or detent upon the thus suddenly-stopped carrier will, owing to the faces *d* and *e*, give a movement of partial rotation to the carrier and cause its stud to enter and engage the notch. At the same time the follower itself will have a slight movement of rotation in the opposite direction sufficient to bring its pin *b* into the small notch c^2. Thus the carrier will be locked in position so long as the pencil is point downward; but as soon as the pencil is reversed the follower will by gravity fall back away from the carrier, and the latter thus will be free to drop back in the sheath far enough to withdraw the point of the lead.

Under the arrangement described the case B, containing the automatic pencil-movement, can readily be withdrawn from the rear end of the sheath whenever it is desired to renew the lead.

In order to insure and enhance the efficient action of the follower, I prefer to combine with it a second or auxiliary follower, D', which is a tube somewhat thick, so as to be heavy, and mounted on an axial headed pin, *p*, fixed to the rear end of the main follower, said pin being of greater length than the auxiliary follower, so that the latter may be capable of independent to-and-fro movement upon it to an extent sufficient to permit said auxiliary follower by its momentum to start the main follower rearwardly when the pencil is turned point upward, or by its impact to drive the main follower home against the carrier (and thus to force the latter into locked position) when the pencil is turned point downward.

I do not herein claim, broadly, the combination, in an automatic holder, of the sheath or handle and a lead-carrier and self locking and releasing mechanism therefor adjustable bodily and together lengthwise of said sheath, as the same is the subject in part of my prior application, Serial No. 275,418, filed May 29, 1888.

Having described my improvement, I repeat that I do not claim a pencil wherein the lead is automatically protruded and locked or released and withdrawn, according as the pencil is held point downward or upward; nor do I claim, broadly, an automatic holder wherein the carrier for this purpose is combined with a gravity follower or detent which automatically locks and releases the carrier, according to the position in which the pencil is held; but

What I do claim herein as new and of my own invention is as follows:

1. The combination of the sheath, the lead-carrier, and gravity or self-locking mechanism therefor adjustable bodily and together lengthwise of the sheath, and propelling and repelling mechanism for effecting said adjustment, substantially as and for the purpose hereinbefore set forth.

2. The combination of the sheath having a screw-threaded interior, the lead-carrier and gravity or self locking and releasing mechanism therefor, a longitudinally-slotted tube rotatable within said sheath, a case containing said carrier and the locking and releasing mechanism therefor longitudinally movable within said rotatable tube and provided with teeth which project through the slot in the rotatable tube and engage the screw-threaded interior of the sheath, substantially as and for the purposes hereinbefore set forth.

3. The internally-screw-threaded sheath, the longitudinally-slotted rotatable tube within said sheath having an open rear end, the lead-carrier and its automatic gravity locking and releasing mechanism, the sliding case containing said carrier and mechanism, mounted in said rotatable slotted tube and provided with teeth to engage the screw--threaded

interior of the sheath, and the cap mounted on and detachably connected to the rear end of said rotatable tube, substantially as and for the purposes hereinbefore set forth.

4. The combination, with the sheath, the carrier, the main follower or detent, and the case containing the same, of the auxiliary weighted follower carried by and capable of free to-and-fro independent movement within prescribed limits with relation to said main follower, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 25th day of July, 1888.

CLAES WM. BOMAN.

Witnesses:
SAMUEL KRAUS,
C. S. BRAISTED.