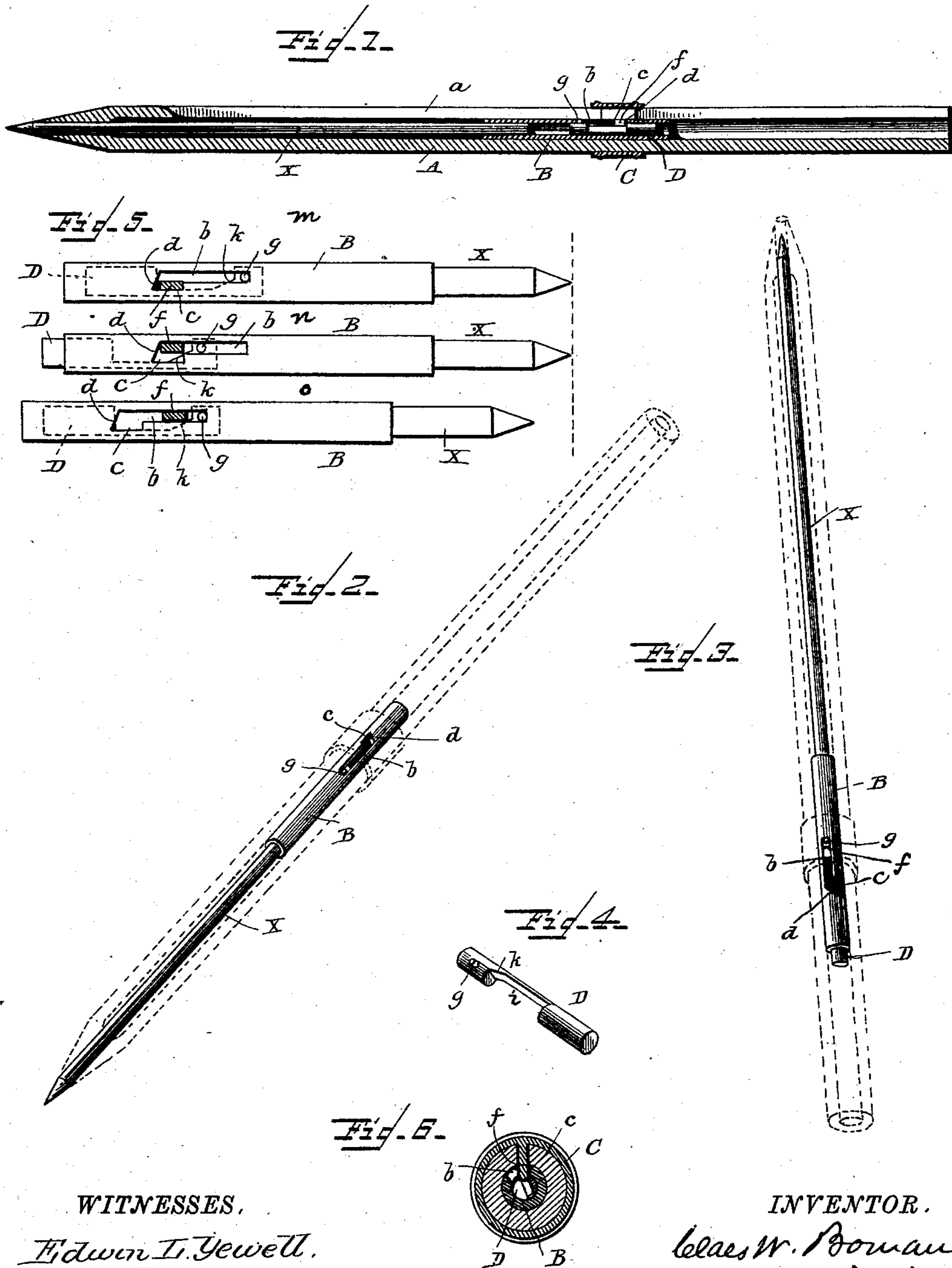


(No Model.)

C. W. BOMAN.
LEAD OR CRAYON HOLDER.

No. 393,812.

Patented Dec. 4, 1888.



WITNESSES.

Edwin T. Jewell.

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INVENTOR.

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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. 393,812, dated December 4, 1888.

Application filed May 28, 1888. Serial No. 275,330. (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 new and useful Improvement in
5 Lead or Crayon Holders, of which the following is a specification.

The holder in which my invention is comprised is one in which the lead is loose and free to move within limits which will permit
10 it to be projected from or withdrawn within the point or tip of the sheath or case. The lead and the sheath are combined with mechanism so organized and arranged that when the sheath is held point downward the lead
15 will be automatically projected from the point the proper distance for writing or marking purposes and locked in that position, and when the sheath is afterward held point
20 upward the lead will be automatically released and allowed to drop or withdraw into the case; and the said mechanism and the lead are, as a whole, adjustable and movable lengthwise of the sheath, so that they may be
25 gradually advanced by hand as the lead wears away.

The particular lead locking or retaining and releasing mechanism devised by me can be made use of independent of the adjustable feature last above referred to, in which
30 case it will be necessary to make the sheath or case of wood or some other material which can be cut with a knife, so that it may be cut away at the point like the wooden case of an ordinary lead-pencil to compensate for the
35 wear of the lead; but I prefer to make it adjustable as a whole, because in this way the sheath or case need not be cut away, and as a convenient means of adjustment I prefer to make use of a sleeve fitting upon and movable
40 lengthwise of the sheath and connected to the lead or its retaining means through a longitudinal slot in the sheath.

The nature of my invention and the manner in which the same is or may be carried
45 into effect will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal axial section in the plane of the longitudinal slot in the sheath
50 of a holder embodying all the features of my invention. Fig. 2 is a perspective view of

the lead controlling and retaining devices in the position which they assume when the sheath (represented in dotted lines) is held point downward. Fig. 3 is a like view of the
55 same parts in the position which they assume when the pencil is held point upward. Fig. 4 is a view of the releasing-follower detached. Fig. 5 represents diagrammatically the positions successively assumed by the dog, fol-
60 lower, and carrier when the pencil is turned point uppermost. Fig. 6 is an enlarged cross-section of the pencil with the dog in locking position.

The holder comprises the combination of a
65 tubular sheath or case, a lead-carrier freely movable back and forth within a sheath, a stop for determining the extent of movement of the carrier, and a detent which, when the sheath is held point downward and the carrier
70 has dropped the distance permitted by the stop, automatically engages the carrier and retains it in that position against pressure on the point of the lead so long as the pencil may be in use, with the point held
75 downward in the position usual for writing or marking purposes. With these devices I also prefer to combine a releasing-follower carried by but freely movable within certain
80 limits independently of the carrier, said follower acting automatically when the pencil is turned point upward to insure the disengagement of the detent from the carrier, and thus to allow the latter to drop back far enough to withdraw the lead within the sheath. I prefer
85 to connect the carrier, stop, and automatic detent to a sleeve movable upon and lengthwise of the sheath, so that all these parts may as a whole be adjusted nearer to or farther
90 from the point of the sheath, as occasion may demand.

The sheath is shown at A. It is longitudinally slotted at *a* from near its point to its rear end. It is tubular, having in its solid
95 point a hole of a size to fit the lead which protrudes through it, and having in its slotted portion a larger hole, which extends through to the rear end of the sheath to accommodate the lead-carrier.

B is the carrier, which can be conveniently
100 made in tubular form of sheet metal, with a socket at its front to receive the end of the

lead x . In the rear portion of the carrier is formed a longitudinal slot, b , the length of which determines the extent of longitudinal movement of the carrier in the sheath, and at the rear of this slot there is on one side or edge of it a notch or recess, c , which forms one member of the automatic detent, hereinbefore referred to. To the rear end of this notch leads the rearwardly-inclined or sloping rear end or edge, d , of the slot b , said edge d forming a guiding-surface, which directs the other member (hereinafter mentioned) of the detent into engagement with the notch or recess c .

Fitted upon and movable lengthwise of the sheath A is the sleeve C , which clasps the sheath so closely that it will hold tight thereto in any position to which it may be moved by hand. Upon the inside of this sleeve is the dog f , which projects through the slotted sheath into the slot b of the lead-carrier, and in itself serves both as the stop to limit the movement of the carrier and as the other member of the detent for automatically locking or retaining the carrier in the position to which it drops when the pencil is held point downward.

The mode of operation of the parts thus far described is as follows: When the pencil is point uppermost, they assume the position shown in Fig. 3, with the carrier resting by the front end of its slot b on the dog or stop f and the point of the lead contained within the sheath. If now the pencil be reversed, bringing its point downward, as in Fig. 2, the freely-moving carrier will drop forward and downward until its incline or sloping rear end, d , brings up against the dog f . By reason of this guiding-incline d the carrier will be given a movement of partial rotation sufficient to turn it far enough to bring the dog f into engagement with the notch or recess c , as shown in the figure. With the parts in this position the lead protrudes from the sheath and is held securely in that position so long as the point of the pencil is lower than the other end. When the pencil is again turned point uppermost, the carrier can be disengaged by shaking the pencil; but as this is a somewhat awkward as well as at times uncertain operation I prefer to provide means which automatically operate to insure the disengagement of the two parts of the detent at this time. To this end I provide a releasing-follower, D , which is longitudinally movable freely with relation to the follower, but turns or rotates with it. This follower may surround the carrier or it may be contained in the carrier. The latter arrangement is preferred and is the one shown in the drawings. It fits within the carrier, having a pin or stud, g , which moves in the slot b in said carrier, so as to prevent independent movement of rotation, while permitting it to freely move lengthwise independently of the carrier. It is slotted or cut away at i , the width of this cut-away portion at least equaling the com-

bined width of the slot b and recess c , and the side edge, h , of this slot or recess has at the front an inward slant or incline, as seen at k . The follower also is weighted or made heavy to give it sufficient momentum to serve the purpose for which it is designed. The manner in which it operates is as follows: When the pencil is held point downward and the carrier is locked, the follower has dropped forward to the extent permitted by the slot b and pin g , as seen in Fig. 2. As soon as the pencil is reversed or held point uppermost, as indicated in diagram m of Fig. 5, the follower begins to drop back, while the carrier is still held by the detent, and in so moving its lateral and inwardly-projecting incline k comes against the dog f , as seen in diagram n of Fig. 5, and the momentum of the follower is such that in this way the dog and carrier are forced out of engagement, and the carrier thus released falls back to the position shown in diagram o of Fig. 5 and also in Fig. 3. In considering the diagrams in Fig. 5 the drawing should be so held that the points of the leads x are uppermost.

It is manifest that the stop, detent, carrier, follower, and sheath will operate together in the same way, so far as concerns the automatic locking and releasing of the carrier, whether the sleeve C be movable or whether it be attached to or made part and parcel of the sheath. When the dog f is a fixture with the sheath, then, as before explained, it becomes necessary to cut away the sheath as the lead wears down. By attaching it to a movable sleeve this is avoided, because the sleeve can be advanced as the lead wears away. Moreover, the movable sleeve is of advantage, because it permits the devices to be removed and replaced from the rear end of the pencil whenever occasion may require.

I do not claim, broadly, a pencil in which the lead is automatically protruded and locked in that position whenever and so long as the pencil is held point downward, and is automatically released and retracted whenever the pencil is turned point upward.

Having described my improvement and the manner in which the same is or may be carried into effect, what I claim herein as new and of my own invention is—

1. The combination of the slotted tubular sheath, the freely-moving lead-carrier within said sheath, the stop for limiting the lengthwise movement of the carrier, the detent for automatically locking said carrier in its forward position, and the sliding sleeve mounted on the sheath and connected to and adapted to adjust the carrier and its stop and detent mechanism bodily and together lengthwise of the sheath, substantially as and for the purposes hereinbefore set forth.

2. The combination of the tubular sheath, the dog carried by said sheath, and the freely-moving lead-carrier within said sheath formed with a slot, b , the notch or recess c , and the inclined guide-surface d , said dog serving

both as a stop to limit the movement of the carrier and as a detent, in connection with the notch or recess *c*, to automatically lock the carrier in its forward position, substantially
5 as hereinbefore set forth.

3. The combination of the sheath, the dog carried by said sheath, the freely-moving lead-carrier within said sheath, formed with a slot, *b*, the notch or recess *c*, and the inclined guide-
10 surface *d*, said dog serving both as a stop to limit the movement of the carrier and as a

detent, in connection with the notch or recess *c*, to automatically lock the carrier in its forward position, and the releasing-follower *D*, as and for the purpose hereinbefore set forth. 15

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

CLAES WM. BOMAN.

Witnesses:

SAMUEL KRAUS,
C. S. BRAISTED.