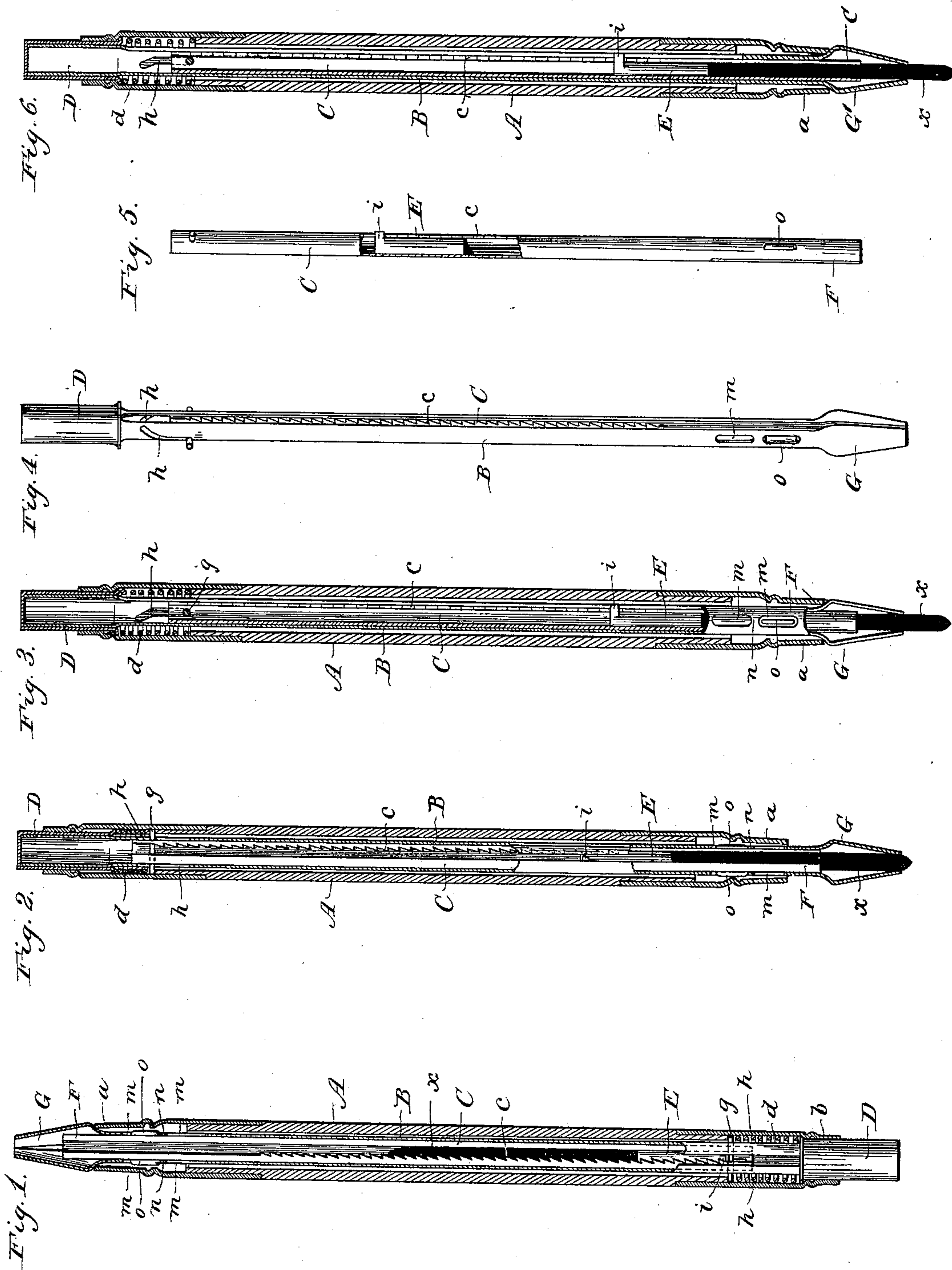


(No Model.)

C. W. BOMAN.
LEAD OR CRAYON HOLDER.

No. 338,820.

Patented Mar. 30, 1886.



Witnesses:

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LEAD OR CRAYON HOLDER.

SPECIFICATION forming part of Letters Patent No. 338,820, dated March 30, 1886.

Application filed January 15, 1886. Serial No. 188,623. (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
5 the following is a specification.

My invention has reference more particularly to that kind of lead and crayon holder now becoming known as a "stop-gage" holder—
10 that is to say, a lead and crayon holder in which a lead-containing case or sheath and lead holding and releasing mechanism are combined with a stop-gage arranged and operating to permit the lead, when released and
15 loose in the case, to drop or protrude from the latter only so far as required in order to enable it to be conveniently used for writing or marking purposes. This feature, broadly considered, is not new with me, it being described
20 and claimed in Letters Patent No. 267,309, dated November 7, 1882, and in said Letters Patent and in others granted subsequently thereto a variety of ways are described whereby the stop-gage feature can be employed in
25 and made part of the holder.

In holders of this character, generally, and particularly in holders designed for lead of small diameter, it is desirable to provide some means other than mere grasping-jaws—like
30 those, for instance, of the ordinary "automatic" holder—for the purpose of holding the lead in place when it is in protruded position. The jaws themselves will sometimes let the lead slip back when its point is pressed on,
35 and if they grasp the lead tightly enough to prevent this they are apt to bite into and injure the lead, particularly if it be ink-lead or copying-lead. To this end I combine with the lead clamping and releasing and the stop-gage
40 mechanism a device which, for convenience' sake, I will term a "back-stop," and which is arranged to follow up the lead when the latter is protruded, and is then locked or held fast in position to form a stop to arrest backward
45 movement of the lead, being thus held until released by the action of releasing mechanism, which permits the lead and the back-stop to return to their retracted positions within the holder. In this way the jaws at the outer end
50 of the protruded lead need not be made to bite

the lead, but can press upon it only to the extent needed to steady it and prevent it from dropping out of the case, its rearward movement being effectually prevented by the back-stop.

The feature last named is one which renders the back-stop available and useful also in a lead and crayon holder of the ordinary automatic type—that is to say, an automatic holder of the kind illustrated in Reissued Patent No. 60 8,967, of November 18, 1879, unprovided with stop-gage mechanism.

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

Figure 1 is a longitudinal central section, partly in elevation, of a holder embodying my invention, with the lead and back-stop in retracted position. Fig. 2 is a like view with the parts in the position they occupy when the lead has dropped to the extent permitted by the stop-gage. Fig. 3 is a like view with the parts in the position they assume when the lead is protruded and held in that position. Fig. 4 is a view of the guide-tube and receiver detached. Fig. 5 is a side elevation, partly in section, of the guide-tube and back-stop contained therein. Fig. 6 is a longitudinal central section of
70 a pencil of the ordinary automatic type containing my improvement.

The holder which I have selected for the purpose of illustrating my invention is one whose construction follows that of the holder
85 shown and described in Letters Patent No. 237,384, of February 8, 1881, in so far as concerns that part of it which relates to the back-stop and its controlling mechanism. It is composed of a sheath or handle, A, provided, as usual, with a contracted tip or front end, *a*, a longitudinally-slotted tube or "receiver," B, and a longitudinally-slotted "guide-tube," C, within the receiver. The receiver at its rear end is connected to the pressure-cap
95 D, and between the pressure-cap (which works in a sleeve, *b*, on the rear of the handle) and a shoulder within said sleeve is confined the retracting-spring *d*. The receiver is capable of longitudinal movement. It is moved for—
100

ward by pressing on the pressure-cap against the stress of the retracting-spring, and when pressure is removed it is moved backward by the recoil of the compressed spring. The guide-tube and receiver are connected by a pin, *g*, which passes through the tube out through slots *h* in the receiver, and its ends are seated in the handle, thus holding the guide-tube stationary with the handle. The extent of longitudinal movement of the receiver is limited by the length of the slots *h*, and the latter at their rear ends are inclined, as shown, so as to impart a movement of partial rotation to the receiver, when said inclined portions of the slots are traveling over the pin. One of the longitudinal edges of the slot in either the receiver or the guide-tube is toothed. In this instance it is the edge of the slot in the guide-tube that is toothed or notched, as seen at *c*. Normally, the receiver is so located with respect to the guide-tube that a tooth or dog projecting through the two slots will be forced by the receiver into engagement with the notched edge of the slot in the guide-tube. When, however, the receiver in its forward movement is, by reason of the pin and inclined slot connection, caused to make a partial movement of rotation, its slot will be brought into register with the slot in the guide-tube, thus permitting the dog or tooth to quit the toothed edge of the said guide-tube.

The tooth or dog referred to is shown at *i*, and it is on a cylindrical piece of metal, *E*, which I term the "back-stop," and which corresponds, in a general way, to the "toothed follower" of Letters Patent No. 237,384, hereinbefore referred to.

Thus far the holder does not materially differ from the one described in said Letters Patent, although while in the patented device the receiver is fixed to the handle, and the guide-tube is attached to the pressure-cap and has a combined longitudinal and rotating movement, the arrangement is reversed in my improved device, this being due to the fact that the stop-gage jaws, which must have longitudinal movement, are in the present instance carried by the receiver. The receiver and the guide-tube, however, at their front ends differ materially from the patented device aforesaid, and in Figs. 1 to 5, inclusive, resemble the holder described in Letters Patent No. 321,786, of July 7, 1885, the receiver terminating in the stop-gage jaws *G*, and the guide-tube terminating in a collapsible nozzle, *F*, consisting of a sheet-metal tube, split on both sides so as to form light spring jaws, which normally stand apart far enough to exercise no appreciable pressure on the lead. The stop-gage jaws *G*, attached to and moving with the receiver, on the other hand, are normally closed. In each jaw are formed two slots, *m*, separated by a bridge or contracted portion, *n*, and on each half of the split nozzle *F* is a rib or protuberance, *o*. These parts operate together as a stop-gage in precisely the same

manner as do the corresponding parts of the holder in Letters Patent No. 321,786, above named.

The lead contained within the guide-tube is indicated at *x*.

This being the organization of the parts, the mode of operation is as follows: Suppose the pencil to be in the condition represented in Fig. 1, and it is desired to protrude the lead for use. The pencil is held point downward, and the pressure-cap is pushed forward, thus advancing the jaws *G* to the position indicated in Fig. 2. In this position the projections *o* are brought into the rear openings or slots *m*. The split nozzle *F*, consequently, is open for the passage of the lead, and the jaws *G* project some distance beyond the split nozzle and are closed, so that the lead in dropping brings up against them. At the same time, by reason of the action of the pin *g* in the inclined portion of the slots *h*, the receiver has been partially rotated so as to bring its slot and that of the guide-tube far enough into coincidence to open an unobstructed passage to the dog or tooth *i* of the back-stop *E*, and the latter, consequently, has dropped until its front end meets and rests against the rear end of the lead, as seen in Fig. 2. Pressure is now removed from the pressure-cap, and the retracting-spring draws back the jaws to normal position. The pin and inclined slot connection between the receiver and the guide-tube causes the former, upon the commencement of its rearward movement, to rotate in a direction to force the dog or teeth *i* into engagement with the notched or toothed edge of the guide-tube, thus locking the back-stop *E* in its advanced position. During the backward movement of the parts the ribs or projections *o* first meet the bridges or contracted parts *n* and then enter the front slots or openings *m*, the effect being, (as fully set forth in Letters Patent No. 321,786, above named,) first, to cause the split nozzle to close upon and clamp the lead while the jaws open and move back to place, and then to permit the jaws to close upon and the collapsible nozzle to release the lead, the parts assuming then the position shown in Fig. 3, with the lead clamped at its front end by jaws *G* and resting at its rear end against the back-stop *E*. The latter is locked in place, and effectually prevents the lead from being forced back by pressure upon its point. In this way it will be noted that it is only necessary that the jaws or other clamping mechanism employed should surround the front end of the lead close enough simply to steady it and to prevent it from dropping out of the pencil. Positive grasping action on the part of the jaws is not essential, the back-stop serving to prevent the lead from being pushed back while in use. This is a feature which, as hereinbefore intimated, will be found valuable in its application to automatic holders of other than stop-gage type, as exemplified in Fig. 6.

In the figure referred to, the letters of ref-

erence indicate parts corresponding in construction and arrangement to like lettered parts in the figures already described. In fact, the only difference between the pencils illustrated in Fig. 6 and in Figs. 1 to 5, inclusive, is, that in Fig. 6 the stop-gage mechanism is dispensed with and the receiver terminates at its front end in simple clamping-jaws G', which need only press laterally against the lead without biting it, the lead being prevented from backward movement by the back-stop.

In the particular construction shown in the drawings, the edge of the slot in the guide-tube is toothed or serrated. It is manifest, however, that these notches can be transferred to one of the edges of the slot in the receiver, as illustrated in Letters Patent No. 237,384. It is also manifest that in the structure shown in Fig. 6 it is immaterial whether the receiver is longitudinally movable and the guide-tube stationary, as there illustrated, or whether the guide-tube is longitudinally movable and the receiver is stationary, as in Letters Patent No. 237,384. The jaws G', however, must be attached to and move with the longitudinally-movable part, whether it be receiver or guide-tube.

In the drawings the back-stop is shown as a solid stick of metal disconnected from the lead. It may, however, if desired, have a tubular socket for reception of the end of the lead, like the follower in Letters Patent No. 237,384, in which event the follower and lead would move together, and the follower itself might furnish the means whereby the protruded lead would be prevented from dropping out from the holder.

It is manifest from the foregoing that the back-stop can be either attached to the lead or not. It is also manifest that the construction and arrangement of the stop-gage mechanism

can be readily varied, so long as it acts when the loose lead drops to arrest its movement at the time its front end protrudes a predetermined distance from the tip of the pencil. What is essential is, that there should be combined with the stop-gage mechanism and the mechanism for clamping and releasing the lead or the part to which the said lead is connected a back-stop which will prevent the lead, when in use, from being pushed back by pressure upon its point.

What, therefore, I claim as new and of my invention is—

1. The combination, with the spring-controlled lead clamping and releasing mechanism of a lead and crayon holder, of a back-stop arranged and operating substantially in the manner and for the purpose herein set forth.

2. The combination, with the sheath or handle, the stop-gage mechanism, and the spring-controlled lead clamping and releasing mechanism of a lead and crayon holder, of a back-stop arranged and operating substantially as and for the purposes hereinbefore set forth.

3. The combination of the sheath or handle, the guide-tube, the receiver connected therewith by a pin and inclined slot connection, the toothed back-stop or follower, the stop-gage jaws carried by the receiver, the collapsible or split nozzle carried by the guide-tube, the pressure-cap, and the retracting-spring, these parts being connected and arranged together for joint operation substantially as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 8th day of January, A. D. 1886.

CLAES WM. BOMAN.

Witnesses:

SAMUEL KRAUS,
ED. THIEMANN.