(No Model.)

J. HOFFMAN.

LEAD AND CRAYON HOLDER.

No. 261,456. Patented July 18, 1882.

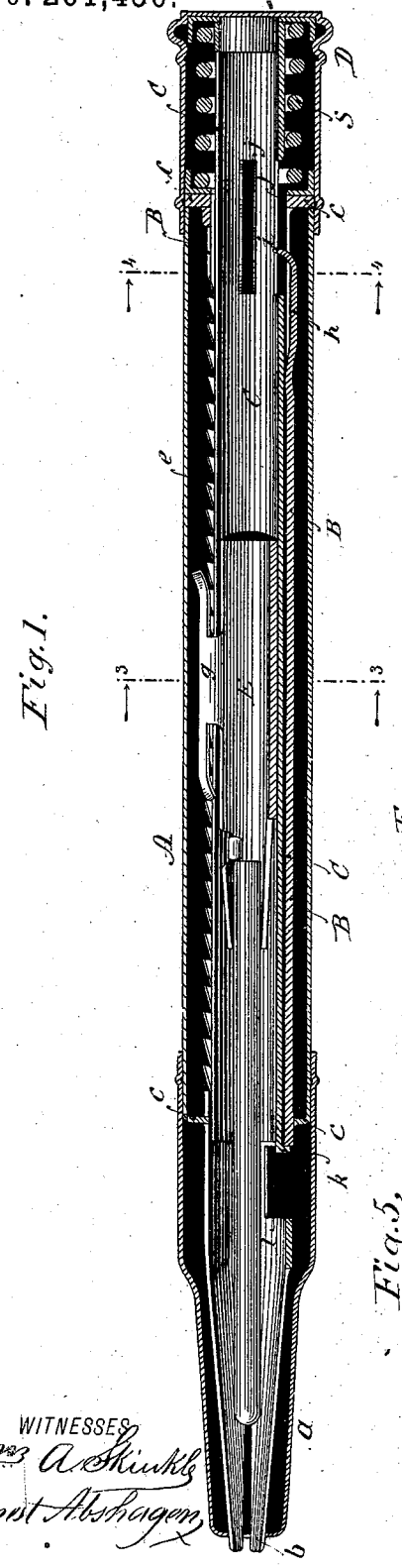

Fig. 1.

Fig. 5.

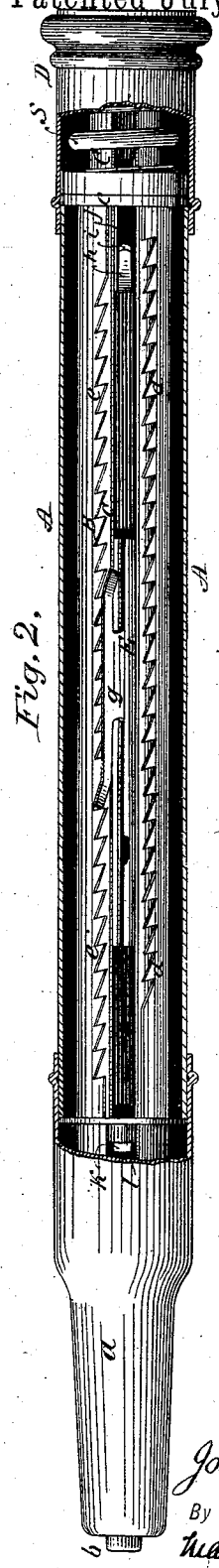

Fig. 2.

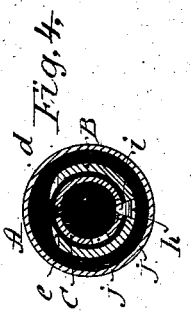

Fig. 4.

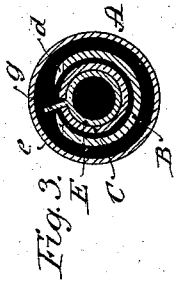

Fig. 3.

WITNESSES

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LEAD AND CRAYON HOLDER.

SPECIFICATION forming part of Letters Patent No. 261,456, dated July 18, 1882.

Application filed March 28, 1882. (No model.)

To all whom it may concern:

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

My invention has reference to lead and crayon holders in which the lead is advanced step by step by means of mechanism put in action through the instrumentality of a reciprocating pressure-cap on the end of the handle. It is characterized in the main by the employment of a reciprocating follower-tube, which contains the lead-carrier and serves as the moving or propelling instrumentality in connection with a stationary ratchet attached to or forming part of the sheath, and a pawl attached to the lead-carrier, which serves as a means for retaining in position the lead-carrier during the return movement of the propelling instrumentality. The follower-tube has sufficient frictional contact with the carrier to cause the latter to partake of its movement, except when prevented by the pawl and ratchet, the latter device thus serving not to propel but simply to detain or hold the carrier in position under certain conditions.

My present invention is also directed to means whereby the pawl may, when desired, be disengaged from the ratchet, so as to permit it to be moved back again into the holder far enough to retract the holder when not required for use. It is also directed to means whereby the lead may be both advanced and retracted step by step, my improvement in this direction being mainly characterized by the employment, in connection with a double pawl on the lead-carrier, of a double ratchet or two oppositely-inclined lines of ratchet-teeth, with either of which the lead-carrier pawl can be brought into engagement through the instrumentality of the reciprocating follower-tube attached to and moving with the pressure-cap, and adapted also to have a movement of partial rotation for the purpose of pressing and holding the pawl against one or the other of the rows or lines of teeth, as desired.

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

Figure 1 is an enlarged longitudinal central section of a holder embodying my invention. Fig. 2 is a like sectional elevation of the holder turned so as to expose clearly the ratchet-and-pawl arrangement. Fig. 3 is a cross-section on line 3 3, Fig. 1. Fig. 4 is a section on line 4 4, Fig. 1. Fig. 5 represents the lead-carrier provided with double detent or spring pawl.

The case or sheath A is made in the usual way, and its tip *a* is preferably removable, so that it can be taken off when it is desired to insert the lead into the lead-carrier. When in place on the sheath it compresses the jaws or spring-strips *b*, which are fast to the sheath or to some part attached thereto, and serves to support the point of the lead. In this case the jaws are a prolongation of the ratchet-tube B. This tube is placed concentrically within the sheath A, and is firmly united therewith by front and rear washers, *c*. It is slotted longitudinally, and the edges of the slot are formed of ratchet-teeth *d e*, which project toward one another, those, *d*, on one side being inclined in an opposite direction to those, *e*, on the other side. The slot is of considerable width, sufficient to permit the double pawl (hereinafter referred to) to clear the one ratchet when it is in engagement with the other. Within the ratchet-tube is a propelling-tube, C, which is adapted to reciprocate longitudinally, and for this purpose is attached to a pressure-cap, D, mounted on the end of the sheath and combined with a retracting-spring, *s*, the arrangement in this respect being similar to that in the well-known "automatic" pencil now in the market. The propelling-tube is formed with a narrow longitudinal slot, just wide enough to permit the passage of the stem or strip that supports the double spring-pawl *g* of the lead-carrier E. This lead-carrier is made, as usual, with a socket for the lead, and it has an expanded spring rear end which fits closely and with some friction the propelling-tube C, within which the carrier is contained. When the carrier is in place in

the propelling-tube the double spring-pawl which it carries is outside of the tube and in a position where it may be brought into engagement with either one of the ratchets of the ratchet-tube. In order to permit of this adjustment, the propelling-tube is made capable of a movement of partial rotation—say about a quarter-turn. When turned to one extreme it will carry the pawl into engagement with ratchet *d*, and when the parts are in this position a back-and-forth movement of the propelling-tube will cause the carrier to advance step by step. The frictional contact between the propeller-tube and the carrier is sufficient to cause the two to move together when the follower-tube is pushed forward, the pawl riding over the teeth *d* and permitting this movement. When, however, pressure on the propeller is removed and the spring is permitted to retract it, the carrier will not partake of this movement, inasmuch as the pawl will engage the ratchet *d*. When the propeller is rotated to the other extreme, so as to bring the carrier-pawl into contact with the opposite ratchet, *e*, the action is reversed. The carrier moves back with the propelling-tube, but is prevented from advancing by reason of the engagement of the pawl with the rearwardly-inclined teeth of the ratchet. In this way I am enabled to either advance or retract the lead at pleasure, in each case by a pawl-and-ratchet or step-by-step movement.

In order to hold the propelling-tube in either one of the two portions to which it may be turned without interfering with its longitudinal reciprocations, various devices may be employed. One convenient instrumentality is shown in the drawings, consisting of a spring-strip, *h*, on or forming part of the ratchet-tube, which is provided with a rounded or beveled protuberance or stud, *i*, adapted to enter whichever one of the two slots or grooves *j* in the propeller-tube may be brought opposite to it. These slots or grooves *j* are of a length at least equal to that of the longitudinal movement of the propeller-tube, and are so placed that when the tube is partly rotated to the extreme in either direction one or the other of them will register with the spring-guide and holding stud or knob *i*. The propelling-tube is held in place in the pencil by a teat or stud, *k*, which projects from it into a slot, *l*, in the stationery ratchet-tube. This slot has a length at least equal to that of the longitudinal movement of the tube and a width equal to the extent to which the propelling-tube can be rotated.

I have set forth what I believe to be, on the whole, the best embodiment of my invention. I do not desire, however, to be restricted to the specific instrumentalities herein described and illustrated, inasmuch as the same may be varied in many respects without departure from my invention.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with the sheath or case and stationary ratchet, of the reciprocatory propelling-tube, the lead-carrier contained therein and moved thereby, and the pawl or detent attached to the carrier, and acting in connection with the ratchet to retain the carrier in position during the return movement of the follower-tube.

2. The combination of the case or sheath and ratchet connected therewith, the reciprocating propelling-tube, the lead-carrier contained therein, and provided with a retaining pawl or detent to engage the ratchet, the pressure-cap, and the retracting-spring, substantially as and for the purposes hereinbefore set forth.

3. The combination, with the case or sheath and a retaining-ratchet connected therewith, of the lead-carrier and its pawl or detent, and the reciprocatory propelling-tube, adapted to have a movement of partial rotation for the purpose of throwing the pawl into or out of engagement with its ratchet.

4. The combination, with the pencil case or sheath and the double ratchet connected therewith, of the lead-carrier and its double pawl, and the reciprocatory propelling-tube containing the lead-carrier and adapted to have a movement of partial rotation for the purpose of bringing the carrier-pawl into engagement with one or the other of the ratchets on the ratchet-tube, substantially as and for the purposes hereinbefore set forth.

5. The case or sheath and double retaining-ratchet connected therewith, in combination with the lead-carrier and its double pawl, the reciprocatory propelling-tube adapted to have a movement of partial rotation, and a locking device for maintaining the said tube in either one of the positions to which it may be brought by rotary movement, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 1st day of March, 1882.

JOSEPH HOFFMAN.

Witnesses:
C. S. BRAISTED,
JOE W. SWAINE.