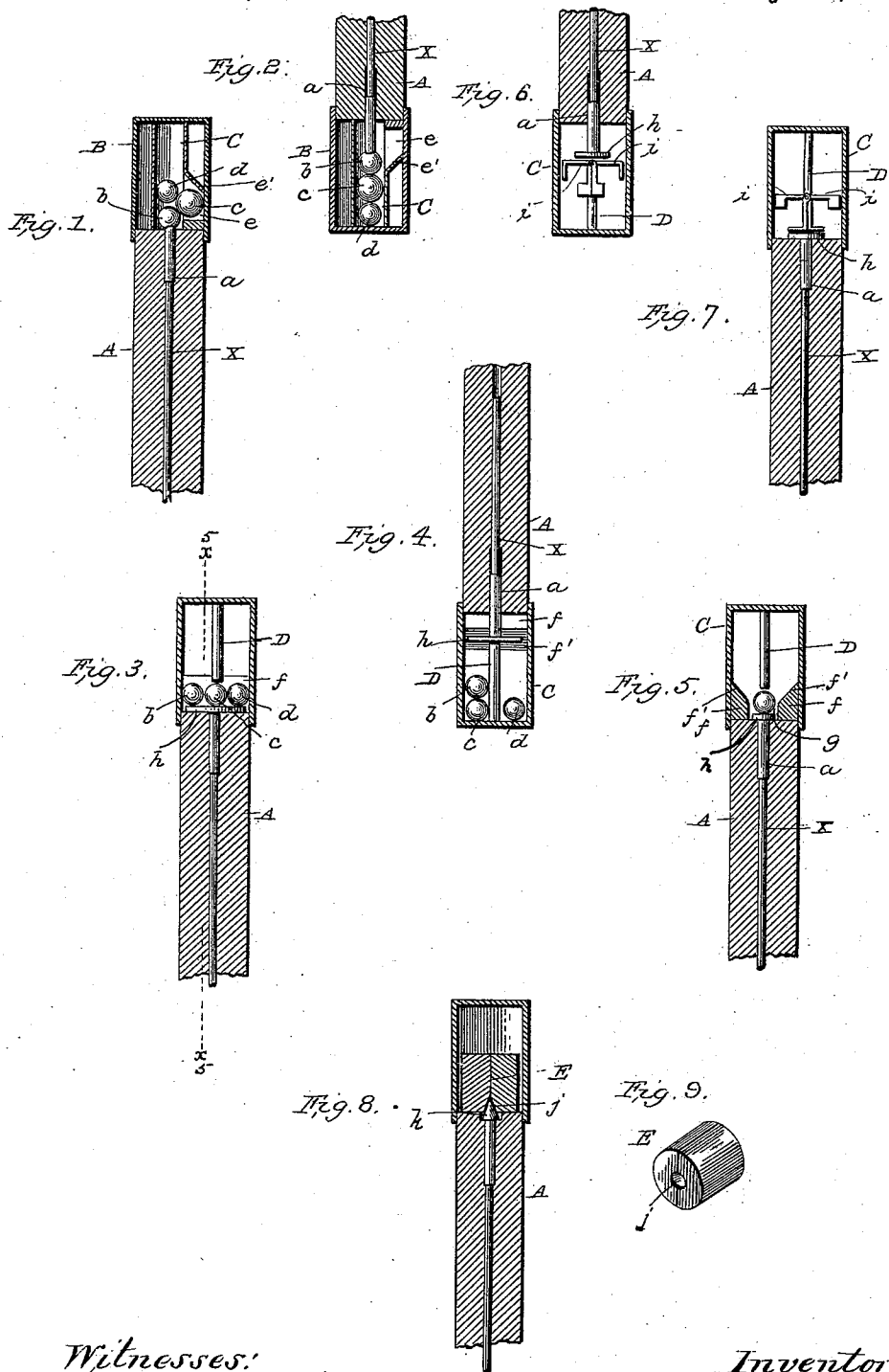


(No Model.)

T. R. STUART.
AUTOMATIC HOLDER FOR PENCIL LEADS, CRAYONS, OR OTHER ARTICLES.
No. 501,850.

Patented July 18, 1893.



Witnesses:
Edwin I. Jewell.
Ewell & Co.

Inventor,
Tom R. Stuart
by Marshall Bailey
his attorney.

UNITED STATES PATENT OFFICE.

TOM R. STUART, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
TO THE EAGLE PENCIL COMPANY, OF NEW YORK, N. Y.

AUTOMATIC HOLDER FOR PENCIL-LEADS, CRAYONS, OR OTHER ARTICLES.

SPECIFICATION forming part of Letters Patent No. 501,850, dated July 18, 1893.

Application filed September 4, 1888. Serial No. 284,563. (No model.)

To all whom it may concern:

Be it known that I, TOM R. STUART, of the city of Washington, in the District of Columbia, have invented certain new and useful Improvements in Automatic Holders for Pencil-Leads, Crayons, or other Articles, of which the following is a specification.

It is the object of my invention to produce an automatic pencil in the true sense of the word—that is to say, a pencil in which the lead will be automatically projected from the sheath and locked in that position when the pencil is held point downward—the lead being correspondingly released and allowed to drop back within the sheath when the pencil is turned point upward. To this end I combine with the sheath, a carrier for the lead or other article free to move by gravity within limits which will permit the lead to protrude from or withdraw within the sheath, according as the pencil is held point down or up; and a detent movable by gravity into and out of a position in which it will lock the lead or lead carrier in its protruded position. It is this feature which characterizes my invention, and which I believe to be broadly new with me.

Manifestly the invention can be carried into effect in a great variety of ways, some of which are illustrated in the accompanying drawings to which reference will now be made.

Figure 1 is a longitudinal central section of so much of an automatic lead holder as needed for the purpose of illustrating my invention—the parts being in the position which they assume when the pencil is held point downward. Fig. 2 is a like section of the same with the parts in the position which they assume when the pencil is held point upward. Figs. 3 and 4 are corresponding representations of a modification. Fig. 5 is a section on line 5—5, Fig. 3. Figs. 6 and 7 are corresponding representations of a further modification. Fig. 8 is a longitudinal central section of still another modification. Fig. 9 is a perspective view of the split gravity detent or follower shown in section in Fig. 8.

In Figs. 1 and 2, A is a wooden sheath like that of an ordinary wooden lead pencil, having a central aperture in which can freely slide the carrier *a* for the lead *x*. On the head

of this carrier is fixed a knob or ball *b*, which limits the forward movement of the carrier. Upon the head of the sheath is fixed a metal cap B containing a central tube C which receives the knob or ball *b* of the carrier and also two loose balls *c*, *d*. Balls *b* and *d* are about of a size. The middle ball *c* is somewhat larger than the other two, and of a size to comfortably fill a recess *e* leading off laterally from the central tube C—which recess has a slanting or inclined face *e'* next to the top of the pencil. When the pencil is held point uppermost as in Fig. 2, the balls and the carrier drop back by gravity to the position there represented—in which position the lead is wholly within the sheath. When the pencil is held point downward as in Fig. 1, the carrier drops forward as far as permitted by its knob *b* in which position the point of the lead protrudes far enough beyond the point of the sheath for writing purposes. The larger ball *c* falls forward also and rolls into the lateral recess *e* thus forming a detent which holds or locks the carrier in its advanced position; and the end ball *d* following after the ball *c* constitutes a follower which retains the locking ball in its seat so long as the pencil is held point downward. As soon as the pencil is turned point uppermost, the parts at once automatically reassume the position indicated in Fig. 2. Thus the lead is automatically protruded and locked in that position, or released and allowed to drop back within the sheath automatically; the action being dependent solely upon the position of the pencil.

In the modification shown in Figs. 3 to 5, the central tube C is dispensed with and in lieu thereof I employ a central stem D, and two side guide ribs *f* with inclined faces *f'* which direct the balls into the central cross groove or recess *g* between these ribs. There are three balls *b*, *c*, *d*,—all of which are loose, and are of the same size. The carrier has a head *h* in the shape of a cross bar, which lies in the groove *g*, and can freely play between the end of the top of the sheath and the end of the stem D—this being sufficient range of movement to insure the protrusion and withdrawal of the lead. When the pencil is held point downward the carrier drops forward as

far as permitted. The balls follow it, being directed by the faces f' into the groove g which they about fill—one of the balls being directly under the stem D between it and the head h of the carrier. In this way the lead is automatically locked in its protruded position and will so remain so long as the pencil is point downward. But whenever the pencil is turned so as to bring its point uppermost, the balls run out of the groove and drop back into the receptacle provided for them in the cap around the stem D , and the carrier is thus free to drop by gravity until its head brings up against the stem D —all as indicated in Fig. 4.

15 In the modification represented in Figs. 6 and 7 the balls are dispensed with and I pivot to the central stem D two weighted angle or elbow levers i which automatically assume the position shown in Fig. 6 when the pencil is held point upward and that shown in Fig. 7 when the pencil is held point downward, thus automatically locking or releasing the lead carrier according to the position of the pencil.

25 In the modification shown in Figs. 8 and 9, the detent or locking device consists of a loose longitudinally split cylindrical block E which is of a diameter to comfortably fill the cap and of such length that it may move longitudinally in the cap a distance sufficient for the protrusion and withdrawal of the lead. In the bottom of this split block (or the face next to the lead carrier) is formed a conical central recess j , and the head of the carrier is given a corresponding conical form as seen at k . When the pencil is held point downward, the carrier falls forward as far as permitted by its head, and the block E drops down upon the carrier, whose head k enters the conical recess j formed in the split block at the point where its two parts meet—all as seen in Fig. 8. Under these conditions if pressure be applied to the point of the pencil, the conical head k will be forced slightly up into the recess j and will act as a spreader to spread apart the sections of the block E and jam them firmly against the inside of the cap. In this way the lead is held in protruded position. But as soon as the pencil is turned

point upward, the block will at once fall away from the carrier thus leaving the latter free to move. The sheath A should be made of wood or some material that can be readily cut with a knife, so that it may be cut away to compensate for the wear of the lead.

I have described a few of the many ways in which my invention may be carried into effect; but I do not wish to be understood as restricting myself to these specific constructions.

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

1. In an automatic holder for lead, crayons and other articles the combination of a sheath, a carrier freely movable within limits which will permit the protrusion or withdrawal of the lead, and a detent movable by gravity according as the sheath is held point downward or upward into and out of a position in which it will lock or retain the carrier in its advanced position, substantially as and for the purposes hereinbefore set forth.

2. The combination of the sheath, the gravity carrier freely movable longitudinally therein within definite limits, the gravity detent or follower and the cap or receptacle containing the same, provided with a locking shoulder between which and the head of the carrier the gravity detent or follower is maintained whenever and so long as the sheath is held point downward, substantially as and for the purposes hereinbefore set forth.

3. The combination of the sheath, the gravity carrier freely movable longitudinally therein within prescribed limits, and the gravity follower separate from the carrier and freely movable in the sheath independently of said carrier, and operating to lock the carrier in, or to release it from, its advanced position according as the holder is held point downward or upward, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 23d day of June, A. D. 1888.

TOM R. STUART.

Witnesses:

EWELL A. DICK,
MARVIN A. CUSTIS.