(No Model.)

# J. APPLEBY.

## HOLDER FOR PENCILS AND OTHER IMPLEMENTS.

No. 346,014. Patented July 20, 1886.

Fig. 1.

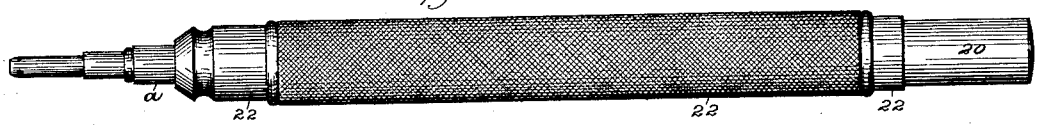


Fig. 3.

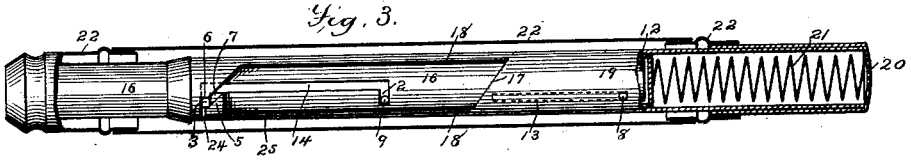


Fig. 5.

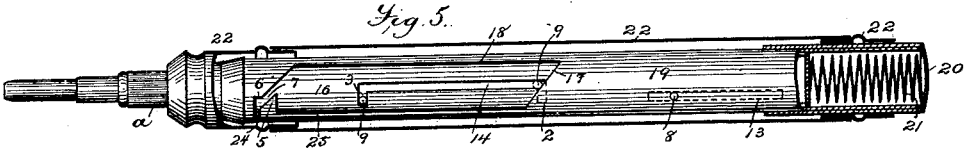


Fig. 6.

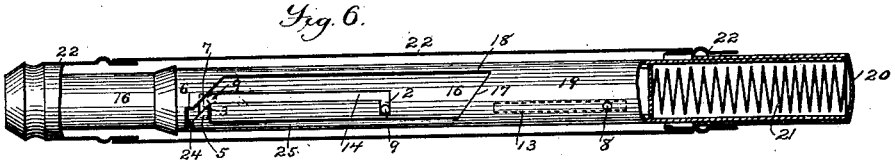


Fig. 2.

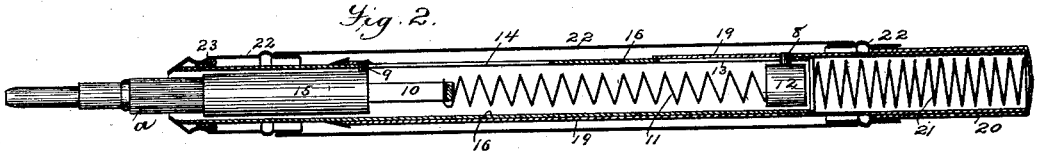


Fig. 4.

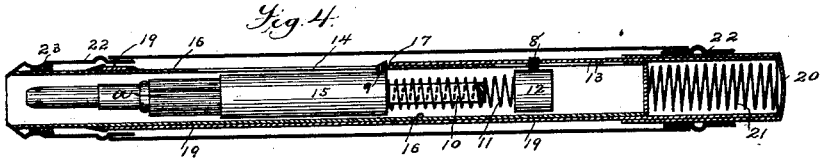


Fig. 7.

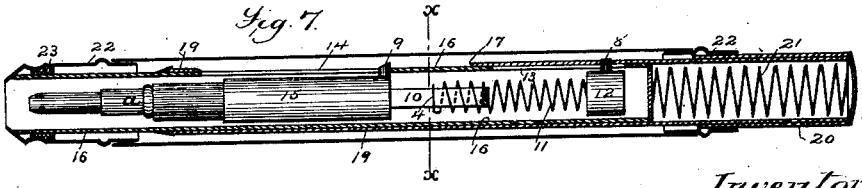


Fig. 8.

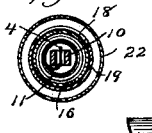


Fig. 9.

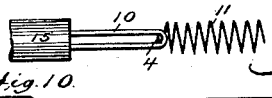
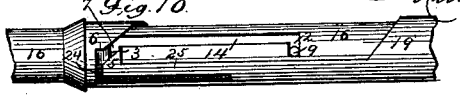


Fig. 10.



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# UNITED STATES PATENT OFFICE.

JOSEPH APPLEBY, OF BIRMINGHAM, ENGLAND.

## HOLDER FOR PENCILS AND OTHER IMPLEMENTS.

SPECIFICATION forming part of Letters Patent No. 346,014, dated July 20, 1886.

Application filed October 22, 1885. Serial No. 180,595. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH APPLEBY, a subject of the Queen of England, residing at Birmingham, England, have invented certain new and useful Improvements in Holders for Pencils and other Implements, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of cases or holders for pencils, knife-blades, tooth-picks, pen-holders, and similar implements in which the implement when not in use is retracted or drawn within the holder and is protruded from the holder to be brought into position for use.

It is the object of the invention to produce a holder of this class in which the implement carried by the holder can be automatically protruded and retracted with a positive action by the same operating devices, irrespective of the position in which the holder is held—that is to say, whether with the open end downward or upward or in any intermediate inclined position.

As a full understanding of the invention can be best imparted by a detailed description of the construction and operation of the holder, such description will now be given, reference being had to the accompanying drawings, in which, for the purpose of illustration, the holder is shown as containing an ordinary ever-pointed pencil.

In said drawings, Figure 1 is an elevation of the holder, showing the pencil protruded. Fig. 2 is a longitudinal section showing the parts in the same position. Fig. 3 is an elevation, partly in section, showing the pencil retracted within the holder. Fig. 4 is a longitudinal section showing the parts in the position they occupy just before the pencil is protruded. Fig. 5 is an elevation, partly in section, showing the parts in the position they occupy just after the pencil is protruded. Fig. 6 is a similar view showing the parts in the position they occupy just after the pencil is retracted within the holder. Fig. 7 is a longitudinal section showing the parts in the same position. Fig. 8 is a cross-section taken on the line *x x* of Fig. 7, looking toward the top of the holder; and Figs. 9 and 10 illustrate details, which will be hereinafter referred to.

Referring to said drawings, it is to be understood that the implement *a*, which the holder is shown as carrying in the present case, is a pencil of the ordinary ever-pointed variety in which the lead is advanced by means of a screw as it is worn away in the act of writing.

The construction of this class of pencils is so well understood as to render any further description unnecessary.

The pencil or other implement, *a*, is attached to or carried by a head or block, 15, which is arranged to slide freely in a conducting-tube, 16, which is of a length proportioned to the length of the implement which the holder is to contain. The conducting-tube 16 is provided with a longitudinal slot, 14, through which projects a stud or pin, 9, which is secured to the carrying-head 15. The slot 14 is of a length equal to the movement which it is desired to give to the pencil in protruding it from and retracting it into the holder, and is provided at its opposite ends with locks 2 3, formed by lateral recesses. The conducting-tube 16 is also provided with a second longitudinal slot, 13, through which projects a stud, 8, which is secured to a follower, 12, which is arranged to slide freely in the upper end of the tube 16.

Between the follower 12 and the head 15 there is located the operating-spring 11, which is of spiral form, and has one of its ends attached to the follower 12, while its other end is connected to the carrying-head 15 by means of a loop, 10, which extends from the head and encircles the end 4 of the wire of which the spring is formed, as best shown in Figs. 8 and 9. The loop 10 is of such size that it will readily enter the space within the coil of the spring 11, as shown in Figs. 4 and 7. By means of this arrangement the end 4 of the spring 11 is permitted to move freely in the loop 10, and thus afford a certain amount of lost motion between the head 15 and the spring. The purpose of this will appear when the operation of the holder is explained.

In assembling the parts the operating-spring 11 is given such an amount of torsion that when the parts are in position the spring will always tend to turn the stud 9 in the direction of the recesses 2 3, so that as soon as the stud arrives at either end of the slot 14 it will at

once be thrown into and held in the recess at that end of the slot, thus locking the head 15 in that position. The purpose of this will also appear when the operation is explained. Outside of the conducting-tube there is fitted a tube or sleeve, 19, which I call the "operating-tube," and which is arranged to slide freely on the tube 16, but is rigidly connected to the follower 12 by means of the stud 8. The operating-tube 19, which extends beyond the upper end of the conducting-tube 16, is provided with a wide slot, 18, which extends longitudinally of the tube, and coincides with the slot 14, although it is of somewhat greater length. The upper end of the slot 18 is inclined, so as to form a cam, 17, for acting upon the stud 9, while its lower end terminates in a narrow oblique slot, 7, which is so cut as to form a shoulder, 6, which, when the parts are in their normal position, just registers with the open end of the recess 3 and a tooth or projection, 5, which extends to the edge of the slot 14. The tube 19 is also provided with a slit, 24, (see Fig. 10,) by which that portion of the tube to which the tooth 5 is attached is made to form a spring-arm, 25, which permits the tooth to be raised slightly away from the tube 16, and causes it, when so raised, to return again when released. The purpose of this will appear when the operation of the holder is described. It is to be remarked, in passing, however, that the spring-arm 25, carrying the tooth 5, may be a separate piece attached to the tube 19. The tubes 16 and 19 are both closed at their upper ends, the former by a disk, which fits onto its end, and the latter preferably by a cap, 20, which fits over its end, and extends either inside or outside of the outer sheath or casing of the holder. Between the closed ends of the tubes 16 19 there is located a spiral pressure-spring, 21, which is of greater strength than the spring 11, and has a tendency to draw the tubes 16 19 apart, and thus hold the stud 8 against the upper end of the slot 13.

The parts thus far described constitute the operating parts of the holder, but the holder will usually be provided with an outer sheath or casing, as 22, which may be made of any suitable material or combination of materials, and will be rigidly secured to the tube 16 by solder or otherwise, as indicated at 23.

The operation of the holder thus constructed is as follows: When it is desired to protrude the pencil for use, pressure is applied to the end of the operating-tube 19, so as to compress the spring 21 and move said tube downward over the tube 16, as shown in Fig. 4. As the tube 19 is thus moved along the tube 16, the stud 8 will be moved with it along the slot 13, thereby moving the follower 12 toward the head 15, so as to cause the operating-spring 11 to move along over the loop 10, and abut against the head 15 and be slightly compressed, as also shown in Fig. 4. It will be observed that during this operation the head 15 remains stationary, it being held by the stud 9, which at this time rests in the recess 2. This will continue until the cam 17 on the upper end of the slot 18 comes into engagement with the stud 9, when the cam will by reason of its inclination move the stud out of the recess 2 into the slot 14, as shown by the dotted lines in Fig. 5, and as soon as this takes place the spring 11, which has been compressed between the head 15 and follower 12 will be released and allowed to expand. The force of the operating-spring 11 in expanding will cause the head 15 and the stud 9 to traverse the entire length of the slot 14, thus protruding the pencil to the proper extent, and as soon as the stud arrives at the end of the slot the torsion of the spring 11, which, as before stated, tends to hold the stud against the side of the slot in which the recesses 2 3 are formed, will throw the stud into the recess 3, as shown in Fig. 5. The pressure being then removed from the tube 19, the spring 21 will expand and draw the tube and the follower 12 back to their original position. As the tube 19 is moved back to its original position the tooth 5 will strike against the lower side of the stud 9, but the end of the stud is inclined toward the lower end of the holder, so that the tooth being mounted upon the spring-arm 25, as before stated, will be raised by the stud and will pass over it, thus leaving the stud in the recess 3, as shown in Fig. 2, where it will be retained and locked by the shoulder 6, which extends across the open end of the recess, as shown in Fig. 3. The head 15 being thus held in the position to which it has been moved, and the pressure-spring 21 being stronger than the operating-spring 11, the follower 12 will as it is moved back with the tube by the expansion of the spring 21, as just stated, expand the spring 11 beyond its normal length as shown in Fig. 2, so that it will draw upon the head 15, as long as the pencil remains protruded.

When it is desired to again retract the pencil within the holder, pressure will be again applied to the end of the tube 19, so as to compress the spring 21 slightly and move the tube from the position shown in Figs. 2 and 3 to the position shown in Figs. 6 and 7. This will move the shoulder 6 away from the end of the recess 3 and at the same time cause the inclined side of the tooth 5 to act upon the abrupt upper side of the stud 9, so as to move the stud along the inclined slot 7 out of the recess 3 and into the slot 14, as shown by dotted lines in Fig. 6. As soon as this takes place the operating-spring 11 will be free to contract, and in so doing will move the stud and the head 15 back the whole length of the slot 14, thus retracting the pencil within the holder, and as soon as the stud arrives at the end of the slot the torsion of the spring 11 will throw it into the recess 2, as shown in Figs. 3, 6, and 7. The pressure being then removed from the end of the operating-tube 19, the spring 21 will expand and restore the tube to the position shown in Fig. 3.

Although, as shown herein, a pencil is car-

ried by the head 15, it is to be understood that any other suitable implement—as a knife-blade, a tooth-pick, or a pen-holder—may be carried by the head. The carrying-head 15 need not always be of the length herein shown. In some cases it may be made shorter, and if the form of the implement carried by the holder is such as to permit it, the head may be entirely omitted and the stud 9 and the loop 10 be attached directly to the implement itself. The head 15 and the follower 12 may be either solid or tubular in form. In some cases the loop 10 may be omitted and the operating-spring 11 attached directly to the head 15 or to the implement carried by the holder. In such case there will of course be no lost motion between the spring and the head, and as a consequence the movement of the tube 19 will in most cases have to be increased. So, also, in some cases the follower 12 may be, omitted the operating-spring 11 being connected directly to the stud 8. In such case it will be preferable to provide the conducting-tube 16 with two of the slots 13, so that the stud can extend entirely through the tube 16 and have both of its ends secured to the operating-tube 19. So, also, in some cases the tube 16 may be made to terminate just above the end of the slot 14, the lower end of the pressure-spring 21 being made to rest against a stud or pin which passes through a slot or slots in the operating-tube 19, and is secured to the outer sheath or casing.

A part of the advantages of the invention may be realized by omitting the pressure-spring 21 and moving the operating-tube in both directions by hand. In such case there would be sufficient friction between the operating and conducting tubes to hold the former in any position to which it was moved. So, also, a part of the advantages of the invention may be realized when the means for disengaging the stud 9 from the locks 2 3 is different from that shown.

What I claim is—

1. The combination, with the implement *a* or its carrying-head 15 and the longitudinally-moving operating-tube, of the operating-spring 11, having one end connected to the implement or its head and the other to the operating-tube, whereby the spring is compressed by the movement of the tube in one direction and expanded by the movement of the tube in the opposite direction, so as to both protrude and retract the implement, substantially as described.

2. The combination, with the implement *a* or its carrying-head 15 and the longitudinally-moving operating-tube, of the operating-spring 11, having one end connected to the implement or its head and the other to the operating-tube, whereby the spring is compressed by the movement of the tube in one direction and expanded by the movement of the tube in the opposite direction, so as to both protrude and retract the implement, and the pressure-spring 21 for restoring the operating-tube to its normal position, substantially as described.

3. The combination, with the implement *a* or its carrying-head 15, having the stud 9, of the conducting-tube 16, having the slot 14 and locks 2 3, into which the stud 9 extends, the operating-tube 19, and the longitudinally-moving operating-spring 11, having one end connected to the operating-tube and the other end to the implement or its carrying-head, substantially as described.

4. The combination, with the implement *a* or its carrying-head 15, having the stud 9, of the conducting-tube 16, having the slot 14 and locks 2 3, into which the stud 9 extends, the operating-tube 19, the longitudinally-moving operating-spring 11, having one end connected to the operating-tube and the other end to the implement or its carrying-head, and the pressure-spring 21, arranged to restore the operating-tube to its normal position, substantially as described.

5. The combination, with the implement *a* or its carrying-head 15, having the stud 9, of the conducting-tube 16, having the slot 14 and locks 2 3, into which the stud 9 extends, the longitudinally-moving operating-tube 19, having the cam 17 for removing the stud 9 from the lock 2, and the spring-tooth 5 for removing the stud from the lock 3, and the operating-spring 11, having one end connected to the operating-tube and the other end to the implement or its carrying-head, substantially as described.

6. The combination, with the implement *a* or its carrying-head 15, having the stud 9, of the conducting-tube 16, having the slot 14 and locks 2 3, into which the stud 9 extends, the longitudinally-moving operating-tube 19, having the cam 17 for removing the stud 9 from the lock 2, and the spring-tooth 5 for removing the stud from the lock 3, the operating-spring 11, having one end connected to the operating-tube and the other end to the implement or its carrying-head, and the pressure-spring 21, arranged to restore the operating-tube to its normal position, substantially as described.

7. The combination, with the implement *a* or its carrying-head 15, having the stud 9, of the conducting-tube 16, having the slot 14 and locks 2 3, into which the stud 9 extends, the operating-tube 19, having the cam 17 for removing the stud 9 from the lock 2, and the spring-tooth 5 for removing the stud from the lock 3, and the operating-spring 11, having one end connected to the operating-tube and the other end to the implement or carrying-head by means of the loop 10, in which the spring is permitted to move so as to allow lost motion between the spring and the implement or its head, substantially as described.

8. The combination, with the implement *a* or its carrying-head 15, having the stud 9, of the conducting-tube 16, having the slot 14 and locks 2 3, into which the stud 9 extends, the operating-tube 19, having the cam 17 for re-

moving the stud 9 from the lock 2, and the spring-tooth 5 for removing the stud from the lock 3, the operating-spring 11, having one end connected to the operating-tube and the other end to the implement or carrying-head by means of the loop 10, in which the spring is permitted to move so as to allow lost motion between the spring and the implement or its head, and the pressure-spring 21 arranged to restore the operating-tube to its normal position, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOSEPH APPLEBY.

Witnesses:
J. W. MILLIGAN,
*Secretary*,
THEODORE D. NEAL,
*Merchant's Clerk*,
*Both of* 36 *Lancaster St., Birmingham, England.*