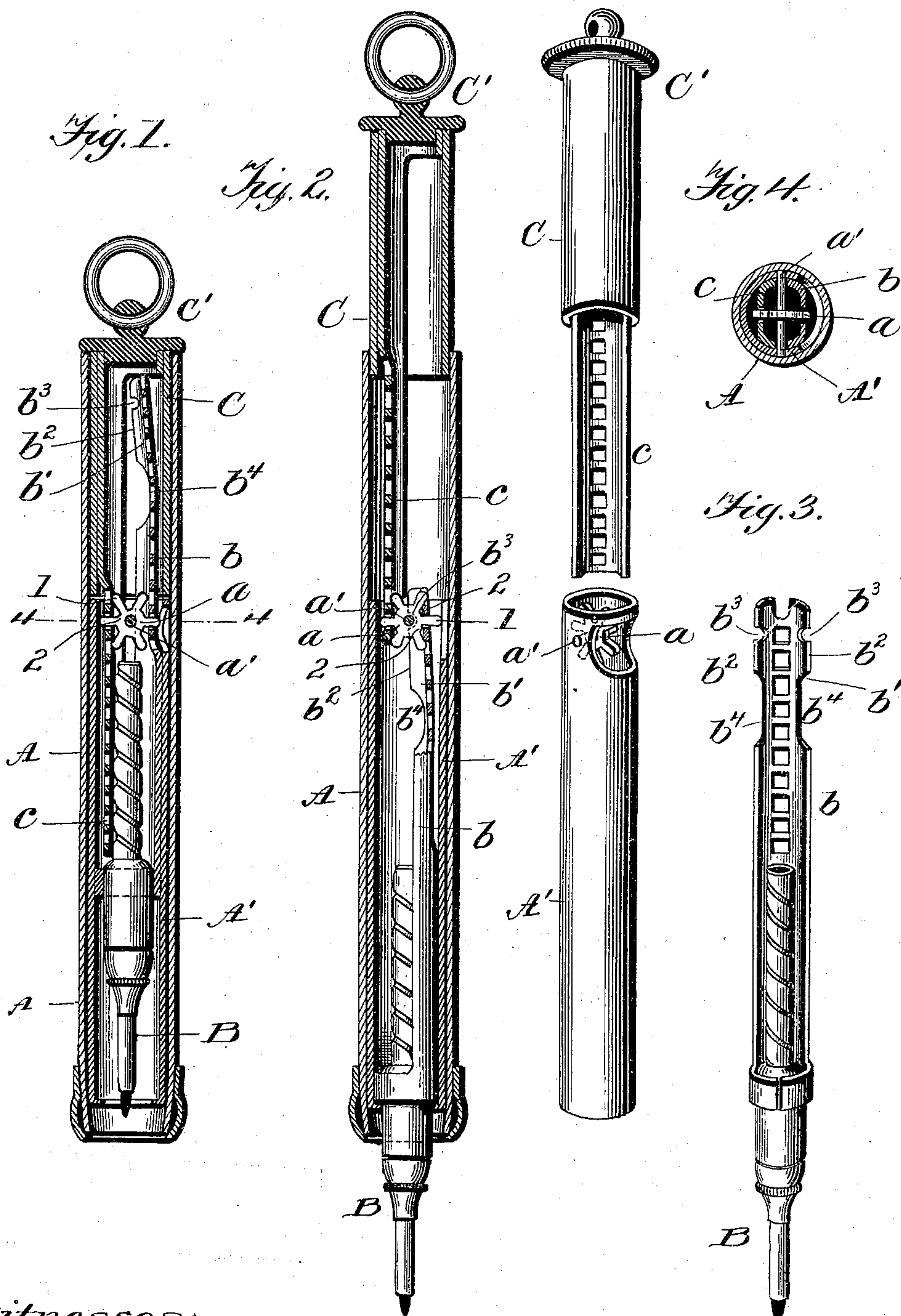


(No Model.)

C. W. BOMAN.  
PEN AND PENCIL CASE.

No. 545,010.

Patented Aug. 20, 1895.



Witnesses:  
L. C. Hills  
J. B. Kiefer

Inventor:  
Claes. W. Boman,  
by Marshall Dail,  
his Atty.



# UNITED STATES PATENT OFFICE.

CLAES WM. BOMAN, OF NEW YORK, N. Y., ASSIGNOR TO THE EAGLE PENCIL COMPANY, OF SAME PLACE.

## PEN AND PENCIL CASE.

SPECIFICATION forming part of Letters Patent No. 545,010, dated August 20, 1895.

Application filed June 28, 1895. Serial No. 554,362. (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 Pen and Pencil Cases, of which the following is a specification.

This invention relates to that class of extensible pen and pencil cases having what is called a "magic movement," whereby when one of the sections of which the case is composed is pulled out or pushed in another section will be caused to correspondingly move.

The invention consists in a novel arrangement and combination of parts, which will first be described by reference to the accompanying drawings, and will then be more particularly pointed out in the claim.

In the drawings, Figure 1 is a longitudinal central section of a mechanical pencil embodying the invention with the parts in the position they occupy when the sections of the pencil-case are closed together. Fig. 2 is a like section with the parts in extended position. Fig. 3 is a view of the three parts of the magic movement separated from one another. Fig. 4 is a cross-section on line 4 4, Fig. 1.

A is the main portion of the sheath or case.

A' is a sheet-metal open-ended tube, which is intended to fit within and be a fixture in sheath A. At or near the rear end of the tube A' is journaled upon a cross pin or axle  $a'$  a pinion  $a$ . The front section consists of a pencil B, having a propeller movement for advancing the lead. This pencil fits snugly within and can slide back and forth in the tube A', and has attached to it a rearwardly-extending rack  $b$ , which is made of sheet metal curved crosswise to fit snugly against the inner wall of the tube A', and along its longitudinal center depressed or flattened, as seen in Fig. 4. In this flattened portion are made the holes by which the rack is formed.

The rear section consists of a tube C, of the same diameter as tube A', provided at its rear end with a suitable head C' and adapted to slide back and forth in the sheath A in which it fits. To the front end of section C is secured a rack  $c$  of the same general con-

struction as rack  $b$ . Rack  $c$  at its rear end fits within and is attached to section C. At its front end it enters tube A' and engages the pinion  $a$ , for which purpose it passes between the inner wall of that tube and the pinion on the side of the latter diametrically opposite the other rack  $b$ . Similarly the rear end of the front rack  $b$  enters and is housed in the tubular rear section C when the pencil is closed, as seen in Fig. 1. To prevent the rear section from being pulled out too far, a detent or lock is provided. The rear end of the rack  $b$ , which is made of spring metal, is given an inward set, as shown at  $b'$ , Fig. 1, and near its extreme end its side edges  $b^2$  are notched, as shown at  $b^3$ . The rack  $b$  is also cut away at  $b^4$  to make the rear end more elastic and yielding. When the front section is moved outwardly, the edges  $b^2$  of the inwardly spring-set portion  $b'$  ride upon the axle  $a'$ , and thus hold the rack out away from the pinion  $a$  far enough to allow the teeth of the latter as it revolves to successively clear the rack; but when the notches or recesses  $b^3$  come opposite the axle  $a'$ , then this portion  $b'$  of the rack is free to spring inward or toward the pinion.

The pinion itself is of peculiar construction in that the recesses which bound one of its teeth are considerably deeper than the rest, as indicated more plainly in the figure, the tooth being shown at 1 and the recesses at 2. The adjustment of parts is such that when the tooth meets the end perforation or hole in rack  $b$ , the notches  $b^3$  will be directly over the axle  $a'$ . The deep recesses 2 on each side of the tooth 1 permit the tongue  $b'$  to spring inwardly far enough to cause the axle  $a'$  to enter the notches  $b^3$ . Thus the front section is locked from further outward movement with the effect, of course, of preventing further outward movement of the rear section, since that movement is dependent upon the rotation of the pinion, which at this time and under these conditions will be held by the front section from rotating in a direction to permit the rear section to be pulled out farther.



To close the pencil the rear section is pushed in. The first effect of the rotation of the pinion caused by this movement of the rear section will be to bring the shorter tooth and shallower recess adjoining the parts 1 and 2 into play, with the result of pressing outwardly tongue  $b'$  far enough to raise its notches  $b^3$  out of engagement with the axle  $a'$ , after which the pencil can readily be closed.

10 In the present case the front section is made the locking agent in conjunction with the pinion for the reason that in the particular structure shown in the drawings to give the inward set to rack-bar of the rear section necessary  
15 to enable that rack-bar to do the locking would cause the bar to interfere with the propeller-pencil B carried by the front section; but the rear section can be used for that purpose by simply modifying the structural details of the pencil or pen case. I remark also  
20 that the pin or projection to be engaged by the notches  $b^3$  need not necessarily be on the axle of the pinion, and I desire to be under-

stood as including any such obvious modification in my claim. 25

What I claim herein as new and of my invention is—

In a pen or pencil case in which front and rear sections are provided with rack bars engaging an intermediate pinion as described, 30 a rack bar carried by one of the sections, having its inner end formed as a tongue spring-set inward or toward the pinion which it engages, and provided with locking notches to engage the axle of the pinion, in combination 35 with a pinion formed as described to permit the inward movement of the tongue of the rack bar at the time the locking notches in said tongue are opposite the axle of the pinion, substantially as hereinbefore set forth. 40

In testimony whereof I have hereunto set my hand this 26th day of June, 1895.

CLAES WM. BOMAN.

Witnesses:

SAMUEL KRAUS,

PERCY H. BUCKMASTER.