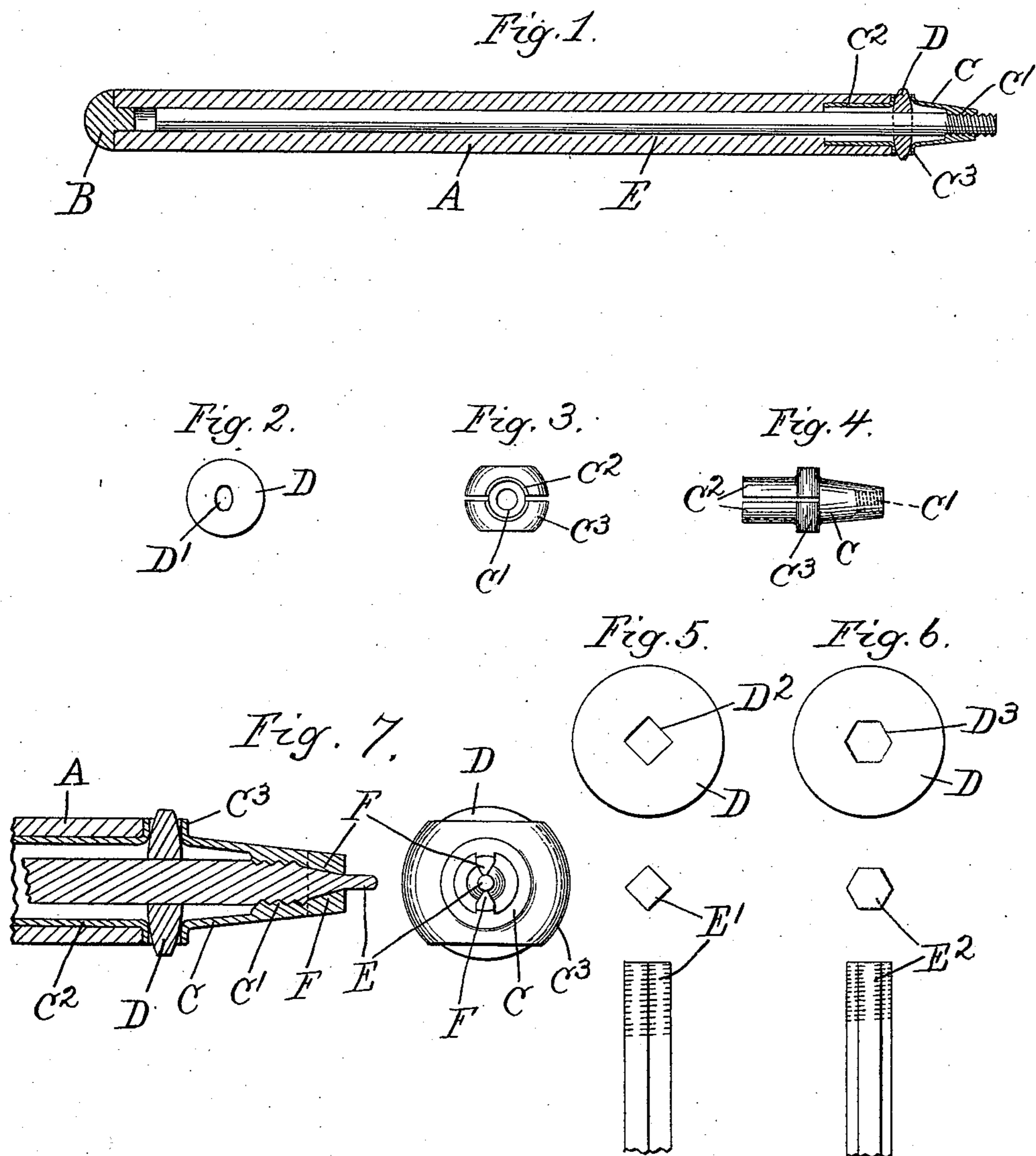


(No Model.)

F. W. MUSSON.
MECHANICAL LEAD PENCIL.

No. 574,360.

Patented Dec. 29, 1896.



Witnesses.

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UNITED STATES PATENT OFFICE.

FREDERICK W. MUSSON, OF CHICAGO, ILLINOIS.

MECHANICAL LEAD-PENCIL.

SPECIFICATION forming part of Letters Patent No. 574,360, dated December 29, 1896.

Application filed April 6, 1896. Serial No. 586,423. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. MUSSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pencils, of which the following is a specification.

My invention relates to automatic lead-pencils, and has for its object to provide simple and convenient means for controlling the lead in such an automatic pencil. I do not pretend in the present case to have shown all forms which my invention might assume or all the forms in which it might appear. I have simply shown one form of the pencil and illustrated one or two modifications. The particular form which I have shown is set out in the accompanying drawings, wherein—

Figure 1 is a longitudinal section through my pencil. Figs. 2, 3, and 4 are details of the tip, annular chamber, and washer. Figs. 5 and 6 are details of the leads and washers of a different shape. Fig. 7 is a detail of a pencil-sharpening attachment.

Like parts are indicated by the same letters in all the figures.

A is the pencil-body, preferably of wood and having a central aperture.

B is the head or cap of the pencil.

C is the tip, which has the forward internal threaded part C' and the backwardly-projecting spring-metal parts C² and the annular chamber C³. In this annular chamber is placed the washer D, which has a central aperture D', preferably oval, as shown in Fig. 2. This aperture in Fig. 5 is shown as square at D² and in Fig. 6 as hexagonal at D³. The leads of the several shapes are respectively lettered E, E', and E².

The relation and proportion of the several parts are not attempted to be shown critically or exactly, and they may be varied considerably without departing from the spirit of my invention.

The use and operation of my invention are as follows: The pencil-body being provided with its internal aperture, as I have said, is provided with a removable head or cap B and also with a tip C. This tip-piece has the backwardly-projecting spring-pieces C², so that they can be compressed and inserted into the end of the pencil-body and then ex-

panded to cramp themselves in position. In the meantime the washer D has been inserted in the annular chamber C³, where it is free to rotate, but cannot move along the pencil. The lead, shaped so as to snugly fit the hole of the washer, is placed in position, its end being screwed into the screw-threaded part C'. Now it is evident that by turning the washer D, thus turning or rotating the lead on its own axis, the lead will be received into the screw-threaded portion C' and caused to pass therethrough, the thread being cut as it goes, though of course if the lead were already threaded the action would be the same. The aperture in the body of the pencil is of such shape as to permit the lead to freely rotate therein.

Broadly speaking, therefore, I have a free lead which both rotates and reciprocates, a body which contains it, a screw or other device on the body which causes the lead to reciprocate when it is rotated, and means associated with the body for rotating the lead.

The device shown in Fig. 7 has one or more of the cutting edges F F, which may be brought down to a point, as indicated, and whereby the lead as it is rotated and reciprocated is forced through between or alongside such cutting edges or edge and is thus trimmed to a point. There may be one or more such cutting blades or knives.

The screw-threaded tip, whether associated with the sharpener or not, serves as a grip to hold the lead and keep it from moving in or out except when desired. It also feeds the lead, as explained, and when the cutting and sharpening edges are attached it sharpens the lead. I have shown this cutting or sharpening tip as applied where the lead itself is to be rotated; but it is obvious that the action could be reversed, and the device having the cutting-knives could be rotated, the lead being held from rotation.

When I speak of "lead-pencils," I do not mean to confine myself to the use of graphite, but any and all such writing devices I include in that term.

This application is one of three of even date, which are together designed to set forth and cover the whole of my present invention relating to automatic or mechanical lead-pencils.

What I claim as new, and desire to secure by Letters Patent, is--

1. In an automatic lead-pencil the combination of a body with a central longitudinal
5 aperture, a lead therein shaped so as to have a cross-section other than circular, a threaded device which engages the surface of the lead and reciprocates it when the lead is rotated, and a thumb-controlled device associated
10 with the body and adapted to rotate the lead.

2. In an automatic lead-pencil the combination of a body having a central aperture, with a lead which is free to reciprocate and rotate therein, a screw-thread on the inside
15 of the body to engage the lead, and a thumb-

controlled washer through which the lead passes and whereby it is turned.

3. In an automatic lead-pencil the combination of a body with a central longitudinal aperture, a lead having a cross-section other
20 than circular and free to rotate and reciprocate in the aperture, a screw-threaded part in the aperture adapted to engage the lead, and a thumb-controlled washer having an aperture which fits the lead and which when
25 turned rotates the lead.

FREDERICK W. MUSSON.

Witnesses:

BERTHA C. SIMS,
L. W. JOHNSTONE.