

July 14, 1953

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2,645,204

WRITING IMPLEMENT

Filed April 9, 1951

Fig. 1

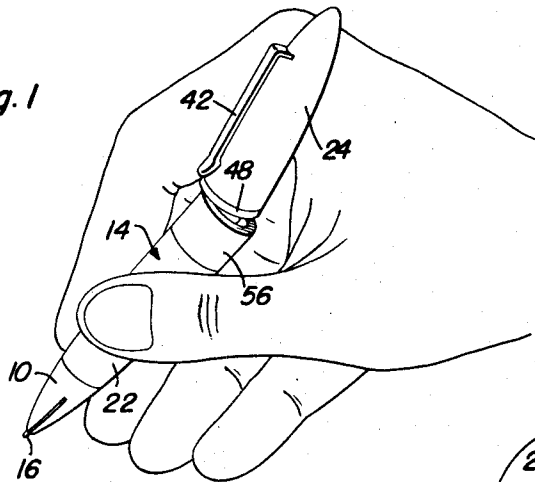


Fig. 3

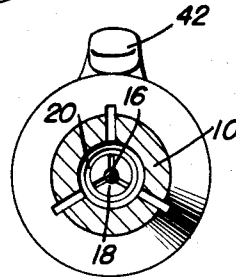


Fig. 2

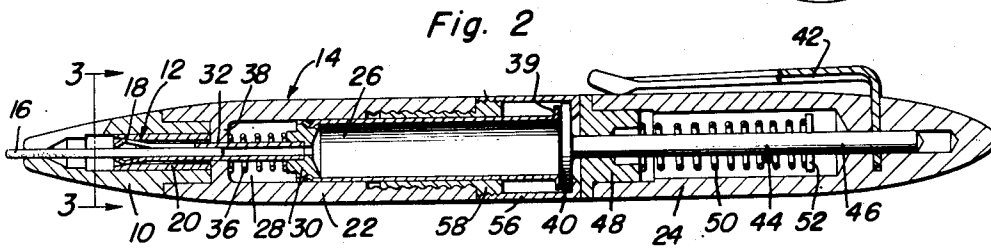
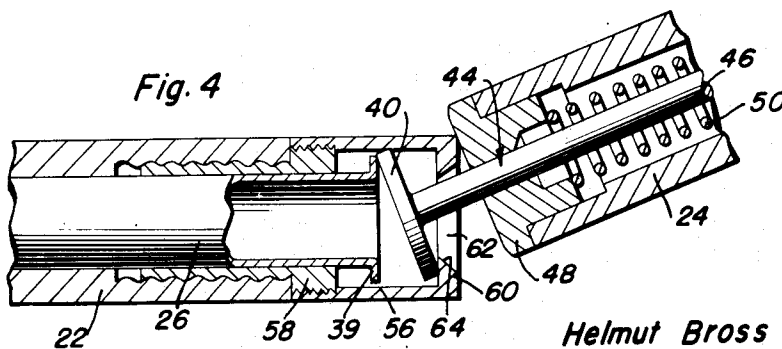


Fig. 4



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UNITED STATES PATENT OFFICE

2,645,204

WRITING IMPLEMENT

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Application April 9, 1951, Serial No. 220,066
In Germany October 1, 1948

8 Claims. (Cl. 120—17)

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This invention relates to improvements in writing instruments, particularly pencils.

An object of this invention is to provide an improved means of operating the feed mechanism of a pencil, which means constitutes a part of the casing of the pencil which is swivelly connected with the remainder of the casing in such a way that when the handle section of the casing is moved with respect to the remainder of the casing, a part of the feed mechanism is actuated, which actuation feeds additional lead through the tip of the pencil.

A further object of the invention is to provide a device capable of feeding additional lead through the tip of a pencil without the necessity of removing any finger or any part of any finger from writing position.

Ancillary objects and features of importance will become apparent in following the description of the illustrated form of the invention.

In the drawings:

Figure 1 is a perspective view of the device showing it in use;

Figure 2 is a longitudinal sectional view of the device;

Figure 3 is a transverse view in enlarged scale and taken on the line 3—3 of Figure 2; and

Figure 4 is an enlarged fragmentary sectional view illustrating the action of the various parts when the feed mechanism is being operated by the improved means of operating it.

As disclosed in the drawings, I have provided an improved pencil which includes a tip 10 having a feed mechanism 12 therein, the feed mechanism being located in part within the tip 10 and in part in the pencil casing or housing 14. The feed mechanism is adapted to feed lead 16 through the central passage of the tip 10 by action of the jaws 18 operating on the lead as the jaws are moved inwardly and outwardly of the tapered end of the restrictor sleeve 20 located in the enlarged part of the lead passage.

The housing 14 includes a lower section 22 and an upper section 24, the upper section constituting a handle employed for the purpose of operating the lead feeding mechanism 12. There is a tube 26 disposed in a chamber 28 provided in the section 22, the tube 26 constituting a storage chamber for additional leads and having a plug 30 closing the lower end thereof. The jaws 18 are formed at the outer end of a tube 32 which is connected to the plug 30 so that upon reciprocation of the tube 26 in the chamber 28 the jaws 18 are moved inwardly and outwardly of the sleeve 20 to serve their function of feeding ad-

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ditional lead. A spring 36 is located in the chamber 28, seating upon a transverse partition 38 in the chamber 28 and upon the plug 30, the spring being so arranged as to oppose movement of the tube 26 in one direction and aid it in the other direction. The spring is so arranged as to press the flange 39 which is located at the outer open end of the tube 26, against the face of the plunger head 40 and to seat the clutch fingers or jaws 18 within the sleeve 20.

The handle 24 is provided with a standard clip 42 and is of hollow construction to accommodate the plunger 44 which includes a plunger rod 46 and the head 48 connected to the plunger rod. A closure plug 48 is located in the inner open end of the hollow handle 24 but has a passage in it through which the plunger rod 46 passes. The closure 48 constitutes a seat for the spring 50, the other seat for the spring being a transverse pin 52 which is carried by the plunger rod 46. Accordingly, by virtue of the described construction, the plunger head 40 is constantly held inwardly of the handle 24 and the tube 26 is constantly pushed outwardly of the section 22 by the spring 36.

There is a means for releasably coupling the sections 22 and 24. This means is seen best in Figure 4 and includes a collar 56 which is internally threaded at one open end so as to connect with externally threaded hollow plug 58, this hollow plug being threaded in the chamber 28 so as to provide a smooth surface on which the tube 26 slides. There is an inwardly extending flange 60 at one end of the collar 56 which is provided with a central aperture 62, the central aperture having side walls 64 in the shape of a frustum of a cone.

As disclosed in Figure 4, the plunger head 40 is located between the flange 39 and the flange 60. Accordingly, when the handle section 24 of the casing is displaced swivelly in any direction with respect to the section 22 of the casing 14, the plunger 44 is extended outwardly a slight amount with respect to the handle 24 but also, since the plunger head 40 is tilted between the flanges 60 and 39, the tube 26 is slid inwardly of the section 22 thereby pushing tube 32 through sleeve 20 and moving the lead engaging jaws 18 from the flared end of sleeve 20 and forcing the lead through the end of tip 10. In this connection, it is to be noted that for a short distance beyond sleeve 20, jaw 18 will maintain more gripping pressure on the lead than will the end of tip 10 whereby the lead will be forced through the tip.

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After the lead is fed outwardly of the tip 10 in this manner the force supplied to the handle 24 is relieved, allowing the springs 36 and 50 to restore the handle in its original position for writing operations.

Having described the invention, what is claimed as new is:

1. A lead pencil comprising a hollow casing having a tip end and a substantially open upper end, lead feed means disposed in said casing for longitudinal reciprocation therein, resilient means in said casing biasing said feed means toward said upper end, said casing including a flange partially closing said open upper end, a plunger comprising a plunger head and rod, said plunger head being disposed within said casing and normally held in abutting engagement with said flange by said feed means, said plunger rod extending loosely through said open upper end, lateral pressure on said plunger rod angularly displacing said plunger head in said casing and thereby reciprocating said feed means.

2. A lead pencil comprising a hollow casing including a tip end and a substantially open upper end, an annular flange partially closing said open upper end, lead feed means disposed in said casing for longitudinal reciprocation therein, resilient means in said casing biasing said feed means toward said upper end, a plunger comprising a head and rod, said plunger head being disposed within said casing and being normally held in abutting engagement with said annular flange by said feed means, said plunger rod extending loosely through said open upper end whereby lateral pressure on said plunger rod angularly displaces said head thereby reciprocating said feed means.

3. A lead pencil comprising a hollow casing including a tip end, an open upper end and a collar detachably secured to said upper end, an annular flange on said collar partially closing said upper end, lead feed means disposed in said casing for longitudinal reciprocation therein, resilient means in said casing biasing said feed means toward said upper end, a plunger comprising a head and rod, said plunger head being disposed within said casing and being normally held in abutting engagement with said annular flange by said feed means, said plunger rod extending loosely through said open upper end whereby lateral pressure on said plunger rod angularly displaces said head thereby reciprocating said feed means.

4. The combination of claim 3 wherein the edge of said annular flange is bevelled to permit maximum angular displacement of said plunger rod with respect to said casing.

5. A writing implement comprising upper and lower sections swivelly connected to one another, said lower section having a longitudinal bore therethrough and an open upper end communicating with said bore, a collar detachably secured to said lower section, said collar includ-

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ing an inwardly extending flange partially closing said upper end, a plunger comprising a head and rod, said plunger head being disposed in said collar and normally abutting said flange, said rod extending loosely through said collar for swivel movement therewith, said rod being slidably received within said upper section, resilient means within said upper section contacting said rod and said upper section urging said upper section against said lower section, a feed mechanism longitudinally reciprocally disposed within said longitudinal bore, resilient means urging said feed mechanism against said plunger head thus maintaining said plunger head in abutting relation to said flange, lateral pressure on said upper section causing said upper section to tilt with respect to said lower section thereby angularly displacing said plunger head and moving said feed mechanism.

6. The combination of claim 5 wherein said plunger rod includes a laterally extending pin thereon remote from said head, and a coil spring comprises the resilient means in said upper section, said spring surrounding said plunger rod and having its ends contacting the bottom of said upper section and said pin.

7. The combination of claim 5 wherein said flange has a bevelled edge to increase the angle to which the plunger head may be displaced.

8. A writing implement comprising a first hollow casing including a tip end and a substantially open upper end, an annular flange partially closing said open upper end, a feed mechanism disposed in said casing for longitudinal reciprocation therein, resilient means in said casing biasing said feed mechanism toward said upper end, a plunger comprising a head and rod, said plunger head being disposed within said casing and being normally held in abutting relation with said annular flange by said feed mechanism, said plunger rod extending loosely through said open upper end whereby lateral pressure on said plunger rod angularly displaces said head thereby reciprocating said feed means, a second hollow casing, said plunger rod being slidably received in said second casing, resilient means seating in said second casing engaging said plunger rod and urging the lower end of said second casing into abutting engagement with the upper end of said first casing.

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